The Determinants of Mutual Fund Starts

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For a sample of 1163 mutual funds started over the period 1979–1992, we find that fund initiations are positively related to the level of assets invested in and the capital gains embedded in other funds with the same objective, the fund family's prior performance, the fraction of funds in the family in the low range of fees, and the decision by large families to open similar funds in the prior year. In addition, consistent with the presence of scale and scope economies in fund openings, we find that large families and families that have more experience in opening funds in the past are more likely to open new funds.

The dramatic growth in mutual funds in recent years has been one of the most significant developments in the financial services industry. Mutual fund organizations wield significant market power in today's financial markets both in terms of their ability to control large equity stakes in publicly traded corporations and their ability to affect market prices.[1]

Despite rapid industry growth both in terms of the total assets under management and the number of fund offerings available to investors, little attention has been devoted to the decision-making process within funds and fund families. In particular, the factors that fund families consider in their decision to open a new fund have not been closely examined. Understanding the new fund opening decision assumes added importance in light of the fact that new funds in existence for less than 1 year (2 years) controlled as much as 6% (25%) of all fund assets in any given year during the 1980s and early 1990s.

In this article, we investigate the rationale behind the emergence of new funds, both by new families as well as by existing families of funds. Understanding why new funds get started is useful for all the constituents: (i) academics would be interested since it highlights the industrial organization

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[1] By 1996, institutional investors controlled more than 50% of the market value of all publicly traded stocks in the United States [Gompers and Metrick (1998)]. Some research also suggested that institutional investors tend to exacerbate market volatility [Sias (1996)].

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factors that are responsible for the rapid growth in mutual funds, a particularly significant class of financial innovations during the current decade; (ii) funds themselves would be interested in gaining more insight into the determination of fund starts; it may help them compete; (iii) investors would like to know more about their available investment options to gain a better understanding of what drives funds to continuously expand the investment opportunity set; (iv) regulators, such as the SEC, may want to closely examine the factors that explain the emergence of new funds; (v) members of various stock markets may be interested in factors responsible for new fund starts since these institutional investors generate a substantial amount of the daily trading volume.

Using a sample of 1163 new fund openings over the 1979–1992 period in a logistic regression framework, we find that the likelihood of a fund opening is related to three broad sets of factors. First, fund openings are positively related to the ability of families to generate additional fee income. Several pieces of evidence support this conclusion. (i) More funds are opened when the size of the corresponding investment objective is large. (ii) High capital gains overhang in existing funds also leads to more fund openings. Capital gains overhang is the fraction of a fund's value accounted for by unrealized capital gains. (iii) More funds are opened by families that have outperformed the competition. This reputation for excellent performance may serve to attract money into other funds as well. (iv) Families open new funds in an objective when a greater proportion of their existing funds in that objective are in the low range of the staggered fee schedule.[2]

Second, we find evidence of substantial economies of scale in the fund opening decision. Larger families and families that have opened funds in prior years are more likely to open new funds. There is some evidence that existing families are more likely to open new bond funds when a greater percentage of their assets are already invested in that objective. This suggests that the benefits of specialization and the associated scale economies tend to outweigh the costs associated with the cannibalization of existing funds. However, we do not find similar evidence for equity funds.

Third, the fund opening decision is positively related to the decision-making process of large families. Families are more likely to open a fund in an objective when one of the eight largest families in our sample has opened a fund in that objective in the previous year.

We also investigate whether new funds are opened in an objective to overcome the constraints on asset growth caused by the poor performance of existing funds. We find no evidence to support this "window dressing" argument.

[2] In a staggered fee structure, the percentage management fee on additional investments declines as assets under management reach prespecified threshold levels.

The remainder of the article is organized as follows. Section 1 discusses the hypotheses. Section 2 describes the data and methodology used for the analysis. Section 3 contains the results, and Section 4 concludes. The appendix provides institutional details on fund openings.

1. Hypotheses[3]

Fund sponsors will tend to open a new fund when the expected benefits of opening and operating the fund are greater than the associated costs. The expected benefits of opening a new fund can accrue in a number of ways. First, investment advisors can benefit in the form of additional dollar fees which are the result of positive asset flows into the fund complex. Second, new fund openings can result in incremental percentage fees for the investment advisors. In the presence of a staggered fee structure where advisory fees are a declining function of assets under management, a new fund opening results in resetting fund fees to the highest point in the fee schedule. Finally, fund families can benefit from a reduction in overall per unit operating costs accruing from potential scale and scope economies. A reduction in operating costs can occur due to the ability to distribute research costs over a larger asset base, efficiencies in the execution of securities transactions, and economies of scale in marketing and product distribution costs.[4]

On the other hand, the expected costs incurred in opening a new fund may include initial marketing costs, organizational costs, ongoing operating costs, and costs associated with the potential cannibalization of existing products within the fund complex. As mentioned earlier, the presence of significant cost complementarities may lower overall per unit costs within a family.

Examining mutual fund starts for fund families is somewhat analogous to studying product innovations in the industrial organization literature. As a result, some of our hypotheses are based on the literature on innovation and industry evolution [see, e.g., Reinganum (1984, 1985a)].

In formulating our hypotheses, we also contacted the eight largest families in our sample to gather insights into their policies regarding fund openings. Of the five families that responded, two declined to comment. In the ensuing discussion, we incorporate the responses of the other three families.

1.1 Additional Fee Income

Fund families derive their income from fees, which usually consist of a fraction of the assets under management. In this section we discuss several

[3] We are grateful to an anonymous referee for many useful suggestions in the development of this section.

[4] Baumol et al. (1980) report evidence of overall scale and scope economies in the mutual fund industry. In a more recent study of the U.S. mutual fund industry, Collins and Mack (1997) also find evidence of scale economies but limited evidence of scope economies.

hypotheses relating fee income to the fund opening decision. We argue that new funds are opened to overcome barriers that limit the growth in fee income in existing funds, and to capitalize on potential future growth.

1.1.1 Asset inflows and objective size. The investment advisor's fee consists of a fraction of assets under management. The potential size of the market is therefore an important consideration for a fund family in its decision to open a new fund. For example, Robert Puff, the Chief Investment Officer at Twentieth Century funds mentions that "The industry will keep introducing whatever has been working well lately," commenting on the dramatic growth experienced by small company and aggressive growth funds during 1996 (*Money*, July 1996, p. 96). This suggests that past growth is an important determinant of the decision to open new funds. To measure growth potential, we use prior year inflows into other funds with the same objective as the new fund.

Families may also open funds in new objectives when they have received large inflows in their existing objectives. Specifically, the success of a family in its existing objectives may make it easier to attract additional capital in other objectives. To capitalize on this success, the family could open funds in a new objective as well.

The relation between inflows and the decision to open a new fund in an existing objective (e.g., the decision to open another growth fund when you already have one) is more ambiguous. Families may decide to open another fund in an existing objective because their current funds are attracting high inflows, but the management fees of the existing funds are in the low range of the fee schedule. This argument will be developed further in Section 1.1.4. There is a countervailing effect, however: families may start new funds in an existing objective if the current inflows are low due to prior poor performance [Ippolito (1992) and Sirri and Tufano (1998)]. This is referred to as the "window dressing" argument, whereby a new fund is opened primarily to disguise the poor performance of an existing fund. The underlying premise is that the new fund is not expected to be adversely affected by the poor reputation of the existing fund(s). As another form of window dressing, families may introduce multiple funds in an objective simply to have a fund with superior performance.

Our survey evidence supports some of these conjectures. Two of the families we contacted mention past growth in their existing objectives as an important determinant of their fund opening decision. The third family, however, explicitly states that it does not pay attention to asset inflows into an objective when deciding whether or not to open a new fund. That same family also argues that it does not introduce multiple funds in an objective, simply to have a fund with superior performance.

To test the above hypotheses, we measure inflows in funds with the same investment objective, in other funds in the same family, and in other funds

in the family with the same investment objective as the new fund. Since inflows in an objective are highly correlated with the size of an objective, we also include objective size in our model specifications.

1.1.2 Fund returns. Much of the previous discussion on inflows also applies to fund returns because inflows and returns tend to be correlated. If a fund has underperformed relative to its peers, new inflows will be limited and the family may open a new fund to attract funds under management. Excellent returns, on the other hand, may lead to lower marginal fees because of the staggered fee structure. This could also lead to new fund openings.

The performance of the family as a whole may also affect the decision to open new funds. If a family has built a reputation for excellent performance, it may capitalize on this "brand name" by opening new funds in unrelated objectives as well. In fact, *Money* magazine mentions that large families with strong track records "seem to have unusually powerful launching pads" for new funds (*Money*, July 1996, p. 96).

Finally, prior performance of funds in other families with a similar objective could also affect new fund openings if investors direct their capital toward objectives that have recently done well, regardless of which family offers the funds. This argument assumes some form of irrationality on the part of new investors who may be redirecting their asset inflows to objectives that have performed very well in the past, but may not do so in the future. As an alternative measure of objective performance, we include in our regression specifications the performance of the financial assets likely to be held in the new fund. In fact, one of the families we contacted mentions past performance of the objective as a consideration in its decision to open a new fund.

1.1.3 Exploiting capital gains overhang. Warther (1996), Cuny (1997), and Barclay, Pearson, and Weisbach (1998) argue that capital gains overhang may slow down the inflow of new money into a mutual fund. Capital gains overhang is the fraction of the fund's net asset value consisting of unrealized capital gains. New investors may be concerned about investing in a fund with a large overhang because the capital gains can be realized by the fund at any time, which would result in a distribution, taxable at the capital gains rate. Hence, unrealized capital gains in a fund increase the potential magnitude of future taxable distributions, which increases the expected present value of a new investor's tax liability.[5] This could be a disincentive for potential new investors. Hence, potential new investors may want the capital gains to be distributed prior to their investment in the fund, whereas existing

[5] Dickson and Shoven (1993) document that these capital gains realizations can have a major impact on a fund investor's after-tax returns.

shareholders may prefer the capital gains to be deferred as long as possible. Given that fund managers and investment advisors have an incentive to increase the size of the fund (and consequently the management fee) by attracting new investors, their objective would be to overcome this potential deterrent in the form of the fund's overhang. Barclay, Pearson, and Weisbach (1998) argue that this is why funds voluntarily realize (and pass on) a large fraction of their capital gains annually.

Another way of overcoming this problem is to start a new fund in the same objective but which is void of any overhang [see Warther (1996)]. Hence, the presence of high overhang among funds with a similar objective within a family may lead the family to open a new fund in that objective.

The level of capital gains overhang in other families can also be important. If all funds in a particular objective have high overhang, investors may be reluctant to invest in those funds because of the potential capital gains distributions. Starting a new fund overcomes this reluctance. The recent introduction and popularity of a number of tax-managed funds also suggests that both investors and fund families are concerned about the tax consequences of mutual fund investing. For example, an article in the *Wall Street Journal* (September 16, 1993, p. C1) discusses the introduction by Fidelity of a new bond fund geared toward maximizing after tax total returns.

In our empirical tests, we measure overhang for all existing funds in the same objective and for existing funds in the same objective within the family.

1.1.4 Staggered fee structure. As mentioned previously, the primary source of income for investment advisors is the advisory fee received from managing the fund. The fee is usually a fraction of the assets under management. In fact, a staggered management fee structure (with multiple breakpoints) is commonly used in the mutual fund industry. That is, the fees received by advisory firms as a fraction of the assets under management decline as the fund increases in size. Thus, as funds grow in size, the marginal revenue from attracting additional funds under management decreases.

To counteract the effect of declining management fees, fund families may open new funds in the same objective as their existing funds.[6] This assumes that the family is able to divert some potential inflows from its existing fund to its new fund. The asset diversion could be achieved via heavy promotion of the new fund. Alternatively, the family can simply close the existing fund, thereby limiting new inflows to reinvestment of dividends and capital gains. While two of the families we contacted mention that they open new funds when existing ones become too large, only one of them mentions that it considers closing the existing funds to new investors.

[6] We do not explain why a staggered fee structure exists or why investors can be deceived into investing in new funds when the expected fees are in the high range of the fee schedule.

1.1.5 Cannibalization versus specialization. If families open new funds in an objective in which they already have a presence, there is a possibility that current funds will be cannibalized. This suggests that the decision to open a new fund in an objective should be negatively related to the fraction of the family's assets in that objective. On the other hand, to reap economies of scale benefits associated with marketing and product distribution costs, fund families may seek to specialize, thus offering multiple funds in a given investment objective. This would lead to a positive relation between the proportion of a family's assets in a given objective and the likelihood of a subsequent fund opening. The discussion on staggered fees also suggests that families may open new funds in existing objectives.

1.2 Follow the Leader Strategy

While there are more than 300 mutual fund families in our sample, a small number of these families control a large percentage of all assets. The largest families in our sample are Dreyfus, Fidelity, Merrill Lynch, Prudential, Putnam, Shearson, T. Rowe Price, and Vanguard. The strong growth experienced by these fund families and the large increase in the number of funds they offer may allow them to innovate more effectively.[7] Specifically, the presence of a greater degree of brand recognition, better access to distribution channels, and the ability to provide a greater degree of investment liquidity may spur larger families to open new funds before their smaller competitors. In addition, the existence of a broad product line may allow larger families to simultaneously pursue a "product differentiation" strategy (enhanced multiproduct line) and a "low cost producer" strategy (by exploiting scope economies). These factors can create a relative advantage for a larger fund complex to be the first innovator. However, to the extent that any product innovations in the mutual fund industry can be easily imitated and there are second-mover advantages in terms of a higher expected payoff [Reinganum (1985b)], other fund families will tend to mimic the behavior of their larger counterparts, that is, they will follow the leaders.[8]

Hence we perform specific tests of the "follow-the-leader" hypothesis by examining the relation between new fund starts and previous new fund starts in larger families. To the extent that larger families can innovate (i.e., open new funds) and sustain a part of their competitive advantage, and followers can benefit from overall growth in the market, the "follow-the-leader" approach may be a rational one.

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[7] Sirri and Tufano (1993) find evidence of a strong correlation between the asset growth rate experienced by a mutual fund family and the use of a differentiation strategy via new product introductions.

[8] The ability to sustain any first-mover advantage in the long run would depend upon factors like brand loyalty and switching costs. Even if the first-mover price advantage is not sustainable, the larger families may still benefit from a larger asset base and the ensuing scale and scope economies.

1.3 Economies of Scale and Scope

By opening new funds, fund families can capitalize on significant economies of scale benefits in the form of lower research, product development, marketing, advertising, and various administrative costs. Furthermore, the presence of significant cost complementarities within the family may result in economies of scope with regard to the above mentioned costs. Hence, larger fund complexes may be in a better position to take advantage of lower per unit costs. In addition, complexes that have previously launched new funds and have already incurred the fixed costs associated with the product development process may also be more inclined to open a new fund. Some large families in our sample acknowledge opening new funds to expand the product mix available to investors. The presence of significant scale and scope economies may also serve as a barrier to entry for new fund families [Reinganum (1985a)].[9]

2. Data, Methodology, and Sample Description

2.1 Data Sources

We obtain monthly fund returns over the 1976–1992 period from Lipper Analytical Services and Morningstar Inc; information on other fund-specific variables is obtained from Morningstar's database. The year in which returns data become available is used as the starting year. Other fund-specific data such as the asset base, net asset value, and the staggered fee structure are also obtained from Morningstar. Funds in the following 13 Lipper categories are included in our analysis: aggressive, corporate bond, equity income, government bond, growth and income, growth, small stock, specialty finance, specialty healthcare, specialty metals, specialty natural resources, specialty technology, and specialty utilities funds. Municipal bond funds are excluded because openings of these funds may be tax related. We also exclude hybrid funds because their objective is not well defined.

This database is supplemented with other data sources such as Wiesenberger Mutual Fund Updates and the S&P Quarterly Stock Guide. As a precautionary measure, the data from the respective sources are cross-checked with other sources that provide the same information. Returns data on the underlying asset benchmarks are obtained from various CRSP databases and Datastream International.

One potential drawback of this dataset is that it only includes surviving funds. As a result, total inflows into an objective are understated, while performance measures are likely overstated (assuming poorly performing funds

[9] Firms with their own distribution networks which do not have to pay a third party to market new funds may also have an advantage in the introduction of new funds. Since we lack the necessary information, this hypothesis is not examined in the article.

are terminated).[10] This could bias our findings. We therefore supplement the data with nonsurviving funds from the largest 100 families measured by total assets at the end of 1992. We focus on the 100 largest families to keep the data collection process manageable. These families account for 93.3% of total mutual fund assets in our sample at the end of 1992.[11]

Data on nonsurviving funds are collected using the following procedure. We start with a list of all funds that survive through 1992 for the largest 100 fund families in our sample. We then compare our sample with the funds listed in the Wiesenberger Investment Companies books (for each year) for these families. This produces an initial list of 251 potentially nonsurviving funds; these are funds listed in Wiesenberger but missing from our sample. It is possible, however, that information is missing because the fund changed its name or because it operates in an investment objective excluded from our sample. Using the Wiesenberger publications, we follow each of these 251 funds from 1979 or inception through 1994. We check through 1994 to ensure that Wiesenberger did not simply omit the fund for a year or two or delay the reporting of a name change. In addition, Wiesenberger's list of name changes is not always complete; thus, certain name changes are identified by matching performance and other fund-specific data. One hundred and twenty-four of the 251 funds simply changed their name during the sample period. Forty-two of the remaining 127 funds are in investment objectives excluded from our analysis. Thus we expand our initial sample by 85 nonsurviving funds. Data on these funds are obtained exclusively from Wiesenberger.

Data on the stepwise fee structure are also gathered from Morningstar. However, this information is only available at one point in time: 1992, the final year of our sample. Thus we implicitly assume that the fee structure for a particular fund has not changed over its life. This assumption is not unrealistic given that the fee structure is fairly rigid over time. Nevertheless, the breakpoints and the associated fees are renegotiated each year in the contract renewal process. This suggests that our measure is imprecise, especially in the initial years of the sample period.

2.2 Growth in New Fund Openings

Panel A of Table 1 provides descriptive statistics on the number of new fund openings for each of the 13 investment categories in our sample for each year between 1979 and 1992. We also list the number of funds in existence at the start of our sample. The increase in the number of new funds from a total

[10] Malkiel (1995) shows that nonsurviving funds underperform funds that survive.

[11] There are a total of 366 fund families in our sample. The smallest 266 families in our sample account for 6.7% of total assets under management.

of 9 in 1979 to 170 funds in 1987 and 127 funds in 1991 is indicative of the dramatic growth experienced by the mutual fund industry. However, there exists a substantial cross-sectional variation in the number of new openings across the 13 investment objectives. Government bond funds comprise the largest category with 282 new fund openings over the 14-year period versus 261 openings in the growth category and a mere 37 fund openings in the aggressive category. The number of openings in the specialty categories ranges from a low of 9 for the specialty finance funds to a high of 29 for the specialty utilities funds. The total sample contains 1163 new fund openings over the 1979–1992 period.

To gain a better understanding of the relative importance of new funds in the industry, we compute the proportion of total assets in an objective controlled by funds which have been in existence for less than 1 and less than 2 years, respectively. These figures are reported in panel B of Table 1. There is substantial time-series variation in the overall importance of new funds. In 1980, funds less than 2 years old controlled only 1.2% of the total asset base of the industry. By 1985, this figure had increased to 25%. This evidence is supportive of the significant role played by new funds in fostering the overall growth of the mutual fund industry during the mid-1980s. During the latter part of the sample period, however, the fraction of assets managed by new funds dropped considerably. For instance, in 1992, funds in existence for less than 1 year (2 years) controlled 0.8% (4.4%) of the assets in their respective investment objectives. This is perhaps not surprising given that total assets under management have increased dramatically over time. As a result, it is unlikely that new funds can continue controlling a significant fraction of all fund assets.

At the objective level, government bond funds experienced the largest increase in the number of new funds over the sample period, and these newer funds also controlled a large percentage of objective assets. During the first half of the sample period (1979–1985), government bond funds that were in existence for less than 2 years controlled between 27% and 74.8% of total objective assets in a given year. On the other hand, in the growth category, which also experienced a significant increase in the number of new funds, the asset base of these funds remained fairly small in the first 2 years of their existence. A full exploration of this dichotomy is beyond the scope of this article. We believe, however, that this phenomenon can be partly explained by the relative degree of heterogeneity among funds within an objective. It is possible that a greater degree of differentiation among equity growth funds versus government bond funds in terms of the types of assets held, level of risk, and quality of the manager, may increase the entry barriers for a new incumbent. On the other hand, a new entrant in a relatively homogeneous objective such as government bonds may be in a better position to take away market share from existing funds.

2.3 Research Design and Definition of Variables

We examine fund starts at two levels. In the first set of tests, we examine the decision to open a new fund at the family level. Examining fund starts at the level of the family is important, since a variety of family-specific parameters such as the size of the family, the fee structure, the underlying growth strategy, and the level of asset inflows in the family can have an important bearing on the fund opening decision.

Our sample covers 366 families which could potentially open funds in 13 objectives over the 14-year period from 1979 to 1992, for a total of 66,612 observations. Data for 1976 are excluded because they are incomplete. Data for 1977 and 1978 are employed to construct explanatory variables for the following years. The decision variable of interest is a $0/1$ indicator variable measuring whether family i opens a fund in objective j during period t. Eleven hundred and sixty-three new funds are started by the families in our sample.

For the purpose of our empirical tests, we estimate the following logistic regression model:

$$\begin{aligned}
&\text{Fund opening}_{ij,t} \\
&\quad = \alpha_0 + \beta_1(\text{inflow measures})_{ij,t-1} + \beta_2(\text{objective size})_{j,t-1} \\
&\qquad + \beta_3(\text{return index underlying assets})_{j,t-1} \\
&\qquad + \beta_4(\text{performance measures})_{ij,t-1} + \beta_5(\text{overhang measures})_{ij,t-1} \\
&\qquad + \beta_6(\text{fraction of funds exceedings fee threshold})_{ij,t-1} \\
&\qquad + \beta_7(\text{percent of family assets in objective})_{ij,t-1} \\
&\qquad + \beta_8(\text{large family opens})_{j,t-1} + \beta_9(\text{family size})_{i,t-1} \\
&\qquad + \beta_{10}(\text{number of prior fund openings})_{i,t-1}. \qquad (1)
\end{aligned}$$

Inflow is the asset inflow net of any return effects. We convert all inflows to 1978 dollars using the CPI. We measure inflows at the level of the investment objective (*objective inflow*), the fund family (*family inflow*), and the funds in the matched objective within the family under consideration (*objective-family inflow*). Since our database does not contain inflow measures, we construct them based on fund size data, which are reported annually. To measure the asset inflows into a fund, we need to take into account the performance of a fund during the year because the size of a fund can be affected by both the returns generated by the portfolio manager during the year and by actual (net) asset inflows/outflows. Hence, to compute inflow net of returns ($\text{INFLOW}_{i,t}$) we adjust the assets of the fund at the beginning of the year for the return earned by the fund during the year:

$$\text{INFLOW}_{i,t} = \text{ASSETS}_{i,t} - \text{ASSETS}_{i,t-1} * (1 + R_{i,t}), \qquad (2)$$

Table 1
Distribution of the sample of 1163 new fund openings by investment objective and year, over the 1979–1992 period, and fraction of assets controlled by new funds

Panel A: Full sample of 1163 new fund openings by objective, for each year from 1979 to 1992

	< 1979	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Total
Aggressive	18	0	1	3	0	2	5	1	6	7	2	2	5	2	1	37
Corporate bond	34	1	4	0	4	6	10	8	14	28	24	21	23	25	12	180
Equity income	14	1	0	0	0	1	1	3	5	7	9	3	5	5	1	41
Government bond	8	2	3	2	5	7	23	30	44	44	32	14	13	32	31	282
Growth and income	68	1	3	3	3	6	12	11	17	28	19	5	19	22	11	160
Growth	120	2	4	5	9	14	18	21	36	33	20	25	28	28	18	261
Small stock	16	1	1	3	4	11	3	9	12	12	9	3	7	9	7	91
Specialty: finance	1	0	0	1	0	0	0	5	3	0	0	0	0	0	0	9
Specialty: healthcare	0	0	0	1	1	1	2	2	1	1	1	1	0	1	1	13
Specialty: metals	5	1	0	1	0	2	4	3	3	2	6	1	1	1	0	25
Specialty: natural resources	1	0	1	2	1	1	2	2	2	5	2	1	1	0	0	20
Specialty: technology	5	0	0	1	1	2	2	3	1	1	1	0	1	0	2	15
Specialty: utilities	2	0	0	4	0	1	3	1	2	2	5	1	5	2	3	29
Total	292	9	17	26	28	54	85	99	146	170	130	77	108	127	87	1163

Table 1
(continued)

Panel B: Fraction of mutual fund assets controlled by new funds

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Aggressive	0.0	1.1	2.0	0.0	3.7	1.1	0.0	2.0	4.0	0.0	0.2	2.5	0.3	0.7
		1.1	3.5	3.3	3.7	5.6	2.6	2.0	23.4	5.7	0.2	2.7	2.5	1.8
Corporate bond	0.0	2.8	0.0	2.3	2.0	2.9	2.4	5.1	1.7	6.0	3.5	1.5	3.2	1.0
		2.9	2.9	2.3	5.7	8.4	10.2	9.4	8.6	10.9	9.3	6.0	6.5	4.6
Equity income	0.0	0.0	0.0	0.0	3.8	0.9	10.3	15.2	1.3	1.4	0.6	0.1	0.1	0.2
		0.0	0.0	0.0	3.8	6.8	11.4	31.7	17.3	4.4	3.9	1.3	2.4	0.4
Government bond	13.1	16.5	6.5	37.5	5.2	47.2	16.0	5.8	3.7	0.6	0.3	0.2	5.1	1.0
		42.3	27.0	46.5	38.8	48.7	74.8	21.6	11.7	5.2	1.6	0.8	6.3	10.0
Growth and income	0.1	0.3	0.1	0.2	1.1	2.4	1.6	0.2	0.7	2.5	0.1	1.1	1.0	0.7
		0.4	0.7	0.5	2.4	4.6	5.1	7.7	1.7	3.9	2.1	1.2	2.9	1.9
Growth	0.1	0.8	0.6	0.8	4.8	0.9	1.1	1.7	3.4	3.0	2.4	1.4	0.9	0.4
		0.9	1.6	1.9	6.2	6.6	2.5	4.3	6.4	6.3	4.0	3.8	3.1	1.5
Small stock	1.0	1.4	3.6	0.7	5.9	0.4	0.6	3.3	2.4	1.6	0.2	1.7	1.8	0.7
		2.2	5.1	12.1	11.5	7.7	3.5	6.3	8.1	5.0	1.9	2.9	6.6	3.0
Specialty: finance	0.0	0.0	0.1	0.0	0.0	0.0	16.7	27.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.1	0.9	0.0	0.0	16.7	52.5	45.0	0.0	0.0	0.0	0.0	0.0
Specialty: healthcare	0.0	0.0	0.0	100	97.0	56.4	0.2	0.1	0.2	0.0	0.0	6.9	0.0	0.0
		0.0	0.0	100	100	91.8	63.1	0.7	5.4	0.5	0.3	7.1	10.6	0.0
Specialty: metals	0.2	0.0	0.1	0.0	4.9	0.5	1.7	2.1	0.1	1.4	0.0	0.1	0.0	0.0
		0.1	0.1	1.1	4.9	5.1	3.9	9.7	7.8	1.7	3.3	0.2	0.1	0.0
Specialty: natural resources	0.0	4.2	6.9	0.0	2.5	0.2	14.5	5.0	2.7	23.6	3.5	1.8	0.0	0.0
		4.2	17.2	6.7	2.5	7.7	14.7	32.7	8.9	26.6	3.9	7.7	1.2	0.0
Specialty: technology	0.0	0.0	0.1	3.4	19.9	0.2	1.8	0.2	0.6	0.6	0.0	0.2	0.0	4.6
		0.0	0.1	7.9	27.2	19.9	2.2	3.2	1.0	1.4	0.5	0.2	1.0	4.6
Specialty: utilities	0.0	0.0	42.3	0.0	16.9	10.2	0.1	0.5	0.5	20.7	0.1	2.0	1.3	4.6
		0.0	42.3	77.4	16.9	42.5	8.2	0.7	1.3	23.8	29.3	2.1	6.3	5.3
Total	0.2	0.9	0.9	1.9	4.8	6.0	6.1	4.2	2.7	2.4	1.0	0.9	2.3	0.8
		1.2	2.1	4.4	7.7	11.6	25.0	14.2	8.7	5.9	3.6	2.3	4.4	4.4

In Panel A, a new fund opening is defined as any new fund opened by any fund family in a particular objective in a given year. The < 1979 column in panel A contains the number of funds in our sample at the start of 1979. In panel B, a new fund is defined as a fund started less than 1 or 2 years before the end of the year listed in each column. The first (second) number in panel B represents the fraction of total assets in the objective that are managed by funds in existence for less than 1 year (2 years).

where $\text{ASSETS}_{i,t}$ is total assets in fund i at the end of year t, and $R_{i,t}$ is the return of fund i during year t. This INFLOW variable measures the growth in assets in excess of the change in the value of the fund's asset base (existing at the beginning of the year) due to fund performance. *Objective size* is the asset base of the investment objective at the end of the prior year.

Return index underlying assets is the performance of an underlying index representative of the assets in that objective.[12] *Performance* is measured by fund returns. In our regression specifications, we measure mean unadjusted performance at the level of the investment objective (*objective return*) and on an objective-adjusted basis by subtracting the average return of the funds with the same objective. These excess return measures are computed at the family level (*family excess return*) and in the matched objective within a family (*objective-family excess return*). Obviously, family and objective-family measures can only be computed for families that already have funds in operation. We set these measures equal to zero for new families. In addition, we perform separate tests for existing families only.

Overhang is the magnitude of unrealized capital gains in the fund as a fraction of the total value of the fund. We compute overhang for all existing funds in the same objective (*objective overhang*) as well as for all existing funds in the same objective within the family (*objective-family overhang*). To compute overhang at the end of any year t, we use the following measure, based on Barclay, Pearson, and Weisbach (1998):

$$\begin{aligned}\text{OVERHANG}_t \;=\; &\text{OVERHANG}_{t-1} + (\text{NAV}_t - \text{NAV}_{t-1}) * \text{SHARES}_{t-1} \\ &+ (\text{SHARES}_t - \text{SHARES}_{t-1}) \\ &* (\text{NAV}_t - \text{average purchase price of new shares}). \quad (3)\end{aligned}$$

SHARES refers to the number of outstanding shares and NAV refers to the net asset value per share. The average price paid for new shares is the average of the beginning and ending net asset values for that year. OVERHANG is divided by the market value of the fund's assets at the end of the year to get a measure of the fraction of the fund's value consisting of unrealized capital gains.

The overhang measure is computed using a recursive method and requires prior year data. Since these are not available for funds in existence at the

[12] The following indices are used for the various investment objectives: (i) aggressive funds: equally weighted CRSP index of NYSE and AMEX firms; (ii) corporate bond funds: the CRSP Salomon Brothers long-term, high-grade corporate bonds index; (iii) equity income funds: 70% of the CRSP value-weighted NYSE and AMEX index + 30% of the CRSP Salomon Brothers long-term, high-grade corporate bond index; (iv) government bond funds: CRSP government bond index; (v) growth and income funds: value-weighted CRSP NYSE/AMEX index; (vi) growth funds: value-weighted CRSP NYSE/AMEX index; (vii) small stock funds: CRSP first decile of NYSE/AMEX stocks; (viii) specialty finance funds: the S&P financial index; (ix) specialty healthcare funds: equally weighted index of the S&P drugs and the S&P medical products indices; (x) specialty metals funds: the S&P gold index; (xi) specialty natural resources funds: equally weighted index of the S&P natural gas and the S&P oil composite index; (xii) specialty technology funds: equally weighted index of the S&P semiconductors, S&P electronic systems, and S&P computer systems indices; and (xiii) specialty utilities funds: the S&P utilities index.

start of our sample period, we set overhang equal to zero for these funds. Thus this measure is likely to understate the true level of overhang. As more funds enter the sample over time, the measure becomes more precise.

The *fraction of funds exceeding fee threshold* is measured as the fraction of all funds in the family with the same objective as the new fund, that have a stepwise fee structure with total assets above the first step in the structure (*fraction > minimum threshold*) or total assets above the last step in the structure (*fraction > maximum threshold*). These variables are computed to study whether the presence of a staggered fee structure affects the fund opening decision. Since data on the staggered fee structure are not available for nonsurviving funds, we set the stepwise fee structure variables equal to zero for these funds. Our results remain unchanged when we set these variables equal to one instead.

The *percent of family assets in objective* is measured as the percentage of total assets under management in a given family that are invested in funds with the same objective as the new fund. A negative relation between this variable and the opening decision would be indicative of the "cannibalization" hypothesis, whereas a positive relation would provide evidence in favor of the "specialization" hypothesis.

Large family opens is an indicator variable that is set equal to one if one of the eight largest families in the sample opened a new fund in the corresponding investment objective in the previous year and zero otherwise. This allows us to test the "follow-the-leader" hypothesis.

Family size is measured as the total assets managed by the fund family at the end of the previous year. The *number of prior fund openings* is the number of funds opened by the family in the previous year. Both variables capture potential economies of scale and scope.

A family may decide to open a number of new funds during a year. These decisions are not necessarily independent. We therefore estimate a clustered logit model, with the cluster defined as the family. This method assumes independence across families but not within families. This is similar to incorporating a fixed effects dummy by family. In addition, we include year dummies in all model specifications. In computing the average values of the explanatory variables, each fund receives an equal weight.

In the second set of tests (reported in Section 3.3), we do not study family-specific data, but focus exclusively on the number of fund openings in a given year. The primary objective of these tests is to examine the growth in mutual funds at a more aggregate industry level.

2.4 Comparisons Between the Samples of New Fund Openings and Nonopenings

Panels A–G of Table 2 report the results of univariate comparisons for explanatory variables across the samples of new fund openings and nonopenings. For ease of interpretation we first compute annual averages of each

variable. We then average these yearly averages across the 14 years in our sample period. These figures are reported in Table 2. To assess the statistical significance of the difference in means, we first perform *t*-tests each year. Then these *t*-statistics are averaged across years. Table 2 contains *p*-values based on the average *t*-statistics over the sample period. We also report the minimum and maximum difference between the opening and nonopening samples over the 14-year period, and the fraction of years for which the annual differences are in the hypothesized direction and significant at the 10% level or better.

Four sets of univariate results stand out. First, there is strong support for the economies of scale argument (panel G). Larger families and families that have opened more funds in the past are more likely to start new funds. Second, families start new funds in an objective when existing funds are in the lower range of the staggered fee schedule (panel D). Third, more funds are started in objectives that currently have more assets under management (panel A). We also find that prior year inflows in the objective, the family, and the family objective are larger when new funds are opened (panel A). However, this difference is significant in less than half of the years. This suggests that objective size may be a better measure of the potential to generate additional fee income than inflows in the prior year. Finally, there is evidence of specialization within an objective. Families are more likely to open new funds in an objective when a larger fraction of their assets is invested in that objective (panel E). Cannibalization of existing funds does not appear to be an important concern in the decision making process for new funds.

The univariate results provide little evidence that prior returns at the objective level or the family level affect the opening decision (panel B). Capital gains overhang in existing funds is also unimportant based on the univariate statistics (panel C). We do find some evidence that more funds open after one of the eight largest families in our sample opens a fund in that objective in the prior year (panel F). The difference is actually positive in 13 of 14 years (not reported in the table), but only significant in 6 years.

Since the univariate results do not take into account important interactions between the variables, we now turn to regression analysis to gain further insights into the opening decision.

3. Regression Results

3.1 Explaining the Decision to Open a New Fund

Tables 3–5 provide multivariate logistic regression results of the likelihood of new fund openings. In Table 3 we report several specifications of the basic model for all funds, and in Tables 4 and 5 we report results for the subsamples of equity and bond funds, respectively. For each model specification, we also present in brackets a measure of the economic significance of our results.

Table 2
Univariate statistics across the samples of new fund openings and nonopenings over the 1979–1992 period

Variable	Openings	Nonopenings	Mean difference (p-value)	# Yrs sign.	Min. diff.	Max. diff.
Panel A: Asset inflow and objective size ($ millions)						
Objective inflow	1094.00	335.91	758.09 (0.01)	6	−1475.58	7100.81
Family inflow	55.33	11.52	43.81 (0.04)	5	−80.96	283.65
Objective-family inflow	13.41	0.60	12.81 (0.05)	5	−7.78	93.58
Objective assets	17397.05	7537.12	9859.93 (0.00)	13	0	23588.74
Panel B: Performance measures (%)						
Objective return	15.05	15.75	−0.70 (0.92)	2	−13.77	4.34
Family excess return	0.60	−0.28	0.88 (0.26)	3	−0.42	4.38
Objective-family excess return	0.17	−0.01	0.18 (0.50)	4	−0.67	1.69
Index underlying assets	15.15	14.02	1.13 (0.32)	5	−5.52	5.95
Panel C: Overhang measures (%)						
Objective overhang	8.57	9.10	−0.53 (0.36)	1	−4.87	6.13
Objective-family overhang	1.82	0.91	0.91 (0.38)	5	−1.79	3.96
Panel D: Staggered fee measures						
Funds in family objective with stepwise fee structure and assets in excess of first step (%)	7.73	2.04	5.69 (0.00)	11	−0.61	12.06
Funds in family objective with stepwise fee structure and assets in excess of last step (%)	3.32	0.80	2.52 (0.00)	10	−0.30	6.20
Panel E: Cannibalization versus specialization measure						
Family assets in same objective (%)	10.75	4.23	6.52 (0.00)	11	0	16.90
Panel F: Follow-the-leader measure						
Large family opens	0.84	0.70	0.14 (0.01)	6	0	0.33
Panel G: Economies of scale and scope measures						
Family assets ($ millions)	933.77	261.65	672.12 (0.00)	12	0	2319.65
Number of funds opened by family in prior year	0.48	0.03	0.45 (0.00)	13	−0.0017	1.38

The table presents the average of the yearly averages for each variable. To determine the significance of the difference, we perform a *t*-test each year and average the *t*-statistics across 14 years. The *p*-value of the difference test is based on the average *t*-statistic. # Yrs sign. is the number of years for which the difference is in the hypothesized direction and significant at the 10% level or better. Min. Diff. is the minimum difference between the opening and nonopening categories over the 14-year period. Max. Diff. is the maximum difference between the opening and nonopening categories over the 14-year period.

Table 2
(continued)

Objective inflow is total inflow (in millions of 1978 dollars) into all funds with the same investment objective in the previous year. Family inflow is total inflow (in millions of 1978 dollars) into all funds in the family in the previous year. Objective-family inflow is total inflow (in millions of 1978 dollars) into all funds in the family with the same investment objective in the previous year. Objective assets is total assets under management (in $ millions) in the objective at the end of the previous year. Objective return is the mean return (in %) of all funds in the matched investment objective in the previous year. Family excess return is the mean return (in %) of all funds in the family in the previous year, adjusted for the average returns of all funds with the same objective. Objective-family excess return is the mean return (in %) of all funds in the matched investment objective in the family in the previous year, adjusted for the average return of all funds with the same objective. Index underlying assets is the mean return of the assets in the underlying benchmark index in the previous year. The following indices are used for the various investment objectives: (i) aggressive funds: equally weighted CRSP index of NYSE and AMEX firms; (ii) corporate bond funds: the CRSP Salomon Brothers long-term, high-grade corporate bonds index; (iii) equity income funds: 70% of the CRSP value-weighted NYSE and AMEX index + 30% of the CRSP Salomon Brothers long-term, high-grade corporate bond index; (iv) government bond funds: CRSP government bond index; (v) growth and income funds: value-weighted CRSP NYSE/AMEX index; (vi) growth funds: value-weighted CRSP NYSE/AMEX index; (vii) small stock funds: CRSP first decile of NYSE and AMEX stocks index; (viii) specialty finance funds: the S&P financial index; (ix) specialty healthcare funds: equally weighted index of the S&P drugs and medical products index; (x) specialty metals funds: the S&P gold index; (xi) specialty natural resources funds: equally weighted index of the S&P natural gas and oil composite index; (xii) specialty technology funds: equally weighted index of the S&P semiconductors, electronic systems, and computer systems index; (xiii) specialty utilities funds: the S&P utilities index. Objective overhang is the mean capital gains overhang of all funds in the matched investment objective in the previous year. Objective-family overhang is the mean capital gains overhang of all funds in the family in the matched investment objective in the previous year. Funds in family objective with stepwise fee structure and assets in excess of first step (%) is the percentage of all funds in the family with the same objective that have a stepwise fee structure with total assets above the first step in the structure at the end of the previous year. Funds in family objective with stepwise fee structure and assets in excess of last step (%) is the percentage of all funds in the family with the same objective that have a stepwise fee structure with total assets above the last step in the structure at the end of the previous year. Family assets in same objective (%) is the percentage of total assets under management invested in funds with the same objective at the end of the previous year. This variable is set equal to zero for new families. Large family opens is a dummy variable equal to one if a large family opens a fund at the end of the previous year. Family assets is total assets under management in the family (in millions of 1978 dollars) at the end of the previous year. Number of funds opened by family in prior year is the total number of funds opened by the family in the prior year.

To accomplish this we begin by setting all variables in each model equal to their means. We then compute the percentage change in the probability of opening a fund when each variable is increased by one standard deviation. For indicator variables, we compute the percentage change when the variable is increased from zero to one.

As mentioned previously, it is possible that the economics behind the fund opening decision are different for new versus existing fund families. For instance, new families may be interested in opening new funds because prior inflows in that objective have been high; existing families may be more concerned with past performance. Moreover, the opening decision of existing families may depend on whether or not they already have a fund in a particular objective. Hence, in Tables 3–5 we report the results of separate analyses of the fund opening decisions for the full sample of all families and for the subsample of fund openings by existing fund families.

For each sample we report the result of two specifications. Our overhang measures are not included in the first model because objective overhang is

Table 3
Logistic regression results on the likelihood of a new fund opening — all funds

Explanatory variables	Model (i) all families			Model (ii) all families			Model (iii) existing families			Model (iv) existing families		
Intercept	−6.783	(0.00)		−6.818	(0.00)		−6.910	(0.00)		−6.838	(0.00)	
Objective inflow	0.002	(0.72)	[1]	0.003	(0.55)	[1]	0.005	(0.42)	[2]	0.006	(0.36)	[2]
Family inflow	−0.122	(0.31)	[−3]	−0.145	(0.26)	[−3]	−0.194	(0.16)	[−6]	−0.214	(0.14)	[−7]
Objective-family inflow	0.356	(0.24)	[2]	0.376	(0.61)	[2]	0.342	(0.07)	[3]	0.349	(0.08)	[3]
Objective size (total assets)	0.035	(0.00)	[63]	0.035	(0.00)	[63]	0.029	(0.00)	[59]	0.028	(0.00)	[58]
Return index underlying assets				0.862	(0.00)	[18]				1.220	(0.00)	[26]
Objective return	0.004	(0.07)	[9]				0.003	(0.35)	[6]			
Family excess return	0.019	(0.00)	[12]	0.019	(0.00)	[12]	0.019	(0.00)	[16]	0.019	(0.00)	[16]
Objective-family excess return	0.004	(0.70)	[1]	0.005	(0.59)	[1]	0.004	(0.71)	[1]	0.007	(0.50)	[2]
Objective overhang				−0.165	(0.67)	[−2]				−1.461	(0.00)	[−18]
Objective-family overhang				−0.184	(0.67)	[−1]				−0.289	(0.51)	[−3]
Fraction > min threshold	0.420	(0.00)	[6]				0.523	(0.00)	[10]			
Fraction > max threshold				0.303	(0.21)	[3]				0.400	(0.10)	[5]
Family assets in objective (%)	−0.126	(0.50)	[−2]	−0.003	(0.99)	[0]	0.200	(0.25)	[5]	0.425	(0.02)	[10]
Large family opens	0.875	(0.00)	[138]	0.848	(0.00)	[132]	0.717	(0.00)	[103]	0.626	(0.00)	[86]
Family size (total assets)	0.135	(0.00)	[16]	0.146	(0.00)	[18]	0.166	(0.00)	[27]	0.179	(0.00)	[30]
Number of funds opened in prior year	0.492	(0.00)	[22]	0.487	(0.00)	[22]	0.533	(0.00)	[32]	0.524	(0.00)	[32]
Pseudo R^2	0.14			0.14			0.16			0.16		
Regression p-value	0.00			0.00			0.00			0.00		
N	65148			65514			36997			37135		

Model: P (*Fund opening*) $= f$ (*year dummies, underlying index performance, large family opening dummy, returns, inflows, capital gains overhang, objective size, family size, percentage of family assets invested in the objective, number of prior openings by the family, measures of whether the firm has a stepwise fee structure and the step(s) have been exceeded*).

This table contains the results of cross-sectional time-series logistic regression models of the probability of a new fund opening. The model is estimated assuming independence across families, but not within families. Explanatory variables are year dummies (not reported), an indicator variable for whether a large family opened a fund in the matched objective in the previous year, performance of the underlying asset class to which the fund is exposed, mean performance of other existing funds in the matched investment objective, family excess return, excess return of funds with the same objective in the family, measures of asset inflows into the objective, the family, and in the objective within the family, the average capital gains overhang of all funds in the objective and of all funds in the objective within the family, family size (total assets), objective size (total assets), the fraction of all family assets invested in the objective, the number of funds opened by the family in the previous year, and the fraction of funds in the objective within the family with assets in excess of the minimum (maximum) step in the stepwise fee structure. All asset-based variables are in CPI-deflated 1978 constant dollars. The p-values of the regression coefficients are in parentheses. The number in brackets is the percentage increase in the probability of opening a fund when all variables are set equal to their means and the variable is increased by one standard deviation. For indicator variables, this number is the percentage increase in the probability of opening a fund when the indicator variable increases from zero to one. The sample consists of 366 fund families in 13 different investment objectives over a 14-year period (from 1979 to 1992). The explanatory variables are defined in Table 2. Pseudo R^2 is computed as 1 minus the log-likelihood ratio at convergence over the log-likelihood ratio at zero. The regression p-value is the p-value for the hypothesis that the coefficients of all the independent variables are zero.

Table 4
Logistic regression results on the likelihood of a new fund opening — equity funds

Explanatory variables	Model (i) all families			Model (ii) all families			Model (iii) existing families			Model (iv) existing families		
Intercept	−7.844	(0.00)		−7.929	(0.00)		−7.183	(0.00)		−7.308	(0.00)	
Objective inflow	−0.030	(0.52)	[−3]	−0.040	(0.39)	[−4]	−0.031	(0.60)	[−4]	−0.033	(0.59)	[−4]
Family inflow	−0.198	(0.12)	[−5]	−0.200	(0.12)	[−5]	−0.271	(0.10)	[−8]	−0.280	(0.10)	[−9]
Objective-family inflow	0.718	(0.23)	[2]	0.643	(0.29)	[2]	0.765	(0.20)	[3]	0.676	(0.26)	[2]
Objective size (total assets)	0.072	(0.00)	[116]	0.070	(0.00)	[112]	0.045	(0.00)	[76]	0.046	(0.00)	[78]
Return index underlying assets				−0.340	(0.40)	[−7]				−0.225	(0.65)	[−5]
Objective return	0.004	(0.15)	[10]				0.002	(0.59)	[5]			
Family excess return	0.020	(0.00)	[13]	0.020	(0.00)	[13]	0.018	(0.00)	[15]	0.018	(0.00)	[15]
Objective-family excess return	0.002	(0.98)	[0]	0.002	(0.86)	[1]	0.003	(0.83)	[1]	0.004	(0.72)	[2]
Objective overhang				2.376	(0.00)	[39]				1.343	(0.05)	[19]
Objective-family overhang				−0.235	(0.65)	[−2]				−0.198	(0.71)	[−2]
Fraction > min threshold	0.372	(0.05)	[5]				0.639	(0.00)	[12]			
Fraction > max threshold				0.394	(0.17)	[3]				0.580	(0.04)	[7]
Family assets in objective (%)	−0.785	(0.00)	[−12]	−0.711	(0.00)	[−11]	−0.094	(0.68)	[−2]	−0.004	(0.99)	[−1]
Large family opens	0.425	(0.02)	[53]	0.475	(0.01)	[60]	0.365	(0.09)	[44]	0.389	(0.08)	[47]
Family size (total assets)	0.162	(0.00)	[20]	0.170	(0.00)	[21]	0.184	(0.00)	[31]	0.195	(0.00)	[33]
Number of funds opened in prior year	0.446	(0.00)	[18]	0.441	(0.00)	[18]	0.501	(0.00)	[28]	0.492	(0.00)	[27]
Pseudo R^2	0.16			0.16			0.16			0.16		
Regression p-value	0.00			0.00			0.00			0.00		
N	54900			55266			31243			31381		

Model: P (*Fund opening*) = f (*year dummies, underlying index performance, large family opening dummy, returns, inflows, capital gains overhang, objective size, family size, percentage of family assets invested in the objective, number of prior openings by the family, measures of whether the firm has a stepwise fee structure and the step(s) have been exceeded*).

This table contains the results of cross-sectional time-series logistic regression models of the probability of a new equity fund opening. The model is estimated assuming independence across families, but not within families. Explanatory variables are year dummies (not reported), an indicator variable for whether a large family opened a fund in the matched objective in the previous year, performance of the underlying asset class to which the fund is exposed, mean performance of other existing funds in the matched investment objective, family excess return, excess return of funds with the same objective in the family, measures of asset inflows into the objective, the family, and in the objective within the family, the average capital gains overhang of all funds in the objective and of all funds in the objective within the family, family size (total assets), objective size (total assets), the fraction of all family assets invested in the objective, the number of funds opened by the family in the previous year, and the fraction of funds in the objective within the family with assets in excess of the minimum (maximum) step in the stepwise fee structure. All asset-based variables are in CPI-deflated 1978 constant dollars. The p-values of the regression coefficients are in parentheses. The number in brackets is the percentage increase in the probability of opening a fund when all variables are set equal to their means and the variable is increased by one standard deviation. For indicator variables, this number is the percentage increase in the probability of opening a fund when the indicator variable increases from zero to one. The sample consists of 366 fund families in 11 different investment objectives over a 14-year period (from 1979 to 1992). The explanatory variables are defined in Table 2. Pseudo R^2 is computed as 1 minus the log-likelihood ratio at convergence over the log-likelihood ratio at zero. The regression p-value is the p-value for the hypothesis that the coefficients of all the independent variables are zero.

Table 5
Logistic regression results on the likelihood of a new fund opening — bond funds

Explanatory variables	Model (i) all families			Model (ii) all families			Model (iii) existing families			Model (iv) existing families		
Intercept	−2.402	(0.08)		−3.652	(0.00)		−2.909	(0.07)		−3.862	(0.00)	
Objective inflow	0.014	(0.09)	[11]	0.013	(0.16)	[9]	−0.002	(0.88)	[−1]	−0.003	(0.81)	[−2]
Family inflow	0.028	(0.86)	[1]	0.025	(0.87)	[1]	−0.040	(0.82)	[−1]	−0.041	(0.81)	[−1]
Objective-family inflow	0.143	(0.42)	[2]	0.177	(0.30)	[2]	0.143	(0.42)	[2]	0.178	(0.29)	[3]
Objective size (total assets)	0.002	(0.53)	[4]	0.001	(0.68)	[3]	0.008	(0.04)	[21]	0.007	(0.06)	[19]
Return index underlying assets				−0.471	(0.70)	[−4]				0.106	(0.95)	[1]
Objective return	−0.133	(0.07)	[−63]				−0.120	(0.17)	[−54]			
Family excess return	0.021	(0.00)	[13]	0.021	(0.00)	[13]	0.021	(0.01)	[17]	0.021	(0.01)	[18]
Objective-family excess return	0.018	(0.63)	[3]	0.025	(0.49)	[3]	0.017	(0.67)	[3]	0.026	(0.49)	[5]
Objective overhang				11.278	(0.00)	[108]				14.152	(0.00)	[124]
Objective-family overhang				−0.733	(0.62)	[−3]				−1.001	(0.48)	[−6]
Fraction > min threshold	0.160	(0.43)	[3]				0.187	(0.39)	[4]			
Fraction > max threshold				0.012	(0.97)	[0]				0.089	(0.77)	[1]
Family assets in objective (%)	0.467	(0.16)	[8]	0.492	(0.11)	[9]	0.657	(0.04)	[15]	0.667	(0.02)	[16]
Large family opens	0.245	(0.77)	[25]	−0.466	(0.60)	[−37]	−0.158	(0.87)	[−14]	−1.045	(0.30)	[−63]
Family size (total assets)	0.114	(0.00)	[13]	0.118	(0.00)	[14]	0.145	(0.00)	[23]	0.148	(0.00)	[23]
Number of funds opened in prior year	0.498	(0.00)	[30]	0.499	(0.00)	[31]	0.535	(0.00)	[44]	0.534	(0.00)	[44]
Pseudo R^2	0.12			0.13			0.14			0.15		
Regression p-value	0.00			0.00			0.00			0.00		
N	10248			10248			5754			5754		

Model: P (*Fund opening*) = f (*year dummies, underlying index performance, large family opening dummy, returns, inflows, capital gains overhang, objective size, family size, percentage of family assets invested in the objective, number of prior openings by the family, measures of whether the firm has a stepwise fee structure and the step(s) have been exceeded*).

This table contains the results of cross-sectional time-series logistic regression models of the probability of a new bond fund opening. The model is estimated assuming independence across families, but not within families. Explanatory variables are year dummies (not reported), an indicator variable for whether a large family opened a fund in the matched objective in the previous year, performance of the underlying asset class to which the fund is exposed, mean performance of other existing funds in the matched investment objective, family excess return, excess return of funds with the same objective in the family, measures of asset inflows into the objective, the family, and in the objective within the family, the average capital gains overhang of all funds in the objective and of all funds in the objective within the family, family size (total assets), objective size (total assets), the fraction of all family assets invested in the objective, the number of funds opened by the family in the previous year, and the fraction of funds in the objective within the family with assets in excess of the minimum (maximum) step in the stepwise fee structure. All asset-based variables are in CPI-deflated 1978 constant dollars. The p-values of the regression coefficients are in parentheses. The number in brackets is the percentage increase in the probability of opening a fund when all variables are set equal to their means and the variable is increased by one standard deviation. For indicator variables, this number is the percentage increase in the probability of opening a fund when the indicator variable increases from zero to one. The sample consists of 366 fund families in two different investment objectives over a 14-year period (from 1979 to 1992). The explanatory variables are defined in Table 2. Pseudo R^2 is computed as 1 minus the log-likelihood ratio at convergence over the log-likelihood ratio at zero. The regression p-value is the p-value for the hypothesis that the coefficients of all the independent variables are zero.

highly correlated with the performance of the funds in the same objective ($\rho = 0.68$). We include overhang in the second regression, and replace the return in the objective with the return on the underlying index. Obviously, the index return is also correlated with overhang, but the problem is somewhat attenuated ($\rho = 0.62$). For robustness we include a different measure of the staggered fee schedule in the second specification. The first regression employs the fraction of funds exceeding the minimum fee threshold as the dependent variable. The second regression employs the fraction of funds exceeding the maximum fee threshold.[13]

Our initial analysis focuses on the decision to open a new fund with the primary motive of generating additional fee income. We first examine whether asset inflows at the objective, the family, and the family objective level affect the opening decision. The coefficients on the inflation-adjusted inflow variables (objective inflow, family inflow, and objective-family inflow) are insignificant in all models. This suggests that families pay little attention to prior inflows when deciding to open new funds. On the other hand, the size of the objective has a positive and significant impact on the opening decision for the full sample and for the sample of equity funds. A one standard deviation increase in the size of the objective increases the likelihood of opening a new fund 58–63% across the four model specifications reported in Table 3. For bond funds, the size of the objective is only relevant for existing families. These findings suggest that objective size may be a better measure of the underlying growth potential of an objective than inflows in prior years.

Next we examine whether past returns are related to the fund opening decision. The performance of the underlying investment objective is included as an explanatory variable in models (i) and (iii), whereas models (ii) and (iv) contain the performance of the assets on which the objective is based (return index underlying assets). No consistent results emerge across the three tables. We do find a positive relation between the return on the underlying index and the opening decision when we aggregate stock and bond funds in Table 3, but this result does not hold when we study the two groups separately. The return on the underlying investment objective is only marginally significant in some specifications. Thus, prior performance of the underlying assets appears to play little role in the new fund opening decision of mutual fund families.

The performance of the fund family, on the other hand, is an important factor in the opening decision across all specifications. A one standard

[13] Note that we do not have 66,612 observations in our regressions (336 families $\times$ 14 years $\times$ 13 objectives). This is due to the fact that in the early years of the sample period we had no prior data for some sector funds, since these funds have only become popular in recent years. This also explains why we have more observations in model (ii) than in model (i): we could not compute the returns of funds in the objective in some years, because such funds simply did not exist, but we could compute the return on the underlying index.

deviation increase in the family excess return increases the likelihood of a fund opening by 12–18%. This is consistent with the conjecture that families attempt to take advantage of their reputation for excellent performance. This result does not hold at the family objective level, however. The performance of other funds in the family with the same objective is not significantly related to the opening decision. The lack of a significant relation for the objective-family excess returns is also inconsistent with the window dressing argument, which suggests that families start new funds in an objective to disguise the performance of existing funds. It is possible, however, that firms engage in window dressing only to hide extremely poor performance. If this is the case, the coefficient on objective-family excess return may not capture this effect. As an alternative specification, we include an indicator variable in our models to capture significant underperformance. We define performance as being poor if the average abnormal return of all funds within an objective in a family is more than two standard deviations below the mean. The coefficient on this indicator variable is positive but insignificant (not reported in a table), providing no conclusive evidence in support of window dressing.[14]

An alternative explanation for the lack of support for the window dressing arguments is that families are more sophisticated in their approach to window dressing. Instead of waiting for a fund in an objective to perform poorly, they may simply open several funds at the same time and close down poorly performing ones, or merge them out of existence. We do find 102 instances where families open more than one fund in an objective in a given year, but only 9 of these funds ceased to exist before the end of the sample period.

Capital gains overhang could deter growth if investors are reluctant to invest in funds that can realize substantial capital gains in the future; this may spur new openings. For the overall sample, we find that our measure of overhang at the objective level (the mean capital gains overhang as a fraction of assets of all funds in the matched objective) is actually negatively related to the opening decision for existing families [Table 3; model (iv)]. This is inconsistent with our priors. As it turns out, this result is caused by the aggregation of stock and bond funds. Bond funds generally have much less overhang than stock funds. This difference, combined with the stronger growth in the opening of bond funds over our sample time period leads to the negative coefficient on the overhang measure. When separate models are estimated for stock and bond funds in Tables 4 and 5, the effect of overhang becomes positive and significant. Thus, more equity funds are started when asset inflows into existing funds expose potential shareholders

[14] Changing the definition of poor performance to performance one or three standard deviations below the mean does not alter this result.

to high capital gains realizations. For equity funds, a one standard deviation increase in the objective overhang increases the likelihood of a fund opening by 39% for all families and 19% for existing families.

Clearly, overhang is related to a fund's prior performance and to its portfolio turnover. Funds that have performed better in the past and sold fewer appreciated shares will have higher unrealized capital gains. A simple cross-sectional time-series regression of overhang of a fund at the end of year t on turnover and performance during the year yields an R^2 of 0.21. Since we control for returns in our models, does this imply that our overhang measure simply captures turnover? And since turnover is partly a reflection of a manager's investment style, is our overhang measure really capturing tax effects? To partially address this concern, we compute the average portfolio turnover at the level of the objective, the family, and the family objective, and include these measures in our models. We find that turnover at the objective level has a negative and significant effect on the opening decision, while the other measures are insignificant. More importantly, for our purpose, the coefficient on overhang is not affected. This suggests that overhang captures aspects other than portfolio turnover. For brevity, these results are not reported in a table.

Our regression models also provide support for the argument that families open new funds when the marginal fees in existing funds are in the low end of the staggered fee structure. Both our staggered fee variables (fraction > minimum threshold; fraction > maximum threshold) are positive in all models; the coefficient on the first variable is highly significant in the full sample (Table 3) and for equity funds (Table 4); the coefficient on the second variable is only significant when we analyze the decision-making process of existing families. This indicates that families which surpass the minimum (and, perhaps, maximum) threshold in terms of total assets beyond which management fees decline are more likely to open a new fund. A one standard deviation increase in the fraction of funds exceeding the minimum fee threshold results in a 6–10% increase in the likelihood of a new fund opening for the combined stock and bond fund sample. While this effect is not as dramatic as the effect of other variables, it is still substantial. The lack of significance for bond funds (Table 5) is partly due to the correlation between one of the staggered fee variables (fraction > minimum threshold) and the percentage of the family's assets invested in the objective ($\rho = 0.42$). When the fraction invested in the objective is removed as an explanatory variable, the fraction of funds exceeding the first step becomes significant at the 10% level for existing families.[15]

[15] This correlation is smaller for equity funds, which explains why this problem does not present itself for that subsample.

One could argue that the staggered fee variables simply proxy for fund size, and that families open new funds when the current funds become too large to manage. This argument is not convincing, however, for three reasons. First, if current funds become too large to manage, we would expect families to close the old fund to new investors. That is not the case. During our sample period only 49 funds closed to new investors. Second, there is substantial cross-sectional variability in the step function. Moreover, a large number of funds do not have stepwise fee structures at all. In our sample, 42% of the surviving funds have stepwise fee structures. The minimum initial step is only $2 million, the maximum $5 billion; the mean is $309 million, and the median is $200 million. Third, including the average size of the funds under management in the matched objective does not materially affect the coefficient on the staggered fee variable.

As a test of the "cannibalization" versus "specialization" argument, we examine the relation between the decision to open a new fund and the fraction of a family's assets invested in that objective. No consistent pattern emerges. For bond funds (Table 5), there is some evidence of specialization: existing families are more likely to open new funds if they have a larger fraction of their assets in existing funds [models (iii) and (iv)]. This provides some evidence that the benefits of specialization and the associated scale economies tend to outweigh the costs associated with the cannibalization of existing funds. For equity funds (Table 4), we find the opposite result when new and existing families are combined, but not when we study new families separately. Since three of the families in our survey mentioned that they open new funds to expand their product mix, in unreported models, we also include an indicator variable equal to one if the family has no fund in that objective, and zero otherwise. This indicator variable is not significant in any of the model specifications.

The regression models provide strong support for the "follow-the-leader" argument, with the exception of bond funds. The full sample results in Table 3 indicate that a fund opening by a large family in the previous year increases the probability of a new fund opening by 86–138% across the four model specifications. The subsample results for new equity fund openings (Table 4) provide similar results. However, there is no evidence of a "follow-the-leader" strategy in bond funds (Table 5). This may be the case because there is less differentiation among bond funds, and therefore a lesser need to mimic the innovation [Reinganum (1985a)]. For stock funds, on the other hand, there is a greater opportunity for differentiation, especially in the sector fund category.

Finally, we find the strongest support for the economies of scale and scope arguments. Families with more assets under management are more likely to open new funds. A one standard deviation increase in the size of the family increases the likelihood of opening a new fund by 16–30% across the

four model specifications in Table 3.[16] In addition, in both the full sample (Table 3) and subsample (Table 4 and 5) tests, we find that families which opened a larger number of funds in the prior year are also more inclined to open new funds. Thus large families are more likely to innovate than small complexes, but prior experience is also important. Even after controlling for size, families that have invested in the new product development process and opened more funds in the prior year are more likely to open funds in the current year as well.

Overall, the results presented in Tables 3–5 indicate that families open new funds when the ability to earn higher fees is substantial; this is reflected in the results on family performance, objective size, and the staggered fee structure. Prior experience of families in opening new funds also matters. Finally, families imitate the behavior of large families in the industry. It is also interesting to note the similarities in the results between models (i) and (ii) and models (iii) and (iv). This indicates that our findings are not driven by differences between new and existing families. In alternative specifications (not reported), we include an "existing family" dummy in the models estimated for all families. This variable is highly significant, which suggests that new families are less aggressive in their decision to open a new fund. The magnitude and significance of the other variables is not affected by the inclusion of this dummy variable.

3.2 Robustness Tests

To examine whether our findings are robust across time, we divide the sample into two subperiods: 1979–1987 and 1988–1992. About half of all openings occur in each subperiod. We then repeat our analyses of Tables 3–5. For the sake of brevity, we do not report these results in a table. In general, we find that our results are similar for both subperiods, albeit some coefficients do not attain significance at conventional levels for both models. A major difference, however, is that overhang is no longer significant for equity funds in the second half of the sample period. We know that the quality of our overhang measure improves over time because we set overhang equal to zero for all funds at the start of the sample period.

[16] In unreported models, we also included the size of the assets within an objective managed by the family. Articles in the popular press suggest that families open new funds in an objective when their existing funds get too large. For example, an article in *Barron's* (February 23, 1998: 39) discusses Fidelity's plans to open new funds in an attempt to allow managers to have a lighter load of assets. The article also refers to the closing of the Magellan fund because it may have become too large to manage. In addition, two of the fund families we contacted mentioned the size of existing funds as an important determinant of the decision to open new funds. Interestingly, after controlling for the size of the family, the size of funds under management in an objective never enters our models significantly. However, family size is significantly correlated with the size of the assets in an objective ($\rho = 0.41$). If family size is not included, total assets managed by the family in an objective become highly significant.

Thus the lack of significance in the second half of the sample is a cause for concern.

It turns out that the above lack of significance is caused by sector funds. As we document in Table 1, sector funds do not generate as much activity in terms of new starts as traditional stock and bond funds. During the first half of our sample period (1979–1987), sector funds accounted for 13.9% of fund openings, while during the second half (1988–1992) this fraction declined to 6.8%. In addition, we find that sector funds had more overhang than traditional funds during the second half of our sample period (7.3% for regular stock funds and 9.1% for sector funds; p-value of difference $= 0.00$). The combination of these factors reduces the significance of the overhang variable in the latter part of the sample. If we simply estimate our models excluding sector funds, the overhang measure becomes positive and regains its statistical significance. Our other major findings also remain unchanged.

A complementary explanation for why sector funds reduce the importance of overhang is that investors may employ sector funds as a short-term trading instrument. As a result, investors will care less about the imbedded capital gains overhang because they realize capital gains themselves. Since we do not have data on the extent of trading in sector funds, we are unable to verify whether this is indeed the case.

We also reestimate all models for the 100 largest funds only. Survivorship is less of an issue for this sample since we collected data on all the funds of these families, including those that were terminated during the sample period.[17] Our results (not reported in a table) are again similar to those for the entire sample.

3.3 Explaining the Number of New Fund Openings

Table 6 contains the results of our second set of tests in which we examine the determinants of the number of new fund openings. We ignore family-specific information in these models and simply estimate a model of the number of fund openings in each objective. Poisson regression is appropriate for these types of models, since we are interested in the number of occurrences of an event. Our results remain unchanged, however, if we employ the ordinary least squares approach. Because the regression coefficients have no straightforward interpretation, we report the economic significance in a similar manner as in the prior analyses. Using a sample of 182 observations (14 years of data for 13 objectives), we estimate the following regression

[17] Note that this sample is not completely free of survivorship bias since we only gather data for families still in existence at the end of 1992. In addition, the selection of the largest 100 fund families took place at the end of the sample period, which indicates that we added data for the nonsurviving funds of the most successful families.

Table 6
Poisson regressions of the number of new fund openings

	All funds		Equity funds		Bond funds	
Explanatory variables	Model (i)	Model (ii)	Model (iii)	Model (iv)	Model (v)	Model (vi)
Intercept	−0.244	−0.240	−0.592	−0.804	5.376	2.939
	(0.37)	(0.36)	(0.11)	(0.02)	(0.01)	(0.00)
Objective inflow	0.002		0.030		0.015	
	(0.75)		(0.44)		(0.05)	
	[1]		[−3]		[12]	
Objective size	0.036	0.005	0.069	0.046	0.004	0.003
	(0.00)	(0.05)	(0.00)	(0.00)	(0.16)	(0.91)
	[66]	[8]	[110]	[64]	[9]	[1]
Funds opened in objective in $t-1$		0.063		0.030		0.017
		(0.00)		(0.00)		(0.04)
		[79]		[23]		[27]
Return index underlying assets		0.926		−0.396		−0.802
		(0.00)		(0.35)		(0.48)
		[20]		[−8]		[−7]
Objective return	0.004		0.004		−0.131	
	(0.15)		(0.28)		(0.05)	
	[8]		[10]		[−63]	
Objective overhang		−0.325		2.114		9.959
		(0.34)		(0.00)		(0.00)
		[−5]		[34]		[97]
Large family opens	0.934	0.799	0.438	0.519	−0.046	−0.677
	(0.00)	(0.00)	(0.00)	(0.00)	(0.95)	(0.39)
	[156]	[222]	[55]	[68]	[−4]	[−49]
Pseudo R^2	0.49	0.58	0.56	0.59	0.63	0.68
Regression p-value	0.00	0.00	0.00	0.00	0.00	0.00
N	178	182	150	154	28	28

Model: *Number of funds opening* $= f$ (*year dummies, underlying index performance, large family dummy, funds opened in objective in prior year, objective return, objective inflows, objective size, objective capital gains overhang*).

This table contains the results of cross-sectional time series multivariate Poisson regressions of the number of new funds opening in a given objective and in a given year on the performance of the underlying asset class/index to which the fund is exposed, the mean performance of other existing funds in the matched investment objective, total assets in the objective, the number of funds opened in the objective in the previous year, the asset inflows into funds with the same objective, an indicator variable for whether a large family opened a fund in the matched objective in the previous year, the magnitude of unrealized capital gains in the average fund in that objective, and year dummies. All asset-based variables are in CPI-deflated 1978 constant dollars. The p-values of the regression coefficients are in parentheses. The number in brackets is the percentage increase in the number of funds opened when all variables are set equal to their means and the variable is increased by one standard deviation. For indicator variables, this number is the percentage increase in the number of fund openings when the indicator variable increases from zero to one. The sample contains openings in 13 different investment objectives over a 14-year period (from 1979 to 1992).

model:

$$\begin{aligned}&\text{Number of funds opening in objective } j \text{ in year } t\\ &\quad = \alpha_0 + \beta_1(\text{objective inflow})_{j,t-1} + \beta_2(\text{objective size})_{j,t-1}\\ &\qquad + \beta_3(\text{number of funds opened in objective})_{j,t-1}\\ &\qquad + \beta_4(\text{return index underlying assets})_{j,t-1}\\ &\qquad + \beta_5(\text{objective return})_{j,t-1} + \beta_6(\text{objective overhang})_{j,t-1}\\ &\qquad + \beta_7(\text{large family opens})_{j,t-1}. \qquad (4)\end{aligned}$$

We include the number of funds opened in the objective in the previous year because fads in the industry may develop slowly, and it takes time for investment advisors to respond to market trends. All the other variables have been discussed previously. Year dummies are also included in the models.

The pattern of results in Table 6 is similar to the findings reported previously. Inflows into an objective are insignificant for the full sample and for equity funds; they are significant for bond funds, however. The size of the objective, on the other hand, is significant for the full sample and for equity funds, but not for bond funds. In general, these findings suggest that measures of size (be it growth or total objective size) have a positive effect on the number of openings.

The coefficient on the number of funds opened in an objective during the prior year is positive and highly significant, both economically and statistically. This is consistent with the argument that it takes time for investment advisors to respond to market trends.

An increase in the average capital gains overhang in an objective also leads to more fund openings. The coefficient on overhang is actually negative when equity and bond funds are combined, but when models are estimated for both groups of funds separately, the coefficients become positive and significant.

Finally, more funds are opened in a particular objective in the year after one of the large families opens a fund; a fund opening by a large family in the previous year, increases the number of new fund openings by 55–68% for equity funds. However, for bond funds, prior openings by large fund families have no significant impact on the fund opening decision. We also find that the coefficient on the objective return is significantly negative for bond funds. This provides some evidence that fewer funds are opened when bond funds have done very well in prior years.[18]

4. Conclusion

In this article, we analyze the determinants of mutual fund starts, a particularly significant category of financial innovations in recent years. We examine the decision of 366 mutual fund families to open funds in 13 asset categories over a 14-year period.

A number of strong conclusions emerge. Families open new funds when the potential to generate additional fee income is substantial. Four results are consistent with this finding. First, more funds are opened when the size

[18] We also perform a third set of tests (not reported in this article), where the unit of observation is the family, regardless of the objective. In general we find that a family opens more funds when (i) it has performed better; (ii) when more of its funds have surpassed the first step of the staggered fee schedule; (iii) when it has more assets under management; and (iv) when it has opened more funds in prior years. These results are available from the authors upon request.

of the underlying investment objective is large. Second, more funds are opened in an objective when the capital gains overhang in other funds with the same objective is large; overhang in existing funds may hamper growth. This result holds after controlling for the prior performance of funds, and is consistent with Barclay, Pearson, and Weisbach (1998) who suggest that high levels of capital gains overhang may deter new investment in a fund. Third, more funds are opened by families with a greater proportion of funds in the low range of the staggered fee schedule. A new fund opening results in resetting fund fees to the highest point in the fee schedule. Fourth, more funds are opened by families with star funds. This suggests that families want to exploit their reputation as excellent performers by expanding their product line.

We also find that fund families mimic the behavior of the eight largest families in our sample. Large families tend to innovate, while smaller families replicate.

Finally, consistent with the presence of scale economies, we find that larger families and families which have opened a larger number of funds in prior years, are more likely to open a new fund. For bond funds we also find that existing families are more likely to open a new fund when they have a greater percentage of assets invested in an objective. We suspect that the benefits of specialization overcome the costs associated with the cannibalization of existing funds.

We do not find any support for the conjecture that families open new funds in an objective because the poor performance of their existing funds in that objective hampers growth. It is still possible that some fund families engage in "window dressing," but this argument is simply not strong enough to affect our results. Alternatively, families may use different methods to disguise poor performance.

Appendix: Institutional Details on Fund Openings

Mutual funds are regulated financial institutions that must comply with federal and state laws and regulations. In particular, they are regulated by the U.S. Securities and Exchange Commission (SEC) under the Investment Company Act of 1940. Mutual funds are defined in the 1940 act as investment companies that are either diversified or nondiversified. A diversified company invests at least 75% of its total asset value in cash, government securities, securities of other investment companies and other securities. Not more than 5% of a diversified fund's assets can be invested in a single issuer and the fund cannot own more than 10% of the outstanding securities of a given issuer.[19]

[19] Funds are required to establish investment policies in such areas as lending, borrowing, investing in real estate, and investing in commodities. The SEC also regulates the use of certain investment techniques, including repurchase and reverse repurchase agreements, futures, options, and swaps. Assets of the fund must be safeguarded by placing them in the hands of a custodian and by providing fidelity bonding of officers and employees of the fund. The act also requires daily valuation of the fund's portfolio. The 1940 act requires mutual funds to maintain records of the securities owned and the fund's outstanding

The 1940 act requires that each new fund have a net worth of at least $100,000 before distributing shares to the public. Initial subscriptions or commitments must be limited to a small predetermined group of organizers. Generally the fund adviser or sponsor makes the contribution in the form of an initial investment. The $100,000 seed capital may be spread over three portfolios, provided the fund is a "series-type" fund. A series-type fund offers separate types of portfolios, such as a separate common stock fund, bond fund, and a money market fund. Investment advisers to the funds are required to register under the Investment Advisers Act of 1940. This act places a fiduciary duty on investment advisers and contains antifraud provisions. It requires advisers to meet reporting, record keeping, and disclosure requirements.

Shares offered to the public must be registered pursuant to the Securities Act of 1933 and various state "Blue Sky" laws.[20] A prospectus describing the fund must be provided to all prospective investors. The fund must also provide, if an investor requests, further details of the fund in a Statement of Additional Information. Because mutual funds continuously offer shares to the public, they are allowed to maintain an "evergreen" prospectus that is updated at regular intervals and whenever material changes occur. They are permitted to register an indefinite number of shares. At the end of each fiscal year, registration fees are paid to the SEC based on the number of shares actually sold.

Starting a mutual fund is a complicated and often expensive process. Preparing the registration statement, contracts, state filing, and corporate documents usually costs approximately $100,000 or more in legal fees. State registration fees vary; however, the total fees for a fund that offers shares in all states often exceed $30,000. The total organizational costs vary by fund. For instance, funds with in-house legal counsel, accounting, and printing capabilities can limit these costs to as little as $75,000. However, depending on the complexity of the products and initial marketing efforts, these costs can range as high as $250,000 to $750,000 or more.

Expert legal counsel is critical. Counsel must have extensive knowledge and experience with the Investment Company Act of 1940, the Investment Advisers Act of 1940, state "Blue Sky" laws, and National Association of Securities Dealers (NASD) rules and regulations. In addition to legal counsel, accountants with industry knowledge can provide valuable insight into the complicated record-keeping and reporting requirements as well as shed light on the complicated tax laws and regulations.

Mutual funds are organized as corporations or trusts. However, they differ from other companies in several ways. First, virtually all mutual funds are externally managed. Their operations are carried out by third parties, such as investment managers, broker-dealers, and banks. Second, mutual funds generally offer new shares continuously. Third, mutual funds must buy back shares from the public based on the price of the underlying assets. Fourth, federal laws impose requirements on the structure and operations of the funds as well as the unique responsibilities on their independent directors or trustees.

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shares. They must also file semiannual reports with the SEC and send reports to shareholders. Financial statements reported in the annual report must be certified by independent accountants.

[20] Registration under these "Blue Sky" laws typically involves filing a brief application form, a copy of the SEC registration statement, and a consent to service of process. In general, states permit registration by "coordination," where the state registration becomes effective automatically when the filing under the 1933 act becomes effective. Some states impose additional investment restrictions on mutual funds. A few impose limits on mutual fund expenses. Most require the registration of broker-dealers that offer securities in that state.

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