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97-46–B

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The Working Paper Series is made possible by a generous grant from the Alfred P. Sloan Foundation

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This Revision: May 2000

* McGill University. The paper has benefited from numerous contributions by my advisor Anthony Santomero, and from very helpful discussions with Cathy Schrand, Roger Edelen, Marshall Blume, David Musto, Spencer Martin, Morris Davis, Peter Christoffersen, Vihang Errunza, Robert Tait at the Securities and Exchange Commission, and the staff at PFPC. Jason Heinhorst and Jeff Kiel were instrumental in providing data from Lipper Analytic Services. I would also like to thank René Stulz, an anonymous referee, and participants in the Wharton Corporate Finance Seminar for helpful comments. An earlier version of this paper was presented at the Western Finance Association Meetings in June 1997. I gratefully acknowledge financial support from the Wharton Financial Institution Center and Wharton Doctoral Program. Any remaining errors are my own.

Fee Waivers in Money Market Mutual Funds

Abstract

It is a widespread practice among mutual fund managers to voluntarily waive fees they have a contractual right to claim. The effective fee charged may be substantially less than indicated in expense ratios and may vary over the year despite a constant contractual fee. Retail fund managers use fee waivers to strategically adjust net advisory fees to current realizations in performance and expected fund flows. The paper finds differences in waiving between retail and institutional funds because of differences in the effectiveness of waivers in advancing performance.

Management fees reported in fund prospectuses can vary throughout the year since many managers waive some portion of their fee. The prevalence of fee waiving in the mutual fund industry and the amount of foregone income is high. Between 1991 to 1995, 60 percent of money market mutual funds and 37 percent of equity funds waived fees. Indeed, the number of money market funds that waive has increased over time from 40 percent in 1980 to 63 percent by 1995. In 1995, the gross contractual expense for a typical money market mutual fund was approximately 45 basis points of net assets. For a waiving fund, the average waiver was approximately 23 basis points of net assets, or over half a million dollars.

Not surprisingly, the choice of an optimal fee in the mutual fund industry has been discussed extensively in recent years. For example, Chordia (1996) and Ferris and Chance (1987) explore the optimal choice of load fees and distribution fees,[1] whereas Dermine and Röller (1992) and Baumol et al. (1990) empirically estimate management fees given the economies of scale and scope in the mutual fund industry. However, these papers assume the management fee is a fixed percent of assets paid in equal installments over the year. Although the fee contracted with the Board is constant during the year, the competitive fee charged to the investor may vary because fund managers often voluntarily and unilaterally decide to waive the fees they are contractually allowed to claim. This paper investigates the optimal management fee under the assumption that it is <u>not</u> fixed but variable throughout the year.

We argue that fee waivers are an indirect method of setting flexible performance-based fees in retail funds. Historically, mutual funds have adopted a flat fee structure.[2] To circumvent fixed fees, funds charge higher contractual fees and waive them. The non-linear relation between flows and relative performance suggests that the optimal fee is a function of performance. Chevalier and Ellison (1997) show that a non-linear relation between flows and relative performance in equity funds encourages risk-taking on the part of managers because of the

incentive to build asset size. Just as managers adjust risk in equity funds, money market managers adjust fees in response to performance.

We empirically analyze the relation between performance and waivers as well as compare waiving practices across retail and institutional funds. In retail funds, we find a significant u-shaped relation between performance and waivers, where low-performing and high-performing funds waive more than funds with average performance. In contrast, there is a significant negative relation between waivers and performance for only the bottom 20 percent of institutional funds.

We analyze these facts in two regards. First, we estimate funds flows to see if convexities can explain why high-performing retail funds waive in the top part of the return distribution. Second, we compare the ex-post effectiveness of waivers in competition. The data shows a significant convex relation between lagged performance and fund flows, suggesting retail fund managers are waiving to exploit investor price sensitivity. However, institutional fund flows are also convex, yet managers do not respond to the increased price sensitivity of high performers. This is explained by differences in the effectiveness of waiving to improve rank. Institutional funds compete aggressively for price sensitive investors and in equilibrium, a high-performing institutional fund is unlikely to improve relative performance by waiving since almost 80 percent of institutional funds waive fees. On the contrary, only 55 percent of retail funds waive. Therefore, we show that waiving among top-performing retail funds successfully advances their relative position and attracts investors.

The remainder of the paper is divided as follows. The first section describes the institutional framework of the waiver decision. The second section details the practice of fee waiving. The third section provides descriptive evidence. The fourth, fifth, and sixth sections provide empirical evidence on fund flows, the relation between waivers and performance, and

the effect of waiving in competition. The last section provides some alternative explanations of waivers.

I. The Practice of Fee Waiving

The Investment Company Act of 1940 allocates oversight responsibilities of the mutual fund to its Board of Directors. As such, the Board has a fiduciary responsibility to the shareholders for the appropriate operation of the fund. Their responsibilities include reviewing portfolio performance, adherence to regulation standards, and the annual selection and authorization of payment for all outside contractors. The Board hires several contracted services including a manager, a distribution channel, an administrator or custodian, and a transfer agent. The services usually are paid a contracted fixed percent of the average net assets of the fund, which is fixed over a period of time ranging from one year to three years. Changing the manager's contractual fee is very difficult because any increase in contractual fees has to be approved by the Board and by shareholders while decreasing contractual fees requires the approval of the Board. Tufano and Sevick (1997) find evidence that Board structure and salary can influence the fees charged and suggest that the Board's legal liability make it difficult for managers to change contractual fees.

Neither the SEC nor the Board directly regulates or oversees fee waivers. Although the manager is entitled to the full amount of the contracted fee, managers voluntarily and unilaterally choose to waive fees.[3] The waiver is sometimes discussed with Board members during the quarterly meetings, but the manager need not receive Board approval to change the waiver. Although the manager will generally notify the Board of any changes, this notification can be made ex-post or not at all.

Managers can either choose to waive the upfront costs or the ongoing costs. The upfront costs include any kind of load fee incurred by the investor entering or exiting the fund. The

ongoing fees are automatically deducted from gross returns such as contractual management fees. The fee waiver discussed in this paper is the latter type where managers adjust the ongoing expenses to change the net returns. If the manager lowers the contracted fee by waiving 20 bp, this increases each investor's net return by 20 bp.

Because the SEC prohibits funds from charging different ongoing expenses to different investors within the same fund, some funds have established several classes within the same fund type. For instance, a fund complex may have Class A, B, C, and Y of its money fund. Although each class is a money fund, the different fund classes can charge different contracted fees, waivers, and loads and offer slightly different services or different initial investment levels. Because the data separates funds by classes and only considers waivers made on ongoing expenses, the waiver affects all investors in the fund class in the same manner.

II. Fund Flow Hypothesis of Fee Waiving

Waivers are an attractive method of setting fees for two reasons: (i) the inflexibility of gross contractual fees and (ii) the relationship between asset flows and performance. The dollar amount of fees collected by the manager is the net fees multiplied by the assets under management. Therefore, a profit maximizing manager's objective function is

$$\max_{f_i} V_{it} = \sum_{t=t}^{\infty} d^{t-t} * f_{it} * A_{it} \qquad (1)$$

where f is the net fee collected by the manager, δ is the discount factor, A is the asset size of the fund, and subscript i and t represent fund and time respectively. Previous research on equity funds has shown that asset size is a function of past performance. Specifically, Chevalier and Ellison (1997), Ippolito (1992), and Sirri and Tufano (1998) show fund flows are convexly related to relative past performance in equity funds. A similar relation is shown to hold for

money market funds in Section IV. Hence, one can think of the manager's maximization problem as

$$\max_{f_i} V_{it} = \sum_{t=t}^{\infty} d^{t-t} * f_{it} * A_{it}(f_{i,t-1}, R_{i,t-1}, \text{index}_{t-1}) \quad (2)$$

where $R_{i,t-1}$ is last period's gross performance for the fund and $index_{t-1}$ is last period's net return index for competing funds. The actual fund flow function, $A_{it}(f_{i,t-1}, R_{i,t-1}\ index_{t-1})$, is estimated below, but past empirical results suggest that assets are negatively related to fees, positively related to gross returns, and negatively related to the index.

Suppose net fees, $f_{i,t}$, are inflexible so $f_{i,t} = f_{i,t-1}$. It is evident the manager cannot react to changes in performance, $R_{i,t-1}$, that may affect fund flows, making the manager strictly worse off. To get around inflexible fees, managers set a higher contractual fee, F_i, and waive some portion, W_{it}, so net fees are the contracted fee less waivers, $f_{it} = F_i - W_{it}$. Now net fees are flexible and managers can waive in response to relative performance as a means of attracting investors to the fund.

Two main hypotheses arise from this model. First, the waiver decision should reflect the shape of the flow function. A more elastic flow function should result in higher waivers since the fund stands to gain a larger number of investors. Also, poor-performing funds are expected to waive more. Second, the waiver decision of a fund should reflect its success in adjusting relative performance. If the waiver is not successful in improving relative performance, then the fund is less apt to waive. The empirical section tests these two hypotheses by comparing retail and institutional funds where price competition is expected to differ.

III. Data Description

The data comes from two sources: Lipper Analytical Services and the IBC Donoghue Quarterly Report on Mutual Fund Performance. In the Lipper Data, the sample contains annual

data and includes all money market funds from 1990 to1995. The Lipper Data contains over 1,000 mutual funds in 1995 and the total number of year/fund observations is approximately 3,500. The Lipper Data is a rich data source in terms of the types of funds and variables it has available; however, it suffers from the inherent problem of survivorship bias discussed in several papers including Carhart (1997) and Brown, Goetzmann, Ibbotson, and Ross (1992). The short time horizon, 1990 to 1995, minimizes the survivorship bias by reducing the number of funds dropped from the sample. Also, 1995 contains no survivorship bias since all funds are included, so the cross-sectional test results can be verified in this sample.

The second data source, IBC Donoghue, is used to provide some information about waiver dynamics within the year since the data is reported quarterly rather than annually. The IBC Donoghue data begins in the first quarter of 1993 and ends the last quarter of 1994 and is not survivorship biased.

A. Cross-Sectional Descriptive Statistics

Because of its depth of cross-sectional fund information, the general descriptive evidence uses Lipper panel data from 1990 to 1995. The average size of waivers and assets in IBC Donoghue data are similar to those reported by Lipper during the same time period.

Fund managers have used fee waivers since the late 1970s although they have only recently received attention in the financial press. Figure 1 graphs fee waivers as a percent of total net assets for the industry between 1980 to 1994 and shows a marked increase. Figure 2 plots the increase in the percent of money market funds that waive. Throughout the period, a larger fraction of institutional funds waive fees compared to retail funds and waivers as a percent of net asset size have remained larger for institutional funds. Growth in the industry seems to have sparked the use of fee waivers as a competitive tool. In 1995, $348 million was waived up from $181 million in 1990.

[Insert Figures 1, 2, and 3]

The increase in waivers has not been paralleled by an equal increase in contracted advisory fees. Figure 3 shows that waivers as a percent of gross advisory fees have on average increased over time. Although not shown, the average gross advisory fee as a percent of net assets has actually remained relatively constant over the period of time.

[Insert Table I]

The reported statistics in Table I are equally-weighted averages from 1990 to 1995 of waiving and non-waiving funds in retail and institutional funds. Panel A defines waiving funds as funds that waived during a given year, regardless of history and future. In contrast, Panel B differentiates between funds with a long history of waiving, so a waiving fund is one that waived continuously for six years and a non-waiving fund is one that never waived for six years. The third and last column of Table I provide the mean difference between waiving and non-waiving funds and test whether the difference is significantly different from zero. The bold face indicates the difference is significant at the 5 percent level. A number of characteristics in the waiving patterns of institutional and retail funds are evident in Panel A.

- A larger percent of institutional funds (79 percent) waive fees compared to retail funds (55 percent). The size of waivers is much smaller in institutional funds (18.9 bp) than retail funds (32.8 bp). Still, institutional funds waive almost half their contracted advisory fee and retail funds waive about two-thirds of their contracted fee. The net expenses in institutional funds are also much lower than retail funds. The lower net expenses and the larger percent of waiving funds suggest institutional funds face more price competition than retail funds.
- Contracted fees are higher for both retail and institutional waiving funds. In institutional funds, contracted advisory fees are 40.9 bp for waiving funds compared to 32.5 bp for

non-waiving funds. Similarly, retail waiving funds have average contracted fees of 49 bp compared to 44.5 bp among non-waiving funds. In both cases, one expects larger contracted fees among waiving funds since higher contracted fees provide a larger margin to waive and greater flexibility. However, it is not clear whether high contracted fees cause high waivers or vice versa. The analysis below addresses this question.

- Skeptics may argue that waiving is simply a new fund phenomenon where new funds change fees initially because of fluctuating start-up costs and uncertain operating expenses. While it is true that new funds waive more often than old funds, waiving is not strictly a new fund phenomenon, the average age of waiving funds is around 5.3 years for institutional funds and 5.1 years for retail funds.

The statistics in Panel B are very similar to those in Panel A suggesting that the long-term decision to waive is similar to the short-term decision.

B. Flexibility in Waiving

According to the hypothesis of fee waiving outlined in Section II, waivers provide funds with flexibility to change net fees. Table II provides some evidence of waiver flexibility. As expected, the standard deviation of changes in annual contracted fees (13.7 bp) is small compared to changes in annual waivers (48.4 bp). The standard deviation of changes in waivers for funds not waiving the previous year (5.1 bp) is significantly lower than for waiving funds (48.4 bp), suggesting that non-waiving funds maintain a zero waiver decision. This may arise because non-waiving funds lower contracted fees to levels leaving little margin to waive. These statistics are similar across retail and institutional funds.

[Insert Table II]

Despite the evidence of flexibility in waivers between years, there is still some question whether waivers change during the year. Discussions with money fund managers reveal a wide

range of responses. Some managers indicate waivers change annually whereas others indicate waivers change weekly. Panel B of Table II summarizes annualized quarterly data from IBC Donoghue, showing waivers change frequently throughout the year. Given the fund waives, the standard deviation of annualized quarterly changes in waivers is approximately 12.9 bp where the average waiver is 20 to 25 bp. Almost 64 percent of retail and institutional funds that waive change their waiver the next quarter compared to five percent of non-waiving funds. The fact that waivers are changed so frequently throughout the year suggests that flexibility in waiving is exercised by managers of both retail and institutional funds.

Although funds change waivers from one quarter to the next, waivers are fairly persistent with an overall annual autocorrelation of 0.56 for waiving funds. The high annual autocorrelation of waivers is not at odds with the flexibility of waiving. Instead, it reflects the persistence of contracted fees that are contractually fixed for one to three years. Although a fund charging high contracted fees gains flexibility through waiving, it is still likely to have relatively high waivers because the level of contracted fees is high and persistent. Even so, the annual autocorrelation of contracted fees is higher (0.76) than that of waivers reflecting the flexibility in waiving compared to contractual fees.

Given the evidence of flexibility, we want to determine whether managers waive in response to fund flows and their relative performance. The next section estimates fund flows as a function of relative performance to determine whether changes in investor price sensitivity are reflected in the manager's waiver decision.

IV. Fund Flows

Sirri and Tufano (1998), Chevalier and Ellison (1997), and Ippolito (1992) document that equity fund flows are more responsive to lagged net returns in high performance regions than in low performance regions. Similarly, money market fund flows appear to be more responsive to

lagged net returns in the top quintile of fund returns than in the bottom 80 percent of funds, especially for institutional funds.

[Insert Figure 4]

Figure 4 illustrates the relation between lagged net performance rank and flows for money funds. It plots the average fund flow for 10 performance bins. A rank of 10 indicates the fund performed in the top 10 percent of funds whereas a fund with a rank of one performed in the bottom 10 percent of funds. As found for equity funds, there appears to be a strong increase in flows if net performance is in the top 20 percent of institutional funds and top 10 percent of retail funds.

[Insert Table III]

Table III provides estimates of fund flow functions for institutional and retail funds. As in Sirri and Tufano (1998), we estimate a piecewise linear fund flow function allowing for kinks at the 20 percent rank cut-off and 80 percent rank cut-off. The flow function measures how current asset changes are affected by lagged ranked performance. Not surprisingly, institutional investors appear to be more price-sensitive for top performing funds since the slope of the flow function is significantly positive and kinked for the top 20 percent of funds. In retail funds, the slope is positive but not significant for the top 20 percent. The difference in price sensitivity between institutional and retail investors is not significant in the top 20 percent because of the uncertainty of retail price sensitivity. Intuitively, these results correspond to retail investors having fewer resources to track fund performance and being less responsive to changes in performance. Musto (1999) provides evidence that the cost of a database tracking money market funds is high enough to preclude retail investors from purchasing it. Only in the top 10 percent of funds are retail investors significantly price sensitive.

For the bottom 20 percent of funds, there does not seem to be a significant relation between fund flows and performance for either retail or institutional funds. One explanation for the insignificant relation is survivorship bias. Estimating fund flows with survivorship bias omits funds with low performance which have exited the industry or have merged, resulting in an overestimation of fund flows for low performers. It could also be that investors are not sensitive to performance for the worst performers. Although several papers document and discuss reasons for the shape of the flow function, this analysis focuses on the implication of the convexity for waivers in institutional and retail funds. The key point for our discussion on waivers is the large payoff to both institutional and retail funds in performing in the top 10 percent of funds which is not affected by survivorship bias.

V. Gross Performance and Waivers

In this section, we test whether fund managers waive in response to convexities in the fund flow function. The results of the estimation are summarized in Figure 5 which plots the average waiver (for waiving funds) by gross performance where gross performance is ranked from one to ten separating retail, institutional, tax-free, and taxable funds.[4] For retail funds the relation between waivers and performance is u-shaped while for institutional funds the relation is convex and negative. There are several reasons why retail and institutional managers of the worst performers may waive more than the average: (1) to prevent investors from leaving; (2) to keep their jobs; or (3) to prevent the fund from potential closure. Among the top-performers, there is a notable difference between the waivers of retail and institutional funds where retail funds waive in response to fund flow convexities while institutional funds do not. These results seem somewhat puzzling since the fund flow incentives to waive are comparable for both institutional and retail funds. We address this puzzle in Section VI by measuring the effectiveness of waivers to improve relative performance.

[Insert Figure 5]

A. A Simultaneous Estimation Model

The non-linear relation between gross performance and waivers shown in Figure 5 is tested statistically in Tables IV and V. Unfortunately, the potential endogeneity problems between contracted fees and waivers complicates the empirics. The empirical estimation of simultaneous equations ensures any changes in waivers are not simply resulting from changes in contracted fees. The simultaneous equation model is written as

$$\begin{aligned} F &= a_{1F} * W + a_F * X_F + u_F \\ W &= a_{1W} * F + a_W * X_W + u_W \end{aligned} \qquad (3)$$

where F represents the annual contracted advisory fee of the manager, and W is the annual waiver. The underlying error term, u_F, is assumed to be normally distributed with a zero mean. Whereas, u_W is assumed to behave as a disturbance censored at zero in a tobit model . The covariance between u_W and u_F is allowed to be non-zero. Because contracted fees and waivers are components of net fees, X_F and X_W include exogenous variables modeled in previous estimations of net fees in mutual funds, such as Baumol et al. (1990), Dermine and Röller (1992), and Ferris and Chance (1987). The variables include gross returns, lagged assets, size, and fund type. Since there are strict regulations placed on the risk and duration of money market fund portfolios, returns are not risk adjusted.[5] Lagged contracted fees and the lagged dummy variable for waivers are used as instruments for contracted fees and waivers respectively. A technique developed by Nelson and Olson (1978) and Amemiya (1979) is used to estimate a simultaneous system of equations controlling for the censored nature of waivers.

One issue arises concerning the timing of the contracted fee decision and the waiver decision. The waiver can vary throughout the year whereas the gross advisory fee can only be adjusted annually. Despite the less frequent changes in contracted fees, there is still simultaneity

between waivers and contracted fees. For example, suppose a manager presents two fee scenarios to the Board: (1) a contracted fee of 70 bp with an expected waiver of 30 bp and (2) a contracted fee of 40 bp with an expected waiver of zero. Although waivers can vary throughout the year in both scenarios, realized waivers are likely to be higher in the first scenario versus the second. By instrumenting for waivers, we are essentially making contracted fees a function of expected waivers at the beginning of the year.

B. Non-linear piecewise estimation of gross returns and waivers

In addition to controlling for simultaneity, a piecewise linear function is used in the estimation to allow for a possible non-linear relation between waivers and gross performance. It allows for possible kinks between waivers and gross performance for funds in the bottom 20 percent, middle 60 percent, and top 20 percent. The estimation of waivers is written more succinctly as

$$\begin{aligned} F_{kt} &= a_{1F} * W_{kt} + a_{2F} * RkGrRt_{kt} + a_{3F} * Medium_{kt} + a_{4F} * High_{kt} + a_{F} * X_{F,kt} + u_{F} \\ W_{kt} &= a_{1W} * F_{kt} + a_{2W} * RkGrRt_{kt} + a_{3W} * Medium_{kt} + a_{4W} * High_{kt} + a_{W} * X_{W,kt} + u_{W} \end{aligned} \quad (4)$$

where $RkGrRt_{kt}$ is the fund's gross return rank for retail, institutional, tax-free, and taxable funds ranging from zero to one, $X_{F,kt}$ is a matrix containing the remaining exogenous variables in the contracted fee equation, $X_{W,kt}$ is a matrix containing the remaining exogenous variables in the waiver equation, and

$$Medium_{kt} = \max(RkGrRt_{kt} - 0.2,0) \quad (5)$$

and

$$High_{kt} = \max(RkGrRt_{kt} - 0.8,0). \quad (6)$$

Notice that the estimated slope relating gross performance and waivers in the bottom 20 percent of funds is characterized by a_{2W}. The slope for the middle 60 percent of funds is a_{2W}+ a_{3W}, while the slope for the top 20 percent is a_{2W}+ a_{3W} + a_{4W}.

C. Controlling for High Non-Advisory Fees

Some of the funds have excessively high non-advisory fees.[6] Examples of these funds include new funds that start late in the year but are still responsible for paying the initial costs or small funds with large fixed or unexpected costs. In some cases, these funds have negative net returns before waiving. For instance, Weitz Government Money Market fund reported non-advisory fees of 12.82 percent in 1992. With an average gross return of 3.89 percent for its money fund in 1992, Weitz in turn waived 13.056 percent to keep net returns positive.

Recognizing that high non-advisory fees explain waiving in the extreme cases, the natural question is whether excessive non-advisory costs are the sole reason for fee waiving. In the overall sample, approximately 63 percent of the funds waive fees. Even after limiting the sample to funds below the median non-advisory fee (16.5 bp), 60 percent waive fees. This suggests waivers are not simply adjusting for excessive non-advisory fees.

The empirical model removes funds with non-advisory fees larger than the average non-advisory fee in their respective fund classification: bank/institutional; bank/retail; non-bank/ institutional; and non-bank/retail. Robustness checks show the results do not depend on this method of censoring the data.

D. Results for Retail Funds

Table IV shows the results from the simultaneous regression for retail funds. As suggested by Figure 5, the u-shaped relation between waivers and gross performance is confirmed in the statistical analysis. For low performing funds, the estimated slope of a_{2W} is –0.38 so a 10 percent increase in rank reduces waivers by 3.8 basis points. For funds with gross

performance in the middle 60 percent of funds, there is no statistical relation between waivers and performance since the estimate of $a_{2W}+ a_{3W}$ is not statistically different from zero. For high performing funds, the slope is 0.452 and statistically significant implying that a 10 percent increase in rank results in about a 4.52 basis point increase in waivers. In testing the relation between gross returns and waivers in the top 20 percent of funds, a Wald statistic testing the significance $a_{2W}+ a_{3W} + a_{4W}$, equal to 8.12, rejects the null that the slope is zero. This result is even stronger if we exclude tax-free funds that only compete within the state for investors.

[Insert Table IV]

The reason for estimating a simultaneous set of equations is the potential endogeneity between contracted fees and waivers. The evidence for retail funds suggests managers choose high contracted fees, retaining the possibility of waiving some of the contracted fee later. The equation for contracted advisory fees has a significant and positive coefficient on waivers, $a_{1F} = 0.048$, suggesting retail managers increase contracted fees by 4.8 bp for a one percent increase in waivers. The coefficient on contracted fees in the waiver equation is also significant and positive, $a_{1W} = 0.2206$, so retail managers increase waivers by 22.1 bp for a one percent increase in contracted fees. Together, these empirical results suggest contracted fees increase by less than the intended waiver, resulting in an overall decrease in net expenses to the investor from waiving.

In addition to the significance of returns and contracted fees, age seems to be a significant component of the waiver decision. Young funds view waiving as a good strategy since it provides an opportunity for young funds to build a stable asset base. However, waiving is not strictly a new fund phenomenon since the average age of a waiving fund is over five years. Load fees are also not significant determinants of waivers. Fund managers are not jointly charging loads and waiving fees to discourage investors from leaving once waivers are removed. Lastly, a

dummy variable of bank versus non-bank funds is not a significant factor in determining waivers although 80 percent of bank funds waive compared to 53 percent of non-bank funds. Because bank funds tend to be small and young with high non-advisory fees, they also tend to be the ones waiving. Controlling for these factors, the bank dummy variable is not an important determinant of waivers.

E. Results for Institutional Funds

As expected from Figure 5, the relation between gross returns and waivers is different than found in retail funds. The estimation in Table V suggests only low-performing institutional funds waive higher fees. Even though high-performing institutional funds also benefit from high fund flows, there is no evidence institutional funds respond by waiving to attract high fund flows. As is explained in the next section, we do not observe high-performing institutional funds waiving large amounts because competition implies they are unlikely to improve their rank by waiving.

[Insert Table V]

The coefficient on contracted fees in the waiver equation, is positive and significant, $a_{1W} = 0.265$. Therefore, funds with comparatively high contracted fees waive to remain competitive. In contrast to retail funds, the insignificant coefficient on waivers in the contracted fee equation suggests managers do not set higher contracted fees when they plan to waive. Some descriptive evidence supports this result. Once a retail fund stops waiving, it decreases its contracted advisory fee by two basis points, which is statistically different from zero. On the other hand, institutional funds make an insignificant change in their contracted fee (0.23 bp) once waiving stops.

In Table IV, the coefficient on the 1994 dummy suggests that waivers increased significantly in 1994 for retail funds. This could be explained by the rise in interest rates in 1994

where funds increased waivers to compensate for current assets earning lower returns. In comparison, there is not a significant increase in waiving among institutional funds in 1994. Although institutional funds faced an increasing interest rate, they did not have as much margin to increase waivers given their expense ratios are almost half those of retail funds.[7] Also, if one looks at Figure 3, institutional waivers had been steadily increasing in the early 1990s so an increase in waivers owing to a change in interest rates may not show up significantly.

To summarize, the results of Tables IV and V suggest two main differences in waiving between retail and institutional funds. First, retail funds waive large amounts amongst top-performing funds; institutional funds do not despite their incentive to attract investors. Second, retail funds adjust for waivers by setting high contracted fees, while institutional funds do not. Both these results are consistent with greater price competition amongst institutional funds. Greater price competition suggests there is less ability to set high contracted fees to allow for waivers and it also suggests a larger percent of funds waive making it difficult for institutional funds to move ahead by waiving. This last point is discussed in Section VI.

F. Robustness Checks

In addition to controlling for the simultaneous and censored nature of waivers, the estimation in Tables IV and V controls for fixed year effects. The difficulty in controlling for panel data problems and survivorship bias motivated a year-by-year estimation. The results in the individual yearly estimations are similar to those using the entire panel, even in 1995 with no survivorship bias.

A second robustness check removes funds with non-advisory fees above the highest net expense reported for any fund type, 2.13 percent for institutional funds and 2.47 percent for retail funds. By using this method of removing high non-advisory fee funds, eight retail and three institutional observations are removed from the sample. The only notable difference between this

second method of sorting high non-advisory fee funds and that used in Tables IV and V is the significance of asset size in determining waivers for retail funds. With fewer small funds eliminated from the sample, asset size becomes a significant, negative determinant of waivers in retail funds. The relation between waivers and performance is the same as in Tables IV and V.

VI. Effectiveness of Waiving in Competition

The question still remains why high-performing institutional funds do not waive large amounts when the non-linearities of fund flows suggest high payoffs to waiving. For waiving to be effective in attracting investors, it has to be effective in adjusting the relative net performance of the fund. High cross-sectional return variability and waiving by competing funds undermines the effectiveness of fee waiving. Given the cross-sectional standard deviation of gross performance is approximately 50 bp, average waivers (20 to 30 bp) appear to be large enough to significantly move the fund within the distribution. However, if every fund waived 30 bp, it is obvious a fund's relative position would not change, rendering the waiver ineffective.

[Insert Figure 6]

Figure 6 shows the effectiveness of waivers in affecting the net performance of a fund. Figure 6 plots the average waiver by net performance rank ranging from one to ten. For retail funds, there is a positive relation between the relative performance of a fund and the amount it waives. This coincides with a larger waiver successfully moving a retail fund ahead in the return distribution. On the other hand, there is a relatively flat relation between net performance and the waiver in institutional funds, suggesting waivers are not successful in moving institutional funds ahead in the net return distribution. Institutional funds face a more competitive pricing structure than do retail funds because of a larger portion of price sensitive investors in the top 20 percent of funds.

[Insert Table VI]

Table VI provides descriptive evidence on the effectiveness of waiving in moving both retail and institutional funds within the return distribution. In Table VI, base performance of the fund is defined as the net performance before waivers of all funds. In Panel A, the sample of funds is divided into two base performance ranges: bottom 50 percent of funds and the top 50 percent of funds. To capture the competitive environment, Panel A provides the average change in rank (ranging from zero to one) of a fund before and after the waiver decision of all funds, not just the individual fund. To see how effective the waiver is in moving funds within the distribution, the sample only includes those funds that waive fees. All the numbers reported in Panel A are significantly different from zero. Waiving is unsuccessful in advancing institutional funds within the net return distribution. In fact, those institutional funds that ranked in the top 50 percent of funds dropped on average by 1.9 percent of the distribution even after waiving. This compares to the top 50 percent of retail funds that on average move ahead 2.7 percent of the distribution by waiving. Although institutional funds move ahead 8.4 percent of the distribution by waiving in the bottom 50 percent of funds, this is not as high as retail funds which move ahead 16.2 percent of the distribution by waiving in the bottom 50 percent of funds.

In Panel B, a majority of institutional funds, 615 of 1,172, fall in rank even after their waiver. This compares to a majority of retail funds which increase rank after waiving, 1,008 of 1,576. These results support Figure 6 in suggesting that waivers in institutional funds are not successful in improving relative performance.

VII. Alternative Explanations

In addition to the hypothesis of waivers in Section II, there are three alternative explanations why managers may waive fees and for completeness they are briefly outlined here. Only descriptive evidence is provided regarding the alternatives and although the analysis is not conclusive, it provides some insight into whether these alternatives coexist with our hypothesis.

A. Loss Leader

In running a large fund family (complex), managers may be willing to run one of the funds within the complex at a loss, by charging extremely low contractual fees and/or by waiving fees. Their incentive is to keep investors in the complex and potentially attract new ones. Once investors hold funds within the complex, it may be easier for the manager to redirect their funds to profit centers. As a result, the testable implication of this hypothesis is that funds in large complexes waive more often and/or charge lower gross fees in order to attract as many investors as possible and enjoy potential spillover effects.[8] Interestingly, complex size is insignificant in determining waivers and contracted fees for retail funds in Table IV, but it is significant for institutional funds in determining waivers in Table V. As found in Section VI, there seems to be different motives for waiving in institutional versus retail funds. The significance of complex size in Table V suggests that waiving in institutional funds could be a method to keep investors within the complex and potentially benefit from spillover effects. With an average initial investment of $2.5 million for an institutional investor compared to $5,000 for a retail investor, there is greater incentive to keep the institutional investor within the complex and run the institutional money fund as a loss leader.

B. Breaking-the-Buck

The second hypothesis is motivated by the reporting requirements of the SEC. For those money market mutual funds choosing to use the amortized method of accounting, the SEC requires they maintain net asset value at $1 per share. In the case that the share value drops below $0.995, the fund is forced to mark-to-market and to realize losses. The fund manager wants to avoid this at all costs since it is a negative signal to investors. It may be the case that managers waive fees to avoid "breaking-the-buck", or falling below a net asset value of $0.995. The fact that 37 percent of equity funds waive fees suggests that fee waivers do not result from

this reporting requirement because equity funds are not required to maintain net asset value at $1 per share. Also, if a fund is about to break-the-buck, it needs 50 bp for every asset dollar to maintain the $1 net asset value. This is almost twice the size of the average annual waiver (20 to 30 bp).

C. The Option Value of Waiving

The strategy of setting high contracted fees with the intention of waiving makes sense if funds can increase their potential size or if funds believe they can recapture higher fees later. We have discussed the first hypothesis in this paper, but not the second. There is only evidence that retail funds exercise the option of charging higher fees after waiving. Using the subsample of retail funds that have a full six-year history of data and waived in 1990, the average net advisory fee increased from 13 bp in 1990 to 22 bp in 1995 while average asset size increased from $222 million to $514 million. In contrast, institutional funds show no change in net advisory fees since they charged 20 bp in both 1990 and 1995.

Although more research on the option value of waiving is necessary, these descriptive statistics suggest there is potentially another dimension of flexibility offered by waiving to retail funds. Not only can retail funds adjust fees in response to relative performance as we found earlier, but retail funds can potentially charge higher fees over time by gradually eliminating waivers. However, only six percent of our sample stop waiving compared to almost 50 percent that continue waiving from one year to the next. This suggests the option of removing the waiver is not exercised in general.

VIII. Summary

Three key points are made in this paper: (i) fee waivers are economically significant; (ii) waivers provide flexibility in fees compared to fixed contracted fees; and (iii) retail and

institutional funds have different waiver patterns resulting from differences in the waiver's effectiveness in improving relative performance.

Over half of money market funds waive fees. The amount funds are willing to waive is substantial since almost half of the total expenses on average are being waived by funds. Therefore, excluding waivers as a factor in net performance for money funds can significantly understate net returns.

Changing fees throughout the year is beneficial to managers because they can react to changes in relative performance that affect the assets under management. A two-tiered fee structure with contracted fees and waivers achieves this flexibility and allows managers to optimally set fees throughout the year. With 64 percent of funds changing their waiver decision each quarter, waivers provide greater flexibility than contracted fees that only change every one to three years. Interestingly, there is a difference between waiver patterns for institutional and retail funds. Although institutional funds stand to gain the most by waiving to attract investors, they do not waive. Institutional funds, facing price sensitive investors, cannot significantly affect their relative position through waiving since competition for the price sensitive investor is fierce.

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ENDNOTES

[1] Load fees are charges to the investor when the investor wants to redeem or deposit funds. Distribution fees are charges to the investor for marketing and distribution costs of the fund. Some funds have special distribution plans, 12b-1 plans, which allow the fund to charge investors annual fees to cover marketing costs. By adopting a 12b-1 distribution plan, the fund can claim it is a no-load fund.

[2] Section 205 of the Investment Company Act restricts the form of a performance-based contract to be a fulcrum fee where the upside potential equals the downside potential. As a result, only one percent of equity funds, and no money market funds, have fulcrum fees. Brown, Harlow, and Starks (1996) investigate the risk-taking behavior of mutual funds when compensation is tied to performance.

[3] Other service fees, including distribution, administrative, and shareholder service fees, may be waived for some time period. This usually occurs when the Board contracts with a single entity, the manager, for numerous services. Therefore, waivers are still the unilateral decision of the manager.

[4] Funds are ranked against funds of their own type: institutional/taxable, institutional/tax-free, retail/taxable, and retail/tax-free. The reason for ranking funds within each of the different fund types is the large discrepancy in performance. In general, institutional funds perform better than retail funds and do not compete for retail investors since they require such a large minimum investment. Similarly, taxable and tax-free funds do not compete since the tax-free funds are state-specific, making them inaccessible to the general population. Also, returns of taxable funds tend to be significantly higher than the returns of tax-free funds because of the taxes incurred.

[5] Musto (1999) does not adjust money market returns for risk. There is also strong evidence in Domian and Reichenstein (1998) that one does not need to risk-adjust money market returns. They show that 84 percent of the variation in money market returns is explained by fees, not risk.

[6] Non-advisory fees include costs of the transfer agent, custodian, accounting, legal assistance, postage, and printing.

[7] Future research on the relation between waivers and the interest rate is worthwhile investigating with a longer time-series. We investigated the relation on our annual and quarterly data set and could not find any significant relation aside from the significant 1994 dummy variable in Table IV.

[8] Complex size is only a proxy for the loss leader hypothesis and does not consider whether waivers arise when performance is poor in other funds within the complex. Further research is necessary to determine the incentives to waive as a loss leader. Still, evidence for or against the loss leader hypothesis does not undermine our results linking fund flows, performance, and fee waiving.

Figure 1. Waivers as a Percent of Total Assets

This graph shows the total dollar amount waived over the total net assets for all money market funds from 1980 to 1994. The sample is divided into institutional and retail funds defined by investors in the fund. Large initial investments prevent retail investors from investing in institutional funds. Source: Lipper Analytical Services.

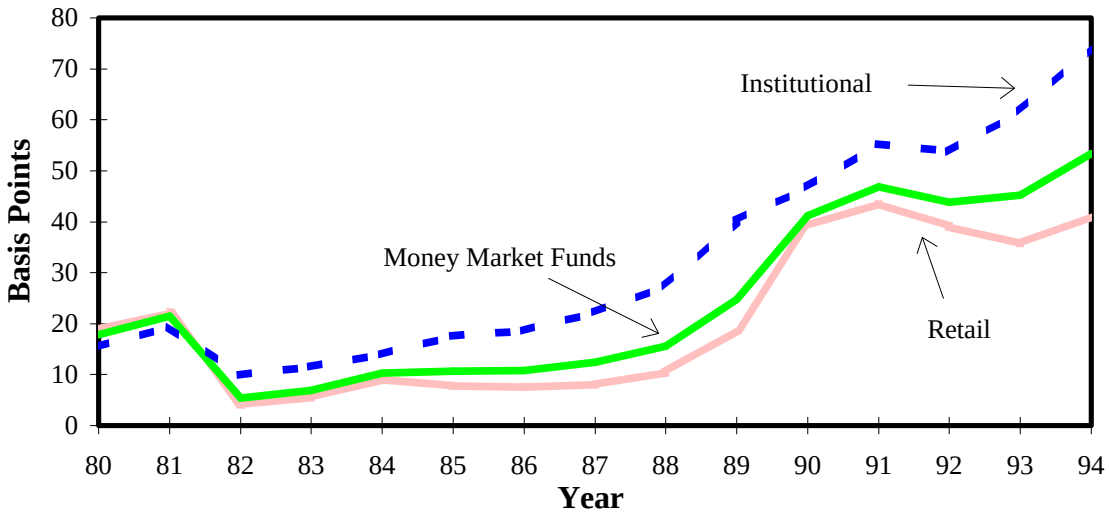

Figure 2. Percent of Funds Waiving

This graph shows the total number of funds waiving fees as a percent of the total number of money market funds from 1980 to 1994. The sample is divided into retail and institutional funds defined by the investors in each fund. Large initial investments prevent retail investors from investing in institutional funds. Source: Lipper Analytical Services.

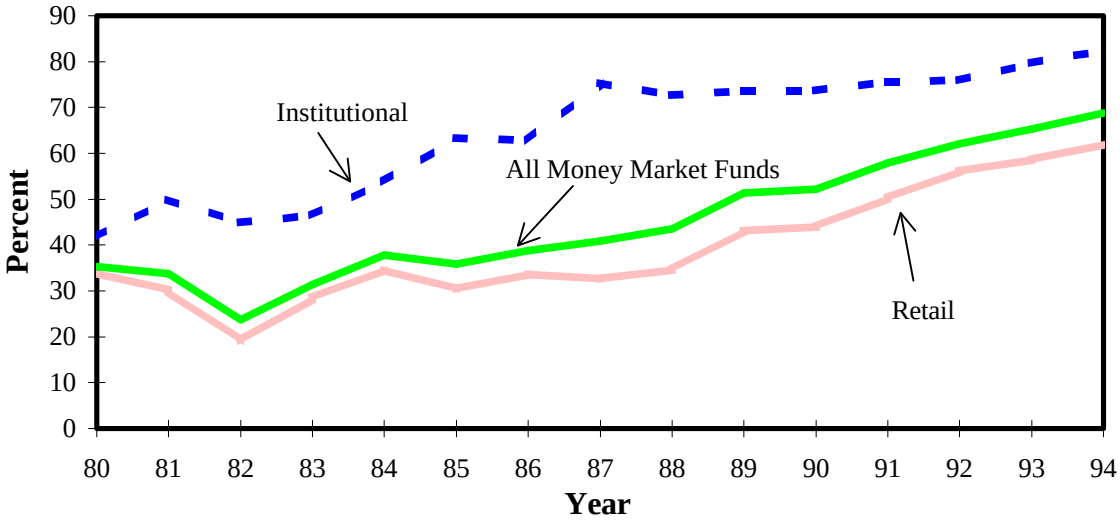

Figure 3. Waivers as a Percent of Contracted Fees

This graph provides the total dollar amount of waivers as a percent of the contracted fees for all money funds from 1980 to 1994 including funds not waiving. The sample is divided into retail and institutional funds defined by the investors in each fund. Large initial investments prevent retail investors from investing in institutional funds. Source: Lipper Analytical Services.

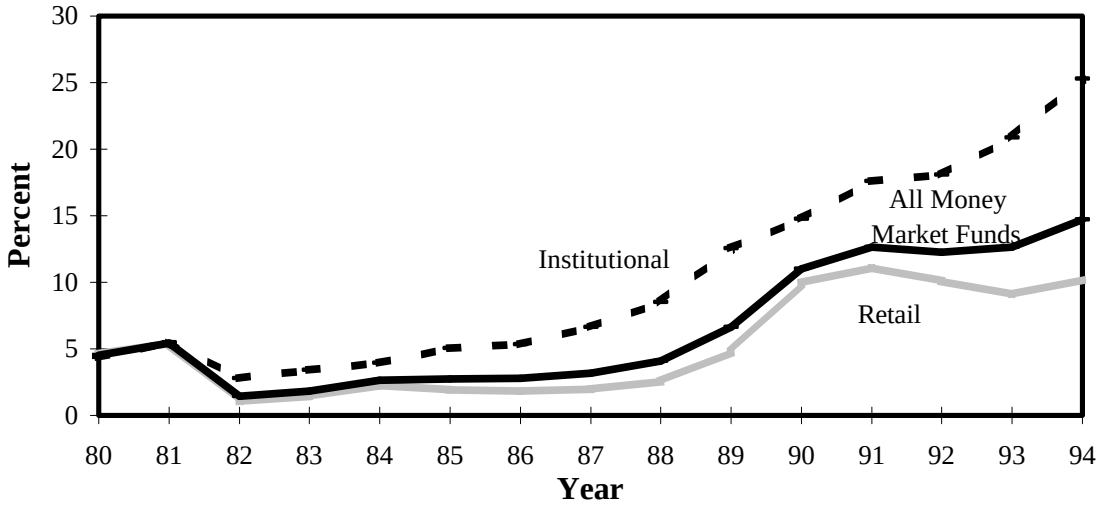

Figure 4. Average Fund Flow by Lagged Net Performance 1990-1995

This graph plots fund flows, or the percentage change in assets, by lagged net performance. Lagged net performance is ranked between one and 10 where one represents the bottom decile of funds and 10 represents the top decile of funds. Funds are ranked separately by year. Funds are also ranked against funds of their own type. Four different fund-types are used to rank funds: institutional/taxable, institutional/tax-free, retail/taxable, and retail/tax-free. For example, an instituional/taxable fund only includes institutional funds with taxable dividends. The average fund flow is measured by taking the mean percentage change in assets across all fund types and years in each net performance decile.

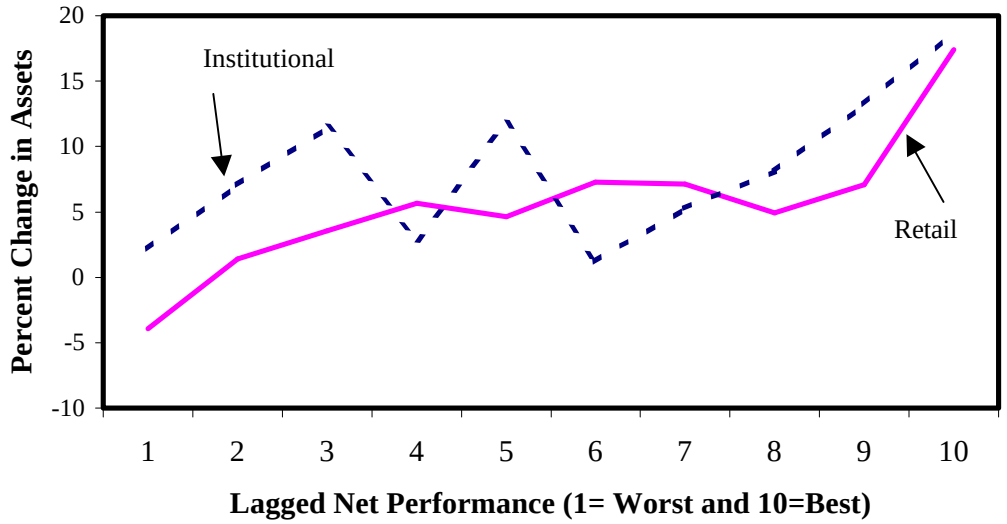

Figure 5. Median Waivers by Gross Performance 1990-1995

This graph plots the median waiver by current gross performance. Gross performance is ranked between one and 10 where one represents the bottom decile of funds and 10 represents the top decile of funds. Funds are ranked separately by year. Funds are also ranked against funds of their own type. Four different fund-types are used to rank funds: institutional/taxable, institutional/tax-free, retail/taxable, and retail/tax-free. For example, an institutional/taxable fund only includes institutional funds with taxable dividends.

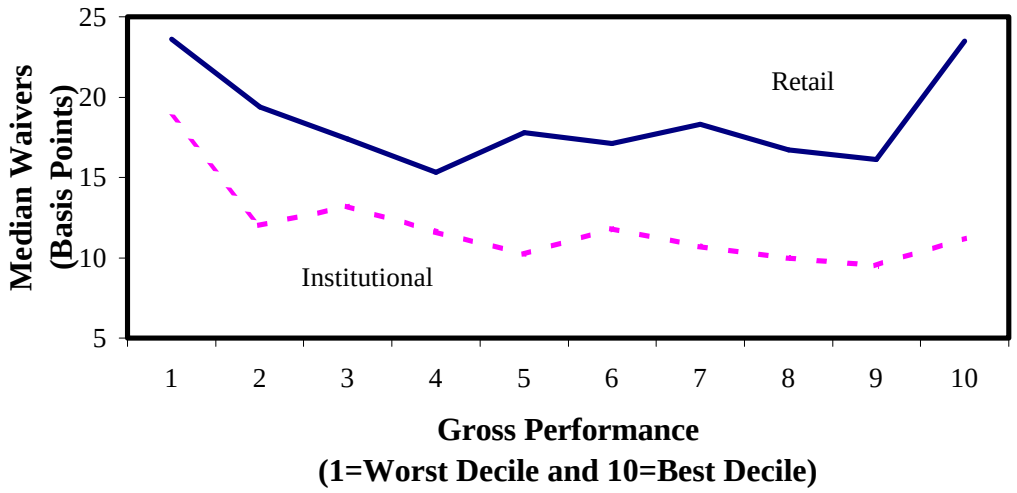

Figure 6. Median Waivers by Net Performance 1990-1995

This graph plots the median waiver by current net performance. Net performance is ranked between one and 10 where one represents the bottom decile of funds and 10 represents the top decile of funds. Funds are ranked separately by year. Funds are also ranked against funds of their own type. Four different fund-types are used to rank funds: institutional/taxable, institutional/tax-free, retail/taxable, and retail/tax-free. For example, an institutional/taxable fund only includes institutional funds with taxable dividends.

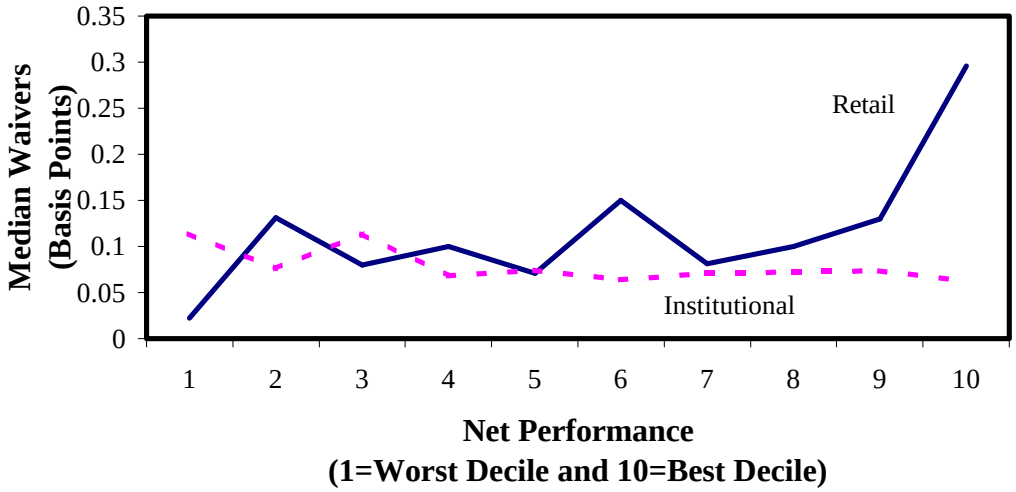

Table I
Summary Statistics for Money Market Funds 1990-1995

The data is from Lipper Analytical Services and includes money market funds from 1990 to 1995. Panel A compares the descriptive statistics for funds that waive and ones that do not waive fees, where Panel A defines a waiving fund as a fund which waived during a year, regardless of its history and future. Panel B defines a waiving fund as one that waived each year from 1990 to 1995 and a non-waiving fund as one that did not waive for the entire period during from 1990 to 1995. The statistics in Panel A are equally-weighted averages for each of the listed variables across years and across funds, separating retail and institutional funds. The statistics in Panel B are also averages; however, they only include funds that maintained a consistent waiver decision between 1990-1995. In Panel B, one fund observation has six time-series observations, so the statistics average across years and funds. GROSS ADVISORY FEES, NET EXPENSES, NON-ADVISORY FEES and WAIVERS are annualized and expressed in basis points of the average net assets of the fund. NET ASSETS are in billions of dollars. GROSS RETURNS and NET RETURNS are expressed as an annual percent and only include taxable funds that have considerably higher returns than non-taxable. AGE is the number of years the fund has been in existence. PERCENT OF FUNDS is the number of funds that waived (or did not waive) divided by the total number of funds. The third and sixth columns provide difference in means tests where the bold face font indicates the difference is significant at the five percent level.

Panel A: Fund types by One-Year Waiving Decision

	Institutional Funds		Difference In Means	Retail Funds		Difference In Means
	Do Not Waive	Waive	for Institutional	Do Not Waive	Waive	for Retail
Contracted Advisory Fee (bp)	32.50	40.90	**-8.40**	44.50	48.99	**-4.49**
Net Assets (billions)	0.75	0.60	0.16	1.10	0.32	**0.79**
Gross Returns (%) (Only Taxable)	5.23	5.15	0.09	5.40	5.09	**0.31**
Net Returns (%) (Only Taxable)	4.78	4.76	0.03	4.63	4.43	**0.20**
Net Expenses (bp)	45.50	42.10	**3.40**	73.90	62.50	**11.40**
Waivers (bp)	0.00	18.90	**-18.90**	0.00	32.80	**-32.80**
Percent of Funds (%)	21.21	78.79	**-57.58**	45.41	54.59	**-9.17**
Age (Years)	6.63	5.29	**1.34**	9.88	5.07	**4.81**
Non-advisory Fees (bp)	11.10	17.00	**-5.90**	21.80	36.40	**-14.60**
Number of Observations	330	1226		1396	1678	

Panel B: Fund types by Six-Year Waiving Decision

	Institutional Funds		Difference In Means	Retail Funds		Difference In Means
	Never Waive	Always Waive	for Institutional	Never Waive	Always Waive	for Retail
Contracted Advisory Fee (bp)	29.68	43.13	**-13.45**	44.12	50.50	**-6.38**
Net Assets (billions)	0.69	0.96	-0.26	1.41	0.36	**1.05**
Gross Returns (%) (Only Taxable)	5.42	5.44	-0.02	5.42	5.44	-0.03
Net Returns (%) (Only Taxable)	4.92	4.98	-0.07	4.76	4.73	0.02
Net Expenses (bp)	42.78	42.44	0.34	71.32	59.44	**11.88**
Waivers (bp)	0.00	14.56	**-14.56**	0.00	33.47	**-33.47**
Percent of Funds (%)	12.50	48.61	**-36.11**	40.74	25.07	**15.67**
Age (Years)	6.81	7.74	**-0.94**	11.51	6.64	**4.86**
Non-advisory Fees (bp)	11.97	11.74	0.23	20.78	38.02	**-17.24**
Number of Observations	108	420		858	528	

Table II
Flexibility of Waivers

Panel A uses annual data from Lipper Analytical Services, 1990 to 1995. Panel B uses eight quarters of data from IBC Donoghue Data, 1993 to 1994. Panel A provides the standard deviation of *annual changes* in contracted fees and waivers. Panel B provides the average standard deviation of *quarterly changes* in waivers using *quarterly* annualized data. The units are basis points in both Panels A and B.

Panel A: Standard deviation of annual changes in contracted fees and waivers			
	Overall	Retail	Institutional
Contracted Fee			
No waiver previous year	3.8	3.9	3.5
Fund waived previous year	13.7	17.0	6.8
Waiver			
No waiver previous year	5.1	5.5	2.9
Fund waived previous year	48.4	55.7	35.6
Net Advisory Fee			
No waiver previous year	6.4	6.9	3.4
Fund waived previous year	45.4	51.5	35.0
Number of Observations			
No waiver previous year	1364	1122	242
Fund waived previous year	2184	1265	919

Panel B: Standard deviation of quarterly changes in annualized waivers			
	Overall	Retail	Institutional
Waiver			
No waiver previous quarter	3.2	2.6	5.2
Fund waived previous quarter	12.9	13.7	11.2
Number of Observations			
No waiver previous year	2155	1817	338
Fund waived previous year	2577	1663	914

Table III
Non-linearities in Fund Flows

The data for this fund flow estimation comes from Lipper Analytical Services, 1990 to 1995. The left hand side variable is fund flows measured as the percentage change in assets. The first column tests non-linearities between performance and fund flows in the bottom 20 percent and top 20 percent of funds. The second column tests non-linearities in the bottom 20 percent and top 10 percent of funds. YEAR 91, YEAR 92, YEAR 93, and YEAR 94 are dummy variables taking the value one for each respective year. LAG WNW is a lagged dummy variable taking the value one if the fund waived in the previous year and zero otherwise. INSTIT is a dummy variable taking the value one if the fund is an institutional fund and zero if it is retail. BANK is a dummy variable taking the value one if the fund uses a bank as its distribution channel. COMPLEX is the number of funds in the fund family divided by 1,000. FIVE YEAR is a dummy variable taking the value one if the fund is less than five years old and zero otherwise. AGE is the number of years the fund has been in existence from the time of its inception to the year the fund is observed. LAGGED ASSET is the log of lagged asset size in millions of dollars. LRKNTRT is the lagged ranked net ret return for a fund ranging from zero to one. To control for the non-linearities in fund flows, LMED and LHI are added for both retail and institutional funds. In both the first and second columns, LMED is max(LRKNTRT - 0.2, 0). LHI differs in the two columns. LHI is max(LRKNTRT - 0.8,0) in the first column and max(LRKNTRT - 0.9,0) in the second column. These variables are separated into institutional and retail funds by multiplying by the dummy variable INSTIT for institutional funds and (1-INSTIT) for retail funds. INITIAL INVESTMENT is the log of the initial investment size needed for an investor to initiate an account with the fund in dollars. TAXFREE is a dummy variable taking the value one if the fund offers a tax-free dividend payment. Panel B provides some Wald tests of the slope of the fund flow function in the top 10 percent and 20 percent performing funds. There are 3,177 observations in both regressions. p-values are provided in parentheses.

Panel A: Piecewise fund flow estimation				
	Bottom 20% & Top 20%		**Bottom 20% & Top 10%**	
Variables	*Coefficient*	*p-value*	*Coefficient*	*p-value*
Lag WNW	0.159	(0.000)	0.156	(0.000)
Instit	-0.172	(0.562)	-0.154	(0.604)
Bank	0.102	(0.223)	0.108	(0.196)
Complex	0.455	(0.102)	0.442	(0.112)
Five Year	0.840	(0.000)	0.833	(0.000)
Age	-3.040E-02	(0.000)	-3.011E-02	(0.000)
Lag Asset	-2.730E-05	(0.005)	-2.590E-05	(0.008)
LRkNtRt Instit (a_1)	6.100E-05	(1.000)	-0.238	(0.839)
LMed Instit (a_2)	-0.391	(0.789)	0.008	(0.995)
LHi Instit (a_3)	2.613	(0.016)	5.445	(0.012)
LRkNtRt Retail (b_1)	-0.543	(0.558)	-0.511	(0.574)
LMed Retail (b_2)	0.525	(0.603)	0.488	(0.615)
LHi Retail (b_3)	1.734	(0.133)	6.377	(0.027)
Initial Investment	0.026	(0.163)	0.026	(0.162)
Year91	0.359	(0.000)	0.356	(0.000)
Year92	0.233	(0.012)	0.229	(0.014)
Year93	0.065	(0.396)	0.063	(0.408)
Year94	-0.057	(0.397)	-0.059	(0.384)
Taxfree	-0.199	(0.000)	-0.197	(0.000)
Constant	0.239	(0.363)	0.237	(0.368)
Panel B: Testing the Slope for funds in the top 10 percent or 20 percent of funds				
	F-stat	*p-value*	*F-stat*	*p-value*
$a_1+a_2+a_3-b_1-b_2-b_3 = 0$	0.140	(0.712)	0.110	(0.746)
$a_1+a_2+a_3=0$	6.670	(0.010)	6.640	(0.010)
$b_1+b_2+b_3=0$	2.530	(0.112)	4.960	(0.026)

Table IV
Simultaneous Estimation of Contracted Fee and Waivers for Retail Funds

This Simultaneous Panel Regression models the decision of the retail fund manager to waive, W, and set the contracted advisory fee, F. The sample excludes those funds with non-advisory fees greater than the mean non-advisory fee for all funds within a specific fund category. Two fund categories are used to determine the cut-off of low non-advisory fee funds: retail/bank and retail/non-bank. The simultaneous equations model is written as

$$F = a_{1F} * W + a_F * X_F + u_F$$

$$W = a_{1W} * F + a_W * X_W + u_W$$

where W equals the waiver as a percent of assets and is censored at zero, X_F is a matrix containing all the exogenous variables of gross advisory fees, and X_W is a matrix containing all the exogenous variables of the waiver decision. The exogenous variables included in X_F and X_w are factors affecting the net fee decision of managers. YEAR 91, YEAR 92, YEAR 93, and YEAR 94 are dummy variables taking the value one for each respective year. FEDERATED, DREYFUS, and COMPASS are dummy variables that control for three large fund complexes. LAGGED ASSET is the log of lagged asset size in millions of dollars. TAXFREE is a dummy variable taking the value one if the fund offers a tax-free dividend payment. NON-ADVISORY is the non-advisory fee charged by the fund in percent of net assets. BANK is a dummy variable taking the value one if the fund uses a bank as its distribution channel. LOAD is a dummy variable taking the value one if the fund charges front or back-end load fees. AGE is the number of years the fund has been in existence from the time of its inception to the year the fund is observed. COMPLEX is the number of funds in the fund family divided by 1,000. INITIAL INVESTMENT is the log of the initial investment size needed for an investor to initiate an account with the fund in dollars. RANKED GROSS RETURNS are the current gross annual yields for the funds ranked by year and by taxable and taxfree funds ranging from zero for the worst funds and one for the best funds. MEDIUM RANKED RETURN is max(RANKED GROSS RETURN - 0.2, 0). HIGH RANKED RETURN is max(RANKED GROSS RETURN - 0.8 , 0). LAGGED WNW is the lagged dummy variable of waivers. LAGGED GROSS ADVISORY is the gross advisory fee chosen by the manager in the previous year. Panel B provides Wald tests of the model and the joint significance of the coefficients on gross, medium, and high ranked returns. p-values are provided in parentheses.

Panel A: Test Results

	Contracted Advisory Fee		Waiver	
Independent Variables	*Coefficient*	*p-value*	*Coefficient*	*p-value*
Waiver	0.0480	(0.004)		
Contracted Advisory Fee			0.2206	(0.003)
Year 91	0.0011	(0.874)	0.0233	(0.301)
Year 92	-0.0098	(0.155)	0.0099	(0.632)
Year 93	0.0023	(0.731)	0.0011	(0.953)
Year 94	-0.0051	(0.448)	0.0431	(0.015)
Intercept	0.3804	(0.000)	-0.2361	(0.001)
Federated	0.0457	(0.012)	0.0111	(0.829)
Dreyfus	0.0195	(0.073)	0.1393	(0.000)
Compass	-0.1135	(0.000)	0.2238	(0.000)
Lagged Assets	-0.0133	(0.000)	-0.0058	(0.229)
Non-Advisory	-0.1463	(0.000)	0.3830	(0.000)
Bank	0.0130	(0.007)	0.0246	(0.162)
Load	0.0026	(0.058)	-0.0224	(0.412)
Age	0.0022	(0.009)	-0.0092	(0.000)
Complex	0.0075	(0.773)	0.0321	(0.694)
Initial Investment	-0.0040	(0.000)	-0.0039	(0.326)
Ranked Gross Return (a_1)	0.0222	(0.760)	-0.3800	(0.025)
Medium Ranked Return (a_2)	-0.0437	(0.588)	0.3352	(0.084)
High Ranked Return (a_3)	0.1645	(0.000)	0.4965	(0.007)
Lagged WNW			0.3830	(0.000)
Lagged Gross Advisory	0.4051	(0.000)		

Panel B: Test Statistics

	Wald Test	*p-value*	*Wald Test*	*p-value*
Model Test	9.62E+04	(0.000)	952.62	(0.000)
H_o: $a_1 + a_2 = 0$			1.25	(0.264)
H_o: $a_1 + a_2 + a_3 = 0$			8.12	(0.004)
H_o: $a_2 = a_3 = 0$			15.88	(0.000)
No. of Observations	1620		1620	

Table V

Simultaneous Estimation of Contracted Fee and Waivers for Institutional Funds

This Simultaneous Panel Regression models the decision of the institutional fund manager to waive, W, and set the contracted advisory fee, F. The sample excludes those funds with non-advisory fees greater than the mean non-advisory fee for all funds within a specific fund category. Two fund categories are used to determine the cut-off of low non-advisory fee funds: institutional/bank and institutional/non-bank. The simultaneous equations model is written as

$$F = a_{1F} * W + a_F * X_F + u_F$$

$$W = a_{1W} * F + a_W * X_W + u_W$$

where W equals the waiver as a percent of assets and is censored at zero, X_F is a matrix containing all the exogenous variables of gross advisory fees, and X_W is a matrix containing all the exogenous variables of the waiver decision. The exogenous variables included in X_F and X_w are factors affecting the net fee decision of managers. YEAR 91, YEAR 92, YEAR 93, and YEAR 94 are dummy variables taking the value one for each respective year. FEDERATED, DREYFUS, and COMPASS are dummy variables that control for three large fund complexes. LAGGED ASSET is the log of lagged asset size in millions of dollars. TAXFREE is a dummy variable taking the value one if the fund offers a tax-free dividend payment. NON-ADVISORY is the non-advisory fee charged by the fund in percent of net assets. BANK is a dummy variable taking the value one if the fund uses a bank as its distribution channel. LOAD is a dummy variable taking the value one if the fund charges either front or back-end load fees. AGE is the number of years the fund has been in existence from the time of its inception to the year the fund is observed. COMPLEX is the number of funds in the fund family divided by 1,000. INITIAL INVESTMENT is the log of the initial investment size needed for an investor to initiate an account with the fund in dollars. RANKED GROSS RETURNS are the current gross annual yields for the funds ranked by year and by taxable and tax-free funds ranging from zero for the worst funds and one for the best funds. MEDIUM RANKED RETURN is max(RANKED GROSS RETURN - 0.2, 0). HIGH RANKED RETURN is max(RANKED GROSS RETURN - 0.8 , 0). LAGGED WNW is the lagged dummy variable of waivers. LAGGED GROSS ADVISORY is the gross advisory fee chosen by the manager in the previous year. Panel B provides some Wald tests of the model and the joint significance of the coefficients on gross, medium, and high ranked returns. p-values are provided in parentheses.

Panel A: Test Results

	Contracted Advisory Fee		Waiver	
Independent Variables	*Coefficient*	*p-value*	*Coefficient*	*p-value*
Waiver	-0.0145	(0.647)		
Contracted Advisory Fee			0.2650	(0.000)
Year 91	-0.0048	(0.419)	-0.0468	(0.002)
Year 92	0.0013	(0.823)	-0.0530	(0.000)
Year 93	0.0011	(0.842)	-0.0259	(0.046)
Year 94	0.0026	(0.637)	-0.0156	(0.200)
Intercept	0.0599	(0.000)	-0.0903	(0.021)
Federated	0.0219	(0.000)	-0.0083	(0.625)
Dreyfus	-0.0315	(0.001)	-0.1249	(0.000)
Compass	-0.0068	(0.344)	0.0412	(0.018)
Lagged Assets	0.0006	(0.732)	-0.0082	(0.069)
Non-Advisory	0.1699	(0.000)	0.1797	(0.234)
Bank	0.0097	(0.000)	0.0251	(0.047)
Age	-9.34E-05	(0.892)	-5.13E-06	(0.997)
Complex	0.0243	(0.248)	0.1671	(0.005)
Initial Investment	-0.0017	(0.000)	0.0014	(0.178)
Ranked Gross Return (a_1)	-0.2192	(0.001)	-0.4518	(0.000)
Medium Ranked Return (a_2)	0.2324	(0.001)	0.4524	(0.001)
High Ranked Return (a_3)	-0.0147	(0.284)	-0.1903	(0.179)
Lagged WNW			0.1911	(0.000)
Lagged Gross Advisory	0.9291	(0.000)		

Panel B: Test Statistics

	Wald Test	*p-value*	*Wald Test*	*p-value*
Model Test	3.17E+06	(0.000)	880.05	(0.000)
H_o: $a_1 + a_2 = 0$			5.08E-03	(0.943)
H_o: $a_1 + a_2 + a_3 = 0$			2.32	(0.128)
H_o: $a_2 = a_3 = 0$			11.30	(0.004)
No. of Observations	753		753	

Table VI
Effectiveness of Waivers in Changing Rank Performance

The data comes from Lipper Analytical Services and summarizes annual money market mutual fund data from 1990 to 1995. Panel A provides the equally weighted average of changes in rank in percent of the distribution measured as the difference between post-waiver and pre-waiver rank. The sample is again divided into four subsamples determined by institutional and retail funds and the performance of the fund before the waiver decision of any fund, either in the bottom half or top half of performing funds. All values in Panel A are all significantly different from zero at the five percent level using a difference-in-mean test. Panel B shows the number of funds that increase or decrease in rank from their waiver decision. The sample includes all fund/year observations and divides the sample into four subsamples determined by institutional or retail and waiving or non-waiving funds.

Panel A: Average change in Rank for funds Waiving Fees

	Perf Rank Before Waiver Bottom 50%	Perf Rank Before Waiver Top 50%	Top 50% less Bottom 50%
Institutional	8.4	-1.9	-10.3
Retail	16.2	2.7	-13.5
Institutional less Retail	-7.8	-4.6	

Panel B: Number of funds changing rank for institutional and retail funds

	Decrease	No Change	Increase
Institutional Waiver>0	615	1	556
Institutional Waiver=0	321	4	1
Retail Waiver>0	565	3	1008
Retail Waiver=0	1380	0	1