Demand for Financial Advice, Broker Incentives, and Mutual Fund Market Segmentation

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Abstract

Assuming that some investors value both financial advice and performance, but that the brokers needed to provide this advice are unwilling to recommend funds available at lower cost elsewhere, we predict that the market for mutual funds will be segmented. Segmentation forces fund families to target either performance-sensitive investors or investors who value financial advice. Families targeting performance-sensitive investors have the greatest incentive to invest in skilled portfolio management. Combining novel data on mutual fund distribution channels and on subadvisory fees paid for portfolio management, we find strong support for our assumptions regarding investor preferences and our predictions regarding channel segmentation and fund family behavior. Our findings shed new light on the expected relation between mutual fund fees and returns in a competitive market.

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To assess the competitiveness of the mutual fund industry, academics and regulators focus on the relation between mutual fund fees and returns. For example, assuming that the market for retail mutual funds is competitive, Malkiel (1995) and Gil-Bazo and Ruiz-Verdu (2009) predict a positive relation between total mutual fund fees and before-fee returns. Contrary to this prediction, they find that actively managed equity funds charging higher total fees earn lower before-fee returns. Similarly, Bergstresser, Chalmers, and Tufano (2009) find that mutual funds sold through brokers charge higher fees and earn lower before-fee returns than funds marketed directly to investors. Gil-Bazo and Ruiz-Verdu (2008, 2009) argue that these patterns are consistent with a model of strategic fee setting, in which funds with lower expected returns use higher fees to extract surplus from unsophisticated investors.

An alternative explanation for the lack of a positive relation between total fees and before-fee returns is that higher fees reflect the higher costs associated with providing services that investors value but which are unrelated to portfolio management and performance. For example, investors who value personalized financial advice can choose to invest in mutual funds through a broker; these funds then charge higher fees to compensate brokers for providing this advice. However, while Hortascu and Syverson (2004) and Coates and Hubbard (2007) argue that demand for costly advice by novice mutual fund investors can indeed explain dispersion in mutual fund fees, neither study explains why mutual funds providing financial advice should earn lower *before-fee* returns. Moreover, to study any explanation along these lines, researchers must overcome the fact that services unrelated to portfolio management are largely unobservable, and that traditional mutual fund fee data do not reliably distinguish the cost of portfolio management from firm profits, or the cost of providing investor services.[1]

[1] Although mutual fund investors pay more than $10 billion annually in 12b-1 distribution fees, it is widely recognized that 12b-1 fees underestimate the total cost of marketing and distribution. For example, it is common for mu-

We argue that heterogeneity in investor sophistication can drive market segmentation and cause differences in before-fee returns, even in the absence of strategic fee setting. Our argument rests on three assumptions. First, whereas all investors value higher after-fee returns, some investors also value financial advice for reasons that go beyond maximizing returns. For example, investors may value customized asset allocation advice, or the peace of mind of having someone to call during extreme market conditions. (For convenience, we refer to investors who only value after-fee returns as sophisticated, and to those who also value financial advice as unsophisticated.) Second, because brokers have no incentive to recommend mutual funds that investors can purchase at lower cost online or through another broker, mutual fund families cannot simultaneously serve sophisticated and unsophisticated investors.[2] Third, investments in portfolio management generate higher expected *before-fee* returns.[3]

Embedding our assumptions into Massa's (2003) model of competition between mutual fund families leads us to predict that the market for retail mutual funds will be segmented.[4] Mutual fund families must choose whether to compete for sophisticated investors in the do-it-yourself segment, or for investors who value financial advice (or financial advice bundled with other investor services), in one of the broker-sold segments. Mutual fund families then internalize the preferences of their target investors. Since sophisticated investors value after-fee returns,

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tual fund families to use management fees to cover distribution costs (see, for example, footnote 13 in Elton, Gruber, and Busse (2004), Zweig (2009), and the SEC roundtable on 12b-1 fees dated June 19, 2007.

[2] Telser (1960) argues that when consumers can obtain product information from high service, high price retailers but buy the same products from low service, low price retailers, retail competition will reduce sales effort and reduce access to information that is valuable but costly to provide. Bork (1966) argues that by entering into exclusive territory agreements with downstream firms, upstream firms minimize intrabrand price competition and, thereby, maximize the effort put into selling their products. For an overview of these issues, see chapter 4 in Tirole (1993).

[3] In a world with costly information acquisition and processing, the relation between investments in portfolio management and before-fee returns should be positive (Grossman and Stiglitz (1980)). However, the empirical relation between investments in portfolio management and returns measured net of those investments remains an open question.

[4] Massa (2003) models competition between mutual fund families when some investors value the option to freely switch between funds in a family, but there is an assumed tradeoff between fund variety and fund returns. We contrast his assumptions and predictions with our own in section I.

mutual fund families competing for these investors invest the most in portfolio management (e.g., software that improves trade execution or hiring skilled analysts), and little in other costly-to-provide services. And, since investors in broker-sold segments value both financial advice and portfolio management, families competing for these investors invest more in advice (e.g., hiring client service personnel dedicated to supporting broker inquiries) and less in portfolio management. Because of their additional investments in portfolio management, mutual fund families targeting sophisticated investors should earn higher before-fee returns, on average, than families in other market segments. If the additional investments in portfolio management cost less than personalized financial advice, and profits are constant across channels, we will also observe a negative relation between total fees and before-fee returns.

To test our key assumptions and predictions, we combine data on mutual fund distribution strategies with data from the subadvisory market, through which fund families can outsource portfolio management to other firms. To identify potential market segments, we use data from Financial Research Corporation from 1996 to 2002 to classify each mutual fund into one of seven distribution channels: *direct, captive, bank, insurance, wholesale, institutional,* and *other*.[5] We find strong evidence that these distribution channels capture important differences in investor preferences. When we test our assumption that do-it-yourself investors are the most focused on after-fee returns, we find that monthly net flows in the *direct* channel are the most sensitive to extreme positive and negative after-fee returns. More generally, we find evidence of significant market segmentation. In 2002, the average mutual fund family distributes 92.6% of its assets through its primary distribution channel, and 59.1% of families distribute 100% of their assets

[5] Mutual funds in the *direct* channel are marketed directly to do-it-yourself investors, those in the *captive, bank, insurance* channels are sold by brokers who represent a single mutual fund family, those in the *wholesale* channel are sold by brokers with access to numerous mutual fund families, and those in the *institutional* channel are sold through 401(k) plans. We provide more details on these channels, and the *other* channel, in Section II. We thank FRC for sharing their disaggregated distribution channel data with us.

through a single channel. Even among the 25 largest fund families, for whom the financial barrier to entering a new distribution channel should be relatively low, 85.8% of assets are distributed through the family's primary distribution channel.

To shed light on why distribution is concentrated, we study the propensity of mutual fund families to distribute assets through different pairs of distribution channels. Consistent with our assumption that brokers compensated through transactions-based fees (loads) will not provide costly personalized services to investors who can easily access the same funds at lower cost in another channel, we find that only 3.3% of families distribute funds simultaneously through the *direct* channel and any of the broker channels (*wholesale*, *captive*, *bank*, and *insurance*), or through multiple broker channels (e.g., through both *wholesale* and *captive*). The fact that Janus closed its *direct* platform to new investors in July 2009, after a lengthy and costly entry into the *wholesale* channel, is also consistent with our assumption because Janus deliberately chose not to distribute simultaneously through the *direct* and *wholesale* channels, despite having operated in the *direct* channel for decades.[6]

Given our evidence that investors in the direct channel are the most sensitive to fund performance, we predict that mutual fund families in the *direct* channel will invest the most in fund performance. By studying the negotiated fee schedules in a comprehensive sample of subadvisory contracts in 2002, we are able to estimate the value that mutual fund families place on portfolio management. Importantly, the subadvisory fee isolates the portion of the management fee used to pay for the portfolio management function. For example, Vanguard charges its investors a management fee of 37 basis points for the Vanguard PRIMECAP fund, and from this pays PRIMECAP Management Company, an institutional separate account manager, a 25 basis point subadvisory fee to do the stock-picking. Using two different proxies for subadvisor skill, we

[6] See Janus' 3/16/09 press release at janus.com. We provide additional anecdotal evidence in Section II.B.

find that mutual fund families in the *direct* channel are willing to pay significantly higher fees to skilled subadvisors. We interpret this finding as evidence that funds in the *direct* channel cater to their more performance-sensitive clientele by investing relatively more in portfolio management. Within the full sample of actively managed equity funds, we find that funds in the *direct* channel earn annual risk-adjusted before-fee returns more than one percent higher than those earned by comparable funds in other channels. While Bergstresser, Chalmers, and Tufano (2009) find a similar difference in before-fee returns, we re-interpret the difference as arising from differential investments in portfolio management.

Viewed from the perspective of the subadvisor, subadvising also allows mutual fund families to relax broker constraints on serving investors in multiple segments. For example, serving as the subadvisor for the Vanguard U.S. Growth Fund allows Alliance to indirectly serve investors in the *direct* channel without providing an obvious low-cost competitor to the Alliance Growth Fund that brokers recommend in the *wholesale* channel. In total, we find that 86 mutual fund families subadvise for other mutual fund families. Among families whose primary distribution channel is *direct* or broker-sold, 60.8% of the subadvised assets are in channels that we argue broker-incentives prevent them from serving directly.

Our findings have implications for future mutual fund research. The fact that families in the *direct* channel invest more in performance suggests that tests for managerial skill should focus on this channel. Also, while it is common in studies of mutual fund flows to assume that every mutual fund family competes with every other family, our evidence suggests that competition should be strongest between families in the same distribution channel.[7] In the absence of the market segmentation that we document, the fact that mutual fund families enter into subadvisory contracts with other 'competitor' mutual fund families would be quite puzzling.

[7] A notable exception is Wahal and Wang (2010), who use overlap in stocks held to identify potential competitors.

More importantly, by providing evidence that heterogeneous demand for financial advice drives market segmentation and differences in before-fee returns, we provide empirical support for a model in which mutual fund families compete on more than portfolio management. Because investors in this model are willing to tradeoff financial advice and after-fee returns, it is welfare reducing to move investors with a revealed preference for financial advice to lower-fee funds in the *direct* channel. Whether our model better captures the nature of mutual fund competition than the model in Gil-Bazo and Ruiz-Verdu (2008) remains an important open question.

The remainder of our paper is organized as follows. In section I, we use insights from Massa's (2003) model to link our assumptions to our main predictions. In section II, we describe our distribution channel data, and use these data to show that mutual fund market segmentation is driven by both investor heterogeneity and broker incentives. In section III, we use data from subadvisory contracts to show that families targeting sophisticated investors invest more in portfolio management, and then show that *direct* channel funds outperform comparable funds in other channels. In section IV, we use data from subadvisory contracts to provide additional evidence on broker incentives and investor heterogeneity. In section V, we conclude.

I. Model of Investor Heterogeneity, Broker Incentives, and Market Segmentation

To motivate our study, we adopt Massa's (2003) model of competition between mutual fund families, but change two key assumptions. Massa studies a mutual fund family's decision regarding the scope of its fund offerings. He assumes that all investors value after-fee returns, but investors with short or uncertain investment horizons also value the option to freely switch between funds in a family. Given this investor heterogeneity, offering funds in more asset classes and investment styles makes families more attractive to investors who value fund variety. However, because he also assumes that families with broad fund offerings earn lower returns on

their investments in portfolio management (i.e., diseconomies of scope in the co-production of fund variety and fund performance), offering funds in more asset classes and investment styles makes families less attractive to investors who only value performance.[8]

Combining investor heterogeneity with diseconomies of scope yields two predictions about the nature of mutual fund competition. The first prediction is that the market will be segmented, with different mutual fund families offering bundles of fund and family characteristics valued by different types of investors. One segment will consist of large mutual fund families that compete for investors who value variety by offering a wide variety of asset classes and investment styles. The other segment will consist of focused mutual fund families that compete for performance-sensitive investors by offering a much narrower range of asset classes and investment styles. Without diseconomies of scope there would be no cost to providing fund variety and, therefore, no demand for focused mutual fund families. Without a significant number of investors who value fund variety, there would be no demand for large fund families.

The second prediction is that mutual funds belonging to focused families will outperform comparable funds belonging to large, unfocused families. Investors willing to tradeoff variety and returns self-select into large families, which invest in fund variety at the expense of fund performance, while investors that only value after-fee returns self-select into focused families. Consistent with both predictions, Massa (2003) and Siggelkow (2003) find that funds in focused families earn higher after-fee returns.

To apply Massa's (2003) model to the provision of investor services, we need to assume that different types of investors demand different bundles of portfolio management and investor

[8] For example, Siggelkow (2003) argues that growth and value investing require different types of research and different trading strategies, resulting in distinct, incompatible cultures. In this case, diseconomies of scope in the co-production of fund variety and fund performance implies that, everything else equal, a mutual fund family earns lower after-fee returns by offering both growth and value funds than by specializing in either growth or value.

services, and that mutual fund families are limited in their ability to simultaneously provide different bundles. Our first assumption is that some investors only value after-fee returns, while other investors value financial advice for reasons that go beyond maximizing after-fee returns. We refer to the investors who only value after-fee returns as sophisticated, and all other investors as unsophisticated. Our second assumption is that brokers will not recommend mutual funds that investors can purchase at lower cost elsewhere, for fear that they will not be compensated for recommending these funds (Telser (1960)). Combining these two assumptions leads us to predict that the market will be segmented. As in Massa (2003), some mutual fund families will compete for performance-sensitive, do-it-yourself investors. However, other mutual fund families will compete for less sophisticated investors, who value financial advice. If we add the assumption that investments in portfolio management increase before-fee returns, we also predict that mutual fund families targeting performance-sensitive investors will invest more in portfolio management, and earn higher before-fee returns.[9]

Importantly, if the additional investments in portfolio management in the performance-sensitive segment are lower than the additional investor services demanded in other market segments, we can explain a negative relation between total fees and before-fee returns without assuming different profits in different channels. In other words, our application of Massa's model provides an alternative to the model of strategic fee setting in Gil-Bazo and Ruiz-Verdu (2008). In the rest of this paper, we provide empirical support for our assumptions and predictions.

[9] In Massa (2003), predictable differences in performance arise because diseconomies of scope in the co-production of fund variety and fund returns force families to choose between fund variety and fund returns. In our setting, the negative impact of costly investor services on fund returns drive performance-sensitive investors to fund families that provide fewer (or less costly) investor services, giving these families a greater incentive to invest in portfolio management. At the same time, families targeting investors who are willing to trade investments in portfolio management for investments in investor services, invest more in their broker network and less in portfolio management.

II. Do Investor Heterogeneity and Broker Incentives Drive Market Segmentation?

A. Mutual Fund Distribution Channels

Prior studies emphasize the link between the services that investors receive and the channel through which retail mutual funds are distributed (e.g., Hortascu and Syverson (2004) and Coates and Hubbard (2007)). The normal distinction is between do-it-yourself investors, who purchase (no-load) funds directly from mutual fund families like T. Rowe Price, and investors who pay sales commissions to purchase (load) funds from brokers. However, as Bergstresser, Chalmers, and Tufano (2009) and Christoffersen, Evans, and Musto (2009) emphasize, there are a variety of broker arrangements from which investors can choose. For example, Waddell and Reed distributes its mutual funds exclusively through a *captive* sales force of 2,300 financial advisors who "offer one-on-one consultations that emphasize long-term relationships through continued service" (Waddell and Reed's 2008 10-k filing). Similarly, investors who value both financial advice and the convenience of one stop shopping can purchase mutual funds through their insurance agent or banker. In contrast to these captive broker arrangements, families like American Funds and Putnam distribute funds through independent brokers with access to a large number of families in the *wholesale* channel.

We obtain data on distribution channels for 1996 to 2002 from Financial Research Corporation (FRC).[10] FRC assigns each mutual fund share class to one of five distribution codes: *direct, captive, bank, wholesale,* and *institutional.* (Mutual funds in the *institutional* channel are typically only available to 401(k) plan participants or investors with more than $500,000 to invest.) Because FRC also includes distribution codes used by Lipper, we create two additional

[10] The FRC distribution channels are consistent with the descriptions in publicly-traded asset management firms own annual reports. For example, Janus' 2008 form 10-k states that it distributes through the "retail intermediary" (wholesale) and "institutional" channels. "Each distribution channel focuses on specific investor groups and the unique requirements of each group."

distribution codes: *insurance* and *other*. We classify share classes as being in the *insurance* channel when Lipper indicates that they are sold through an insurance company. In other words, *captive, bank,* and *insurance* are three distinct channels utilizing captive brokers, *wholesale* utilizes independent brokers, and *direct* targets do-it-yourself investors. The *other* category is reserved for share classes for which the FRC and Lipper classifications differ (e.g., FRC assigns the share class to *direct* but Lipper assigns it to *institutional*), and is included for completeness. We obtain data on total net assets (TNA), and most other fund-level and family-level variables, including data on which mutual funds belong to each mutual fund family, from the CRSP Survivor-Bias Free Mutual Fund Database.

We hypothesize that mutual fund families distributing funds through different channels must invest in different bundles of services. To compete for investors in the do-it-yourself distribution channel, mutual fund families must invest in the online tools valued by sophisticated investors, and advertising.[11] To compete for investors in broker-sold distribution channels, however, mutual fund families must compete for broker recommendations. Families in the *captive, bank,* and *insurance* channels must invest in their dedicated sales forces, while those in the *wholesale* channel must invest in tools that help independent advisors manage client portfolios.[12] Our tests assume that mutual funds are a homogeneous bundle of services within distribution channel and differentiated products across channels. We will show that distribution channels better capture the differences in these bundles of services than a comparison of load and no-load funds.

[11] For example, Fidelity's Center for Applied Technology conducts R&D activity on social networking, virtual environments, data visualization, behavioral economics, and decision theory, to better serve do-it-yourself investors (see http://fcat.fidelity.com).

[12] For example, Janus launched a redesigned website "that reflects our commitment to partner with advisors and help them build their businesses" by "providing smart, relevant and productive information and tools designed to help them better serve their clients" (quotes taken from Janus press release 7/8/2009 referring to the launch of janus.com/advisor). Janus also developed *Janus Labs*, a web portal that "helps [advisors] hone their sales skills in the hope that they will pick Janus products" (*Institutional Investor* June 2007).

To determine each mutual fund family's primary distribution channel, we aggregate the assets within each channel across all of a family's share classes and select the channel that contains the highest percentage of family assets. Repeating this process using only actively managed domestic equity (ADE) fund assets, we obtain the family's primary ADE distribution channel. In total, we have distribution channel data for 524 of the 547 families in the mutual fund industry in 2002, and for 452 of the 473 families that offer at least one actively managed domestic equity fund. For tests that require distribution channel at the fund level, we aggregate the assets within each channel across all of the fund's share classes and assign each fund a distribution channel category when at least 75% of its assets are sold through that channel.

In Table I, we report the number of families, aggregate industry ADE assets distributed through that channel, and the top three families ranked by ADE assets, for each of the seven distribution channels. The *direct* channel has the largest number of families (169) and the largest ADE assets under management ($632.9 billion), representing 48.1% of industry ADE assets. This channel contains well-known mutual fund families, like Fidelity, Vanguard, and Janus, that invest heavily in advertising. The wholesale broker-sold channel is the next largest channel, with 76 families and $418.3 billion, representing 31.8% of industry ADE assets. Some of the largest families in the wholesale channel are also well-known in the industry: American Funds, Putnam, and AIM/Invesco. At the other extreme, the *bank*, *captive*, and *insurance* channels have 23, 17, and 16 families respectively, and a combined total of $122.9 billion in ADE assets.

B. Market Segmentation and Broker Incentives

In this section, we show that the market for mutual funds is highly segmented, and that broker incentives help to drive this segmentation. In the last column of Table I, we find that the average family distributes 90.7% of its assets through its primary distribution channel in 2002.

When we focus on actively managed domestic equity (ADE) assets and the primary ADE distribution channel—as we do in the rest of our paper—the average is 92.6%, and the median is 100%. Looking across distribution channels, the average fraction ranges from 86.2% (*institutional*) to 96.5% (*direct*). Based on distribution channel codes from the Investment Company Institute for 2002, the average percentage of family ADE assets distributed through its primary channel is 94.5%, with a range from 88.3% (*institutional*) and 96.9% (*direct*). [13] In other words, regardless of the primary distribution channel (or data source), the typical mutual fund family distributes the vast majority of its assets through a single channel.

While fixed costs likely contribute to concentrated distribution, there are several reasons to believe that fixed costs are not the sole driver. First, even among the 25 families managing the most ADE assets, the average fraction of ADE assets distributed through the primary channel is 85.8%, and the median is 94.1%. Second, consistent with findings in Bergstresser, Chalmers, and Tufano (2009) and Christoffersen, Evans, and Musto (2009), we find that a family's primary distribution channel is highly persistent.[14] In particular, between 1996 and 2002, we observe very little movement between the direct and broker-sold channels. Of the 116 families whose primary distribution channel was broker-sold in 1996, five transition to *direct*. Of the 109 families whose primary distribution channel was *direct* in 1996, three transition to *wholesale*. Third, to the extent that families are entering new distribution channels, distribution through new channels is small relative to existing distribution. Between 1996 and 2002, the average fraction of ADE assets distributed through the primary distribution channel declines from 97.0% to 92.6%, but the median remains 100%.

[13] We thank Brian Reid for providing ICI distribution codes for 2002. Because our FRC data cover more mutual fund families, over more years, we only use the ICI data to verify that the patterns in Tables I and II are robust.

[14] Although neither study examines distribution channel persistence at the mutual fund family level, Christoffersen, Evans, and Musto (2009) report a high degree of distribution channel persistence at the fund level, while Bergstresser, Chalmers, and Tufano (2009) report a high degree of persistence at the share class level.

We hypothesize that concentrated distribution is driven by broker incentives. Specifically, we predict that funds distributed in broker-sold channels will not simultaneously be distributed in the *direct* channel, because brokers would have little incentive to expend effort recommending funds that investors can then purchase online at lower cost. We also predict that funds distributed through one broker-sold channel will not simultaneously be distributed through another broker-sold channel, because captive brokers would have little incentive to recommend funds available through other brokers. In contrast, because funds distributed through the institutional channel are typically only available to 401(k) participants and investors with more than $500,000 to invest, we predict there are no conflicts associated with simultaneously serving broker-sold and institutional channels. Similarly, we predict that there should be no conflict between families simultaneously distributing through the direct and (potentially lower-cost) institutional channels, because sophisticated retail investors cannot access the *institutional* channel.

To test our predictions, we examine the propensity of families to operate in different pairs of channels simultaneously. In Panel A of Table II, we report the number of families that simultaneously distribute assets through each possible combination of primary and secondary distribution channels. Consistent with our findings in Table I, the column labeled "None" indicates that 267 (59.1%) of the 452 mutual fund families in 2002 distribute 100% of their assets through a single distribution channel. This pattern is potentially consistent with both fixed costs and broker-imposed constraints. However, the other patterns in Panel A are strongly consistent with our hypothesis that broker incentives constrain mutual fund family distribution strategies.[15] Of the 301 families whose primary distribution channel is direct or broker-sold, only 10 (3.3%) distribute their funds through any of the secondary channels that we classify as creating a broker conflict. Within this same sample, 43 (14.3%) families distribute their funds through the institution-

[15] Our inference is similar when we use ICI distribution codes to generate Table II.

al channel. Within the larger sample of 348 families whose primary or secondary distribution channel is direct or broker-sold, 10 (2.9%) distribute funds through pairs of channels that we classify as creating a broker conflict, while 75 (21.6%) distribute funds through the institutional channel. When we focus on the 185 families with both primary and secondary distribution channels, we find that 104 (56.2%) distribute assets through the institutional channel.

Table II Panel B contains the average percentage of family ADE assets distributed through the secondary channel for this subsample of 185 families. The average percentage of assets tends to be small in secondary channels that we classify as creating a broker conflict. For example, in 2002, the two families with primary distribution through the direct channel, Fidelity and Strong Funds, have an average of 6.2% distributed through the *wholesale* channel. The five mutual fund families that distribute primarily through the *wholesale* channel, however, have an average of 32% of assets distributed through the *direct* channel. Interestingly, several of these seven cases involve families transitioning between distribution channels. For example, Strong Funds, Scudder Funds, and Columbia Funds transitioned from *direct* to *wholesale* distribution before our sample period. All three of these cases mirror the anecdote mentioned in the introduction about Janus' recent transition to *wholesale* distribution. Namely, each family continued to provide services to its former-direct channel investors, but closed the direct platform to new investors, suggesting that the decision to exit the *direct* channel was motivated more by broker incentives than by costs.[16]

In sum, it is rare for a family to distribute its funds simultaneously through the direct channel and any of the advice channels (*captive, bank, insurance,* or *wholesale*), or through mul-

[16] The Scudder and Columbia transitions to *wholesale* distribution were both motivated by a merger with a family that distributes through the *wholesale* channel. In all the cases mentioned here, the 485BPOS SEC filing reveals that after the transition, only "eligible investors" (previous investors) were allowed to transact through the direct platform. The other exceptions in Table II Panel B are Capstone Funds and Tocqueville Funds that collectively manage only $275 million in assets, and John Hancock Funds, where 9% of assets are in a 'broker-conflict' channel.

tiple advice channels.[17] Anecdotal evidence supports our interpretation that this segmentation reflects constraints imposed on mutual fund family distribution by broker incentives.

C. Market Segmentation and Investor Sophistication

Our prediction that mutual fund families in the direct channel invest the most in portfolio management depends on our assumption that investors in this channel are the most sensitive to after-fee returns. To test this assumption, we test for differences in the flow-performance relation across the seven distribution channels.[18] In Table III, the sample is limited to actively managed domestic equity funds between January 1996 and December 2002, because this is the period for which we possess FRC distribution channel data. The dependent variable is the monthly net flow of fund *i* in month *t*. Focusing on monthly flows allows us to test for differences across clienteles in their response to short-term performance. The independent variables of interest are fund *i*'s monthly net return in month *t-1*, and dummy variables that indicate whether fund i's net return in month *t-1* was in the top 20% or the bottom 20% of funds with the same Morningstar investment style.[19] The two dummy variables allow us to capture non-linearities in the flow-performance relation. Other fund-level control variables include fund *i*'s monthly net flow in month *t-1* (which captures the effect of longer-term performance), a dummy variable indicating

[17] One firm that offers multiple advice channels is Waddell and Reed, a long-time captive channel firm. In 2002, they acquired another fund family that distributed in the *wholesale* channel, Ivy Funds. The same firm owns both groups of funds, but distributes Ivy funds through *wholesale* and exclusively distributes Waddell and Reed funds through the *captive* channel (Waddell and Reed 2008 10-k). Notably, the firm decided to keep both the Ivy and Waddell and Reed monikers, effectively marketing them as separate families (and they appear as separate families on the CRSP mutual fund database).

[18] We do not review the large literature on the fund flow-performance relation. However, papers that have specifically focused on the flow-performance relation within or across particular clienteles in the United States include Bergstresser, Chalmers, and Tufano (2009) (direct vs. broker-sold), Christoffersen, Evans, and Musto (2009) (captive broker vs. wholesale broker), James and Karceski (2006) (institutional and bank), Chen, Yao, and Yu (2007) (insurance), and Del Guercio and Tkac (2002) (separate account). Using data from the United Kingdom, Keswani and Soltin (2009) find that investors in the *direct* and *wholesale* channels are the most sensitive to fund performance.

[19] Although we obtain most of our data from the CRSP Survivor-Bias Free Mutual Fund Database, we obtain data on fund investment styles from Morningstar. We prefer the nine Morningstar categories, which range from small-cap value to mid-cap blend to large-cap growth, because they better match the categories that institutional investors use to choose and evaluate portfolio managers.

whether fund *i* charges a sales load, fund *i*'s lagged expense ratio and 12b-1 fee, the natural logarithm of fund *i*'s TNA, the natural logarithm of its family's TNA, and fund *i*'s age. In addition, we include month-style fixed effects to control for monthly shocks to aggregate demand within each Morningstar investment style.

To allow for differences across distribution channels, each of the independent variables and fixed effects is interacted with channel dummy variables. In other words, although we estimate a single pooled regression, the coefficients in Table III are identical to those obtained by estimating a separate regression for each distribution channel. To allow for the possibility that flows are correlated within each family, we cluster standard errors on mutual fund family. For brevity, we do not report the coefficients on the control variables in the table.

In both the *direct* and *wholesale* channels, we find significant inflows into the top 20% of funds, significant outflows from the bottom 20% of funds, and little sensitivity to intermediate returns. However, consistent with our assumption that do-it-yourself investors are the most sensitive to after-fee returns, net flows into the top performing funds and out of the bottom performing funds are both approximately three times larger in the *direct* channel. Comparing the *direct* and *wholesale* channels, we can reject the hypothesis that the coefficients on the top 20% dummy variable are equal with a p-value of 0.020; for the bottom 20% dummy variable, the p-value is 0.083. (When we estimate a specification comparing funds in the *direct* channel to all other funds, we can reject the hypotheses that the coefficients on the top 20% dummy variables are equal with a p-value of 0.003; for the bottom 20% dummy variable, the p-value is 0.001.) In contrast, in the other channels there is little to no benefit to being a top performer and relatively little punishment for posting bad performance, reducing the incentive for families in these chan-

nels to invest in portfolio management.[20]

III. Do Families in the *Direct* Channel Invest More in Portfolio Management?

Because investors in the *direct* channel are the most vigilant in rewarding good recent performance with additional inflows and punishing poor recent performance with outflows, we predict that mutual fund families distributing funds through the direct channel are the most willing to pay for skilled portfolio management, relative to families in other channels. To test this prediction, we use hand-collected data on contracts that mutual fund families enter with subadvisors for portfolio management. The advantage of analyzing subadvisory contracts is that we can separately observe the component of the management fee specific to the portfolio management function.

A. Data on Subadvisory Contracts

The SEC requires mutual funds to disclose pertinent details of the contract between the family and the subadvisor. We hand-collect a comprehensive set of subadvisory contracts in 2002 through searches of the SEC's EDGAR database. Specifically, we conduct text searches of all N-30D annual report filings for variants of the word 'subadvisor' or subadvisory' to identify the relevant filings. Within these, we identify the names of all funds in that filing that outsource the portfolio management to an outside subadvisory firm.[21] Matching the list of subadvised funds to the CRSP Survivor-bias Free Mutual Fund Database, we determine that 17.8% of all the actively managed domestic equity funds in CRSP in 2002 are subadvised.

[20] Although we only report one specification in Table III, the flow-performance relations are qualitatively unchanged when we constrain the coefficients on the fund-level controls to be equal across channels, exclude the fund-level controls entirely, omit lagged flows, or define lagged net return percentiles based on month-style-channel (instead of month-style).

[21] In some cases, the filing will identify that a subadvisor manages the portfolio, but also discloses that the subadvisor is an affiliate of the family, typically indicating that the subadvisory firm is legally a subsidiary, or has a common owner. Because the affiliated subadvisory agreements do not reflect the same economic decision or market forces described above, we focus our analysis on the sample of unaffiliated subadvisors. We find that 8.6% of ADE funds on CRSP in 2002 are subadvised by an affiliate.

We collect details of the subadvisory contracts, including the subadvised fund name, the parties to the contract (fund family and subadvisory firm names), and the subadvisory fee schedule, from the Statement of Additional Information (485BPOS filings). For each subadvisory firm, we identify whether or not they also offer retail mutual funds under their own brand name by matching to the family name and management codes in CRSP. For subadvisory firms not found in CRSP, we identify them as separate account managers and use the Mobius *M-Search* database to obtain assets under management and other investment product information. We use Mobius' management codes to aggregate products to the firm level.

B. Summary of Subadvisory Fees

In Table IV, we summarize the subadvisory fees paid from fund families to subadvisors, as well as the management fees paid from fund investors to fund families. Fund investors do not explicitly pay fees to the subadvisor for their portfolio management services. Rather, the mutual fund family pays the subadvisory firm out of its management fee, reducing dollar for dollar the management fee revenue retained by the family. The subadvisory fee is defined as the dollar management fee paid to the subadvisor in fiscal year 2002 divided by fund average TNA in 2002. We obtain the management fee, defined as the dollar management fee paid by fund investors in fiscal-year 2002 divided by fund average TNA in 2002, from CRSP. These data originally comes from the Statement of Operations in the 485BPOS SEC filings. Because we calculate subadvisory and management fees based on stated fee schedules, they are gross of any potential fee waivers.

The sample consists of the 252 relationships between a family and single subadvisor for which we observe the subadvisory fee schedule, as well as the size, investment style, manage-

ment fee, and distribution channel of the subadvised fund.[22] Across the full sample, the median management fee is 80 basis points and the median subadvisory fee is 40 basis points. While most mutual fund research uses the management fee as the price of portfolio management, it is worth emphasizing that only half of the management fee collected by the median fund in our sample is used to pay the subadvisor for portfolio management.

Looking across the nine investment styles, we see that subadvisor fees tend to be higher for small cap funds than for large cap funds. Also, within the mid-cap and small-cap styles, subadvisor fees tend to be higher for value funds than for growth funds. Both of these patterns are plausibly related to differences in the cost associated with different investment strategies. Deli (2002) finds similar patterns when he compares the management fees of funds in different asset classes. Importantly, we observe significant variation in the subadvisory fees paid within each investment style.

C. Studying Variation in Subadvisory Fees

To explain within style variation in subadvisory fees, we use the hedonic pricing model introduced in Harding, Rosenthal and Sirmans (2003).[23] In a traditional hedonic pricing model, there is no role for bargaining power because the markets for underlying goods and services are assumed to be perfectly competitive. However, Harding et al. argue that as goods become more heterogeneous and markets for these goods become thinner, we should expect prices to reflect the relative bargaining powers of buyers and sellers. Because subadvisory contracts are heterogeneous and trade in thin markets, we model the subadvisory fees paid for portfolio management services as:

[22] In 153 of the 252 relationships, the subadvisory fee declines with assets under management, and we calculate the level of the fee using the size of the subadvised fund at the end of 2002. In the other 99 relationships, the subadvisory fee schedule is flat.

[23] Harding, Rosenthal and Sirmans (2003) introduce bargaining power into a hedonic pricing framework in an analysis of housing prices in the residential real estate market.

$$\mathbf{SF_{ijk} = s\, C_{ijk} + b\, D_{ijk} + e_{ijk}}$$

where $\mathbf{SF_{ijk}}$ is the subadvisory fee paid from advisor ***i*** to subadvisor ***j*** for fund ***k***, $\mathbf{C_{ijk}}$ is a vector of contract characteristics, $\mathbf{D_{ijk}}$ is a vector of family characteristics, subadvisor characteristics, and interaction terms, and $\mathbf{e_{ijk}}$ is a standard error term. As in traditional hedonic pricing models, the estimated coefficients on contract characteristics are estimates of the implicit market prices for the underlying services. In our setting, these correspond to the implicit market prices for managing different types of portfolios, independent of the identities of the firms involved. In contrast, the estimated coefficients on family and subadvisor characteristics capture deviations from the subadvisory fees that we would expect based on contract characteristics alone, allowing us to test hypotheses related to the relative value of skilled portfolio management.

Table V presents regressions of subadvisor fees on contract and firm characteristics. In each regression, we control for three characteristics of the fund for which portfolio management is being contracted. First, because fees (measured as a percentage of total net assets) tend to decline with the assets under management, we include the natural logarithm of the total net assets of the subadvised fund.[24] Second, to control for the different costs associated with different investment styles, we include a separate fixed effect for each investment style (except large-cap blend, the omitted category). Third, to control for differences in the costs associated with providing distribution services within a distribution channel, and the benefits associated with subadvising the average fund within a distribution channel, we include a separate fixed effect for each channel (except the omitted category *other*).

Of greatest interest is the bargaining power that a reputable or skilled subadvisor commands in the family-subadvisor relationship. Starks and Yates (2008) find evidence consistent

[24] Because we restrict attention to funds with a single subadvisor, the size of the fund and the size of the portfolio managed by the subadvisor are identical. When funds hire multiple subadvisors, the level of assets that are allocated to each subadvisor is seldom disclosed.

with fund family reputation influencing investors' decisions. Specifically, studying a discount brokerage supermarket where investors can easily choose funds from any family, they find that investors display a strong tendency to cluster their choices within a single family. Thus, in addition to stock-picking ability, subadvisors with name recognition and a strong reputation with retail investors likely have more bargaining power.

Because skill is notoriously difficult to measure, and because we lack return histories for separate account managers, we include two binary proxies for skill or reputation. The first is a dummy variable that indicates whether the subadvisor's name appears in the fund name, as in the ASAF Goldman Sachs Mid-cap Growth Fund. Because the identity of the subadvisor is otherwise buried within the Statement of Additional Information SEC filing, we assume that including the subadvisor in the fund name indicates that ASAF either believes Goldman Sachs to be skilled at portfolio management or expects that their name recognition and reputation appeals to ASAF's target investors.

Our second proxy for perceived quality or skill is a dummy variable that indicates whether the subadvisor specializes in the same Morningstar investment style as the subadvised fund. Siggelkow (2003) compares the fund performance of families that specialize in few Morningstar investment styles versus those with broader offerings across many styles, and finds that the funds from more specialized families perform better on average. He argues that different styles of investment (e.g., growth vs. value) draw on different research and execution techniques and investment practices, resulting in distinct cultures that do not adapt well to alternative approaches, ultimately resulting in the deterioration in fund performance as the family offers more styles of funds. Based on this logic and Siggelkow's findings, families may perceive that subadvisors that specialize in managing assets concentrated in a particular style are likely to deliver higher future

returns in a fund of that style.

For each subadvisor, we define their investment specialty as the Morningstar category in which they internally manage the most assets (within its separate accounts or mutual fund family), using the same nine-style categories as before. We are able to identify a subadvisor specialty in 226 of the 249 relationships for which we possess fee data (we lack asset data for 23 separate account firms). In 90 (39.8%) of these relationships, the subadvisor's specialty matches the investment style of the subadvised fund. In fact, in this subset of 90 funds, the average subadvisor has 74% of their ADE assets in the specialty style. Regarding our other skill proxy, fund names include subadvisor names in 59 (26.1%) of the 226 relationships for which we can calculate both measures of skill. Interestingly, the correlation between our two proxies for skill is only 0.026, which is statistically indistinguishable from zero. We also compute a summary measure of skill that equals one if one of the measures indicates a skilled subadvisor and equals two if both measures indicate a skilled subadvisor, and zero otherwise.

To test the prediction that skilled subadvisors enjoy differentially more bargaining power when negotiating with families targeting performance-sensitive investors, we interact each proxy for skill with a dummy variable indicating whether a family distributes through the *direct* channel. Because investors in the wholesale channel also exhibit some sensitivity to returns, we also interact each proxy for skill with a dummy variable indicating whether a family distributes through the *wholesale* channel. We estimate four regressions that vary by the measure of skill included. Because many of the explanatory variables vary at the level of the family or subadvisor (rather than the level of the relationship), standard errors are clustered on both family and subadvisor.[25]

[25] We thank Mitchell Petersen for providing code that clusters standard errors along two dimensions on his webpage, http://www.kellogg.northwestern.edu/faculty/petersen/htm/papers/se/se_programming.htm.

The positive and significant coefficients on the *direct* channel interaction terms indicate that families in the *direct* channel pay a significant premium for skill (or reputation) relative to families in other channels. When the subadvisor name appears in the fund name, the premium ranges from 10.0 to 12.5 basis points. When the family hires a specialist, the premium ranges from 9.2 to 10.4 basis points. The summary measure of skill reveals a similar premium of 9.2 basis points. These findings reinforce the idea that returns matter most to investors in the *direct* channel. The evidence that families in the *wholesale* channel pay a premium for skill, however, is mixed.

Finally, the coefficient on management fee variable reveals how an incremental basis point of management fee is split between the family providing distribution services and the sub-advisor providing portfolio management. Under a null hypothesis that the two sides have equal bargaining power the estimated coefficient should be equal to 0.5, indicating that incremental revenues are split evenly. We find that the estimated coefficient on the management fee is consistently around 0.4, and often significantly different from 0.5 at the 10-percent level. The fact that the average family retains 60% of incremental management fees suggests that control over fund distribution is more valuable than control over portfolio management.

D. Are Returns Higher in the Direct Channel?

We now turn to testing whether our finding from the subadvisory market that families in the direct channel invest relatively more in acquiring skilled managers extends more generally. In Table VI, we test whether funds in the direct channel earn significantly higher net and risk-adjusted returns than similar funds in other channels. Although this test is similar in spirit to one performed by Bergstresser, Chalmers, and Tufano (2009), ours is motivated by a prediction on optimal family strategies given the preferences of the family's target investors. Moreover, we

extend their analysis by comparing the typical proxy for distribution services, whether the fund charges a sales load, to our measure.

Table VI reports the coefficients from four panel regressions. The sample is limited to actively managed domestic equity funds between January 1996 and December 2002 for which we possess data on the fund's Morningstar investment style. In columns (1), (3), and (4), the sample is further restricted to funds for which we possess fund-level distribution channel data. The dependent variable in each regression is a measure of fund *i*'s return in month *t*. In column (1), we focus on fund *i*'s monthly net (after expense) return. In columns (2) and (3), we focus on four-factor alphas estimated from fund *i*'s net returns between *t*-36 and *t*-1. Finally, in column (4), we focus on four-factor alphas estimated from fund *i*'s gross returns (the monthly returns obtained by adding fund *i*'s average monthly expense back to its net returns). All regressions include investment style-by-month fixed effects, so that performance is measured relative to other funds with the same investment style, in the same month; they also include numerous fund-level controls. Standard errors are clustered on month, although we obtain quite similar results when we instead cluster standard errors on fund.

In all three of the specifications that include the *direct* channel dummy variable, the estimated coefficient on this variable is positive and statistically significant, with *p*-values ranging from 0.002 to 0.017. It is also economically significant. Regardless of whether we focus on net returns, four-factor alphas based on net returns, or four-factor alphas based on gross returns, mutual funds in the direct channel outperform their peers in other channels by 8.0-8.5 basis points per month. (In unreported specifications that focus on one-factor and three-factor alphas, the estimated coefficients are 11.9 and 9.4, with *p*-values of 0.001 and 0.000.) Column (4) reveals that unlike Gil-Bazo and Ruiz-Verdu (2009), we find no relation between before-fee returns and fees.

However, we note that our sample period (1996-2002) overlaps with the period (1997-2005) for which their evidence is weakest.

When we exclude the *direct* channel variable in column (2), the coefficient on the no-load dummy variable is half as large (4.4 basis points) and only statistically significant at the 10-percent level (*p*-value of 0.067). Moreover, in the specifications that include the *direct* channel dummy, the coefficient on the no-load dummy variable is essentially zero. In other words, the no-load dummy variable is a noisy proxy for whether a fund is distributed through the *direct* channel. When we instead use distribution channel data to construct our *direct* channel dummy variable, we find robust evidence that funds in the *direct* channel outperform other funds on the order of 100 basis points per year, consistent with greater investments in portfolio management.

IV. Family Responses to Clientele-Induced Constraints

The subadvisory market is a useful setting in which to test for other behavior consistent with our findings on market segmentation. If families truly face broker-induced constraints in expanding distribution into new channels, we might expect them to pursue strategies to overcome these barriers. In addition, if investor sophistication varies substantially by channel, families should make decisions with an awareness of the preferences of their target clientele. In this section, we argue that subadvisor decisions to participate in the market, and patterns in which particular pairs of firms enter subadvisory contracts, are consistent with our earlier findings.

A. Overcoming Barriers to Expand Distribution as a Motivation for Subadvising

While it is common to view subadvisory contracts from the perspective of a mutual fund family seeking to outsource portfolio management (Chen et al (2008), Kuhnen (2009), Cashman and Deli (2009), and Duong (2007)), we can also view them from the perspective of a subadvisor seeking to expand distribution. Subadvising allows firms to outsource the costly distribution

services required by investors in different market segments. An intuitively appealing example of this is the case of separate account management firms that cater to the needs of purely institutional clients, such as pension funds and endowments. Participating in the subadvisory market allows these firms to gain retail distribution without the high fixed-costs of developing the regulatory infrastructure or additional services, such as daily NAV pricing. Subadvising also allows mutual fund families to relax broker-induced constraints on serving investors in multiple segments. For example, the hiring of Oppenheimer Capital as subadvisor for the Preferred Value Fund allows Oppenheimer to indirectly serve investors in Preferred's *direct* channel without providing an obvious lower-cost alternative to the Oppenheimer Quest Value Fund that their own brokers recommend in the *wholesale* channel. Although both funds invest in large-cap value stocks and have a monthly return correlation of 0.96, we assume—and our evidence is consistent with the hypothesis—that investors are unlikely to perceive them to be the same product. In Table AI, we show that 86 mutual fund families subadvise for other mutual fund families. Among families whose primary distribution channel is direct or broker-sold, 60.8% of the subadvised assets are in channels that broker-incentives prevent them from serving directly.

We find the expansion of distribution via subadvising to be economically significant. For the 86 subadvisory firms that already have their own retail distribution, we find that the average Herfindahl distribution channel index falls from 0.817 to 0.691 (the median falls from 0.858 to 0.724) when we account for the distribution channels that these families reach indirectly via subadvising, indicating that distribution becomes less concentrated after accounting for subadvising.[26] Similarly, the average number of distribution channels they sell through increases from 2.29 to 3.73 (the median increases from 2 to 4). In each case, the difference in means or medians

[26] To compute a Herfindahl that accounts for subadvising, we add the TNA in the distribution channels for which they subadvise to the TNA in their own retail channel.

is statistically significant at the 1% level. In terms of assets under management, the assets managed in new channels via subadvising account for 18.3% of the total assets managed by the average firm; for the median firm, the fraction is 5.8%, which is smaller, but still economically significant. In addition, all of the assets subadvised by separate account managers reflect increases in their retail distribution by definition. Together, our evidence suggests that overcoming barriers to expanding distribution provides an additional motivation for firms to participate in the subadvisory market.

B. Do Families in the Direct Channel Cater to Sophisticated Investors? Evidence from Contracting Partners

To provide additional evidence that mutual fund families internalize the preferences of their target clienteles, we exploit data on subadvisor identities. Mutual fund families serving the *direct* channel have the greatest incentive to offer products that appeal to a sophisticated investor knowledgeable about the funds competing for their business. These performance- and price-sensitive investors are likely the most willing to track down the information that a similar fund is available elsewhere. Thus, we expect that families in the *direct* channel are least likely to hire directly competing firms that distribute their own brand of mutual funds in the *direct* channel. Similarly, families in the *direct* channel should have a preference for subadvisors that manage separate accounts, since these investment vehicles are not otherwise accessible to retail investors. In Table VII, we compare the distribution channel of 252 subadvised funds with a single subadvisor to the primary distribution channels of their subadvisors (determined based on firm-level ADE assets) and find general support for these predictions.

Under the null hypothesis that the fraction of subadvisors from each distribution channel reflects the relative supply of firms in each channel, the expected number of subadvisors pairing

with direct channel subadvised funds is 9.7. The observed number is 3, which is statistically significantly different at the 1-percent level.[27] Similarly, the expected number of separate account subadvisors (29.5), is statistically significantly different at the 1-percent level from the observed number of separate account subadvisors (46). In addition, we find that mutual funds distributed through the *direct* channel are statistically significantly more likely to hire institutional separate account managers as subadvisors than funds in other channels (82.2 percent versus 41.4 percent for the other 198 single-subadvisor funds distributed through other channels).

Our final prediction is that when a mutual fund in the *direct* channel does hire another mutual fund family as its subadvisor, it will not publicize the relationship to investors. We find that only six subadvised funds sold through the direct channel include the subadvisor firm name in the fund name, and that none of the named subadvisors distribute its own retail funds. Rather, funds like the Vanguard PRIMECAP Fund include the name of an institutional separate account manager that is otherwise unavailable to retail investors. We note that these results also hold if we consider the full sample of subadvised funds rather than the subsample of funds with a single subadvisor (not reported).

V. Summary and Conclusion

We study the impact of heterogeneous investor demand for financial advice and portfolio performance on market segmentation and mutual fund family behavior. The interaction between investor heterogeneity and broker incentives to only recommend funds that investors cannot access more cheaply elsewhere leads us to predict that families will target performance-sensitive investors, or investors who value financial advice, but not both. Using data on mutual fund dis-

[27] To determine the relative supply of subadvisors from each channel, we compare the observed number of subadvisors that come from each channel, excluding those on the diagonal. However, inferences are similar when we include the number of subadvisors within the diagonal elements or focus on the number of firms that operate in each channel (regardless of whether they serve as a subadvisor).

tribution channels between 1996 and 2002, we find strong support for this prediction. We find that the market for retail mutual funds is highly segmented, with some mutual fund families serving do-it-yourself investors in the *direct* channel, and other families serving investors in one of the broker-sold channels. Flow-performance analysis confirms that investors in the *direct* channel are more performance sensitive, in that they are more likely to reward funds with inflows when lagged returns are high and punish them with outflows when lagged returns are low.

Our evidence suggests that fund families internalize the preferences of their target investors. We predict that mutual fund families targeting performance-sensitive investors in the *direct* channel will invest relatively more in portfolio management. Because traditional mutual fund fee data do not distinguish investments in portfolio management from investments in distribution services or profits, we hand collect fees paid by actively managed domestic equity funds to subadvisors for portfolio management in 2002. Consistent with the concern that management fees overstate investments in portfolio management, we find that the median management fee is 80 basis points, while the median subadvisory fee is only 40 basis points. To the question of differential investments, we find that mutual fund families in the *direct* channel pay a significant fee premium for skilled subadvisors. Within the full sample of actively managed domestic equity funds in CRSP, we also find robust evidence that funds distributed through the *direct* channel outperform comparable funds distributed through other channels by one percent per year. We interpret these findings as evidence that mutual fund families in the *direct* channel do invest relatively more in portfolio management and reap the rewards of superior performance.

Overall, our findings are consistent with a model in which investor heterogeneity causes some mutual fund families to compete for investors on more than after-fee returns. Our evidence that families in the *direct* channel invest the most in performance implies that tests for fund man-

ager skill should focus on funds distributed in this channel. More generally, market segmentation has important implications for the relation between mutual fund fees and returns. For example, Gil-Bazo and Ruiz-Verdu (2009) document a negative relation between mutual fund fees and before-fee returns, and argue that this relation reflects strategic price setting. Our evidence suggests an alternative explanation. Mutual funds in broker-sold channels charge higher total fees because they need to compensate brokers for providing financial advice, and earn lower before-fee returns, because they invest less in portfolio management. Whether our alternative better reflects the nature of competition between mutual fund families than the model of Gil-Bazo and Ruiz-Verdu (2008) remains an open question. However, it is worth highlighting the different welfare implications of the two models. In Gil-Bazo and Ruiz-Verdu (2008), unsophisticated investors would benefit from being forced to invest in a low-cost index fund in the *direct* channel. In contrast, when mutual funds compete by offering different bundles of portfolio management and financial advice, investors who value personalized advice and self-select into broker-sold channels are unlikely to benefit from being forced to invest in the no-advice-services *direct* channel, despite the higher after-fee returns.

The insight that some investors are willing to tradeoff portfolio management and advice also sheds new light on the puzzle of active management (Gruber (1996) and French (2008)). Brokers compensated through commissions have little incentive to recommend index funds, which are available at low cost in the *direct* channel. Therefore, demand for financial advice becomes demand for actively managed mutual funds. Moreover, it becomes demand for actively managed mutual funds available in broker-sold channels, which invest less in portfolio management precisely because they also invest in advice. To the extent that actively managed funds in broker-sold channels underperform index funds in the direct channel, this underperformance is a

cost associated with seeking financial advice. However, we show that actively managed funds in broker-sold channels underperform actively managed funds in the *direct* channel, and argue that investors who inherently value financial advice are willing to tradeoff portfolio management and advice. Given heterogeneous demand for financial advice, a more powerful test of the puzzle of active management is whether index funds in the *direct* channel outperform actively managed funds in the *direct* channel.[28]

Finally, most empirical analysis in the mutual fund literature pools all funds, implicitly assuming that every mutual fund family competes with every other family. Our evidence, however, suggests that families primarily compete with other families in their same distribution channel, implying that properly modeling market segmentation is necessary for robust inference.[29] Furthermore, awareness of the changing nature of mutual fund distribution will be important for future research. A recent *Wall Street Journal* article suggests that the broker incentives driving segmentation during our sample period are now in flux.[30] If payments to brokers for advice increasingly come directly from investors rather than via mutual fund families, the universe of funds that brokers are willing to recommend will likely expand. Understanding how market segmentation responds to changing broker and mutual fund family incentives will be important in future studies of investor and fund family behavior, and in tests for differences in fund performance.

[28] In unreported regressions based on monthly returns between 1996 and 2002, we find little evidence that index funds in the *direct* channel outperform actively managed funds in the *direct* channel. More definitive tests should focus on annual returns, over a longer sample.

[29] For example, investor heterogeneity and market segmentation suggest that the flow-performance relation differs across channels, and thus studies using this relation, such as studies of managerial incentives and risk-shifting, can be refined.

[30] Damato, Karen. "Take a Load Off: Do-It-Yourself Investors Get More Fund Choices". *The Wall Street Journal* March 1, 2010, R1.

Appendix: Who Participates in the Subadvisory Market?

Previous studies of the subadvisory market focus on a mutual fund family's incentive to outsource portfolio management to a subadvisor. For example, Chen, Hong, and Kubik (2008), Cashman and Deli (2009), and Duong (2007) study the performance of subadvised mutual funds relative to internally managed funds. Because we focus on the identities of both the advisors and the subadvisors, in Table AI, we provide summary statistics on the different participants in the subadvisory markets. Within each category, we also list the top five firms, ranked by assets under management in actively managed domestic equity portfolios. Overall, we find that 38% of the mutual fund families in the CRSP Survivor-bias Free Mutual Fund Database in 2002 participate as either a buyer or a seller of subadvisory services for active domestic equity funds.

The first row of Table AI contains mutual fund families that outsource portfolio management to outside firms—the sample studied by others. Buyers of subadvisory services include such familiar names as Vanguard and American Express. The average mutual fund families buying subadvisory services is relatively large, with $9.4 billion under management, although the median buyer has only $1.6 billion under management. The percentage of ADE funds outsourced by these families is substantial, with a mean of 62.5% and a median of 60%.

The second row contains statistics for 130 firms that sell subadvisory services, but do not have any retail funds of their own. Because firms like Capital Guardian Trust and Fayez Sarofim manage separate accounts for endowments and pension funds, they have established reputations in the institutional market, but are largely unfamiliar to retail investors.[31] Participating in the subadvisory market allows separate account managers to earn additional management fee reve-

[31] In some cases, these firms are owned by a parent with a retail distribution network. For example, Capital Guardian Trust has common ownership with Capital Group, which also distributes the American Funds to retail investors. We use the entity specifically named in the subadvisory contract. If the firm markets their institutional arm as completely separate from their retail arm, we do not include those firms among the fund families with retail distribution.

nues without having to invest in the investor services demanded by retail mutual fund investors (e.g., daily NAV pricing and individual recordkeeping). In other words, while subadvised funds benefit from outsourcing costly portfolio management services, separate account managers benefit from outsourcing costly distribution services. The typical separate account manager is roughly comparable to the typical buyer of subadvisory services in terms of total assets under management, with a mean of $9.9 billion (versus $9.4 billion), but the median separate account manager is bigger ($2.9 billion versus $1.6 billion).

The final row contains sellers of subadvisory services that also distribute their own retail funds. This category consists of 86 mutual fund families, including well-known ones like Fidelity, Janus, and T. Rowe Price, that are somewhat larger than the other market participants in terms of family assets under management, with a mean of $16.8 billion and a median of $2.6 billion. The fact that mutual fund families "pick stocks" for other families has gone unnoticed in prior studies of the subadvisory market. However, as we discuss in Section IV.A., there are two ways for a mutual fund family to benefit from subadvising from another family. First, mutual fund families that subadvise for other families may benefit from outsourcing costly distribution services. Second, mutual fund families that subadvise may relax broker-induced constraints on distribution. For example, mutual fund families in the direct channel may be able to subadvise for families in broker-sold channels without impacting broker incentives to recommend funds.

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Table I. Segmentation by distribution channel for families distributing retail mutual funds

The numbers in this table are computed at the family level. Families are placed in one of seven distribution channels based on the maximum percentage of actively managed domestic equity assets under management distributed through a particular channel according to 2002 data from the Financial Research Corporation (FRC). (TNA of share classes missing distribution channel data is ignored.) The last column computes the mean percent of family assets distributed through each channel using family TNA in all asset classes. The table does not include the twenty families representing $300 million in assets that were dropped due to missing distribution channel data.

Distribution Channel:	Number of families in channel	Aggregate ADE assets in channel ($Billions)	Top three families In channel ranked by ADE assets under management	% of family ADE assets in primary ADE channel				Mean % of family assets in primary channel
				Mean	25th percentile	Median	75th percentile	
Direct	169	$632.9	Fidelity Vanguard Janus	96.5%	99.7%	100%	100%	94.8%
Institutional	74	$99.8	SEI Investments Dimensional Fund Advisors Banc One	86.2%	75.0%	92.2%	100%	85.7%
Captive	17	$88.7	American Express Morgan Stanley Smith Barney	90.3%	82.8%	96.9%	100%	86.6%
Bank:	23	$13.8	ABN AMRO US Trust of NY Northern Trust	89.8%	79.2%	100%	100%	86.9%
Insurance	16	$20.4	Thrivent Eclipse (NYLife) State Street	94.2%	90.5%	98.4%	100%	87.5%
Wholesale	76	$418.3	American Funds Putnam AIM	91.1%	87.4%	100%	100%	89.6%
Other	77	$40.5	General Electric Gabelli Asset Mgmt Goldman Sachs	92.8%	96.5%	100%	100%	90.3%
Total:	452	$1,314.5	Fidelity American Funds Vanguard	92.6%	90.5%	100%	100%	90.7%
25 Largest:	25	$942.6	Same as above	85.8%	75.6%	94.1%	97.8%	84.5%

Table II. Primary and secondary distribution channels in 2002

The sample below includes the 452 families for which we have distribution channel data in 2002. The primary distribution channel is the channel through which the family distributes the largest percentage of actively managed domestic equity assets, and the secondary channel is the next largest percentage for each family. The column "None (%)" indicates that the number of mutual fund families that distribute 100% of ADE assets through a single distribution channel. The column "Broker Conflict (%)" indicates the number of families for which the primary and secondary distribution channels are broker incentive incompatible (direct and broker-sold, or captive broker-sold and wholesale broker-sold). It is not defined for families whose primary distribution channel is *Institutional* or *Other*.

Panel A. Number of Primary-Secondary Distribution Channel Pairs

Primary Distribution channel of fund family	Secondary Distribution channel of fund family									Broker
	Direct	Institutional	Captive	Bank	Insurance	Wholesale	Other	None (%)	Total	Conflict (%)
Direct	---	14	0	1	0	2	27	125 (74.0%)	169	3 (1.8%)
Institutional	3	---	1	21	0	7	19	23 (31.1%)	74	
Captive	0	7	---	0	0	0	4	6 (35.3%)	17	0 (0%)
Bank	0	4	1	---	0	0	6	12 (52.2%)	23	1 (4.3%)
Insurance	0	4	0	0	---	0	6	6 (37.5%)	16	0 (0%)
Wholesale	5	14	0	0	1	---	17	39 (51.3%)	76	6 (7.9%)
Other	6	6	1	1	1	6	---	56 (72.7%)	77	
Total	**14**	**49**	**3**	**23**	**2**	**15**	**79**	**267 (59.1%)**	**452**	**10 (3.3%)**

Panel B. Average fraction of Family ADE Total Net Assets in the Secondary Distribution Channel (for families in that cell in Panel A)

Primary Distribution channel of fund family	Secondary Distribution channel of fund family						
	Direct	Institutional	Captive	Bank	Insurance	Wholesale	Other
Direct	---	15.9%	0	5.3%	0	6.2%	10.6%
Institutional	23.6%	---	12.2%	14.4%	0	25.5%	19.6%
Captive	0	16.0%	---	0	0	0	7.8%
Bank	0	28.6%	11.4%	---	0	0	16.5%
Insurance	0	7.4%	0	0	---	0	8.3%
Wholesale	32.0%	8.9%	0	0	14.0%	---	15.3%
Other	10.5%	23.1%	9.9%	42.8%	3.5%	30.5%	---

Table III. Monthly flow-performance sensitivity across distribution channels, ADE funds, 1996-2002

This table reports regressions where the dependent variable is monthly net percentage fund flow, using the standard definition of the growth in TNA less capital appreciation. The unit of observation is fund *i* in month *t*. All regressions include channel-by-style-by-month fixed effects and the following fund-level control variables, which are also interacted with channel: lagged no-load fund dummy, lagged expense ratio, lagged 12b-1 fee, lagged log of fund TNA, lagged log of family TNA, and current fund age measured in years. We also include dummy variables that indicate whether fund *i*'s net return in month *t-1* was in either the top or bottom 20% of funds within the same Morningstar investment style (but across channels). The sample consists of 115,918 observations. Standard errors are clustered on fund family; p-values are reported in parentheses.

	Direct	Institutional	Captive	Bank	Insurance	Wholesale	Other
Net flow (t-1)	0.222***	0.182***	0.248***	0.022	0.268***	0.313***	0.259***
* Channel dummies	(0.000)	(0.000)	(0.000)	(0.674)	(0.001)	(0.000)	(0.000)
Net return (t-1) in Top 20%	1.339***	0.135	-0.274	-0.038	0.137	0.393**	0.307
* Channel dummies	(0.000)	(0.521)	(0.208)	(0.934)	(0.560)	(0.020)	(0.231)
Net return (t-1)	-0.047	0.185***	0.176***	0.164*	0.092	0.050	0.112*
* Channel dummies	(0.586)	(0.000)	(0.000)	(0.076)	(0.132)	(0.189)	(0.052)
Net return (t-1) in Bottom 20%	-0.839***	0.489**	0.189	-0.305	-0.051	-0.328**	-0.293
* Channel dummies	(0.000)	(0.018)	(0.246)	(0.281)	(0.798)	(0.048)	(0.205)

H_0: Coefficient on lagged net flows are equal across channels	0.001***
H_0: Coefficient on lagged net return are equal across channels	0.069*
H_0: Coefficient on top 20% dummies are equal across channels	0.013**
H_0: Coefficient on bottom 20% dummies are equal across channels	0.000***

Table IV. Subadvisory and Management Fees for Retail Mutual Funds with a Single Subadvisor in 2002

The sample below includes 252 family-subadvisor pairs involving a single subadvisor for which we possess data on both the management fee and the subadvisory fee. The management fee come from the CRSP Survivor-Bias-Free US Mutual Fund Database and are defined as the dollar management fee paid in fiscal-year 2002 divided by fund average TNA in 2002. The subadvisory fee comes from the Statement of Additional Information within the 485BPOS SEC filing of the subadvised fund in 2002. It is the dollar fee paid to the subadvisory firm in fiscal-year 2002 divided by fund average TNA in 2002. The table below reports the 75th, 50th, and 25th percentiles of the management fee and subadvisory fee (in basis points) by Morningstar style category, and overall across the 252 pairs. The last three columns report the the 75th, 50th, and 25th percentiles of the percentage fee split, defined as the subadvisor fee divided by the management fee.

		Subadvisory fee (basis points)			Management fee (basis points)			Subadvisor fee / Management fee (fee split %)		
Morningstar Style Category	N	75th percentile	Median	25th percentile	75th percentile	Median	25th percentile	75th percentile	Median	25th percentile
Large-cap Value	37	45	33	23	80	74	55	53.3	44.2	40.0
Large-cap Blend	37	45	33	23	100	80	70	54.1	40.0	31.3
Large-cap Growth	67	50	40	30	90	80	70	60.0	52.3	41.4
Mid-cap Value	10	70	50	43	100	95	69	70.0	60.8	50.6
Mid-cap Blend	8	48	40	33	93	83	66	60.5	48.5	44.2
Mid-cap Growth	34	55	45	30	100	90	75	63.2	50.0	36.8
Small-cap Value	13	70	58	40	100	100	75	69.2	55.6	51.4
Small-cap Blend	9	65	50	35	100	85	70	60.0	50.0	50.0
Small-cap Growth	37	65	55	35	100	92	80	73.3	55.0	44.4
All styles	252	54	40	30	100	80	70	62.5	50.0	40.0

Table V. The Relation between Subadvisor Fees and Contract, Family, and Subadvisor Characteristics (2002)

The table below contains the results of four OLS regressions. The dependent variable in each regression equals the subadvisory fee for the sub-sample of subadvised funds that hire a single subadvisor, and for which we possess data on all independent variables. Standard errors are clustered on both the family of the subadvised fund and the subadvisory firm; p-values are reported in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
Management fee	0.411***	0.410***	0.405***	0.401***
	(0.000)	(0.000)	(0.000)	(0.000)
Subadvisor name in fund name dummy	0.034		0.031	
	(0.183)		(0.213)	
Subadvisor name in fund name dummy * Family in direct channel	0.125***		0.100**	
	(0.005)		(0.038)	
Subadvisor name in fund name dummy * Family in wholesale channel	-0.033		-0.027	
	(0.503)		(0.539)	
Specialist subadvisor hired dummy		0.019	0.018	
		(0.384)	(0.409)	
Specialist subadvisor hired dummy * Family in direct channel		0.104*	0.092	
		(0.053)	(0.111)	
Specialist subadvisor hired dummy * Family in wholesale channel		0.059*	0.062*	
		(0.068)	(0.055)	
Skill subadvisor index				0.023
				(0.184)
Skilled subadvisor index * Family in direct channel				0.092**
				(0.015)
Skilled subadvisor index * Family in wholesale channel				0.016
				(0.611)
Contract characteristics:				
Natural log of subadvised fund assets (millions)	-0.022***	-0.024***	-0.023***	-0.024***
	(0.000)	(0.000)	(0.000)	(0.000)
Large-cap value dummy	0.012	-0.010	-0.003	-0.003
	(0.735)	(0.754)	(0.922)	(0.922)
Large-cap growth dummy	0.059*	0.029	0.036	0.035
	(0.055)	(0.280)	(0.187)	(0.190)
Mid-cap value dummy	0.140***	0.114***	0.111***	0.117***
	(0.000)	(0.001)	(0.002)	(0.001)
Mid-cap blend dummy	0.056	0.056	0.060	0.056
	(0.193)	(0.180)	(0.165)	(0.179)
Mid-cap growth dummy	0.057	0.054	0.059*	0.056*
	(0.115)	(0.118)	(0.083)	(0.095)
Small-cap value dummy	0.116***	0.100**	0.107***	0.104***
	(0.009)	(0.012)	(0.008)	(0.008)

Small-cap blend dummy	0.096*	0.085*	0.100**	0.098**
	(0.057)	(0.070)	(0.033)	(0.034)
Small-cap growth dummy	0.123***	0.109***	0.114***	0.112***
	(0.004)	(0.005)	(0.004)	(0.003)
Direct channel dummy	0.004	-0.043	-0.037	-0.039
	(0.926)	(0.374)	(0.460)	(0.430)
Institutional channel dummy	0.050	0.041	0.053	0.050
	(0.249)	(0.314)	(0.218)	(0.222)
Captive channel dummy	0.072*	0.071*	0.077*	0.077*
	(0.092)	(0.058)	(0.053)	(0.056)
Bank channel dummy	-0.000	-0.003	0.008	0.007
	(0.994)	(0.956)	(0.886)	(0.901)
Insurance channel dummy	0.005	0.007	0.007	0.007
	(0.861)	(0.811)	(0.882)	(0.805)
Wholesale channel dummy	-0.068	-0.098***	-0.088*	-0.090**
	(0.224)	(0.009)	(0.054)	(0.043)
Intercept	0.108	0.135**	0.119**	0.126**
	(0.115)	(0.020)	(0.044)	(0.031)
N	226	226	226	226
R^2	0.570	0.586	0.598	0.592
P-value test that coefficient on management fee = 0.50	0.177	0.093*	0.078*	0.063*
Standard errors clustered on family and subadvisor?	Yes	Yes	Yes	Yes

Table VI. Monthly Fund Returns and the Direct Distribution Channel (1996-2002)

The table below reports coefficients from panel regressions of fund *i*'s monthly return on fund and family characteristics. The sample is restricted to non-specialty domestic equity funds operating between January 1996 and December 2002 for which we possess investment style data from Morningstar and fund-level distribution channel data from FRC. The return measures are fund *i*'s net return, fund *i*'s four-factor alpha estimated from net returns, and fund *i*'s four-factor alpha estimated from fund i's gross returns (i.e., the monthly returns obtained by adding fund i's average monthly expense back to its net return). All regressions include style-by-month fixed effects and the following fund-level control variables: lagged no-load fund dummy, lagged expense ratio, lagged 12b-1 fee, lagged log of fund TNA, lagged log of family TNA, current turnover, current fund age measured in years, net flows into fund *i* between month *t-12* and *t-1*, and the standard deviation of net flows over this same period. The independent variable of interest is the Direct Channel dummy variable, which equals one if 75 percent or more of fund *i*'s TNA is distributed through the *direct* channel. Standard errors are clustered on month; p-values are reported in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	Net return	Carhart Alpha Net Return	Carhart Alpha Net Return	Carhart Alpha Gross Return
Direct Channel dummy (t)	0.080***		0.085***	0.085***
	(0.017)		(0.002)	(0.002)
No-load dummy (t-12)	-0.000	0.044*	0.013	0.012
	(0.986)	(0.067)	(0.575)	(0.595)
Expense ratio (t-12)	-0.091*	-0.080**	-0.084**	0.003**
	(0.066)	(0.046)	(0.038)	(0.946)
12b-1 fee (t-12)	0.005	0.050	0.077	0.076
	(0.944)	(0.494)	(0.312)	(0.321)
Ln Fund TNA (t-1)	-0.041***	-0.025**	-0.028***	-0.029**
	(0.000)	(0.030)	(0.015)	(0.012)
Ln Family TNA (t-1)	0.023**	0.011	0.012	0.011
	(0.013)	(0.211)	(0.167)	(0.203)
Turnover (t-12)	-0.000	-0.000	-0.000	-0.000
	(0.400)	(0.134)	(0.106)	(0.106)
Fund age (t)	-0.001	-0.001	-0.001	-0.001
	(0.297)	(0.342)	(0.298)	(0.384)
Net flow (t-12, t-1)	0.001	0.002***	0.002***	0.002***
	(0.532)	(0.004)	(0.004)	(0.004)
Standard deviation net flow (t-12, t-1)	-0.007	-0.014	-0.015	-0.015
	(0.686)	(0.178)	(0.133)	(0.149)
Morningstar style*Month fixed effects?	Yes	Yes	Yes	Yes
Clustering	Month	Month	Month	Month
Sample size	102,223	99,292	99,292	99,278

Table VII. Distribution Channels of Buyers and Sellers of Subadvisory Services

The sample below includes 252 subadvised fund-subadvisor pairs for which we have distribution channel data and the subadvised fund has exactly one subadvisor. The distribution channel of the subadvised fund is defined at the fund level. We aggregate the assets within each channel across all of a fund's share classes and assign each fund a distribution channel category when at least 75% of its assets are sold through that channel. Otherwise, we treat the distribution channel as missing. The subadvisor's distribution channel is defined as the channel that has the largest percentage of family ADE TNA distributed through it. The categories *direct*, *institutional*, *captive*, *bank*, *insurance*, *wholesale*, and *other* represents distribution channels within the mutual fund universe. Separate account subadvisory firms are defined as firms that do not have in-house retail fund distribution. There are 23 fund-subadvisor pairs with missing distribution channel data, and 25 pairs set to missing due to less than 75% of fund assets in one channel.

	Distribution channel of subadvisory firm (seller of subadvisory services)								
Distribution channel of subadvised fund	Direct	Institutional	Captive	Bank	Insurance	Wholesale	Other	Separate Account	Total
Direct	**3**	1	0	0	0	4	0	46	54
Institutional	6	**1**	2	0	0	7	3	14	33
Captive	2	3	**0**	0	0	6	2	1	14
Bank	1	1	0	**0**	0	4	1	7	14
Insurance	19	4	2	0	**1**	2	5	12	45
Wholesale	8	2	1	0	1	**9**	4	24	49
Other	6	1	1	0	1	6	**4**	24	43
Total	45	13	6	0	3	38	19	128	252
Total (%)	17.9%	5.2%	2.4%	0.0%	1.2%	15.1%	7.5%	50.8%	100%
% of sellers subadvising a fund in channel different than their own	93.3%	92.3%	100%	100%	66.7%	76.3%	78.9%	100%	92.9%

Table AI. Subadvisory market participants outsourcing distribution versus portfolio management, based on active domestic equity funds in 2002

We compute firm-level summary statistics for all asset management firms that either participate as a buyer or seller in the market for subadvisory services for actively managed domestic equity mutual funds. Firms are grouped into three categories: mutual fund families that buy subadvisory services (i.e., outsource portfolio management), separate account managers who sell subadvisory services (i.e., outsource 100% of their retail distribution), and mutual fund families that sell subadvisory services (i.e., outsource less than 100% of their retail distribution). Note that there are 13 mutual fund families that both buy and sell subadvisory services. For mutual fund families, we obtain data on assets under management and number of funds from the CRSP Survivor-Bias-Free US Mutual Fund Database. For separate account managers, we obtain data on assets under management and number of separate account products from the Mobius *M-search* database.

	N	Top five largest firms (families) in this category ranked by ADE assets under management	Average (median) family TNA in ADE funds ($billions)	Average (median) family TNA ($billions)	Average (median) number of ADE funds in family	Average (median) number of funds in family	Average (median) % of ADE funds outsourced to subadvisors	Average (median) number of ADE funds serve as subadvisor for others
Mutual fund families that **buy** subadvisory services (i.e., outsource portfolio management)	106	Vanguard AIM American Express Morgan Stanley Oppenheimer	3.1 (0.68)	9.4 (1.6)	8.1 (5)	21.2 (11.5)	62.5 (60)	0.4 (0)
Separate account managers that sell subadvisory services (i.e., outsource all retail fund distribution)	130	Wellington Management Jennison Associates Dresdner RCM Global Capital Guardian Trust Fayez Sarofim	5.8 (2.2)	9.9 (2.9)	3.4 (2)	5.6 (4)	0 (0)	2.2 (1)
Mutual fund families that **sell** subadvisory services (i.e., outsource some retail fund distribution)	86	Fidelity Janus Putnam T Rowe Price American Century	8.8 (1.6)	16.8 (2.6)	9.4 (6)	25.2 (11.5)	3.0 (0)	3.5 (2)