

PHBS WORKING PAPER SERIES

Managerial Incentives in the Mutual Fund Industry

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March 2024

Working Paper 20240301

Abstract

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Keywords: mutual funds, managerial incentives, fund managers, fund families, flow-performance relationship, compensation, agency problems, portfolio disclosure, business ties

JEL Classification: G11, G23, G32, J33

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February 2024

[This survey is prepared for the *Oxford Research Encyclopedia of Economics and Finance*.]

ABSTRACT

The domain of mutual fund management is characterized by an array of incentives that influence the decision-making of fund managers. In this article, we provide a survey of the extensive literature on various types of incentives faced by mutual fund managers. We categorize the different incentives into three broad categories: (i) implicit incentives arising from attracting flows and managers' career concerns, (ii) explicit incentives from advisory contracts that investors have with fund advisors and the compensation contracts that fund advisors offer to portfolio managers, and (iii) other incentives arising from managerial ownership, family affiliation, organization structures, regulations, and business ties. A large part of this literature discusses the implications of these incentives for fund performance, investor outcomes, and the broader financial market. We highlight key empirical findings, theoretical underpinnings, and the evolving nature of these incentives in the face of changing market and regulatory environments. By surveying the large literature on this topic, we aim to provide a cohesive understanding of the multifaceted forces driving mutual fund manager behavior and to identify potential avenues for future research.

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1. Introduction

Incentives are foundational to economics, playing a pivotal role in guiding behaviors and decisions. Within the asset management industry, a complex web of incentives profoundly shapes the strategies and choices made by fund managers. Because of data quality and clarity in the decision-making process, mutual funds stand out as a unique empirical “laboratory” for testing theories related to incentive mechanisms. In fact, few areas in economics have better quality data on agents’ outputs (fund returns), inputs (portfolio positions), prices (fund expenses), quantities (investor flows), and more to test such theories. Moreover, an important and unique feature of the mutual fund industry is that individual fund managers do not directly work for the fund investors. Instead, investors delegate their portfolio management to fund advisors, who in turn hire individual portfolio managers for the daily investment decisions. The existence of this double-layer delegation introduces more complex dynamics in the provision of managerial incentives in the mutual fund industry.

Economically, mutual fund managers steer investment of trillions of dollars of assets and exert significant influence on the financial markets and the US economy. Since the inception of the first modern mutual fund in 1924, the industry has witnessed remarkable growth over nearly a century. According to the Investment Company Institute, at year-end 2022, 54.7% of US households, representing more than \$115 million individual investors, own mutual funds and rely on them to meet various financial objectives; and the assets managed by mutual funds totaled more than \$22.1 trillion.¹ Given the pivotal role of mutual funds within the US financial system and its impact on the broader economy, understanding the

¹ See “*The 2023 Investment Company Fact Book*” by the Investment Company Institute for more details: <https://www.icifactbook.org/>.

incentives of fund managers is crucial for academics, regulators, practitioners, and shareholders alike, sparking an extensive academic literature on the topic.

In this review, we provide a survey of the literature on various types of incentives faced by mutual fund managers. Our focus is mainly on the empirical studies in the literature.² Our goal is to critically assess this body of literature, focusing on the effects of these incentives on fund manager behavior, fund performance, investor outcomes, and the overall impact on the financial markets. We highlight key empirical findings, theoretical underpinnings, and the evolving nature of these incentives in the face of changing market and regulatory environments. By surveying the large literature on this topic, we aim to provide a cohesive understanding of the multifaceted forces driving mutual fund manager behavior. While doing so, we also identify potential avenues for future research.

Much of the literature employs a classical principal-agency framework to underscore the inherent conflicts of interest between investors (principals) and fund managers (agents). These conflicts arise from factors such as information asymmetry between investors and fund managers, differences in payoff structures, differences in risk preferences, and the potential disutility of effort from the agent's perspective. Since investors' and managers' interests may not always align, a significant body of work has explored how incentive mechanisms, such as compensation contracts, career concerns, and disclosure requirements, can address these misalignments. However, the solutions intended to address the agency problem often become a source of the agency problem itself. For example, portfolio disclosure regulations, aiming at increasing transparency, could induce fund managers to engage in strategic behavior such as window dressing or portfolio pumping.

² Please refer to Stracca (2006) and Bhattacharya, Dasgupta, Guembel, and Prat (2008) for comprehensive reviews of the theoretical studies on delegated portfolio management.

The rest of the review is organized to reflect the development of central themes of the literature over time, which is to a considerable degree, influenced by the accessibility of data. It is divided into three sections, each covering a broad category of incentives: (i) implicit incentives arising from attracting investor flows and managers' career concerns, (ii) explicit incentives from the advisory contracts between investors and fund advisors and the compensation contracts between fund advisors and portfolio managers, and (iii) other incentives arising from a variety of other factors including managerial ownership, family affiliation, organization structures, disclosure regulations, and business ties.

The first section summarizes the body of work on the implicit incentives arising from (i) attracting fund flows and (ii) managers' career concerns. First, with advisors' fee revenue typically linked to the value of assets under management, the incentive of attracting investor flows stands out as a powerful motivator for fund managers. A key stylized fact in the literature—the convex flow-performance relationship—has created an implicit incentive for managers to take actions to increase the likelihood of attracting future flows and thereby has important implications for managers' risk-taking incentives and tournament behavior. This section also examines how career concerns, despite initially being thought to promote efficient behavior, often lead managers to adopt suboptimal risk and investment strategies.

The second section focuses on explicit incentives, beginning with the theoretical underpinning of incentive design in delegated portfolio management. Even though most of the theoretical work suggests that option-type performance-based incentive fees should be the optimal compensation contract for managers, empirical evidence reveals that a fixed percentage of fund assets remains the prevalent compensation scheme in the advisory contracts between investors and fund advisors. Recent research, however, has started to systematically analyze the compensation contracts of individual portfolio managers offered by fund advisors. This line of research uncovers that explicit bonus-type performance-based

pay is the predominant incentive scheme for compensating individual portfolio managers, which aligns with the predictions of theoretical studies on portfolio delegation.

The third section emphasizes that fund managers' incentives cannot be evaluated in isolation. Most mutual funds are members of fund families, and many mutual funds have business ties with firms or affiliations with other financial institutions. In addition, mutual funds are subject to extensive disclosure requirements. As a result, fund manager incentives are influenced by a variety of factors, including peer dynamics, fund family considerations, portfolio disclosure regulations, bank affiliations, and business ties with portfolio firms. The final section surveys the literature on these different types of incentives, suggesting that a better understanding of this complex incentive network is crucial for evaluating managerial performance and its implications for investors and the financial market at large. In the final section, we highlight some areas that are, in our view, fruitful for future research.

2. Implicit Incentives

There exist several implicit incentives in the mutual fund industry that play a pivotal role in shaping managerial behavior. First, the incentive of attracting investor flows stands out as a powerful motivator. Superior performance often leads to increased inflows of capital (Berk and Green, 2004), which in turn boosts the management fee revenue that a fund brings to the asset management firm. Second, career concerns act as a double-edged sword: it motivates managers to outperform their peers, while simultaneously deterring risk-taking that might jeopardize their careers. Together, these implicit incentives form a multifaceted framework that impacts the dynamics of mutual fund management and the labor market for fund managers.

2.1. Flow-induced Incentives

The implicit incentives to attract fund flows have been a major area of research in finance over the past few decades. A key contributing factor is that a fund advisor (i.e., the asset management company) is compensated with a fixed percentage of the assets under management (AUM), creating a strong incentive to attract investor flows and increase fee revenue. This section reviews the literature on flow-induced incentives and their impact on fund manager behavior and fund performance.

One of the most widely investigated issues in earlier mutual fund research is the relationship of flows to past performance. Chevalier and Ellison (1997) and Sirri and Tufano (1998) were among the first papers to identify a key stylized fact in the literature: the convex flow-performance relationship. That is, mutual funds with superior performance attract disproportionately large new money inflows, while funds with poor performance suffer relatively smaller outflows. Huang, Wei, and Yan (2007) further show that a significant factor contributing to this convex flow-performance relationship is the investors' participation costs, which include the costs related to collecting and analyzing information about a fund. They document that funds with lower participation costs are more responsive to medium performance and less so to high performance.

The convex flow-performance relationship has important implications for fund managers' risk-taking incentives—it motivates mutual funds to strategically shift risk levels to attract additional fund flows. One of the key papers is Brown, Harlow, and Starks (1996), which investigates the tournament incentives arising from the convex flow-performance relationship. They find that mid-year “losers” will increase fund volatility more than mid-year “winners” to improve their chances of winning the tournament of being the top performance funds. Another important study by Chevalier and Ellison (1997) provides similar evidence that managers alter the risk of their portfolios between September and

December in a manner consistent with the tournament incentive. Together, these two studies highlight the potential agency conflicts between fund investors and fund managers. While investors would like fund managers to use their expertise to maximize risk-adjusted returns, fund managers, motivated by maximizing their own profits, might take actions that are primarily aiming to attract additional fund flows.

There are a series of follow-up studies on the flow-performance relationship and its implication for the risk-taking incentives of fund managers. Busse (2001) analyzes daily fund return data and argues that tournament behavior is an artifact of biases in monthly return data. Basak, Pavlova, and Shapiro (2007) develop an analytical model showing the convex flow-performance relationship leads to a finite risk-shifting range where managers gamble to finish ahead of their benchmark. This gambling can entail increasing or decreasing the volatility of the manager's portfolio depending on her risk tolerance, which the authors find empirical support. Schwarz (2012) demonstrates there exists "sorting bias" in the methodologies used in the tournament literature, which potentially contributes to the above-mentioned mixed evidence in the literature. He then further corrects the bias and provides new evidence that mid-year losers increase risk, supporting the presence of tournament behavior. Kempf and Ruenzi (2008) show that fund managers adjust the risk they take depending on the relative position within their fund family. Midyear losers from large families increase risk more than winners do. In small families, the opposite behavior is observed: midyear winners increase risk more than losers do.

Risk-shifting strategies do not appear to translate into beneficial outcomes for fund investors. Huang, Sialm, and Zhang (2011) directly examine the performance implications of risk-shifting behavior. They show that risk-shifting funds exhibit worse performance, suggesting risk-shifting indicates low managerial skill or agency issues rather than efforts to capitalize on timing abilities.

Clientele differences significantly impact the shape of the flow-performance relationship. Del Guercio and Tkac (2002) compare the flow-performance relationship between retail mutual funds and fiduciary pension funds and find mutual fund flows are more sensitive to performance than those of pension funds. They argue that this difference arises because mutual fund managers are implicitly incentivized to shift risk, an incentive not faced by pension fund managers. In a subsequent study, Del Guercio and Reuter (2014) observed a greater flow-performance sensitivity in direct-sold mutual funds compared to those sold through brokers. This variation can be attributed to the tendency of more experienced investors to choose direct-sold funds, whereas less sophisticated investors often invest through brokers. Christoffersen, Evans, and Musto (2013) highlight that brokers prioritize generating fees for themselves over selecting high-performing funds for their clients. This can lead to a diminished flow-performance sensitivity and, consequently, a reduced incentive for fund managers of broker-sold funds to exert effort in generating alpha. Consistent with this hypothesis, Del Guercio and Reuter (2014) demonstrate that direct-sold funds invest more in active management and achieve better performance outcomes. Lastly, Sialm, Starks, and Zhang (2015) find that flows into funds from defined contribution (DC) retirement plans exhibit more performance sensitivity than non-DC flows, primarily due to adjustments to the investment options by the plan sponsors.

In addition to risk-taking, flow-induced incentives could also lead managers to strategically choose their performance benchmarks and return profiles. The U.S. Securities and Exchange Commission (SEC) Rule 33-6988 requires mutual funds to disclose at least one “appropriate” broad-based market index against which they compare their past performance. Specifically, this rule requires funds to compare their 1-, 5-, and 10-year returns against at least one benchmark index of their choosing. Under current regulations, funds have the discretion to select their benchmark indexes, thereby implicitly choosing the historical

returns against which they measure their performance. Sensoy (2009) finds that mutual funds' self-declared benchmarks tend to be mismatched towards large and growth indexes, which were historically easier target to beat. Drawing on data from mutual fund holdings, Cremers, Fulkerson, and Riley (2022) identify prevalent benchmark discrepancies, revealing that the prospectus benchmark typically downplays risk in such cases. On average, funds exhibiting benchmark discrepancies outperform their stated benchmarks, yet they fall short when compared to more risk-appropriate benchmarks. In a more recent investigation, Mullally and Rossi (2023) find that funds manipulate their benchmark selections by adding indexes with lower past returns and dropping those with higher past returns, significantly enhancing the appearance of their benchmark-adjusted returns. Chen, Evans, and Sun (2023) corroborate findings on benchmark mismatches, particularly pre-2008, but note a significant decline over time, attributed to specialized funds realigning their benchmarks to better reflect their investment style. In a different study, Chen, Cohen, and Gurun (2021) document widespread misreporting in bond fund risk profiles (i.e., holding risky bonds but claiming to hold safer bonds) to obtain higher Morningstar ratings and boost fund flows. Misclassified funds appear to outperform in the lower risk fund category but are mediocre performers when correctly risk-classified.

In summary, the literature extensively documents that the convex relationship between fund flows and performance creates implicit incentives for managers to alter the risk and return profiles of their portfolios. Going forward, further research can provide additional insights into the magnitude and welfare consequences of flow-induced incentives. As more investor-friendly technologies become available to access and analyze fund information and new disclosure regulations are introduced, it will be interesting to examine whether flow-induced incentives become more or less aligned with investors' interests. Understanding

flow-induced incentives also remains crucial for designing contracts between investors and fund managers.

2.2. Career Concerns

In his seminal work, Fama (1980) raises an important intuition that career concerns induce efficient managerial behavior, arguing that labor market forces could mitigate moral hazard as managers value their labor market reputations. Consequently, Holmström (1999) contends that there may be no necessity for explicit contracts, as labor markets inherently offer effective implicit incentives. He also notes that potential decision-making distortions may arise due to incentive misalignments inherent in principal-agent relationships.

Chevalier and Ellison (1999) provide the first empirical evidence on career concern effects in the mutual fund industry. They first document an inverse relationship between the probability of manager termination and fund performance, which is similar to the evidence shown in Khorana (1996). It suggests managers with sub-par performance do face termination risk. Furthermore, they find that younger managers face greater sensitivity of termination to poor performance and tend to avoid unsystematic risk and exhibit “herding” behavior. In a similar vein, Beggs and DeVault (2022) find that sub-advised funds, which face higher termination risks as shown by Kostovetsky and Warner (2015), herd more than in-house funds. Jiang and Verardo (2018) extend Chevalier and Ellison’s work by studying the performance implication of herding. They show that herding can be detrimental to fund shareholders and that the underperformance of herding is particularly strong for managers with stronger career concerns. Interestingly, rather than a solution to incentive problems, earlier work in this area tends to demonstrate that career concerns can be a source of incentive distortion in the U.S. mutual fund industry.

If career concerns stimulate efficient managerial behavior such as inducing managerial effort and reducing excessive risk-taking, there is less necessity to impose investment policy constraints on fund managers who face stronger career concerns. This is what Almazan, Brown, Carlson, and Chapman (2004) find in their study of the determinants of explicit investment policy constraints of mutual funds. Later work by Cici, Hendriock, and Kempf (2021) studies the effects of labor mobility restrictions in the form of non-compete clauses on mutual fund managers. They find that increased enforceability of non-compete clauses (i.e., higher termination costs and greater career concerns) leads managers to focus more on their contribution to their employer's revenue by improving performance and reducing risk-taking, but also increasing window-dressing activities to attract new investors.

Another interesting extension of the literature is how compensation incentives and managers' career concerns interact and shape managers' risk-taking incentives. Kempf, Ruenzi, and Thiele (2009), for example, study the relative effects of employment risk (i.e., career concerns) and compensation incentives on risk-taking by fund managers. They find that when employment risk dominates, poorly-performing managers reduce risk to avoid termination. But when compensation incentives dominate, poor performers increase the risk of catching up. In a related study, Hu, Kale, Pagani, and Subramanian (2011) develop a model predicting a U-shaped relationship between risk-taking and prior performance, influenced by the trade-off between career concerns and compensation incentives. They document empirical evidence consistent with their model's predictions.

In summary, this line of research on career concerns highlights the need to design compensation contracts and performance evaluation processes that carefully balance risk-taking incentives with career-concern incentives faced by fund managers. Notably, the focus has largely been on incentives arising from termination avoidance, with less emphasis on

promotion incentives, an area ripe for future research to deepen our understanding of fund manager incentives in the mutual fund industry.

3. Explicit Incentives

Investors who delegate portfolio management must design contracts that encourage portfolio managers to exert costly effort to gather information and use this information to select portfolios with desirable risk profiles. As noted by Stoughton (1993), the interaction between effort incentives and risk-taking in delegated asset management presents unique challenges, not fully addressed by standard principal-agent models. This has led to a significant body of literature focusing on optimal contract design in portfolio delegation.

The traditional and dominant form of compensation for fund advisers has been a fixed percentage of fund assets. In the late 1960s, however, mutual funds began rapidly adapting symmetric (i.e., fulcrum incentive fee) and asymmetric performance fee contracts (i.e., convex incentive fee). The US Congress, in 1971, banned asymmetric performance fees, concerned that they incentivized fund managers to assume excessive risk. Consequently, early research, largely theoretical, concentrates its attention on exploring the effects of symmetric versus asymmetric incentive contracts on fund managers' behaviors.

Starks (1987) pioneers the application of agency theory in portfolio delegation and develops a model to study the impact of advisory fee contracts on investment decisions in a mean-variance framework. She shows that symmetric incentive contracts, which share gains and losses equally, better align the interests of fund managers and investors compared to asymmetric contracts. Stoughton (1993) later highlights a drawback in linearly structured management fees tied to portfolio returns, arguing they lead to managerial underinvestment in effort. Carpenter (2000) examines the prevailing assumption that option-type

compensation inevitably increases fund managers' risk-taking, revealing that the reality is more nuanced and dependent on specific contract details. Subsequent research, including Das and Sundaram (2002) and Li and Tiwari (2009), suggests that option-type performance incentive fees could address the underinvestment issue while properly incentivizing risk taking. For instance, Li and Tiwari (2009) show that with the appropriate choice of benchmark, it is always optimal to include a bonus incentive fee linked to performance in the compensation contract.

3.1. Advisory Contract

Deli (2002) provides one of the first detailed empirical analyses of the advisory contract in the mutual fund industry. He finds that percent-of-assets contracts define the industry norm—93 percent of the funds have advisory contracts based solely on a percent of assets, consistent with earlier evidence documented by Golec (1992). The marginal compensation rates are greater for equity than for debt fund advisors, foreign than domestic advisors, higher portfolio turnover advisors, and advisors of smaller funds. He interprets these results as suggesting the sensitivity of payoffs under advisory contracts is related to the marginal product of fund advisors and the difficulty of monitoring the performance. The cross-sectional differences in marginal compensation rates reflect contract design that mitigates agency conflicts between fund investors and advisors.

Theory on incentive contracting contends that performance-based incentive fees should elicit more managerial effort and attract better managers. Consistent with theoretical predictions, Elton, Gruber, and Blake (2003) compare incentive-fee funds to non-incentive-fee funds and find that funds with incentive fees indeed exhibit superior stock selection ability. However, they find incentive-fee funds tend to take on more risk than non-incentive-fee funds, and they do so after a period of poor performance. Massa and Patgiri (2009) find

that high-incentive advisory contracts (i.e., a fixed linear fee structure) are associated with both increased risk-taking and a lower probability of survival, compared to funds with a concave fee structure (i.e., the percentage fee decreases as the total assets increase). Yet, funds with high-incentive contracts deliver higher risk-adjusted return and the alpha persists over time, mostly because of active portfolio rebalancing. In a related study, Dass, Massa, and Patgiri (2008) show that the incentives contained in advisory contracts mitigate herding into speculative bubble stocks, as high incentives motivate managers to deviate from the crowd consensus.

Golec and Starks (2004) study the regulatory change that forced certain mutual funds to eliminate asymmetric performance fees and find that affected funds have a lower increase in portfolio risk relative to a control sample. However, the authors find that mutual fund shareholders found the prohibition undesirable and responded with large capital outflows following the elimination of asymmetric performance fees. This finding is consistent with the theoretical work such as Li and Tiwari (2009) which shows that asymmetric performance-based fees with appropriate benchmark serving as the optimal contract in the industry, and regulatory authorities' mandatory request on eliminating such contract can be suboptimal from the investors' perspective.

Several studies advance the literature by studying the determinants of changes of advisory contracts. Warner and Wu (2011) document that variations in advisory fee rates are driven by both past performance and growth in assets under management. Fee increases are associated with strong performance as advisors can capture rents, whereas fee decreases reflect economies of scale associated with growth and are not associated with extreme poor performance. Kuhnen (2005) emphasizes that while advisory contract changes are rare, they result in significant improvements in subsequent performance and fund flows. For instance, decreases in advisory rates significantly increase subsequent fund performance and net

inflows. Separating from an advisor has a significant positive effect on the subsequent ranking of mid-performing funds as well. The author concludes that it is quite puzzling that why advisory contractual changes are rare, in spite of their economically significant benefits.

Overall, this literature highlights the significant influence of advisory contracts on fund managers' investment strategies, risk-taking behaviors, and the overall survival rate of funds. Consequently, this area of study carries important policy implications: advisory contract design is critical for aligning fund advisors' interests with those of underlying investors. Given the endogenous nature of the advisory contracts, further investigation into the determinants of these contracts is deemed valuable. For example, our understanding of the role that boards of directors play in setting advisory contracts is relatively limited, especially when compared to the breadth of knowledge in corporate board literature. With the mutual fund industry rapidly evolving due to the rise of passive investments, the impact of this shift on advisory contracts presents an intriguing area for future research as well. Lastly, further research exploiting exogenous shocks or policy changes could offer additional insights into the determinants and the impact of fund advisory contracts. Such research could, in turn, have important policy implications for the regulation of advisory contracts.

3.2. Portfolio Manager Compensation

Portfolio managers do not work for fund investors directly but for the investment advisor contracted with investors to manage the fund. This introduces a dual-layered agency relationship. That is, investors entrust fund advisors with their investments, who in turn employ portfolio managers for the fund's day-to-day investment decisions. Historically, due to a scarcity of data regarding individual portfolio manager incentives, research predominantly concentrated on the advisory contracts between fund investors and investment advisors. Consequently, the dynamics of compensation for the actual decision-

makers, the portfolio managers employed by advisors, remained largely unexplored. Until very recently, access to detailed data has sparked increased scholarly interest in dissecting the impact of various compensation components—base salary, bonuses, benchmarks, and profit sharing—on managers’ risk appetite and fund performance.

Earlier work in the advisory contract space such as Elton, Gruber, and Blake (2003) has posed a puzzling fact that explicit performance-based incentives rarely exist in advisory contracts, likely due to the regulation that advisory contracts are prohibited from having asymmetric incentive fees.³ In the meanwhile, extensive literature studies the implicit incentives embedded in the convex relationship between fund flows and performance. These observations seem to suggest that the U.S. mutual fund industry relies mainly on implicit flow incentives to induce managerial effort.

In March 2005, the U.S. SEC enacted a new rule requiring mutual funds to disclose the compensation structure of their portfolio managers in the Statement of Additional Information (SAI). For instance, mutual funds need to disclose whether portfolio manager compensation is fixed or variable, and whether compensation is based on the fund’s investment performance and/or AUM. For performance-based compensation, funds are required to identify any benchmark used to measure performance and to state the length of the period over which performance is measured.

Ma, Tang, and Gómez (2019) is among the first to systematically analyze the compensation structures of individual portfolio managers in the U.S. mutual fund industry using hand-collected data from funds’ SAI filings. Their analysis reveals a distinct contrast

³ According to section 205 (a) (1) of the Investment Advisers Act of 1940, the incentive fees received by an investment advisor must be symmetric relative to a benchmark, with any increase in fees for above-benchmark performance matched by a symmetric decrease in fees for below-benchmark performance. This has been the case since 1971 when the U.S. Congress prohibited mutual funds from employing the asymmetric performance fee schedules due to concerns about excess risk taking.

to the advisory contract incentives, highlighting that explicit bonus-type performance-based incentives predominate in the relationship between advisors and portfolio managers.⁴ Also, the performance evaluation window varies from one quarter to 10 years, with the average equal to three years. Their main takeaway is that the approach to portfolio manager compensation, with explicit performance-based pay aimed at mitigating agency conflicts in the absence of other mechanisms, aligns well with the predictions of optimal contract theory (e.g., Li and Tiwari, 2009). It also offers useful insights to subsequent theoretical models on portfolio delegation (e.g., Basak and Pavlova, 2013; Breugem and Buss, 2019; Sotes-Paladino and Zapatero, 2019; Sockin and Xiaolan, 2023).

In a related study, Lee, Trzcinka, and Venkatesan (2019) develop and test a theoretical model of how portfolio managers' compensation contracts affect risk taking. They predict and find that fund managers with asymmetric contracts and mid-year performance close to their benchmark increase portfolio risk in the second half of the year. Further, their study suggests that risk-shifting incentives motivated by management contracts also matter for fund managers besides flow-induced incentives.

Expanding on these insights, Evans, Gómez, Ma, and Tang (2023) focus on portfolio managers' performance evaluation benchmarks in compensation contracts. They show that about 70% of portfolio managers are compensated based on peer benchmarks such as Lipper classifications. Their model shows that peer benchmarking provides stronger incentives for managers to exert effort and generate higher gross returns compared to pure benchmarks like the S&P 500 index, which they find empirical support. They also find that fund advisors

⁴ It is important to note that while the Investment Advisors of 1940 prohibits asymmetric performance fees for registered investment advisers, this prohibition does not apply to the compensation arrangements that investment advisers have with their employees, including mutual fund portfolio managers.

using peer benchmarks cater more to sophisticated investors and are more likely to sell to investors through direct channels.

While the above studies shed light on the nature of compensation structures, it does not speak to the strength of the performance-based incentives of portfolio managers. Using Swedish data, Ibert, Kaniel, Van Nieuwerburgh, and Vestman (2018) provide an analysis of what factors determine the dollar compensation of individual fund managers. They find a surprisingly weak sensitivity of portfolio manager pay to investment performance. Firm-level characteristics such as their profits add substantial explanatory power for compensation, suggesting that fund company-level factors play a significant role in setting portfolio manager pay for a given fund.

A recent study by Bai, Ma, Mullally, and Tang (2023) examines the determinants of compensation for portfolio managers using administrative earnings data from the U.S. Census Bureau. They document a strong pay-for-performance sensitivity for portfolio managers in the US fund industry, consistent with theoretical predictions and evidence documented by Ma, Tang, and Gómez (2019). For instance, they find that a 1% increase in the average abnormal return of the past three and five years increases an average manager's pay by 5.3% and 7.8%, respectively. In addition, one key insight from the study is that these performance incentives exist primarily due to the indirect incentives fund advisors possess via the flow-performance relationship. Thus, they provide an economic rationale underlying the high rewards granted to top-performing managers by establishing a connection between the performance incentives in the two layers of delegation.

Another recent paper by Han, Ben Naim, and Sokolinski (2023) examines the effects of team quality on the compensation of portfolio managers, using a tax record dataset on mutual fund managers in Israel. They find that managers working with superior teams receive lower contemporaneous compensation, but higher future pay due to enhanced

expected productivity. The results suggest that besides a manager's skill, pay is also related to opportunities for skill development provided by a firm via team assignment.

In our view, this line of research on individual portfolio manager compensation is one that will draw more attention over time, and we expect to see more research going forward to better understand the design of the compensation of portfolio managers and their impact on fund managers. As of right now, we still know relatively little about this complex and economically important topic. For example, fundamental questions such as the causal effect of compensation structure on investment outcome, potential pay inequality in the industry, how fund advisors split rents with portfolio managers etc. remain largely unexplored.

4. Other Incentives

Evaluating fund managers' incentives necessitates a broad perspective. Mutual funds often operate within fund families and maintain business ties with portfolio firms or financial institutions. Furthermore, they are subject to stringent disclosure requirements. Consequently, a multitude of factors—including peer dynamics, fund family considerations, disclosure regulations, bank affiliations, and business ties—all matter for fund manager incentives. In this section, we survey the literature on these types of incentives, suggesting that understanding of this complex incentive network is crucial for evaluating managerial performance and its implications for investors and financial markets.

4.1. Family Membership

The U.S. mutual fund industry is notably characterized by the widespread presence of fund families. Despite being legally independent entities, most mutual funds are members of fund families. Investors tend to select funds within a single family (Elton, Gruber, and

Green, 2007), influenced partly by trust in the fund family (Kostovetsky, 2016). Many key decisions are made at the family level, including policies on fees and breadth of fund offerings (Massa, 2003), manager hiring and promotions (Gervais, Lynch, and Musto, 2005), fund advertising (Gallaher, Kaniel, and Starks, 2006), and incubation strategies (Evans, 2010). Managers are an integral part of a fund family, and their incentives will be shaped not only by their individual fund performance but also by broader intra-family dynamics. This section reviews the literature on the impact of fund families on managerial incentives.

Nanda, Wang, and Zheng (2004) is among the first to highlight the importance of understanding the significant influences of fund families on their individual funds. They find that star performance promotes the visibility of the family and results in greater flows to all member funds. The intra-family spillover effect induces lower ability families to pursue star-creating strategies, which potentially create conflicting family interests. Another early study by Massa (2003) shows that fund families maximize firm value by maximizing assets under management by providing investors with free-switching option within the same family and increasing the breadth and heterogeneity in fund offerings.

These early studies on fund families gave rise to a large literature focusing on potential incentive misalignments due to being part of a fund family. For instance, Gaspar, Massa, and Matos (2006) provide evidence of favoritism within families. Funds with higher fees or recent good performance are systematically favored over lower fee or poorer performing sibling funds. Favoritism is done in part through better allocations of underpriced initial public offering deals and opposite trades across member funds (Gaspar, Massa, and Matos, 2006; Eisele, Nefedova, Parise, and Peijnenburg, 2020). Additionally, Bhattacharya, Lee, and Pool (2013) find that certain affiliated funds of a fund family can serve as a buffer against liquidity shocks for other funds in the family, but this may come at a cost to investors in these affiliated funds. Zambrana (2021) further shows that fund families could

opportunistically increase the odds of creating star funds, exacerbating potential conflicts of interest. Huang, Qiu, Tang, and Xu (2019) study fund families' choice between single versus teams of portfolio managers and show that fund families prefer to have a larger number of funds to maximize their own profits.

Family membership adds value for the investors and portfolio managers as well. Chen, Hong, Huang, and Kubik (2004) suggest potential economies of scale in large fund families. Theoretical work by Gervais, Lynch, and Musto (2005) and empirical evidence from Berk, van Binsbergen, and Liu (2017) indicate that fund families can effectively assess and leverage managerial skills, adding value for investors. Family membership also provides rich possibilities for cross-fund learning that are not available when funds are stand-alone (Brown and Wu, 2016). Auh and Bai (2020) find that cross-asset information sharing improves performance, benefiting families facilitating synergy across equity and bond funds. Cici, Jaspersen, and Kempf (2017) show funds in families with faster dissemination of information across managers exhibit significantly higher performance. A notable drawback of information sharing is the increased correlation of mutual fund returns within than between fund families, as identified by Elton, Gruber, and Green (2007). Since investors frequently limit their investments to a single fund family rather than diversifying across multiple families, this strong co-movement among all member funds within a family is likely to subject investors to a higher total portfolio risk, which could be undesirable.

Several studies focus on how family competitive and cooperative culture shape individual portfolio manager behavior. Kempf and Ruenzi (2008) provide evidence that intra-firm competition in the form of tournaments shapes risk-taking incentives for fund managers. Evans, Prado, and Zambrana (2020) create indices of competitive vs cooperative incentives at the family level. They find families that encourage cooperation among managers exhibit more coordinated trades and stable fund flows. In contrast, families with more competitive

incentives generate funds with higher performance, more star funds, but also greater performance dispersion. A recent study by Dannhauser and Spilker III (2023) finds that intrafamily competition from index mutual funds in the same Morningstar category incentivizes active fund managers to exert more effort. This illustrates how family-level incentives trickle down to shape fund manager behavior and have different performance implications.

Overall, this literature highlights the various ways that membership in a fund family shapes the incentives of fund managers. The family structure creates unique dynamics like tournaments, favoritism, information sharing, and implicit contracting. These incentives within the family can directly shape the fund manager's effort, risk-taking, cooperation, and utilization of shared resources. However, families also introduce potential conflicts of interest between the family and member funds, or across different member funds. The desire to benefit the family as a whole may distort incentives away from maximizing value for underlying investors in a particular fund. We expect researchers to continue to explore and debate these incentive issues created by the fund family structure, which remains an important area for future research.

4.2. Managerial Ownership

Portfolio manager ownership, defined as the personal monetary investment of portfolio managers in the funds that they manage, can serve as a mechanism to mitigate agency conflicts and thereby affect mutual fund performance and risk-taking. In March 2005, the SEC mandated the disclosure of fund manager ownership, arguing that “a portfolio manager's ownership in a fund provides a direct indication of his or her alignment with the interests of shareholders in that fund.”

The immediate hypothesis following the classical Jensen and Meckling's (1976) argument on incentive alignment is that fund managers who own a larger stake in the funds they manage (i.e., skin in the game) should perform better. Khorana, Servaes, and Wedge (2007) provide one of the first studies of such implications of portfolio manager ownership on fund performance and find supporting evidence. They show that nearly half of fund managers have an ownership stake, albeit often a modest one. Moreover, managerial ownership is positively related to future fund returns. In a related study, Evans (2008) further corroborates these findings, showing that funds with managers owning over \$100,000 perform significantly better alongside reduced fund turnover.

While the above studies focus on the impact on fund performance, Ma and Tang (2019) analyze the effect of managerial ownership on risk-taking behavior. The authors argue that by investing their personal wealth in the funds they manage, portfolio managers must share the downside risk with the investors, which should reduce the convexity of the option-like reward structures and reduce agency issue-induced risk-taking incentives. They find strong empirical support for this hypothesis. In a different study, Fu and Wedge (2011) argue that managerial ownership appears to reduce managers' behavioral biases and provide evidence that higher ownership levels mitigate the disposition effect in their investment decisions. A more recent study by Agarwal, Jiang, and Wen (2022) provides evidence that managers tend to avoid lottery stocks when their ownership in funds is high. In short, this literature has shown a consistent set of evidence that portfolio manager ownership helps align manager-investor incentives and mitigate agency conflicts.

4.3. Organization Structures

The organization structure in the mutual fund industry has important implications for fund managers' incentives and performance. In this section, we survey the literature on

four dimensions of the organization structure: (i) side-by-side management, (ii) team management, (iii) outsourcing arrangement, and (iv) centralized versus decentralized decision-making.

4.3.1. Side-by-Side Management

A fundamental issue in fund management is aligning the incentives of fund managers with the interests of investors. A growing body of research has examined the practice of side-by-side management, where fund managers simultaneously manage mutual funds and other investment vehicles (e.g., hedge funds), which creates potential misalignment of incentives. Early studies find mixed results on the impact of side-by-side management on mutual fund investors. Using a sample of side-by-side managers of mutual funds and hedge funds, Nohel, Wang, and Zheng (2010) find that side-by-side mutual funds significantly outperform peer funds, consistent with the view that side-by-side management is a privilege granted to star performers for the purpose of retaining talent. In addition, side-by-side hedge funds perform on par with their style category peers. The authors conclude that side-by-side management does not appear to harm mutual fund investors through exploitation of conflicts. In contrast, Cici, Gibson, and Moussawi (2010) find the opposite. They show evidence that returns of mutual funds by side-by-side managers significantly underperformed other funds with similar fund and family characteristics.

Subsequent work by Del Guercio, Genç, and Tran (2018) notes that both these earlier studies face some data limitations when identifying side-by-side managers. They use free of selection bias data from mandatory SEC filings and find that side-by-side managed mutual funds where the manager also oversees hedge funds significantly underperform peers. Moreover, underperformance begins only after fund managers begin to manage a hedge fund. They attribute variation in underperformance to managerial incentives and cross-

subsidization opportunities. Overall, they provide strong evidence that supports the conflicts of interest hypothesis in the debate on “side-by-side management.”

In addition to the side-by-side management, Agarwal, Ma, and Mullally (2023) document that it is common practice in the mutual fund industry to have one manager manage multiple mutual funds simultaneously. However, such an arrangement has significant drawbacks for fund investors as it is associated with worse fund performance. Their evidence suggests that multitasking reduces attention or limits the investment options a manager can allocate to their funds.

4.3.2. Team Management

A growing body of literature has examined how team management affects portfolio managers’ incentives and investment decisions. Bär, Kempf, and Ruenzi (2011) provide one of the first empirical tests comparing team-managed and solo-managed funds. They find that team-managed funds follow less extreme investment styles, have less industry-concentrated portfolios, and are less likely to achieve extreme performance outcomes compared to solo-managed funds. Their results suggest that team management incorporates diverse opinions and reduces extreme risk-taking. Dass, Nanda, and Wang (2013) test the trade-off between specialization benefits and coordination costs within the team structure using a sample of balanced funds with both stock and bond allocations. They find that solo-managed funds exhibit market timing ability across assets, while team-managed funds do not, consistent with coordination challenges in decentralized teams. However, teams show superior security selection abilities. This highlights a trade-off with a team structure between decentralized authority that permits specialization versus difficulties in coordination.

Despite the overwhelming trend in mutual funds toward team management, earlier empirical studies find no performance benefits for this phenomenon. Patel and Sarkissian

(2017) address data inaccuracies about team structures in major databases. Using more accurate data from Morningstar Direct, they find team-managed funds significantly outperform single-managed funds. In their follow-up work, Patel and Sarkissian (2021) uncover lower portfolio pumping, which artificially inflates returns, among team-managed versus single-managed funds. Pumping declines as team size rises, driven by peer monitoring effects and reduced performance-flow convexity incentives. Thus, team structures curb destructive incentives created by short-term return pressures.

Team composition also matters significantly for incentives. Examining individual commitment within teams, Luo and Qiao (2020) find that committed fund managers, defined as those who work only for one fund, positively impact team performance, suggesting that individual commitment improves team performance by mitigating the free-rider problem. The increasing prevalence of non-committed teams likely reflects perceived flexibility benefits, although committed teams generate superior long-term results. Evans, Prado, Rizzo, and Zambrana (2020) study team diversity and fund performance, focusing on the political ideology diversity of fund teams. They find diverse teams outperform homogeneous ones, which is driven by a combination of improved decision-making due to more diverse perspectives and increased monitoring by heterogeneous team members. However, diversity benefits disappear with heightened political polarization, consistent with increased intra-team conflict. Their evidence underscores how diversity alters team incentives and interactions.

Overall, the literature has documented various trade-offs of benefits and costs from team management. Future research could further improve our understanding of how fund manager incentives vary across different structures of teams (e.g., with or without a lead manager, diversity across race and gender, etc.). Moreover, further insight is needed on the specific mechanisms linking team structure to performance.

4.3.3. Outsourcing

The outsourcing of portfolio management is a widespread practice in the mutual fund industry. According to Chen, Hong, Jiang, and Kubik (2013), roughly 41% of families outsource to some degree and a typical family on average outsources the management of 26% of its funds. The outsourcing of fund management has implications for managerial incentives and fund performance, which has been examined extensively in academic literature. Grossman and Helpman (2002) provide a theoretical framework illustrating the tradeoffs determining organizational structure and firm boundaries in the context of outsourcing. They argue that outsourcing specialized input production can lower costs through economies of scale and enable innovation but it requires solving contracting frictions. These frictions arise from the costs of locating partners, and the potential for hold-up if relationship-specific investments occur.

Chen, Hong, Jiang, and Kubik (2013) is among the first to examine the impact of outsourcing in the mutual fund industry. They find that outsourced funds significantly underperform comparable funds run internally. They argue that contractual frictions make it difficult to extract performance from an outsourced fund manager. Consequently, the principals running outsourcing funds rely more on high-powered incentives, which manifest in an increased likelihood of dismissal for poor performance or excessive risk-taking. Chuprinin, Massa, and Schumacher (2015) confirm the underperformance of outsourced funds among international asset management firms. They focus on the behavior of the agent (i.e., the subadvisor), who faces a conflict of interest in managing both his own and outsourced funds. They attribute the underperformance of outsourced funds to the preferential treatment of in-house funds by the subadvisor (e.g., favorable allocations of IPOs, trading opportunities, and cross-trades).

Moreno, Rodriguez, and Zambrana (2018) suggest mechanisms like co-branding arrangements, multi-advisor funds, and performance-based fees can help align incentives between the outsourced manager and the fund family. They argue these contractual features are effective but costly, so fund families will only implement them when selling to sophisticated investors capable of monitoring fund managers, emphasizing the role investor sophistication plays in shaping optimal outsourcing arrangements.

The underperformance of the outsourced funds is clearly at odds with the performance maximization of fund families. Two studies help reconcile this somewhat puzzling finding. Cashman and Deli (2009) suggest that outsourcing decisions are likely to be consistent with mutual funds efficiently collocating decision rights to balance the opportunity costs of foregone specialization with agency costs of sub-advising. Using a structural model of self-selection, Massa and Schumacher (2020) endogenize the fund family's decision to outsource and find that mutual fund outsourcing is actually value increasing for fund families. Fund families outsource funds in which they are at an informational disadvantage to generate performance.

4.3.4. Centralized versus Decentralized Decision-Making

Kacperczyk and Seru (2012) provide empirical evidence that decentralized mutual funds have better performance than their centralized counterparts. The authors exploit a quasi-experiment involving failed mergers to compare acquired funds that maintain autonomy to those fully absorbed into centralized families. They find that decentralized families, which give more discretion to fund managers, have higher fund performance compared to centralized families that coordinate decisions across funds. However, centralized families allow better coordination of trading and diversification across funds. These findings highlight key trade-offs between centralized and decentralized organizational forms. In a

similar spirit, Evans, Prado, and Zambrana (2020) show that competitive fund families have higher average fund returns compared to cooperative families. However, cooperative families allow better diversification and risk-sharing across member funds, resulting in more stable family cash flows.

4.4. Regulation-Induced Incentives

As registered investment companies with the Securities and Exchange Commission (SEC) under the Investment Company Act of 1940, mutual funds are subject to extensive disclosure requirements. One key part of the regulation is mandatory portfolio disclosure, which requires mutual funds to publicly disclose their portfolio holdings at a given frequency (e.g., four times each year). Portfolio disclosure requirements aim to provide transparency for investors but could affect fund managers' incentives in various ways.

First, mandatory portfolio disclosure to the public, even with a delay, could impose costs on skilled fund managers related to proprietary information leakage. Earlier work in this area highlights the potential costs of disclosure borne by informed managers by demonstrating that the performance of copycat mutual funds (which duplicate holdings of active equity funds as soon as being disclosed) is comparable to the original funds (Frank, Poterba, Shackelford, and Shoven, 2004; Verbeek and Wang, 2013). Examining a regulation change increasing disclosure frequency from semiannual to quarterly, Agarwal, Mullally, Tang, and Yang (2015) find mandatory increases in portfolio disclosure frequency improve underlying stock liquidity. However, informed funds experience performance deterioration after increased disclosure.⁵ This highlights the tradeoff between transparency benefits and proprietary information costs imposed on fund managers. This trade-off is also present in

⁵ For the same reasons, Shi (2017) shows that the 13F disclosure requirement imposes performance costs on hedge funds.

voluntary portfolio disclosure, where some funds voluntarily disclose their portfolios at a higher frequency than the regulatory mandate. Li, Ge, and Zheng (2023) show voluntary disclosure decreases with portfolio illiquidity, but it increases the sensitivity of investor flows to fund performance.

Moreover, mandatory portfolio disclosure could induce various types of strategic behavior of mutual fund managers. There exists a large literature that studies the various responses of professional money managers to portfolio disclosure. First, one response would be to hide or change their strategy to reduce information leakage and mitigate the adverse effects of more frequent disclosure. Theoretical work by Huddart, Hughes, and Levine (2001), who extend the seminal Kyle (1985) model, shows that with mandatory disclosure, an informed trader would add random noise to his trading strategy to prevent other market participants from fully inferring his private information. Empirical evidence shows that funds trade strategically within the quarter to minimize the impact of disclosure (Puckett and Yan, 2011; Wang, 2010). In addition, with more frequent disclosure, informed mutual funds shift to more liquid stocks and shorten the time they take to finish their trading (Agarwal, Mullally, Tang, and Yang, 2015). Moreover, funds tend to accelerate the completion of existing positions before quarter-end but delay initiating new positions until the new quarter, which reduces price informativeness around quarter-end disclosure dates (Gormley, Kaplan, and Verma 2022). In a different setting, studies find that institutional investors, especially hedge funds, actively seek exemption from the Form 13F disclosure requirement for reasons related to private information and associated price impact (Agarwal, Jiang, Tang, and Yang, 2013; Aragon, Hertz, and Shi, 2013).

A second strand of literature examines the phenomenon of window dressing, which refers to the practice of buying or selling securities at the end of a reporting period to alter the appearance of a fund's portfolio holdings. Lakonishok, Shleifer, Thaler, and Vishny (1991)

is among the first to study this phenomenon. They document evidence of window dressing by pension fund managers and argue that it arises from agency problems, as managers attempt to signal skill and avoid losing clients due to poor performance. Comparing semiannually disclosed portfolios mandated by the SEC to undisclosed weekly portfolios, Musto (1999) finds evidence consistent with “window dressing” in money market funds. In particular, funds allocate more to lower-risk government securities around disclosure dates compared to other dates. This effect is more pronounced for recent poor performers, suggesting funds attempt to conceal higher risk from investors when performance has been weak. Agarwal, Gay, and Ling (2014) find similar window dressing behavior among equity mutual fund managers—disclosing disproportionately more stock holdings that have done well and less holdings that have done poorly. This type of window dressing behavior reduces transparency and distorts security prices around disclosure (Musto, 1997), making it harder for investors to make informed decisions.

Another strand of literature documents evidence of portfolio pumping and studies the motivations and implications of this behavior. Portfolio pumping refers to the practice of inflating portfolio returns through manipulative trading strategies. The evidence of portfolio pumping among equity mutual funds was first documented by Carhart, Kaniel, Musto, and Reed (2002). They find that fund managers inflate quarter-end prices through last-minute purchases of stocks already held, to pump up returns and attract more fund flows. Hu, McLean, Pontiff, and Wang (2014) study daily institutional trade data and find direct evidence consistent with portfolio pumping—institutions tend to buy stocks in which they already have large positions at year-end. In summary, portfolio pumping seems to be a widespread phenomenon, and the incentives are tied to the convex flow-performance relationship and benchmark beating rewards. Regulatory monitoring and enforcement appear to help deter manipulation, but oversight remains critical (Duong and Meschke,

2020). Recently, the issue of portfolio pumping at the fund family level has attracted attention. Wang (2023) documents that non-star funds often engage in the pumping of star funds' holdings within the same fund family.

Overall, this literature highlights that the portfolio disclosure requirement creates complex incentives for fund managers. While increasing transparency can benefit investors and market efficiency, more frequent disclosure can impose proprietary information costs on informed fund managers, perversely affecting capital market informational efficiency. Also, due to agency issues, managers have incentives to engage in strategic behaviors like window dressing and portfolio pumping. Further research on optimizing transparency benefits while mitigating unintended distortions of fund manager behavior would be highly valuable.

4.5. Business Ties

Mutual funds have business ties or affiliations with many other financial institutions, which often affect the incentives and behavior of fund managers. For instance, many mutual fund families have other lines of business, such as managing firms' employee benefit plans. Also, mutual funds tend to have strong business ties with financial institutions that serve as their brokers. Sometimes, mutual fund sponsors are directly affiliated with banks (more often the case in European countries). The literature has documented much evidence of conflicts of interest arising from mutual funds' business ties as well as their bank affiliations.

The first type of business ties that received attention in the literature is pension business ties, where mutual fund families serve as trustees for firms' employee benefit plans (e.g., 401(K) plans). As the first study on this topic, Davis and Kim (2007) show that earnings from 401(K)-related businesses represent as much as one-quarter of fund family revenues. They then study mutual funds' conflicting incentives in proxy voting of portfolio firms with pension business ties. Early evidence shows that pension business ties with portfolio firms

do not appear to influence voting after controlling for fund family heterogeneity (Davis and Kim, 2007; Ashraf, Jayaraman, and Ryan, 2012). A later study by Cvijanović, Dasgupta, and Zachariadis (2016) finds different results using more comprehensive data and cleaner identification with high-dimension fixed effects: business ties with portfolio firms significantly increase the likelihood of pro-management voting among connected funds, especially among shareholder-sponsored proposals and those that pass or fail by narrow margins. Thus, portfolio firms appear to exploit existing ties to influence funds' voting.

Besides proxy voting decisions, pension business ties also affect funds' portfolio decisions. Cohen and Schmidt (2009) show that fund families are significantly overweight, and are reluctant to sell stocks with which they serve as the firms' 401(k) plan trustees. In return, these families secure substantial inflows as at least most of the fund options in the benefit plan are those of the trustee family. Another potential benefit of being the trustee is that such business ties could provide affiliated funds an informational edge in connected portfolio firms. Consistent with this idea, Duan, Hotchkiss, and Jiao (2018) show that mutual funds increase sales of client firms' stocks prior to earnings declines and periods of underperformance.

Brokerage relationship is another important type of business connection for mutual fund firms. Reuter (2006) documents a strong positive correlation between commissions paid to lead underwriters and IPO allocations to fund families from these underwriters. A later study by Goldstein, Irvine, and Puckett (2011) documents direct evidence based on transaction-level data that institutional investors send abnormally high commissions to the lead underwriters of profitable IPOs. Thus, a key takeaway from these studies is that investment banks appear to grant allocation access in exchange for brokerage business from the client funds, maintaining a quid pro quo relationship. Recent work by Kumar, Tang, and Wei (2023) examines the unique phenomenon of mutual funds being both brokerage

customers and large shareholders of investment banks, finding that client funds overweight broker bank stocks and provide voting support to brokers' management at the expense of shareholders' interests. Preferential IPO allocation from brokers incentivizes this reciprocal support. Thus, beside brokerage commissions, being brokers' management-friendly shareholders is another channel for mutual funds to maintain their quid pro quo relationship.

In addition, interlocking directorates arising from fund directors being simultaneously employed by a firm as executives or directors represent another type of business tie between mutual funds and portfolio firms. Calluzzo and Kedia (2019) show that funds with shared directors are more likely to support management on contentious votes and deviate from ISS recommendations. However, higher announcement returns suggest voting with management reflects information advantages rather than conflicts of interest. In a different setting, education ties between fund managers and corporate executives also lead to pro-management voting on compensation proposals, pointing to conflicts of interest (Butler and Gurun, 2012). In return, fund managers tend to benefit from this type of connection with portfolio firms, gaining an informational advantage through education networks (Cohen, Frazzini, and Malloy, 2008).

Finally, a direct affiliation of mutual fund sponsors with banking institutions also deserves more scrutiny. Golez and Marin (2015) document evidence of affiliated mutual funds providing price support to the controlling bank's stock based on Spanish data. While this benefits the bank, it negatively impacts the affiliated funds' share prices. Also using Spanish data, Gil-Bazo, Hoffmann, and Mayordomo (2020) show that despite negative abnormal returns, affiliated funds provide significant funding support for parent banks by over-purchasing bonds in the primary market, especially during crisis periods. Another study by Ferreira, Matos, and Pires (2018) shows, based on data from 33 countries, that bank-affiliated funds substantially underperform unaffiliated funds, and this underperformance

concentrates on funds that heavily overweight the stock of their affiliated lending bank's borrowers. Hao and Yan (2012) similarly document the significant underperformance of investment bank affiliated funds relative to unaffiliated funds. They show that affiliated funds holding more shares of their underwriting clients with worse performance, suggesting that investment banks use affiliated funds to support their underwriting business at the expense of fund investors. All these studies underscore how ownership ties can create conflicts of interest between divisions in financial conglomerates.

Ties with banks could also bring benefits to fund investors. First, funds may benefit from proprietary information generated by their affiliated banks. Massa and Rehman (2008) find funds increase positions in firms that receive loans from affiliated banks in the months following deal origination. The significant outperformance of these positions indicates the existence of information flows within financial conglomerates. Affiliation with investment banks may also increase the likelihood of receiving favorable IPO allocations. Ritter and Zhang (2007) show that affiliated funds receive greater allocations of hot IPOs with large first-day returns compared to non-affiliated funds during the internet bubble period of 1999–2000.

In short, this literature suggests that various types of business ties matter significantly to mutual fund managers. While information-sharing benefits likely exist, evidence is clear that pension relationships, ownership ties, board interlocks, and various client relationships can create conflicts of interest for fund managers. The findings underscore the need for greater transparency and oversight around business connections given their power to distort incentives. Further exploring the net impact on fund investors and spillovers and interactions across different business tie types could be fruitful areas for deepening the understanding of this complex incentive web.

5. Future Research Directions

Given the critical role mutual fund managers assume in steering the investment of trillions of dollars of assets and influencing the financial markets and the broad economy, better understanding their incentives and behavior will continue to be a fruitful area for future research. We highlight some areas that are, in our view, worth further exploration.

First, the mutual fund industry has been experiencing several new fundamental trends in recent periods. Among others, these include (i) the massive growth in passive funds, (ii) the growing emphasis on non-performance objectives such as ESG considerations, and (iii) the increasing concentration of AUM among a few major fund companies. Each of these trends would bring new topics for future research. For instance, do we have a good understanding of the types of incentives passive fund managers face? How will the growth of passive investing change or shape active managers' incentives to generate performance while facing pressure to lower fee ratios to compete? How does the emphasis on non-performance metrics such as ESG considerations affect managerial behavior? How will the AUM concentration affect large and small fund families' incentives to collect information and engage with portfolio firms?

Second, the literature still lacks a full understanding of the roles fund families play in many aspects of fund manager incentives and behavior. Future research could potentially gain more insight into their roles in marketing, raising capital, research support, growing and evaluating managers' skills, coordinating proxy voting, etc. Also, while recent work has started to open the black box of how things work within fund advisors, more granular data could be used to better understand the factors influencing performance incentives within the fund advisor. Furthermore, while existing work has started to show that fund families play a first-order important role in raising capital and matching capital with labor, more research

is needed to better understand the determinants of the revenue split between fund families and individual portfolio managers and how the split will influence managerial incentives.

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