Winning Teams or Winning Pay? The Impact of Team Quality on Fund Manager Compensation*

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Abstract

We explore the impact of team quality on mutual fund manager compensation using unique Israeli tax data. Our findings uncover a novel dual effect: higher team quality lowers immediate pay but boosts future compensation growth by enhancing individual team members' skills. These results suggest that pay reflects not just a manager's existing skill set, but also opportunities for skill development provided by a firm via team assignment. Since the effect of team quality is more pronounced among better-performing and less experienced managers, our mechanism offers fresh insights into variation in pay-performance sensitivities and career pay profiles in asset management.

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1 Introduction

Incentive provision stands as a central theme in the studies of asset management. Although significant progress has been made in understanding the role of investor demand and fund flows in shaping fund family incentives (Berk and Green (2004), Sirri and Tufano (1998)), incentive provision through compensation contracts has received little attention until very recently. Understanding supply-side incentives is crucial since portfolio managers are the ones responsible for actual asset management. Consequently, the efficacy of demand-side incentives in ensuring efficient asset management critically hinges on the structure of managerial compensation.

In their pioneering work, Ma et al. (2019) show that managers' compensation contracts include performance-based bonuses, while Ibert et al. (2017) reveal the significant influence of fund revenues as a driver of compensation. Nevertheless, even after accounting for the manager's performance and revenues, a considerable portion of the variation in managerial compensation remains unexplained. This finding emphasizes the necessity for further investigation into the intricate relationship between fund managers and fund families. Indeed, as made precise by Ibert et al. (2017), "managers are an integral part of a fund family, and their incentives will be shaped not only by how well they manage their own funds, but also by how they integrate with the rest of the firm."

This paper examines one key aspect of such integration - the allocation of managers across investment teams within the firm. Our focus is driven by the increasing significance of teamwork in the asset management industry, with nearly 70% of funds being co-managed (Patel and Sarkissian (2017)). The evidence from labor economics literature suggests that teamwork can substantially affect incentives and performance of individual team members.[1] Motivated by these observations, we examine the effects of team quality on compensation of portfolio managers, using a novel and comprehensive tax record dataset on mutual fund managers in Israel, described in Section 2. Quantifying the extent to which team assignment influences a manager's compensation package holds significant implications for understanding supply-side managerial incentives,

[1]For example, the prior work shows that working with high-quality teams improves productivity of individual members through knowledge spillovers (Mas and Moretti (2009)), learning (Hamilton, Nickerson and Owan (2003)), or social incentives and peer pressure (Bandiera, Barankay and Rasul (2005, 2009, 2010)). Theoretical studies also emphasize the importance of peer pressure (Kandel and Lazear (1992)), and as well as the role of moral hazard in teams (Hölmstrom (1979)).

particularly in occupations like asset management, where output depends on within-team interactions between individual workers. The implications of our analyses also carry to many other occupations where individuals work in teams.[2]

In Section 3, we present a simple framework to guide our empirical analysis and flesh out the economic mechanisms driving the team quality effects on compensation. The central prediction of this framework is that managers working with superior teams receive lower contemporaneous compensation. This trade-off between team quality and compensation arises from the following mechanism. When a portfolio manager is assigned to a higher-quality team, their human capital improves significantly. This enhanced human capital empowers the manager to generate higher future revenues and, consequently, earn greater future compensation. In light of this, firms can attract managers through two distinct approaches: either by providing the opportunity to work with better peers or by offering higher contemporaneous pay. Since managers consider their overall lifetime compensation when evaluating an employment offer, they are willing to accept lower compensation in the present to be allocated to a superior team that can potentially boost their long-term earning prospects.

To capture team quality, we focus on two dimensions of human capital which are specific to asset management and can improve the ability of individual managers to generate revenues. The first dimension is the team's overall investment skill, as working with highly skilled team fosters knowledge spillover and learning (Mas and Moretti (2009)). The second dimension of team quality is media visibility of the teammates. Given the asset management industry's inherent uncertainty regarding future performance and the existence of search frictions, media visibility becomes an crucial channel for attracting investors.[3] Collaborating with more visible teammates can elevate a manager's own visibility among investors, resulting in additional fund flows and increased revenues.[4]

[2]Some previously studied examples of such occupations include academic research (Azoulay et al. (2010)), sales (Chan et al. (2014)), steel mills (Boning et al. (2007)), sports (Ichniowski and Preston (2014)), or garment production (Hamilton et al. (2003)).

[3]For example, Berk, Van Binsbergen and Liu (2017) and Kaniel and Orlov (2021) illustrate the importance of the effects of uncertainty regarding the manager's skill. Hortaçsu and Syverson (2004) and Roussanov, Ruan and Wei (2021) highlight the role of search frictions and marketing. Solomon, Soltes and Sosyura (2014), Gallaher, Kaniel and Starks (2015) and Kaniel and Parham (2016) show how increased media visibility attracts new capital.

[4]Unlike the prior work on marketing and advertising in the mutual fund industry, we focus on visibility of individual managers rather than their asset management firms or underlying funds.

Section 4 presents our key finding which corroborates our earlier prediction. We demonstrate that portfolio managers assigned to high-quality teams receive lower current pay, and the magnitude of these effects is economically significant. In our most stringent tests, an increase of one standard deviation in the average skill of teammates results in a reduction of the manager's pay by 4.03%. Similarly, an increase of one standard deviation in the media visibility of teammates leads to a decrease of 3.09% in the manager's pay. Comparatively, an equivalent increase of one standard deviation in the manager's own skill raises their compensation by 6.06%, while a similar increase in their visibility results in a compensation rise of 1%. This finding emphasizes the distinctive impacts of team characteristics versus individual manager characteristics on compensation. It also indicates that the effects of team human capital and the manager's personal human capital are economically comparable, yet they exert opposing effects on compensation.

We next examine whether the effect is driven by team composition rather than by other factors. We first show that our estimates are robust to controlling for many potential observed confounds such as time-varying manager, team and fund attributes, as well as all the unobserved time-invariant manager characteristics (captured by manager fixed effects) and the time-varying firm characteristics (captured by firm-by-year fixed effects). We also illustrate that our results are robust to various methodological choices such as ways to measure manager investment skill or compute the team-level variables.

One remaining concern is the selection of managers into teams based on time-varying unobserved manager characteristics. To mitigate this concern, we propose a Differences-in-Differences (DiD) approach, comparing managers who switch teams ("switchers") with those staying on the same team ("stayers") within the same firm. This method allows us to explore various types of transitions, such as shifts between low-skill and high-skill teams, with a rich set of control variables ensuring precise outcome comparisons. Our analysis validates the DiD methodology by confirming the "parallel trends" assumption: conditional trends in compensation and other outcomes do not differ between switchers and stayers before team switching, supporting the credibility of our DiD designs.

Our DiD results support our baseline evidence by showing that managers experience a decline in pay when moving to a higher-quality team and a comparable increase in pay after moving to a lower-quality team. These effects are economically sizable. For example, transitioning from

a low-skill or a high-skill team reduces compensation by 28% during the initial year following the transition. Similarly, shifts from low-visibility to high-visibility teams result in a 16% drop in compensation during the initial year. We demonstrate that these estimates are internally consistent with our first empirical approach because they fall well within the confidence intervals implied by the baseline estimates.

Why do managers value team quality? Our proposed mechanism is that team capital facilitates the growth of a manager's human capital and hence expected future productivity. We delve into this mechanism in more detail in Section 5. We first investigate whether a manager's own skill and visibility are influenced by their past team collaborations. Consistent with our mechanism, we discover that working with a higher-skilled team leads to accelerated growth in a manager's own skill. Similarly, collaborating with a team of higher visibility enhances the visibility accumulation of individual team members. Utilizing our DiD designs, we scrutinize these effects and find that they become apparent immediately after the manager's transition to a different team and continue to persist in the subsequent years. This finding further reinforces the notion that team quality plays a crucial role in shaping a manager's human capital development, which can subsequently impact their compensation and productivity in the long run.

As an additional test, we explore whether collaborating with better teams indeed leads to higher future productivity and compensation. To measure productivity, we adopt a similar approach to Ibert et al. (2017) and use a manager's total fee revenue.[5] In line with our hypothesis, our results demonstrate that better team quality enhances both the future revenue growth and compensation growth of individual managers. This finding aligns with our proposed mechanism, where team quality positively impacts a manager's future potential.

Our results carry important implications for several recent strands of literature in asset management which we examine in Section 6. First, Ibert et al. (2017) show that compensation in the mutual fund industry may not be very sensitive to manager performance. This phenomenon is challenging to justify in a world where monetary incentives play a dominant role in compensation structures, but it can be reconciled with varying importance team quality for different man-

[5]In the context of the mutual fund industry, fund revenue is a plausible measure of manager productivity since it represents the market value of a manager's output - the asset management service that a manager generates. This measure is consistent with commonly used productivity measures that are based on revenue per employee (Foster, Haltiwanger and Syverson (2008), Hsieh and Klenow (2009), Syverson (2011)).

agers. By incorporating team quality into the estimation of the pay-performance relationship, we demonstrate that small average pay-performance sensitivities obscure significant differences in compensation-based incentives. Team quality significantly reduces the sensitivity of compensation to investment skill, because skilled managers benefit more from team quality and are willing to accept lower compensation when affiliated with better teams. As many skilled managers often initially collaborate with other skilled managers, this finding explains why the estimated pay-performance sensitivities may appear relatively small on average.

Another important implication of our findings relates to the existing literature on career compensation profiles in the financial industry. Prior research has established that compensation for finance professionals grows rapidly with experience (Philippon and Reshef (2012)), particularly in the asset management sector (Ellul, Pagano and Scognamiglio (2022)). We demonstrate that the effects of team quality can provide an explanation for these findings, as less experienced managers derive larger benefits from team affiliation due to their longer working lives. As a result, portfolio managers tend to earn lower compensation early in their careers. However, this compensation discount gradually diminishes as managers gain more experience and become less appreciative of the benefits of teamwork, leading to a steeper relationship between compensation and experience. Consistent with this explanation, we find that the effects of team quality on compensation are two to three times stronger for less experienced junior managers compared to their more senior colleagues.

Additionally, our study relates to the nascent literature on the role of teamwork in asset management. It has been shown that teamwork improves performance through the diversity effects (Evans et al. (2021)), and also reduces uninformed trading (Fedyk et al. (2020)), artificial return inflation (Patel and Sarkissian (2021)), extrapolation (Barahona et al. (2022)) and opinion extremity (Bär, Kempf and Ruenzi (2011)). We propose a novel, complementary perspective by studying how the team benefits are internalized in compensation of portfolio managers. Our contribution to this line of research is to show that the benefits of team affiliation are not a "free lunch", and they are balanced by reduced contemporaneous compensation of individual team members.

Lastly, our work adds to the labor economics literature on effects of within-firm allocation of workers on productivity (e.g., Kandel and Lazear (1992), Bandiera et al. (2005, 2009, 2010), and Mas and Moretti (2009)). One important remaining question in this literature is how the well-

documented effects on productivity translate in the worker's pay. We fill the gap and show how the integration of workers within firms affects their lifetime compensation profiles.[6] By illustrating how the advantage of firms in matching multiple distinct types of labor is internalized in labor compensation, we contribute to the literature on the role of firms in a broad set of industries.

2 Institutional Background and Dataset

In this section, we describe the construction of the dataset. We also discuss the summary statistics and the definitions of the key variables.

2.1 The Israeli Mutual Fund Market

As of 2016, our sample from the Israeli mutual market includes 1,446 funds that managed approximately 250 billion Shekels. The market consists of different types of funds starting from pure equity funds and ending with government bond funds. Many funds are hybrid and invest into a number of different asset classes simultaneously. As a group, Israeli mutual funds allocate roughly 25% of assets to equities, 30% to corporate bonds and another 25% to government bonds. In Appendix, Table B1 shows the distribution of funds across asset classes.

2.2 Dataset Construction

We construct our dataset from five data sources. We start with public disclosures of mutual fund companies (Part B of Fund Prospectus) to identify individual mutual fund portfolio managers. Since 2010, mutual fund companies in Israel have to disclose the identity of their portfolio managers through public reports submitted to the Israel Securities Authority and the Tel-Aviv Stock Exchange on an annual basis.[7] We hand-collect the information on portfolio managers including age, job tenure, the list of funds they manage every year as well as the date when they started to manage a particular fund.[8] This data allows us to track almost the entire population of mutual

[6] In a related study, Han and Miller (2015) develop and test the employment network theory on compensation and turnover in the context of the real estate brokerage industry. However, they do not observe the actual compensation and rely on a structural model to infer its distribution.

[7] This information is publicly available both on http://maya.tase.co.il and on https://www.magna.isa.gov.il.

[8] The firms are not obliged to disclose the names of fund managers but they have to disclose their license numbers. All portfolio managers in Israel have to pass the Israel Securities Authority qualification exam to obtain a license to

fund portfolio managers in Israel from 2010 to 2016.[9] As we observe the dates when managers became responsible for particular funds, we extend the dataset back to 2006 for a subset of managers and funds. For example, if we know that the manager started managing the fund in February 2006, we include this fund in their portfolio since the given date.

Next we match this data using unique fund identifiers with a database on monthly characteristics of funds purchased from Praedicta - a large private Israeli data vendor.[10] This survivorship bias-free database covers the entire universe of Israeli mutual funds; it includes detailed fund characteristics such as fees, assets under management, returns, fund style and asset allocation across broadly defined sets of securities. The overall matched sample covers 89% of the Israeli mutual fund industry's assets under management between 2010 and 2016 and 49% of this industry between 2006 and 2009 (see Figure B1 in the Appendix). We exclude index funds and money market funds from our sample.

We then construct portfolios of funds for each manager on an annual basis to later fit the compensation data which is reported annually. Fund managers can be listed as managers of multiple funds, and funds can have multiple managers. If the fund is managed by N managers, we follow Chevalier and Ellison (1999b) and Ibert, Kaniel, Van Nieuwerburgh and Vestman (2017), attributing $1/N$ assets to every manager assuming that all the managers listed contribute equally to the management of the fund. We construct annualized manager portfolio's characteristics such as fees and fund age as an AUM-weighted sum of characteristics of individual funds.

Table 1 presents the summary statistics of our sample. Panel A shows the manager-level data where the unit of observation is manager-year. The average manager is 39 years old, and they have 6.1 years of experience in the mutual fund management industry. Israeli equities represent 42% of assets in their portfolios. 12% of the portfolios managers have additional responsibilities with their firms such as being a CEO, a head of investment committee or a chief strategist. The average portfolio manager is responsible for managing 4.4 funds.

Panel B presents characteristics of individual funds which we use to obtain manager-level portfolio characteristics. The average fund has 112 million shekels under management, has been

be able to work as portfolio managers. In cases when we had only a license number, we used it to find the individual manager's name on the Israel Securities Authority website.

[9] Very small mutual fund companies are not subject to this disclosure, so the data set does not cover the whole population of fund managers.

[10] This data set has been previously used in Shaton (2017) and Sokolinski (2023).

operating for 8 years, and charges a percentage fee of 0.82%. Panel C presents the data at the firm level. The average firm employs 3 portfolio managers and operates 28 mutual funds.

2.3 Variable Construction

2.3.1 Compensation

We follow Ibert, Kaniel, Van Nieuwerburgh and Vestman (2017) and measure a manager's compensation by the amount that they receive in a given year. We match data on portfolios of individual managers with their compensation data using administrative tax records from the Israel Tax Authority. We use Form 106 (the equivalent of the U.S. W-2) which is an annual statement of wage and taxes. We directly observe the annual compensation from each employer and can exactly infer how much each manager earned from a particular asset management firm. We exclude a small number of cases where managers worked less than nine months in the company. The final dataset includes 302 managers and 1,786 manager-year observations.

As shown in Panel A of Table 1, the average mutual fund portfolio manager in Israel earns 438,000 shekels per year which equals approximately $125,000 during that time period. This statistic puts the average manager in the top 2% of labor income distribution in Israel. At the same time, there is significant variation in compensation in our sample, with the 10th percentile being equal to 100,000 shekels and the 90th percentile being equal to 690,000 shekels. Overall, the patterns here are consistent with the recent evidence that compensation in the finance industry is higher and more skewed than in other sectors (Célérier and Vallée (2019)).

2.3.2 Revenue

We define the manager's fee revenue as:

$$Revenue_{mt} = \sum_{i \in \Omega_{mt}} \left(\frac{AUM_{it}}{N_{it}} \times f_{it} \right), \tag{1}$$

where Ω_{mt} is the set of all the funds managed by manager m in year t, AUM_{it} are assets under management in fund i, f_{it} is a fund i's fee (expense ratio), and N_{it} is the number of managers who manage fund i. We attribute equal $(1/N_{it})$ fraction of revenue to each manager m as in Chevalier

and Ellison (1999b), Berk, Van Binsbergen and Liu (2017) and Ibert, Kaniel, Van Nieuwerburgh and Vestman (2017). Panel A of Table 1 shows that the average manager generates 4.68 million shekels in fee revenue. There is substantial dispersion in manager revenue since the 10th percentile equals 0.11 million shekels, and the 90th percentile equals nearly 12 million shekels.

2.4 Manager Human Capital and Team Quality

Panel A of Table 1 shows that the fraction of managers on teams over the sample years equals 75% which is comparable to the U.S. estimates from Patel and Sarkissian (2017). Excluding the manager herself, an average manager is on 1.55 teams and has 0.7 teammates. Figure 1 shows that the fraction of managers working on teams increased from less than 60% to around 80% between 2006 and 2016. The fraction of co-managed funds increased from less than 40% to around 60%. The growing prevalence of teamwork highlights the increasing importance of peer effects in the mutual fund industry.

We next construct our measures of manager human capital and team quality. We distinguish between two dimensions of human capital: investment skill and media visibility.

Investment Skill. We follow Berk and Van Binsbergen (2015) and construct a measure of manager skill based on the value that the manager extracts from capital markets. Since the manager's risk-adjusted performance ("alpha") represents return to investors and depends on fund size, the fund i's value added over year t is defined as:

$$V_{it} = AUM_{i,t-1}\alpha_{it}, \tag{2}$$

where $AUM_{i,t-1}$ are assets under management in fund i at the end of year $t-1$ and the fund's annual alpha is calculated as the difference between the fund's annual return R_{it} and its benchmark return R^B_{it}:

$$\alpha_{it} = R_{it} - R^B_{it}. \tag{3}$$

We estimate the benchmark return R^B_{it} using a procedure similar to the one from Berk and Van Binsbergen (2015) (see Appendix A for details). Panel B of Table 1 shows that the average fund's risk-adjusted performance (α) equals -1.5%, and it is statistically non-distinguishable from zero. This

result is consistent with Fama and French (2010) who show that the average U.S. mutual fund does not outperform. We later show that our results are robust to different ways of estimating risk-adjusted performance.

We define manager m's value added as a total value added of all the funds under their management. If fund i is managed by N_{it} managers in year t, we attribute equal $(1/N_{it})$ fraction of value added to each manager. Then manager m's value added is defined:

$$V_{mt} = \sum_{i \in \Omega_{mt}} \frac{V_{it}}{N_{it}}, \tag{4}$$

where Ω_{mt} is the set of all the funds managed by manager m in year t. We next define manager m's skill as an expected value added given manager history up to year t:

$$Skill_{mt} = \sum_{w=1}^{T_{mt}} \frac{V_{mw}}{T_{mt}}, \tag{5}$$

where T_{mt} is the number of years manager m appears in the data prior to year t.[11]

We define $1_{Team_{mt}}$ as an indicator variable that equals one if at least one of the funds in the manager's portfolio is co-managed. If manager i works on team in year t, we measure the manager team's skill by calculating the average skill of her co-workers given by:

$$Team\ Skill_{mt} = \frac{1}{N-1} \sum_{n \neq m} Skill_{nt}, \tag{6}$$

where N is a number of team members, and $Skill_{nt}$ is a skill of manager n in year t. If a manager works on multiple teams, we calculate $Team\ Skill_{mt}$ across all the co-workers in all the teams.

Panel A of Table 1 summarizes the distributions of the manager's own investment skill and their team's investment skill. On average, our measure of the manager's skill equals 3.55 million shekels, and our measure of the team's investment skill equals 4.85 million shekels. The levels of investment skill considerably vary both across individual managers and teams. Despite a substantial variation across managers, the average manager is able to extract a positive value from

[11] Ma, Tang and Gomez (2019) show that the average performance evaluation period is three years, based on the data from the U.S. compensation contracts. While we follow Berk and Van Binsbergen (2015) and take into account the entire history of the manager prior to year t, the average T_{mt} equals 3.5 years which is close to the estimate from Ma, Tang and Gomez (2019).

capital markets, consistent with the U.S. results from Berk and Van Binsbergen (2015).

Media Visibility. We next construct a measure of manager m's personal visibility in time t, $Visibility_{mt}$, based on the total number of media mentions in the popular financial media. Our approach conceptually follows Solomon, Soltes and Sosyura (2014) and Kaniel and Parham (2016) who evaluate the effects of media coverage of individual funds or their portfolio holdings. Our measure is also based on media coverage but it focuses on individual portfolio managers. We go through the websites of the three major Israeli financial newspapers and one major financial website.[12] We perform searches of each manager's name and count the number of articles that mention the manager in each year across all the websites from 2006 to 2016. We read all the articles to verify that the name mentioned in the article belongs to the portfolio manager.[13]

As shown in Panel A of Table 1, the visibility of the average manager equals 7.87, meaning that 7.87 articles mentioning the average manager were published in the major financial media outlets in a given year. Nearly 25% of portfolio managers have zero visibility. Roussanov, Ruan and Wei (2021) show that marketing is nearly as important as performance and fees for determining fund size in the mutual fund industry. The substantial variation in visibility across portfolio managers thus highlights another important dimension of a manager's human capital.

In line with the definition of the team's investment skill, we measure the team's media visibility as:

$$Team\ Visibility_{mt} = \frac{1}{N-1} \sum_{n \neq m} Visibility_{nt}, \tag{7}$$

where N is a number of team members, and $Visibility_{nt}$ is a visibility of manager n in year t. If a manager works on multiple teams, we calculate $Team\ Visibility_{mt}$ across all the co-workers in all the teams.

[12] The four sources are The Marker, Globes, Calcalist and Bizportal.

[13] Most of the articles left describe managers' performance, their opinions on financial markets, securities recommendations, and their career moves.

3 Conceptual Framework and Testable Hypotheses

In this section, we outline our conceptual framework and discuss our testable hypotheses. Our central idea posits that forward-looking managers' compensation encompasses not only their current salary but also the continuation value derived from affiliating with superior teams assigned by the firm. In Appendix C, we present a simple labor market model, providing a microfoundation for our conceptual development.

The outcomes of our framework are driven by two assumptions. We first assume that working with better teams helps managers enhance their human capital. This assumption finds support in extensive labor economics literature, demonstrating how teamwork fosters skill improvement through knowledge spillover, learning from skilled peers (Hamilton, Nickerson and Owan (2003), Mas and Moretti (2009)), and social preferences or peer pressure (Bandiera, Barankay and Rasul (2005), Bandiera, Barankay and Rasul (2009), Bandiera, Barankay and Rasul (2010)). We term this mechanism the "human capital channel."

In the mutual fund industry context, we focus on investment skill and media visibility as key dimensions of a portfolio manager's human capital. Both skills are pivotal for attracting investors (Sirri and Tufano (1998), Solomon, Soltes and Sosyura (2014), Gallaher, Kaniel and Starks (2015), Kaniel and Parham (2016)). Our human capital channel asserts that teamwork enhances these skills. Managers can learn from highly skilled colleagues how to improve their personal investment skill, and working with visible managers enhances their own visibility among investors and in the profession.

We also assume that enhanced human capital translates into higher future productivity and compensation. In the mutual fund industry, we measure productivity using managers' fund revenue, reflecting the market value of their asset management service. This measure aligns with established productivity metrics based on revenue per employee (Foster et al. (2008), Hsieh and Klenow (2009), Syverson (2011)).

Empirical evidence in the mutual fund industry supports this assumption. Berk and Van Binsbergen (2015) demonstrate that skilled managers generate higher future revenues, while Solomon et al. (2014) and Kaniel and Parham (2016) illustrate how media coverage boosts assets under management, also correlating with higher revenues. In turn, higher revenues lead to elevated

compensation (Ibert et al. (2017)). Therefore, investment skill and visibility are expected to drive future compensation growth.

Given these assumptions, our framework yields specific equilibrium relationships. Better team quality enhances future productivity and compensation via the human capital channel. Managers seeking to maximize lifetime compensation accept lower current compensation for affiliation with superior teams, resulting in a negative relationship between team quality and current compensation. We derive several testable hypotheses based on this framework.

Hypothesis 1 (Team Quality and Compensation). *A manager's contemporaneous compensation decreases in team quality.*

Hypothesis 1 encapsulates our main prediction regarding the relationship between team quality and compensation. Our empirical analysis includes multiple tests to isolate the unique effect of team quality from other confounding variables.

Hypothesis 2 (Team Quality and Human Capital Channel).

a. A manager's future investment skill increases with the team's contemporaneous investment skill.

b. A manager's future media visibility rises with the team's contemporaneous media visibility.

By testing Hypothesis 2, we directly examine the human capital channel within the mutual fund industry, focusing on how team quality, measured by teammates' investment skill and media visibility, enhances individual managers' skill and visibility.

Hypothesis 3 (Team Quality, Revenue Growth and Compensation Growth). *A manager's compensation growth and revenue growth rise with team quality.*

Analyzing Hypothesis 3 allows us to further validate our framework, affirming that team quality affects contemporaneous compensation through its impact on future productivity and compensation. Our framework predicts a positive effect of team quality on revenue growth and compensation growth.

Finally, this setting also allows for varying effects of team quality on different managers. Managers may differ in how much they benefit from team affiliation, making the compensation contract specific to each manager-firm match. In particular, managers who derive greater benefits from assignment to higher-quality teams are expected to experience a more pronounced decrease in contemporaneous pay. In Section 6, we empirically illustrate instances of such heterogeneity, focusing on distinctions between more experienced and less experienced managers, as well as

those with higher and lower skill levels. This analysis provides new insights into phenomena highlighted in prior research, such as the variability in pay-skill sensitivity (Ibert et al. (2017)) and career pay profiles within the asset management industry (Ellul et al. (2022)).

4 Effects of Team Quality on Compensation

4.1 Methodology

We start with estimating the following baseline specification:

$$y_{mft} = \lambda_m + \lambda_{ft} + \beta_1 Team\ Skill_{mft} + \beta_2 Team\ Visibility_{mft} + \gamma X_{mft} + \lambda Y_{mft} + \epsilon_{mft}, \tag{8}$$

where y_{mft} is the natural logarithm of the annual compensation for manager m of firm f in year t.[14]

Our key identification concern is the selection of more capable managers into higher-quality teams. Such endogenous sorting can generate spurious correlation between team quality and compensation. Our approach mitigates this concern in several ways. First, we include individual manager fixed effects λ_m to account for sorting of high-ability managers into high-quality teams. This augmentation allows us to control for selection based on all the time-invariant manager characteristics.

Second, we include multiple time-varying manager characteristics X_{mft} such as: the manager's own skill and visibility, the portfolio revenues, the manager's age and industry experience, the number of funds under management, the share of equity funds in their portfolio,[15] as well as the indicator variable for having additional responsibilities outside of portfolio management.[16] The inclusion of X_{mft} thus accounts for additional selection on the important time-varying determinants of compensation highlighted by the prior work (Ibert et al. (2017) and Ma et al. (2019)).

Third, we add time-varying firm fixed effects λ_{ft} which control for all the firm-specific shocks

[14] We do not apply log-transformation to the skill and media visibility measures as they can have non-positive values. Consequently, we utilize a log-level specification for our analysis.

[15] Since financial adviser compensation in Israel is fixed within asset classes (Sokolinski (2023)), controlling for equity exposure also helps account for the effects of financial advice on fund size. This approach ensures that our results are not driven by the differences in adviser compensation across funds.

[16] For example, a manager can serve as the head of the investment committee or the chief investment strategist, in addition to their role of as a portfolio manager.

such as changes in compensation policy, changes in performance evaluation periods within and across firms or changes in firm-level advertising and media visibility. Finally, we control for a variety of time-varying team characteristics Y_{mft} to mitigate a concern that the team quality effect is confounded by the effects of other team characteristics. Y_{mft} includes the team's size and the averaged characteristics of individual team members. In all the specifications, the standard errors are double-clustered by manager and year.

After including of a comprehensive set of observed characteristics and fixed effects, the remaining threat to identification is the sorting of managers to teams due to unobserved *time-varying* factors, represented by the error term ϵ_{mft}. For instance, managers who enhance certain unobservable aspects of their skill set over time are not only more likely to be placed in superior teams but also to undergo a change in compensation. In Section 4.3 we develop and estimate a series of difference-in-differences (DiD) event studies where we examine the effects of switching teams to mitigate this concern.

4.2 Does Team Quality Reduce Compensation of Portfolio Managers?

Table 2 reports our main results from testing Hypothesis 1. Column (1) shows that the manager's own investment skill and the investment skill of their teammates have opposing effects on pay. An increase of one standard deviation in the manager's own skill (21.63 million shekels) leads to an increase of 6.06% ($21.63 \times 0.0028 \times 100\%$) in the manager's compensation, while an increase of one standard deviation in the team's skill (28.81 million shekels) reduces the compensation by 6.34% ($28.81 \times (-0.0022) \times 100\%$).[17]

Column (2) shows that the manager's media visibility and the team's media visibility also generate opposing effects on compensation. The estimated coefficients as well as their economic magnitudes are smaller than the effects of investment skill. An increase of one standard deviation in the manager's visibility (11.42 media mentions) increases their compensation by 1.14% ($11.42 \times 0.0010 \times 100\%$), while an increase of one standard deviation in the team's visibility (22.08 media mentions) reduces the compensation by 3.75% ($22.08 \times (-0.0017) \times 100\%$). In column (3), we simultaneously control for investment skill and media visibility. The results show that the ef-

[17] Since we use log-level specifications with respect to skill and visibility measures, the estimated coefficient (β) implies that a one unit increase in skill or visibility is associated with a $100 \times \beta\%$ increase in compensation.

fects of different measures of team quality are not subsumed by each other, indicating that they represent different dimensions of the manager's human capital.

We next add characteristics of individual managers, reporting the results in column (4). The main effects of team quality remain economically large and statistically significant. In line with Ibert et al. (2017), we find that fee revenue is an important determinant of compensation for mutual fund managers. Older, more experienced managers as well as those with additional roles in the company also earn higher pay. Controlling for additional team characteristics in column (5) reveals that the compensation is higher for managers on smaller teams and for those who work with older teammates.

In column (6), we add firm-by-year fixed effects which slightly reduces the effects of both team investment skill and media visibility. Adding manager fixed effects in column (7) does not significantly affect the estimates. In this most restrictive version of our regression specifications, we find that the increase of one standard deviation in the team skill reduces compensation by 4.03% ($28.81 \times (-0.0014) \times 100\%$), and a similar increase in the team's visibility reduces compensation by 3.09% ($22.08 \times (-0.0011) \times 100\%$).

4.2.1 Robustness Checks

Table 3 shows the results from various robustness checks, using augmentations of Equation 8 with its most restrictive version, reported in column (7) of Table 2. For brevity, we only report the coefficients on the main measures of team quality. Appendix Tables B2 - B6 have details.

In Panel A, we add more control variables. We first add various measures of manager experience such as the average experience with portfolio funds and the overall asset management industry experience, both at manager-level and team-level. Controlling for other types of experience does not change our results.

Following the evidence on the importance of the manager's education for skill and performance (Chevalier and Ellison (1999a)), we also include additional variables to control for the effects of education at the manager-level and team-level. We add an indicator variable which equals one if the manager has an advanced degree (e.g. MBA) as well as the average of such indicator variables across the manager's team members. We find that the estimated effects of team quality are robust to controlling for education of the manager and their teammates.

We next ask whether our estimates of team quality can be confounded by variation in characteristics of individual managers within teams. For example, high average investment skill within the team can be driven by a large variation in skill within the same team. As a result, the managers may be willing to accept lower compensation for working with the team with a highly diverse set of skills rather than higher average skill. To account for this possibility, we control for skill and visibility variance with the team and find that our results remain quantitatively similar.

The allocations to teams might be driven by the manager's prior investment skill and visibility. This effect may generate spurious correlations between compensation and contemporaneous skill and visibility if these characteristics are highly time-persistent. To mitigate this concern, we control for the skill and visibility histories from $t-2$ to $t-1$. Panel A of Table 3 shows that the results remain comparable to Table 2, suggesting that the history of the manager's skill and visibility does not confound the effects of team quality. We also find that controlling for the history of compensation itself leads to the very similar estimated effects of team skill and visibility, implying that the compensation trends do not interfere with our main results.

Panel B reports the results using alternative measures of investment skill. We find that using the manager's risk-adjusted return α instead of the skill measure from Berk and Van Binsbergen (2015) does not change our main result. Additionally, we compute the baseline skill measure from Equation 2 using a separate style-adjusted benchmark for each fund in the manager's portfolio rather than benchmarking all the funds to the same five benchmarks (see details in Appendix A.2). We find that our results continue to hold using these alternative measures of manager skill. Panel C also shows that our results are robust to how the standard errors are clustered.

4.3 Event Studies Based On Team Switching

4.3.1 Methodology

Our remaining concern relates to the time-variation in unobserved manager or team characteristics which drives both team allocation and compensation. To address this concern, we develop an event study methodology which examines the changes in compensation when managers switch teams.

We first sort teams into terciles based on their team skill, defining the teams at the top tercile

as high-skilled, and the teams at the bottom tercile as low-skilled. We then sort all the transitions between teams into two categories: transitions from low-skilled to high-skilled teams, and transitions from high-skilled to low-skilled teams. We focus on transitions within firms which makes it possible to control for the time-varying unobservables at the firm-level. To estimate the effect of media visibility, we use the same approach and define teams as high-visibility and low-visibility. We obtain 221 within-firm transitions between teams: 76 "low-to-high" and 42 "high-to-low" transitions based on team investment skill, and 72 "low-to-high" and 31 "high-to-low" transitions based on team media visibility.

For each transition event, we select a cohort containing two sets of treated and control managers. Our treatment sample includes managers who experience a specific transition ("switchers") in the given firm and in the given year. The control sample includes all the managers who do not switch teams within the same firm in the same year ("stayers"). The treatment and control samples are constructed separately for each transition event such that a manager can be a switcher in one event and a stayer in another. 89% of transition events include a single switcher such that we mostly compare a single manager who switch teams with their peers who stay on the same team. For both the treatment and control groups, we focus on the three years before the transition ($i = -3, -2, -1$), the transition year ($i = 0$), and the two years after the transition ($i = 1, 2$). This approach allows us to examine the pre-event trends in outcomes as well as the post-event dynamics.

We then estimate the following two regression specifications for each outcome:

$$y_{mfte} = \lambda_m + \lambda_{ft} + \lambda_e + \sum_{i=-3, i\neq -1}^{2} \left(\beta_i \times \mathbb{1}_{me}^{L\to H} \times \mathbb{1}_i\right) + \gamma X_{mt} + \lambda Y_{mt} + \epsilon_{mfte}. \tag{9}$$

$$y_{mfte} = \lambda_m + \lambda_{ft} + \lambda_e + \sum_{i=-3, i\neq -1}^{2} \left(\beta_i \times \mathbb{1}_{me}^{H\to L} \times \mathbb{1}_i\right) + \gamma X_{mt} + \lambda Y_{mt} + \epsilon_{mfte}, \tag{10}$$

Our specifications follow the standard difference-in-differences (DiD) event study design. Equation 9 is estimated on the sample of "low-to-high" transitions (using the $L \to H$ superscript), and Equation 10 is estimated on the sample of "high-to-low" transitions (using the $H \to L$ superscript). The treatment indicator variables $\mathbb{1}_{me}^{L\to H}$ and $\mathbb{1}_{me}^{H\to L}$ equals one if manager m is a switcher in event e, and they experience "low-to-high" or "high-to-low" transition, respectively. This indicator equals

zero if manager m is a stayer in event e.

The coefficients of interest are β_i's which non-parametrically capture the treatment effect for each year i within the event window. Specifically, β_i's are the coefficients on the interaction between the treatment indicators $\mathbb{1}_{me}^{L\to H}$ and $\mathbb{1}_{me}^{H\to L}$ and the time indicator $\mathbb{1}_i$ which equals one for the relevant year $i \in \{-3, -2, 0, 1, 2\}$. We omit the year before the transition ($i = -1$) from the specification such that the β_i's can be interpreted relative to this baseline time period. Economically, these coefficients represent the differences in outcomes between switchers and stayers in year i, relative to one year before the switcher makes a transition.

Our event study design operates under the fundamental assumption that transitions between teams are uncorrelated with the error term (ϵ_{mfte}). This assumption implies that, in the absence of a transition, the outcomes for both switchers and stayers would remain on the same trend. However, it's important to note that switchers and stayers might not be initially comparable due to the fact that the decision to switch teams is a joint endogenous choice made by both the manager and the firm. This decision could potentially be influenced by unobservable factors at the manager, team, or firm levels. Should these unobservable elements demonstrate correlation with outcomes like compensation, the central assumption that underpins our empirical design can be violated.

To address this concern comprehensively, we include a variety of control variables in our specifications. We first introduce all the control variables outlined in Equation 8: the rich set of time-varying manager and team characteristics (X_{mt} and Y_{mt}), as well as firm-by-year fixed effects (λ_{ft}) and manager fixed effects (λ_m). We also include event fixed effects λ_e to sweep away all the time-invariant differences between manager cohorts across transition events.[18] The central idea behind the inclusion of an expanded set of control variables is to establish a more rigorous and accurate basis for comparison between stayers and switchers, leveraging the available dataset to its fullest extent.

We can examine the validity of our combined empirical design by studying the trends in the outcome variables prior to switching teams. A pre-trend in the difference in outcomes between stayers and switchers would suggest that the effect of transition is confounded by the variation

[18]Note that, in our setting, we can distinctly disentangle manager fixed effects λ_m, event fixed effects λ_e and the treatment indicator variables β_i. This differentiation is feasible because a given manager may assume the role of either a switcher or a stayer across different events. λ_m vary across managers, λ_e vary across events, and β_i's vary within manager over the years within the event window.

in the unobservables. By contrast, if the effects of transitions are not driven by unobserved confounders, our tests should not detect any difference in outcomes in the years prior to the transition. Formally, we examine whether $\beta_i^{L\to H}$'s (or $\beta_i^{H\to L}$'s) are different from zero when $i = -3, -2$. This test represents the standard "parallel trends" test used in DiD studies, assessing whether switching teams can be considered effectively exogenous, given a comprehensive set of control variables.

Furthermore, our methodology involves a distinct examination of the consequences of "low-to-high" and "high-to-low" transitions. This approach enables us to conduct more precise "two-way" tests of our hypotheses, facilitating the separate evaluation of the effects associated with different types of transitions. As per our framework, we hypothesize that "low-to-high" transitions exert a negative influence on compensation, whereas "high-to-low" transitions may have a positive impact. Employing the "two-way" approach enables us to empirically assess both of these predictions individually.

4.3.2 Results

Figure 2 reports the results of the DiD tests for transitions based on team investment skill. The capped spikes show the 95% confidence intervals. The overall findings are consistent with our main hypothesis and the prior results from Table 2. Panel (a) shows the estimated effects of transition from a low-skilled team to a high-skilled team. In the two years prior to the transition, we find no difference in the compensation trends between the switchers and stayers, in support of the parallel trend assumption. In the first two years after the transition, the switchers experience a sharp decline in compensation, and this effect weakens in the third year.

In terms of economic significance, the average manager experiences an approximate decline of 28% in compensation during the initial year following a transition to a high-skill team. The point estimate for this effect comes with a 95% confidence interval of [-12%; -45%]. To better contextualize this substantial effect, it is useful to compare it with the point estimates derived from our initial empirical approach.

Recall that a team qualifies as "high-skill" if it falls within the upper tercile of the team skill distribution, while a "low-skill" team represents the lower tercile. The divergence in average team skill between these terciles amounts to 71.75 million shekels or equivalently, 2.5 standard deviations of team skill (71.75/28.81). Drawing from the results in Table 2, our analysis indicates that

an increase of 2.5 standard deviations in team skill leads to a reduction of 15% in compensation- an effect well within the confidence interval of the estimate originating from the DiD approach. Hence, our DiD estimates, while more substantial in economic terms, do not exhibit statistical disparity from the estimates derived from our initial empirical approach. This comparison serves to validate the robustness of our methodologies, underscoring their capability to yield internally consistent results.

The findings from studying transitions from high-skill to low-skill teams in panel (b) also match the main results. After moving to a team with lower skill levels, the pay of switchers goes up. Just like the results from panel (a), we have strong evidence that the assumption of parallel trends holds true since there is no statistically significant difference in outcomes prior to the transition. The effects are the strongest in the first two years after the switching and disappear by the third year. The economic impacts are similar to what we see in panel (a), suggesting that the influence of team skill works the same way for both "high-to-low" and "low-to-high" transitions. However, it appears that the effect of "high-to-low" transitions is more transient in nature.

Figure 3 illustrates similar findings when we employ team visibility as a measure of team quality. Shifts from low-to-high visibility teams result in a notable drop in compensation, and there is no evident trend leading up to the transition event (panel (a)). The point estimates reveal that in the initial year, compensation decreases by 16%, with a confidence interval of [-2%; -30%]. To gauge the economic impact, we can make a comparison akin to the approach we used for the effects of team investment skill. The average visibility between high-visibility and low-visibility teams equates to 1.8 standard deviations. Employing the outcome from Table 2, we compute the economic effect size implied by the initial approach and find it to be nearly -7%. This estimate again falls well within the confidence interval of the DiD estimate, underscoring the consistency of our findings.

The results from the sample of high-to-low transitions in panel (b) are mixed. While we find consistently positive differences between the switchers and stayers, the difference is statistically significant at the 5% level only in the second year. These results offer limited support for the importance of team visibility for compensation in cases when the manager transitions from a high-visibility team to a low-visibility team.

In sum, the DiD tests provide results which are consistent with our baseline tests. They also

point out to an asymmetric affect of team visibility which manifests itself only among the transitions from low-visibility to high-visibility teams. As an extra validation exercise, we examine the first difference in compensation which results from switching a team within the same firm. In these tests, we compare managers to themselves instead of using a sample of switchers and stayers. The results in Appendix Table B7 align with the prior findings, showing that moving from low-quality to high-quality team reduces compensation and vice versa. The magnitudes of the estimated effects are also comparable.

5 Examining the Mechanisms Behind the Effects of Team Quality

5.1 Does Team Affiliation Improve Manager Human Capital?

We next examine Hypothesis 2 and ask how team affiliation improves manager future investment skill and visibility. The hypothesis suggests that managers are willing to accept the reduced compensation for higher team quality, since affiliation with better teams helps develop the manager's own skill set. Specifically, working with managers with high investment skill can help improve manager own investment skill, and working with more visible colleagues can improve their own visibility in the profession and among investors.

To test these hypotheses, we examine the effects of team quality on the improvements in the manager's own characteristics. We replace the outcome variable in Equation 8 with the growth of manager skill and visibility from period t to period $t+3$. The results in Table 4 support Hypothesis 2. The increase of one standard deviation in the team investment skill increases the growth rate of the manager's investment skill by 11.52 pps (column (3)). The increase of one standard deviation in the team visibility improves the visibility growth of individual managers by 4.33 pps (column (6)). We also find that both a manager's personal investment skill and their team's skill affect visibility growth. This result suggests that better investment performance of managers and their teams contribute to their visibility, implying some additional degree of "spillover" between various dimensions of manager and team human capital.

We additionally examine the relation between team quality and the growth in manager characteristics in the sample of the event studies. These test help mitigate the concern that the improvement in manager investment skill or visibility is driven by some time-varying unobserv-

ables rather than by team quality. We use the specifications from Equations 9 and 10, with skill and visibility growth as outcome variables.

The results in Figures 4 and 5 provide further support the notion that team quality enhances attributes of individual team members. Figure 4 shows the effects of team investment skill on the growth of individual team members' skills, as evaluated through the DiD approach. In panel (a), the results reveal that shifts from low-investment-skill teams to high-investment-teams result in swifter skill growth. Notably, there exists no disparity in skill growth between switchers and stayers before the transition, highlighting the credibility of our empirical framework for this specific outcome variable.

The point estimate for the initial year subsequent to the transition approximately stands at 0.18. This estimate implies an increase of 18 pps in manager investment skill growth during the initial three years after the transition. This growth rate experiences a slight acceleration in the second year following the transition and stabilizes during the third year.

Moving to panel (b) of Figure 4, we observe that transitions in the reverse direction yield a reduction in manager investment skill growth. Notably, the economic significance of this effect aligns with the outcomes from panel (a), indicating that the impact of team quality on investment skill growth is symmetrical. This symmetry manifests in both "high-to-low" and "low-to-high" transitions. These findings reinforce the previous evidence presented in Figure 2, which underscores the consistency in the symmetrical impact of team investment skill on compensation.

Figure 5 introduces the results coming from transitions based on team visibility, with the outcome variable being the visibility growth of individual managers. In situations where managers switch from low-visibility to high-visibility teams, their personal visibility experiences a significant upsurge. Notably, no pre-trends emerge preceding the transition event (panel (a)). The effect of such transitions becomes apparent in the initial year following the switch, being equal to 26 pps, and subsequently attenuates to 19 pps in the second year, eventually stabilizing at 16 pps in the third year.

However, there is a lack of observable shifts in visibility growth for transitions from high-visibility to low-visibility teams. This observation aligns with the absence of effects resulting from such transitions on the compensation of portfolio managers, as demonstrated in Figure 3.

5.2 Does Team Affiliation Improve Future Compensation and Revenue?

We next test Hypothesis 3 and examine how team quality affects future compensation of portfolio managers and their ability to generate fee revenues. The trade-off between the contemporaneous and future pay represents an important aspect of our conceptual framework. Managers will be willing to accept lower compensation for affiliation with better team if such an affiliation allows them to improve their life-time compensation, through the faster growth in future pay.

Testing Hypothesis 3 also helps to validate our framework by relying on the prior evidence from the mutual fund industry. It has been shown that investment skill and media visibility increase revenues (e.g. Berk and Van Binsbergen (2015), Solomon et al. (2014) and Kaniel and Parham (2016)) and that higher revenue leads to higher compensation (Ibert, Kaniel, Van Nieuwerburgh and Vestman (2017)). Therefore, given our evidence from Section 5.1 on the effects of team quality on the growth of skill and visibility, we also expect to observe positive effects on revenue growth and compensation growth.

Using the baseline specification in Equation 8, we first examine the effects of team quality on compensation growth over the next three years. The results in columns (1)-(3) of Table 5 show that both team investment skill and team visibility leads to a faster growth in compensation. The effects are economically large. For example, column (3) shows that a one standard deviation increase in team investment skill (media visibility) increases the compensation growth rate by roughly 14.4 pps (15.14 pps).

Consistent with the relation between compensation and revenues, columns (4)-(6) show that better team quality is associated with faster revenue growth. In column (7), we also use the next year's revenues as an outcome variable. We find that team quality generates an improvement in the short-term revenues, suggesting that the effects of team assignment of manager productivity manifest themselves rather quickly.

These findings provide a useful connection between the supply-side effects (i.e. allocation of managers within firms and determination of their compensation) and the demand-side effects (i.e. importance of investment skill and visibility for generating revenue). In particular, team quality matters for compensation precisely because it improves specific characteristics of managers which are valued by investors and thus help increase revenues. At the absence of investor appreciation

for investment skill and visibility, team quality would not affect the labor market equilibrium.

6 Implications for Pay-Skill Sensitivity and Returns to Experience

6.1 Do the Effects of Team Quality Contribute to Variation In Pay-Skill Sensitivity?

In this section, we examine several consequences arising from the impact of team quality on compensation. We first explore how team quality affects the sensitivity of compensation to investment skill. Ibert et al. (2017) show that manager compensation responds rather weakly to their own performance but more strongly to firm-level variables such as revenues, profits as well as to the firm-level performance. The consistently small observed pay-performance sensitivity presents a quantitative puzzle for the standard incentive-based contracts that link managers' pay to their performance.

We ask whether the variation in team assignment can explain this effect to some extent. Team quality can weaken the sensitivity of pay to skill if more skilled managers derive larger benefits from team affiliation. As a result, skilled managers give up a more substantial fraction of their contemporaneous compensation for being on a better team and appear as being "underpaid" for their skill. To examine this mechanism, we adds the interaction of the measures of team quality with the measures of investment skill to our regression specifications and examine whether the effects of skill on compensation indeed weaken with team quality.

Table 6 reports the results. To allow for easier interpretation, we standardize the measures of team quality such that their mean equals zero and their standard deviation equals one. As a result, the coefficient on the measures of investment skill is interpreted as the effect of skill for the manager who is on the team of the average quality. The coefficients on the interaction are interpreted as the effects of the increase of one standard deviation in team quality on the pay-skill sensitivity.

In column (1), we use our baseline measure of investment skill. The results show that the pay-performance sensitivity for the average team equals 0.0021. This number suggests that an increase of one standard deviation in the manager's skill (21.86 million shekels) boosts compensation by 4.55% ($21.86 \times (0.0021) \times 100\%$). However, the pay-skill sensitivity significantly declines with team quality. An increase in one standard deviation in team investment skill reduces the

pay-performance sensitivity by 38% (-0.0008/0.0021), while the similar increase in team visibility reduces the pay-performance sensitivity by additional 28% (-0.0006/0.0021). These estimates remain unchanged when we include manager fixed effects in our specification (column (2)).

In columns (3) and (4), we precisely follow Ibert et al. (2017) and use the manager's risk adjusted performance α as a measure of skill. Column (3) shows that a 1 pps increase in fund performance increases manager compensation by 0.32%, confirming the Ibert et al. (2017)'s findings on low average pay-performance sensitivity. Even taking into the account significant variation in the risk-adjusted performance, the magnitude of the effect for the manager on the average team is small. For example, a one standard deviation increase in the manager's α (6.13 pps) increases compensation by only 1.96%.

At the same time, the estimates of the interaction effects again show that the pay-performance sensitivity crucially depends on team quality. For example, consider a manager who works with the team which is one standard-deviation above the average both in terms of team investment skill and team visibility. The most restrictive estimates in column (4) suggest that the combined effect of team quality in this case equals -0.34 (-0.24-0.10). As a result, the team quality effects completely wash out the baseline positive pay-performance sensitivity of 0.30, and the compensation appears to be totally insensitive to past performance.

Taken together, our results reveal that small average pay-performance sensitivities may mask substantial differences in incentives across managers. The skilled managers benefit more from team affliction, hence they face steeper compensation discounts associated with team quality. Since most of the managers work with teams, our findings help explain, to some extent, why the estimated pay-performance sensitivities appear small on average.

6.2 Do the Effects of Team Quality Contribute to High Returns-to-Experience?

Since our results relate to compensation dynamics, it is natural to ask how our findings fit the well-known compensation patterns within the financial industry. Philippon and Reshef (2012) show that compensation of finance professionals grows faster with experience, relative to professionals from other industries. Ellul, Pagano and Scognamiglio (2022) examine the "returns-to experience" across occupations within the financial sector and find that compensation growth in the asset management sector is especially fast. Motivated by these studies, we propose a new angle on

this phenomena by showing that team quality substantially boosts returns-to-experience among portfolio managers.

Specifically, we propose that team quality influences career pay profiles through its life-cycle effects. Since the benefits of team affiliation result in future compensation gains (as shown in Section 5.2), junior managers with longer working lives derive larger life-cycle gains from these benefits. Consequently, they are willing to accept lower pay for affiliation with a better team. As the manager becomes more experienced ("senior"), the discount they pay for team quality declines, generating progressively higher pay. These effects result in a "steeper" relation between experience and compensation that would have been at the absence of the team quality effects.

To test this hypothesis, we examine how the effects of team quality on compensation vary with the manager's experience. We define a manager as "senior" if their mutual fund industry experience is larger than the median (4 years). Otherwise, the manager is defined as "junior". Based on these definitions, we create 1_{Junior} and 1_{Senior} indicator variables ("seniority indicators"). We then add interactions between the seniority indicators with the standardized measures of team quality to our baseline specifications.

Table 7 shows that the effects of team quality are much stronger among junior managers. Column (1) shows that an increase of one standard deviation in the team's investment skill reduces compensation of junior managers by 5.74% ($(-0.0574) \times 100\%$). The comparable effect for senior managers equals only 1.72%.

Column (2) reports the results for team visibility. We find non-zero effects for both junior and senior managers, with nearly twice stronger effects for junior managers. In particular, the effect of a one standard deviation increase in the team's visibility equals -3.09% for senior managers and -1.32% for senior managers.

In sum, our results suggest that the effects of team quality can help explain, to some extent, why returns-to-experience in the asset management are particularly high. The vastly different effects of teamwork on compensation of junior and senior managers remain robust when we simultaneously control for team investment skill and visibility (column (3)), and when we add manager fixed effects (columns (4)-(6)).

7 Conclusion

We show that team quality has first-order effects on compensation and productivity of portfolio managers in the mutual fund industry. The managers face a trade-off between earning higher compensation and improving their future productivity through being allocated to a better team. We confirm this trade-off in the data by showing that better team quality, as measured by its investment skill and media visibility, leads to lower contemporaneous compensation, but to higher future revenues and faster compensation growth. The improvements in future productivity and compensation arise because affiliation with better co-workers causes improvements in the manager's own skill and visibility.

We also demonstrate that the effects of team quality are stronger for more skilled and junior managers. Skilled managers face higher compensation discounts for team quality, and they appear as underpaid relative to their level of skill as a result. Junior managers also face higher discounts, since they derive larger life-time benefits from affiliation with high quality teams. These findings help shed new light on the two phenomena documented by the prior work on the asset management industry: low pay-performance sensitivity and high returns-to-experience.

Lastly, our results provide a new angle on the structure of incentives in the asset management industry, suggesting that compensation of portfolio managers is determined not only by their individual performance but also their team affiliation. This conclusion underscores the fundamental role of asset management firms in jointly determining compensation, productivity and skill development of their portfolio managers.

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Figures and Tables

Figure 1: Co-managed Funds and Managers on Teams

This figure presents the times series of the fraction of managers with teams and the fraction of funds which are co-managed. The fund is defined as co-managed if it is managed by more than one manager.

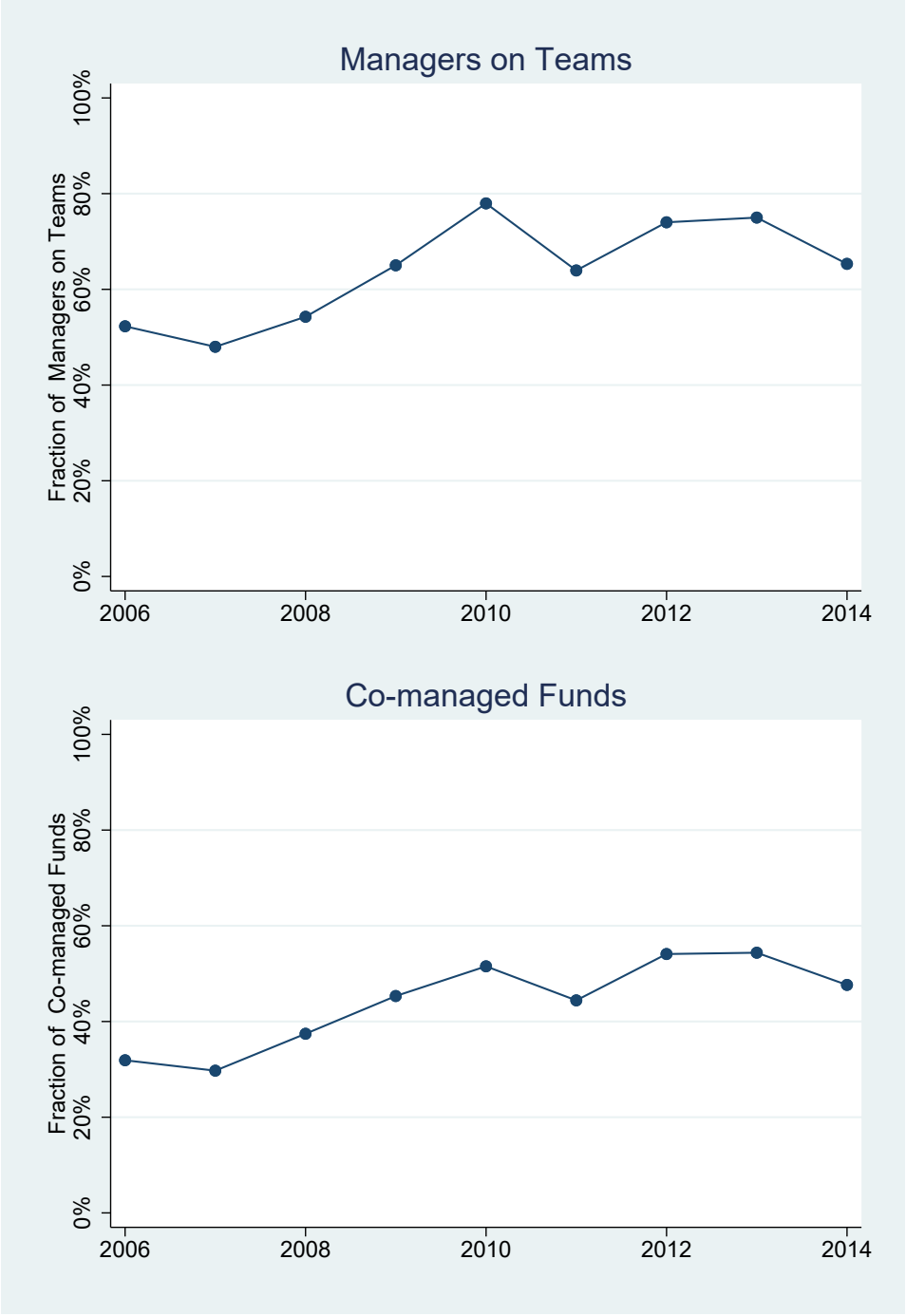


Figure 2: The Effects of Team Investment Skill on Compensation: Event Study from Transitions Across Teams

This figure assesses the effect of the transition across teams on compensation of portfolio managers by estimating the two following specifications separately for the transitions from low-skill teams to high-skill teams and vice versa:

$$Log(Compensation_{mfte}) = \lambda_m + \lambda_{ft} + \lambda_e + \sum_{i=-3, i\neq -1}^{2} \left(\beta_i \times \mathbb{1}_{me}^{L\to H} \times \mathbb{1}_i\right) + \gamma X_{mt} + \lambda Y_{mt} + \epsilon_{mfte},$$

$$Log(Compensation_{mfte}) = \lambda_m + \lambda_{ft} + \lambda_e + \sum_{i=-3, i\neq -1}^{2} \left(\beta_i \times \mathbb{1}_{me}^{H\to L} \times \mathbb{1}_i\right) + \gamma X_{mt} + \lambda Y_{mt} + \epsilon_{mfte}.$$

The details are in Section 4.3. The figure shows the estimated coefficients $\beta_i^{L\to H}$ at the top graph and $\beta_i^{L\to H}$ at the bottom graph. These estimates are interpreted as the average difference in compensation between the managers who switch teams and the managers who stay on the same team within the same firm, relative to the reference period. Brackets are 95% confidence intervals with standard errors double-clustered by manager and year. The shaded region corresponds to the period after the transition. Time 0 is the transition year. Time -1 is the one year before the transition event which we use as the reference period.

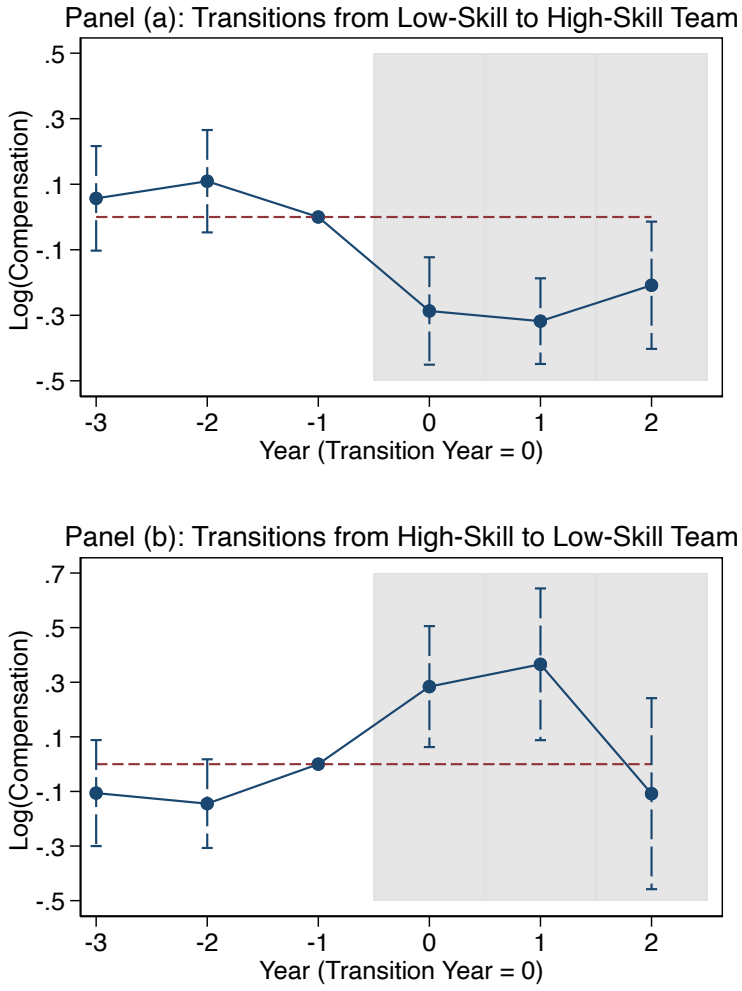


Figure 3: The Effects of Team Media Visibility on Compensation: Event Study from Transitions Across Teams

This figure assesses the effect of the transition across teams on compensation of portfolio managers by estimating the two following specifications separately for the transitions from low-visibility teams to high-visibility teams and vice versa:

$$Log(Compensation_{mfte}) = \lambda_m + \lambda_{ft} + \lambda_e + \sum_{i=-3, i\neq -1}^{2} \left(\beta_i \times \mathbb{1}_{me}^{L\to H} \times \mathbb{1}_i\right) + \gamma X_{mt} + \lambda Y_{mt} + \epsilon_{mfte},$$

$$Log(Compensation_{mfte}) = \lambda_m + \lambda_{ft} + \lambda_e + \sum_{i=-3, i\neq -1}^{2} \left(\beta_i \times \mathbb{1}_{me}^{H\to L} \times \mathbb{1}_i\right) + \gamma X_{mt} + \lambda Y_{mt} + \epsilon_{mfte}.$$

The details are in Section 4.3. The figure shows the estimated coefficients $\beta_i^{L\to H}$ at the top graph and $\beta_i^{L\to H}$ at the bottom graph. These estimates are interpreted as the average difference in compensation between the managers who switch teams and the managers who stay on the same team within the same firm, relative to the reference period. Brackets are 95% confidence intervals with standard errors double-clustered by manager and year. The shaded region corresponds to the period after the transition. Time 0 is the transition year. Time -1 is the one year before the transition event which we use as the reference period.

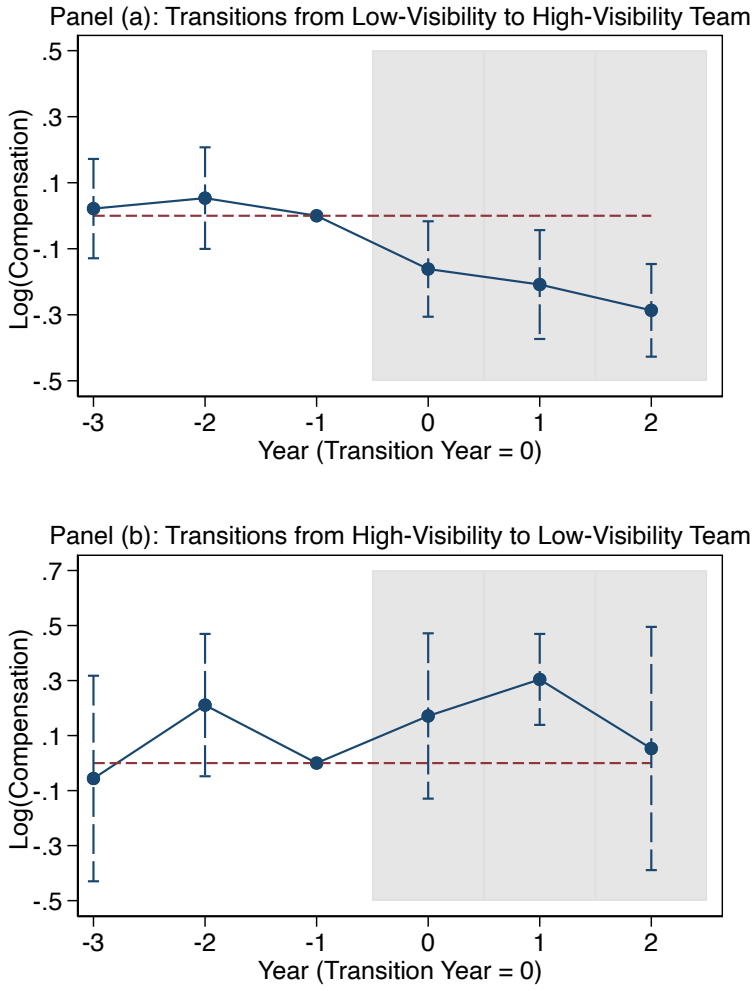


Figure 4: The Effects of Team Investment Skill on Manager Skill Growth: Event Study from Transitions Across Teams

This figure assesses the effect of the transition across teams on skill growth rate of portfolio managers by estimating the two following specifications separately for the transitions from low-skill teams to high-skill teams and vice versa:

$$\frac{\Delta Skill_{mfe,t\to t+3}}{Skill_{mfe,t}} = \lambda_m + \lambda_{ft} + \lambda_e + \sum_{i=-3, i\neq -1}^{2} \left(\beta_i \times \mathbb{1}_{me}^{L\to H} \times \mathbb{1}_i\right) + \gamma X_{mt} + \lambda Y_{mt} + \epsilon_{mfte},$$

$$\frac{\Delta Skill_{mfe,t\to t+3}}{Skill_{mfe,t}} = \lambda_m + \lambda_{ft} + \lambda_e + \sum_{i=-3, i\neq -1}^{2} \left(\beta_i \times \mathbb{1}_{me}^{H\to L} \times \mathbb{1}_i\right) + \gamma X_{mt} + \lambda Y_{mt} + \epsilon_{mfte}.$$

The details are in Section 4.3. The figure shows the estimated coefficients $\beta_i^{L\to H}$ at the top graph and $\beta_i^{L\to H}$ at the bottom graph. These estimates are interpreted as the average difference in investment skill growth between the managers who switch teams and the managers who stay on the same team within the same firm, relative to the reference period. Brackets are 95% confidence intervals with standard errors double-clustered by manager and year. The shaded region corresponds to the period after the transition. Time 0 is the transition year. Time -1 is the one year before the transition event which we use as the reference period.

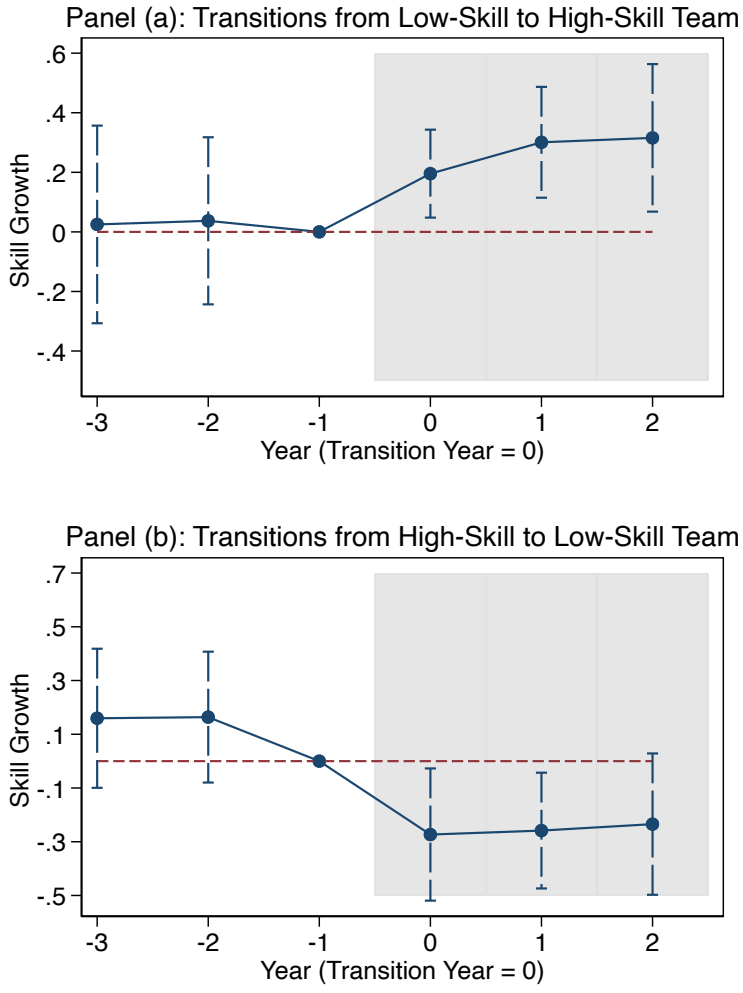


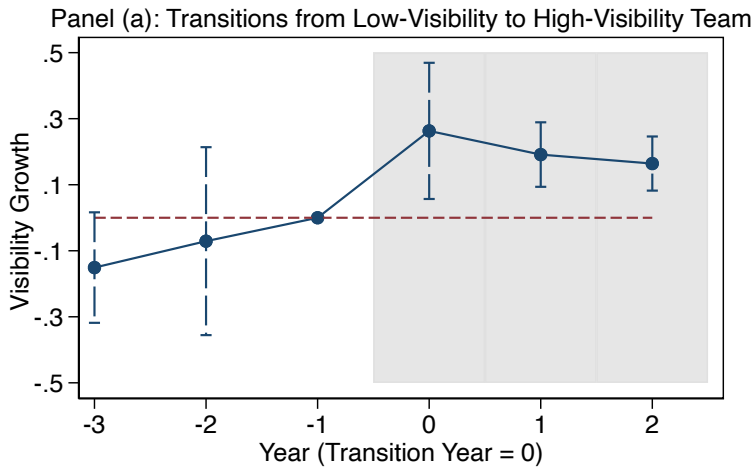
Figure 5: The Effects of Team Media Visibility on Manager Visibility Growth: Event Study from Transitions Across Teams

This figure assesses the effect of the transition across teams on visibility growth rate of portfolio managers by estimating the two following specifications separately for the transitions from low-visibility teams to high-visibility teams and vice versa:

$$\frac{\Delta Visibility_{mfe,t\to t+3}}{Visibility_{mfe,t}} = \lambda_m + \lambda_{ft} + \lambda_e + \sum_{i=-3, i\neq -1}^{2} \left(\beta_i \times \mathbb{1}_{me}^{L\to H} \times \mathbb{1}_i\right) + \gamma X_{mt} + \lambda Y_{mt} + \epsilon_{mfte},$$

$$\frac{\Delta Visibility_{mfe,t\to t+3}}{Visibility_{mfe,t}} = \lambda_m + \lambda_{ft} + \lambda_e + \sum_{i=-3, i\neq -1}^{2} \left(\beta_i \times \mathbb{1}_{me}^{H\to L} \times \mathbb{1}_i\right) + \gamma X_{mt} + \lambda Y_{mt} + \epsilon_{mfte}.$$

The details are in Section 4.3. The figure shows the estimated coefficients $\beta_i^{L\to H}$ at the top graph and $\beta_i^{L\to H}$ at the bottom graph. These estimates are interpreted as the average difference in visibility growth between the managers who switch teams and the managers who stay on the same team within the same firm, relative to the reference period. Brackets are 95% confidence intervals with standard errors double-clustered by manager and year. The shaded region corresponds to the period after the transition. Time 0 is the transition year. Time -1 is the one year before the transition event which we use as the reference period.



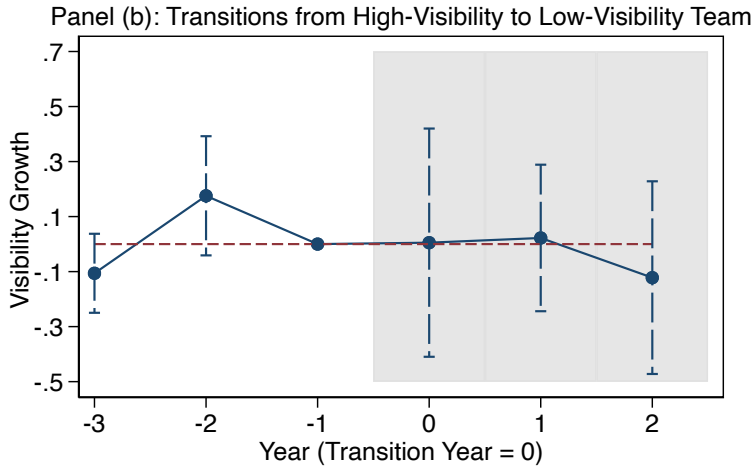


Table 1: Summary Statistics

This table presents the summary statistics of our sample. Panel A presents the information at the manager-year level. *Compensation* is the manager's compensation in shekels. *Skill* is the Berk and Van Binsbergen (2015)'s measure of the manager's investment skill. *Visibility* is the number of newspaper articles about the manager in the four major business outlets in Israel. *Manager Age* is the manager's age in years. *Industry Experience* is the number of years that the manager has been working in the mutual fund industry. *Equity Share* is the fraction of equity funds in the manager's portfolio. $1_{Additional\ Role}$ indicator equals one if the manager has an extra role in the company (such as CEO or head of the investment committee). *Revenue* is the manager's fee revenue. *AUM* is the assets under management. *Fee* is the percentage fee. *Number of Funds* is the number of funds in the manager's portfolio. 1_{Team} indicator equals one if the manager is working with the team. *Number of Teams* is the number of teams that the manager is working with. *Team Skill* is the average skill of the manager's team members. *Team Visibility* is the average number of articles about the manager's team members in the four major business outlet in Israel. *Team Industry Experience* is the average numbers of years that the manager's team members have been working in the mutual fund industry. *Team Equity Share* is the average fraction of equity funds on the portfolios of the manager's team members. *Team Size* is the number of managers on the team, being equal to zero for independent managers. *Number of Teams* is the number of teams that the manager is working with.

Panel A: Manager-year Level	N	Mean	SD	10%	25%	50%	75%	90%
Manager Characteristics								
Compensation (MM, Shekels)	1,786	0.438	0.52	0.10	0.18	0.29	0.44	0.69
Skill (MM, Shekels)	1,786	3.35	21.62	-22.58	-7.83	-0.89	1.34	11.61
Visibility (number of articles)	1,786	7.87	11.42	0	0	5	12	19
Manager Age (years)	1,786	39.60	8.37	31	34	38	44	51
Industry Experience (years)	1,786	6.18	6.31	1	2	4	8	14
Equity Share (fraction)	1,786	0.42	0.58	0	0	0.25	0.84	1
$1_{Additional\ Role}$ *(indicator)*	1,786	0.12	0.33	0	0	0	0	1
Portfolio Characteristics								
Revenue (MM, Shekels)	1,786	4.68	6.63	0.11	0.55	2.19	6.35	11.70
AUM (MM, Shekels)	1,786	743.96	1143.06	66.09	314.72	313.07	960.82	2007.65
Fee (%)	1,786	0.92	0.68	0.31	0.53	0.88	1.25	1.92
Number of Funds	1,786	4.4	5.8	1	3	7	11	15
Team Characteristics								
1_{Team} *(indicator)*	1,786	0.75	0.43	0	0	1	1	1
Team Skill (MM, Shekels)	1,786	4.85	28.81	-45.42	-19.84	-0.47	11.78	33.58
Team Visibility (number of articles)	1,786	13.39	22.08	0	1.07	7.07	25.34	46.33
Team Industry Experience (years)	1,786	3.17	5.44	0.97	1.56	2.98	4.26	8.22
Team Equity Share (fraction)	1,786	0.52	0.68	0	0	0.31	0.73	1
Team Size	1,786	0.70	0.94	0	0	0.29	1	2
Number of Teams	1,786	1.55	1.96	0	0	1	1	2

Table 1 - *Continued*

This table presents the descriptive statistics of our sample. Panel B presents the information at the fund-year level. Panel C presents the information at the firm-year level. *AUM* is the assets under management. *Fee* is the percentage fee. α is the estimate of the manager's performance from the multi-benchmark model for fund returns (see Section 2.4 for details). *Fund Age* is the number of years since the fund's inception. *Number of Managers* is the number of portfolio managers that the firm employs. *Number of Funds* is the number of funds that the firm operates.

Panel B: Fund-year Level	N	Mean	SD	10%	25%	50%	75%	90%
AUM (MM, Shekels)	15,227	111.87	187.98	3.93	12.51	41.35	120.30	296.2
Fee (%)	15,227	0.82	0.79	0.11	0.27	0.71	1.39	2.08
α (%)	15,227	-1.52	5.23	-7.94	-3.23	-0.78	0.73	3.65
Fund Age (years)	15,227	8.08	7.76	1	2.58	5.75	10.75	19.33
Panel C: Firm-year Level	N	Mean	SD	10%	25%	50%	75%	90%
AUM (MM, Shekels)	521	2252.22	4250.18	16.70	64.85	371.05	2356.40	7613.40
Number of Managers	521	3.02	3.22	1	1	2	4	8
Number of Funds	521	27.86	40.51	2	4	10	32	76

Table 2: The Effects of Team Quality on Compensation

This table presents the results from regressing manager compensation on team and manager characteristics. *Compensation* is the manager's compensation in shekels. *Skill* is the Berk and Van Binsbergen (2015)'s measure of the manager's investment skill. *Visibility* is the number of newspaper articles about the manager in the four major business outlets in Israel. 1_{Team} indicator equals one if the manager is working with the team. *Team Skill* is the average skill of the manager's team members. *Team Visibility* is the average number of articles about the manager's team members in the four major business outlet in Israel. The remaining variables are defined in Table 1. *,**, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Standard errors double-clustered by manager and year are in parentheses.

$y =$	$Log(Compensation_{m,t})$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1_{Team_{m,t}}$	0.046	0.049	0.047	0.039	0.035	0.045	0.072
	(0.094)	(0.118)	(0.127)	(0.094)	(0.088)	(0.077)	(0.097)
$Skill_{m,t}$	0.0028***		0.0025**	0.0028***	0.0027**	0.0021**	0.0024***
	(0.0009)		(0.0009)	(0.0009)	(0.00105)	(0.0010)	(0.0008)
$Team\ Skill_{m,t}$	-0.0022**		-0.0018**	-0.0017**	-0.0017**	-0.0013**	-0.0014**
	(0.0011)		(0.0007)	(0.0007)	(0.0007)	(0.0005)	(0.0005)
$Visibility_{m,t}$		0.0010**	0.0010**	0.0012***	0.0012***	0.0012***	0.0012***
		(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
$Team\ Visibility_{m,t}$		-0.0017***	-0.0017***	-0.0013***	-0.0012***	-0.0011***	-0.0011***
		(0.0005)	(0.0005)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Manager Characteristics							
$Log(Revenue_{m,t})$				0.096***	0.079***	0.082***	0.071**
				(0.017)	(0.020)	(0.020)	(0.034)
$Log(Manager\ Age_{m,t})$				0.658**	0.603**	0.784***	0.799**
				(0.266)	(0.247)	(0.216)	(0.219)
$Log(Industry\ Experience_{m,t})$				0.336***	0.359***	0.310***	0.286**
				(0.067)	(0.066)	(0.074)	(0.092)
$1_{Additional\ Role_{m,t}}$				0.389***	0.374***	0.340***	
				(0.076)	(0.076)	(0.082)	
$Log(Number\ of\ Funds_{m,t})$				0.052	0.078	0.074	0.054
				(0.047)	(0.053)	(0.043)	(0.081)
$Equity\ Share_{m,t}$				0.051	0.058	0.034	0.054
				(0.079)	(0.077)	(0.087)	(0.058)
Team Characteristics							
$Log(Team\ Industry\ Experience_{m,t})$					0.028	0.014	0.014
					(0.014)	(0.015)	(0.018)
$Log(Team\ Size_{m,t})$					-0.382*	-0.385	-0.430
					(0.179)	(0.255)	(0.299)
$Log(Team\ Age_{m,t})$					0.057*	0.039	0.048
					(0.030)	(0.044)	(0.045)
$Team\ Equity\ Share_{m,t}$					0.262	0.315*	0.244
					(0.156)	(0.152)	(0.190)
Observations	1,749	1,749	1,749	1,710	1,710	1,510	1,476
R-squared	0.342	0.341	0.346	0.553	0.559	0.611	0.873
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	No
Firm $\times$Year FE	No	No	No	No	No	Yes	Yes
Manager FE	No	No	No	No	No	No	Yes

Table 3: Robustness Checks

This table presents the robustness checks for the results from Table 2. All the estimates are obtained from the regressing manager compensation on team and manager characteristics with the same baseline set of control variables and fixed effects as in column (7) of Table 2. Only the coefficients on *Team Skill* and *Team Visibility* are reported. The detailed results are in Appendix Tables B2 - B6. *Compensation* is the manager's compensation in shekels. 1_{Team} indicator equals one if the manager is working with the team. *Team Skill* is the average skill of the manager's team members. *Team Visibility* is the average number of articles about the manager's team members in the four major business outlet in Israel. Panel A reports the results from specifications with additional control variables. Panel B shows the results when alternative measures of investment skill are used. Panel C reports the results wtih alternative clustering of standard errors. *,**, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Standard errors double-clustered by manager and year are in parentheses.

	(1)	(2)	(3)
$y =$	$Log(Compensation_{m,t})$		Full Results in Appendix
Coefficient on	$Team\ Skill_{m,t}$	$Team\ Visibility_{m,t}$	
Panel A: Add Extra Control Variables			
Manager and Team Mutual Fund Industry Experience	-0.0013**	-0.0013***	Table B2
	(0.0006)	(0.0004)	
Manager and Team Asset Management Industry Experience	-0.0013**	-0.0010***	Table B2
	(0.0006)	(0.0003)	
Manager and Team Education	-0.0015**	-0.0011**	Table B2
	(0.0006)	(0.0005)	
Variance of Skill within Team	-0.0014**	-0.0011***	Table B3
	(0.0005)	(0.0003)	
Variance of Visibility within Team	-0.0012**	-0.0010***	Table B3
	(0.0004)	(0.0003)	
Skill History from $t-2$ to $t-1$	-0.0015***	-0.0012***	Table B4
	(0.0004)	(0.0004)	
Visibility History from $t-2$ to $t-1$	-0.0014**	-0.0010*	Table B4
	(0.0006)	(0.0005)	
Compensation History from $t-2$ to $t-1$	-0.0012**	-0.0012**	Table B5
	(0.0005)	(0.0004)	
Panel B: Alternative Measurement of Skill			
Manager's Alpha as a Measure of Skill	-0.09***	-0.0011**	Table B6
	(0.04)	(0.0004)	
BvB Measure With Style-Adjusted Returns	-0.0014**	-0.0011***	Table B6
	(0.0005)	(0.0005)	
Panel C: Alternative Clustering			
Manager	-0.0014**	-0.0011**	
	(0.0004)	(0.0005)	
Firm and Year	-0.0014**	-0.0011**	
	(0.0004)	(0.0005)	
Firm	-0.0014**	-0.0011**	
	(0.0006)	(0.0005)	

Table 4: The Effects of Team Quality on Manager Skill Growth and Visibility Growth

This table presents the results from regressing the manager's 3-year skill growth rate and 3-year visibility growth rate on team and manager characteristics. *Compensation* is the manager's compensation in shekels. *Skill* is the Berk and Van Binsbergen (2015)'s measure of the manager's investment skill. *Visibility* is the number of newspaper articles about the manager in the four major business outlets in Israel. 1_{Team} indicator equals one if the manager is working with the team. *Team Skill* is the average skill of the manager's team members. *Team Visibility* is the average number of articles about the manager's team members in the four major business outlet in Israel. All the specifications include the full set of manager and team characteristics from Table 2. *,**, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Standard errors double-clustered by manager and year are in parentheses.

$y =$	$\frac{\Delta Skill_{m,t\to t+3}}{Skill_{m,t}}$			$\frac{\Delta Visibility_{m,t\to t+3}}{Visibility_{m,t}}$		
	(1)	(2)	(3)	(4)	(5)	(6)
$1_{Team_{m,t}}$	0.021	0.026	0.022	0.287	0.290	0.205
	(0.088)	(0.095)	(0.088)	(0.213)	(0.205)	(0.288)
$Skill_{m,t}$	0.0018***		0.0018***	0.0006**		0.0006*
	(0.0004)		(0.0004)	(0.002)		(0.003)
$Team\ Skill_{m,t}$	0.004**		0.004*	0.005**		0.005*
	(0.002)		(0.002)	(0.002)		(0.002)
$Visibility_{m,t}$		0.0022	0.0021		0.0010	0.0012
		(0.0061)	(0.0073)		(0.0031)	(0.0039)
$Team\ Visibility_{m,t}$		0.0011	0.0011		0.002**	0.002**
		(0.0012)	(0.0018)		(0.001)	(0.001)
Observations	1,040	1,040	1,040	1,035	1,035	1,035
R-squared	0.772	0.787	0.789	0.531	0.527	0.555
Manager characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Team characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Firm $\times$Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 5: The Effects of Team Quality on Compensation Growth and Revenue Growth

This table presents the results from regressing the manager's 3-year compensation growth rate, 3-year revenue growth rate and the next year's revenues on team and manager characteristics. *Compensation* is the manager's compensation in shekels. *Skill* is the Berk and Van Binsbergen (2015)'s measure of the manager's investment skill. *Visibility* is the number of newspaper articles about the manager in the four major business outlets in Israel. 1_{Team} indicator equals one if the manager is working with the team. *Team Skill* is the average skill of the manager's team members. *Team Visibility* is the average number of articles about the manager's team members in the four major business outlet in Israel. All the specifications include the full set of manager and team characteristics from Table 2. *,**, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Standard errors double-clustered by manager and year are in parentheses.

$y =$	$\Delta Log(Compensation)_{m,t\to t+3}$			$\Delta Log(Revenue)_{m,t\to t+3}$			$Log(Revenue)_{m,t+1}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1_{Team_{m,t}}$	0.096	0.153	0.197	-0.112	-0.084	-0.114	0.085**
	(0.142)	(0.180)	(0.178)	(0.151)	(0.206)	(0.199)	(0.040)
$Skill_{m,t}$	0.0012**		0.002*	0.008**		0.008**	0.0041***
	(0.0005)		(0.001)	(0.003)		(0.003)	(0.0015)
$Team\ Skill_{m,t}$	0.013**		0.005**	0.002**		0.002**	0.0024**
	(0.001)		(0.002)	(0.0001)		(0.001)	(0.0011)
$Visibility_{m,t}$		0.003*	0.004		0.004	0.005	0.0020**
		(0.001)	(0.005)		(0.003)	(0.004)	(0.008)
$Team\ Visibility_{m,t}$		0.008*	0.007**		0.003**	0.003*	0.0022**
		(0.004)	(0.003)		(0.001)	(0.001)	(0.0011)
Observations	1,043	1,043	1,043	1,011	1,011	1,011	1,472
R-squared	0.513	0.511	0.516	0.676	0.664	0.676	0.901
Manager characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Team characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm $\times$Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6: The Effects of Team Quality on Pay-Skill Sensitivity

This table presents the results from regressing compensation on team and manager characteristics. *Compensation* is the manager's compensation in shekels. *Skill* is the Berk and Van Binsbergen (2015)'s measure of the manager's investment skill. *Visibility* is the number of newspaper articles about the manager in the four major business outlets in Israel. 1_{Team} indicator equals one if the manager is working with the team. α is the estimate of the manager's performance from the multi-benchmark model for fund returns (see Section 2.4 for details). *Team Skill* is the average skill of the manager's team members. *Team Visibility* is the average number of articles about the manager's team members in the four major business outlet in Israel. Both *Team Skill* and *Team Visibility* are standardized such that their mean equals zero and their standard deviation equals one. All the specifications include the full set of manager and team characteristics from Table 2. *,**, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Standard errors double-clustered by manager and year are in parentheses.

$y =$	$Log(Compensation_{m,t})$			
	(1)	(2)	(3)	(4)
$1_{Team_{m,t}}$	0.041	0.042	0.067	0.054
	(0.045)	(0.047)	(0.074)	(0.090)
$Skill_{m,t}$	0.0021**	0.0022**		
	(0.0008)	(0.0010)		
$Log(1+\alpha_{m,t})$			0.32**	0.30**
			(0.16)	(0.12)
$Visibility_{m,t}$	0.0010**	0.0012**	0.0010**	0.0010**
	(0.0004)	(0.0005)	(0.0005)	(0.0005)
$Skill_{m,t} \times Team\ Skill_{m,t}$	-0.0008***	-0.0007**		
	(0.0003)	(0.0003)		
$Skill_{m,t} \times Team\ Visibility_{m,t}$	-0.0006**	-0.0005**		
	(0.0003)	(0.0002)		
$Log(1+\alpha_{m,t}) \times Team\ Skill_{m,t}$			-0.22***	-0.24**
			(0.08)	(0.11)
$Log(1+\alpha_{m,t}) \times Team\ Visibility_{m,t}$			-0.12**	-0.10*
			(0.06)	(0.05)
Observations	1,476	1,476	1,476	1,476
R-squared	0.482	0.739	0.490	0.758
Manager characteristics	Yes	Yes	Yes	Yes
Team characteristics	Yes	Yes	Yes	Yes
Firm $\times$Year FE	Yes	Yes	Yes	Yes
Manager FE	No	Yes	No	Yes

Table 7: The Effects of Team Quality on Compensation for Senior and Junior Managers

This table presents the results from regressing manager compensation on team and manager characteristics and their interaction with the indicators for the manager's seniority. *Compensation* is the manager's compensation in shekels. *Skill* is the Berk and Van Binsbergen (2015)'s measure of the manager's investment skill. *Visibility* is the number of newspaper articles about the manager in the four major business outlets in Israel. 1_{Team} indicator equals one if the manager is working with the team. *Team Skill* is the average skill of the manager's team members. *Team Visibility* is the average number of articles about the manager's team members in the four major business outlet in Israel. Both *Team Skill* and *Team Visibility* are standardized such that their mean equals zero and their standard deviation equals one. 1_{Junior} indicator equals one if the manager's industry experience is below the median. 1_{Senior} indicator equals one if the manager's industry experience is above the median. All the specifications include the full set of manager and team characteristics from Table 2. *,**, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Standard errors double-clustered by manager and year are in parentheses.

$y =$	$Log(Compensation_{m,t})$					
	(1)	(2)	(3)	(4)	(5)	(6)
$1_{Team_{m,t}}$	0.051	0.055	0.045	0.033	0.037	0.020
	(0.088)	(0.047)	(0.098)	(0.067)	(0.051)	(0.058)
$Skill_{m,t}$	0.0021**	0.0022**	0.0019**	0.0019**	0.0019**	0.0020**
	(0.0008)	(0.0010)	(0.0009)	(0.0008)	(0.0009)	(0.0009)
$Visibility_{m,t}$	0.0010**	0.0011**	0.0010**	0.0010**	0.0010**	0.0009*
	(0.0004)	(0.0004)	(0.0005)	(0.0004)	(0.0005)	(0.0005)
$1_{Junior_{m,t}} \times Team\ Skill_{m,t}$	-0.0574***		-0.0516***	-0.0545***		-0.0488***
	(0.0081)		(0.0075)	(0.0095)		(0.0092)
$1_{Senior_{m,t}} \times Team\ Skill_{m,t}$	-0.0172**		-0.0230**	-0.0145**		-0.0201*
	(0.0075)		(0.0104)	(0.0066)		(0.0107)
$1_{Junior_{m,t}} \times Team\ Visibility_{m,t}$		-0.0309***	-0.0242***		-0.0252***	-0.0220***
		(0.0087)	(0.0091)		(0.0093)	(0.0082)
$1_{Senior_{m,t}} \times Team\ Visibility_{m,t}$		-0.0132**	-0.0132**		-0.0110*	-0.0110*
		(0.0063)	(0.0062)		(0.0060)	(0.0061)
Observations	1,476	1,476	1,476	1,476	1,476	1,476
R-squared	0.515	0.572	0.577	0.861	0.878	0.880
Manager characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Team characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Firm ×Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE	No	No	No	Yes	Yes	Yes

Internet Appendix

A Benchmarking Fund Performance

A.1 Five-benchmark Model

In our main tests, we use a five-benchmark model to evaluate the fund performance, deriving the fund's alpha and its passive benchmark return. This model was developed for the Israeli Ministry of Finance to compare long-term investment instruments such as pension funds and provident funds. The model uses five benchmarks as proxies for risk factors: two equity market indices, Tel Aviv 100 Index and the MSCI World Index, as well as the three bond indices: inflation-indexed corporate bonds, inflation-indexed government bonds and non-indexed government bonds (Hamdani, Kandel, Mugerman and Yafeh (2017)). We apply the same model for estimating the performance of mutual funds because their holdings are very similar to the holdings of the provident funds (Shaton (2017)).

In the main analysis, we estimate fund betas using fund-level monthly data in the following specification:

$$R_{ik} - R_k^{RF} = \alpha_i + \sum_{f=1}^{F} \beta_{if} \left(R_{fk} - R_k^{RF} \right) + \epsilon_{ik}, \tag{A1}$$

where $R_{ik} - R_k^{RF}$ is an excess return of fund i in month k above the risk free rate R_k^{RF} and $R_{fk} - R_k^{RF}$ is an excess return of factor f in month k. The risk-free rate R_k^{RF} is defined as monthly return on Israeli short-term (one-year maturity) government bonds.

We follow Berk and Van Binsbergen (2015) and generate the fund's benchmark return multiplying the estimated fund betas by the annual excess returns on the indices in year t:

$$R_{it}^{B} = \sum_{f=1}^{F} \hat{\beta}_{if} \left(R_{ft} - R_t^{RF} \right). \tag{A2}$$

Intuitively, benchmark return represents a return on the portfolio of passive assets that is the "closest" to the fund's asset holdings. This is the return that investors can achieve on their own purely relying on passive benchmarks that represent the alternative investment opportunity set.

A.2 Style-Adjusted Performance

In our robustness tests, we compute the fund's relative performance by comparing fund return to the average return of its peers within the same style. In this case, the fund's peer benchmark is the average return of all the funds in a particular style and equals to

$$R_{st}^{PB} = \frac{1}{K} \sum_{k=1}^{K} R_{skt}, \tag{A3}$$

where K is a total number of funds in style s in year t, and R_{skt} equals to a raw return for fund k in style s over year t.

The Israel Securities Authority categorizes funds into 11 baseline categories according to asset classes they invest in, as shown in Appendix Table B1. We use these categories as styles for the our calculations of style-adjusted performance. Similarly, the fund i's performance relative to its peers equals to $\alpha_{it}^{PB} = R_{it} - R_{st}^{PB}$.

B Additional Results

Figure B1: Sample Coverage

This figure presents the assets under management (AUM) of the entire Israeli mutual fund industry and the aggregated AUM of our sample.

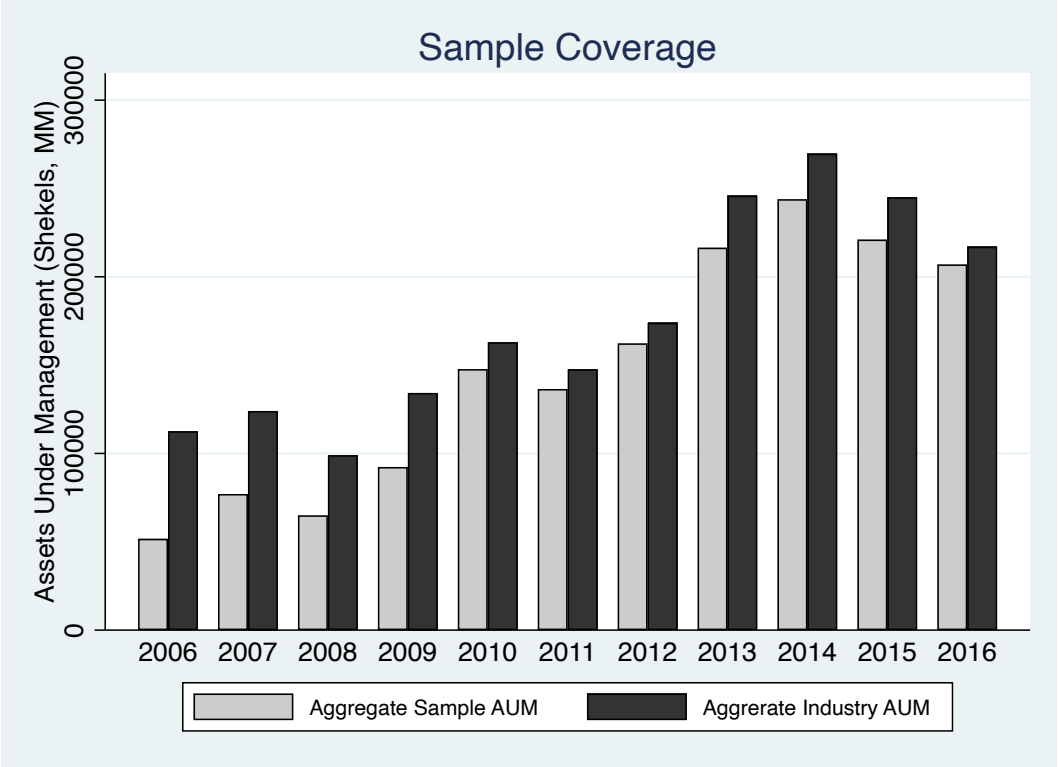


Table B1: Sample Composition

This table presents the distribution of the sample mutual funds across asset classes as of December 2016. The Israeli Securities Authority provides the basic classification of funds into 11 asset classes presented below.

Primary Asset Class	Number of Funds	Percentage by Count
Israeli Fixed Income - Broad Market	294	21%
Israeli Fixed Income - Sheqels	272	18%
Israeli Fixed Income - Corporate and Convertibles	206	15%
Israeli Fixed Income - Government	191	12%
Israeli Equity	159	11%
Global Equity	136	10%
Global Fixed Income	74	5%
Flexible	35	3%
Fund of Israeli Funds	34	2%
Leverage & Strategic	27	2%
Israeli Fixed Income - Foreign Currency	18	1%
Total	1446	

Table B2: Additional Controls: Experience and Education

This table presents the results from regressing compensation on team and manager characteristics. *Compensation* is the manager's compensation in shekels. *Skill* is the Berk and Van Binsbergen (2015)'s measure of the manager's investment skill. *Visibility* is the number of newspaper articles about the manager in the four major business outlets in Israel. 1_{Team} indicator equals one if the manager is working with the team. *Team Skill* is the average skill of the manager's team members. *Team Visibility* is the average number of articles about the manager's team members in the four major business outlet in Israel. *Fund Experience* is the average number of years the manager has been managing their portfolio funds. *Team Fund Experience* is the average number of years the manager's team member have been managing their portfolio funds. *AM Industry Experience* is the number of years that the manager has been working in the asset management industry. *Team AM Industry Experience* is the average number of years that the manager's team members have been working in the asset management industry. *Advanced Degree* indicator equals one if the manager holds an advanced degree (for example, MBA or Masters of Arts). *Team Advanced Degree* is the fraction of the manager's team members who hold an advanced degree. All the specifications include the full set of manager and team characteristics from Table 2. *,**, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Standard errors double-clustered by manager and year are in parentheses.

$y =$	$Log(Compensation_{m,t})$		
	(1)	(2)	(3)
$1_{Team_{m,t}}$	0.070	0.061	0.089
	(0.090)	(0.051)	(0.077)
$Skill_{m,t}$	0.0024***	0.0022***	0.0021**
	(0.0008)	(0.0008)	(0.0008)
$Team\ Skill_{m,t}$	-0.0013**	-0.0013**	-0.0015**
	(0.0006)	(0.0006)	(0.0006)
$Visibility_{m,t}$	0.0011***	0.0010***	0.0012***
	(0.0003)	(0.0004)	(0.0003)
$Team\ Visibility_{m,t}$	-0.0013***	-0.0010***	-0.0011**
	(0.0004)	(0.0003)	(0.0005)
$Log(FundExperience_{m,t})$	0.012**		
	(0.005)		
$Log(TeamFundExperience_{m,t})$	0.016		
	(0.015)		
$Log(AM\ Industry\ Experience_{m,t})$		0.034	
		(0.082)	
$Log(Team\ AM\ Industry\ Experience_{m,t})$		0.022	
		(0.021)	
$Advanced\ Degree_{m,t}$			0.054
			(0.058)
$Team\ Advanced\ Degree_{m,t}$			0.674
			(0.902)
Observations	1,476	1,476	1,476
R-squared	0.875	0.875	0.876
Manager characteristics	Yes	Yes	Yes
Team characteristics	Yes	Yes	Yes
Firm $\times$Year FE	Yes	Yes	Yes
Manager FE	Yes	Yes	No

Table B3: Additional Controls: Skill and Visibility Variance within Teams

This table presents the results from regressing compensation on team and manager characteristics. *Compensation* is the manager's compensation in shekels. *Skill* is the Berk and Van Binsbergen (2015)'s measure of the manager's investment skill. *Visibility* is the number of newspaper articles about the manager in the four major business outlets in Israel. 1_{Team} indicator equals one if the manager is working with the team. *Team Skill* is the average skill of the manager's team members. *Team Visibility* is the average number of articles about the manager's team members in the four major business outlet in Israel. *Team Skill Variance* is the variance of the skill across the manager's team members. *Team Visibility Variance* is the variance of the visibility across the manager's team members. All the specifications include the full set of manager and team characteristics from Table 2. *,**, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Standard errors double-clustered by manager and year are in parentheses.

$y =$	$Log(Compensation_{m,t})$		
	(1)	(2)	(3)
$1_{Team_{m,t}}$	0.072	0.070	0.070
	(0.078)	(0.076)	(0.075)
$Skill_{m,t}$	0.0024***	0.0021***	0.0021**
	(0.0008)	(0.0009)	(0.0009)
$Team\ Skill_{m,t}$	-0.0014***	-0.0012**	-0.0012**
	(0.0005)	(0.0004)	(0.0004)
$Visibility_{m,t}$	0.0010***	0.0010***	0.0011***
	(0.0003)	(0.0005)	(0.0004)
$Team\ Visibility_{m,t}$	-0.0011***	-0.0010***	-0.0010**
	(0.0003)	(0.0003)	(0.0004)
$Team\ Skill\ Variance_{m,t}$	0.054		0.041
	(0.059)		(0.055)
$Team\ Visibility\ Variance_{m,t}$		0.012	0.010
		(0.087)	(0.071)
Observations	1,476	1,476	1,476
R-squared	0.875	0.875	0.875
Manager characteristics	Yes	Yes	Yes
Team characteristics	Yes	Yes	Yes
Firm $\times$Year FE	Yes	Yes	Yes
Manager FE	Yes	Yes	Yes

Table B4: Additional Controls: Skill and Visibility History

This table presents the results from regressing compensation on team and manager characteristics. *Compensation* is the manager's compensation in shekels. *Skill* is the Berk and Van Binsbergen (2015)'s measure of the manager's investment skill. *Visibility* is the number of newspaper articles about the manager in the four major business outlets in Israel. 1_{Team} indicator equals one if the manager is working with the team. *Team Skill* is the average skill of the manager's team members. *Team Visibility* is the average number of articles about the manager's team members in the four major business outlet in Israel. All the specifications include the full set of manager and team characteristics from Table 2. *,**, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Standard errors double-clustered by manager and year are in parentheses.

$y =$	$Log(Compensation_{m,t})$		
	(1)	(2)	(3)
$1_{Team_{m,t}}$	0.070	0.071	0.078
	(0.071)	(0.073)	(0.085)
$Skill_{m,t}$	0.0020**	0.0020**	0.0019**
	(0.0008)	(0.0009)	(0.0009)
$Skill_{m,t-1}$	0.0010**		0.0018*
	(0.0004)		(0.0009)
$Skill_{m,t-2}$	0.0003		0.0004
	(0.0008)		(0.0011)
$Team\ Skill_{m,t}$	-0.0015***	-0.0014**	-0.0012**
	(0.0004)	(0.0006)	(0.0006)
$Visibility_{m,t}$	0.0010***	0.0010***	0.0011***
	(0.0003)	(0.0005)	(0.0004)
$Visibility_{m,t-1}$		0.0007*	0.0007*
		(0.0004)	(0.0004)
$Visibility_{m,t-2}$		0.0003	0.0003
		(0.0005)	(0.0005)
$Team\ Visibility_{m,t}$	-0.0012***	-0.0010**	-0.0010**
	(0.0004)	(0.0005)	(0.0005)
Observations	1,476	1,476	1,476
R-squared	0.877	0.877	0.877
Manager characteristics	Yes	Yes	Yes
Team characteristics	Yes	Yes	Yes
Firm $\times$Year FE	Yes	Yes	Yes
Manager FE	Yes	Yes	Yes

Table B5: Additional Controls: Compensation History

This table presents the results from regressing compensation on team and manager characteristics. *Compensation* is the manager's compensation in shekels. *Skill* is the Berk and Van Binsbergen (2015)'s measure of the manager's investment skill. *Visibility* is the number of newspaper articles about the manager in the four major business outlets in Israel. 1_{Team} indicator equals one if the manager is working with the team. *Team Skill* is the average skill of the manager's team members. *Team Visibility* is the average number of articles about the manager's team members in the four major business outlet in Israel. All the specifications include the full set of manager and team characteristics from Table 2. *,**, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Standard errors double-clustered by manager and year are in parentheses.

$y =$	$Log(Compensation_{m,t})$		
	(1)	(2)	(3)
$1_{Team_{m,t}}$	0.072	0.073	0.082
	(0.069)	(0.073)	(0.093)
$Skill_{m,t}$	0.0020**	0.0020**	0.0019**
	(0.0008)	(0.0009)	(0.0009)
$Team\ Skill_{m,t}$	-0.0015***	-0.0014**	-0.0012**
	(0.0004)	(0.0006)	(0.0005)
$Visibility_{m,t}$	0.0010***	0.0010***	0.0011***
	(0.0003)	(0.0005)	(0.0004)
$Team\ Visibility_{m,t}$	-0.0012***	-0.0013**	-0.0012***
	(0.0004)	(0.0005)	(0.0004)
$Log(Compensation_{m,t-1})$	0.615***		0.568**
	(0.203)		(0.230)
$Log(Compensation_{m,t-2})$		0.306**	0.281*
		(0.142)	(0.154)
Observations	1,476	1,476	1,476
R-squared	0.877	0.877	0.877
Manager characteristics	Yes	Yes	Yes
Team characteristics	Yes	Yes	Yes
Firm $\times$Year FE	Yes	Yes	Yes
Manager FE	Yes	Yes	Yes

Table B6: Alternative Measures of Skill

This table presents the results from regressing compensation on team and manager characteristics, using alternative measures of the manager's skill *Compensation* is the manager's compensation in shekels. *Visibility* is the number of newspaper articles about the manager in the four major business outlets in Israel. 1_{Team} indicator equals one if the manager is working with the team. *Team Visibility* is the average number of articles about the manager's team members in the four major business outlet in Israel. In column (1), the manager's *Skill* is defined as the manager's α from the Five-Benchmark Model (see Section 2.4). In column (2), the manager's *Skill* is defined as the Berk and Van Binsbergen (2015)'s measure but using the style-adjusted α^{PB} (see Section A.2). The *Team Skill* is defined as the within team average of an appropriate measure of skill. All the specifications include the full set of manager and team characteristics from Table 2. *,**, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Standard errors double-clustered by manager and year are in parentheses.

$y =$	$Log(Compensation_{m,t})$	
	(1)	(2)
$1_{Team_{m,t}}$	0.075	0.078
	(0.070)	(0.070)
$Skill_{m,t}$	0.14**	0.0019**
	(0.07)	(0.0008)
$Team\ Skill_{m,t}$	-0.09**	-0.0014**
	(0.04)	(0.0005)
$Visibility_{m,t}$	0.0010***	0.0010***
	(0.0003)	(0.0005)
$Team\ Visibility_{m,t}$	-0.0011***	-0.0011**
	(0.0004)	(0.0005)
Measure of Skill	Manager's Alpha from Five-Benchmark Model	BvB Measure With Styled-Adjusted Returns
Observations	1,476	1,476
R-squared	0.878	0.878
Manager characteristics	Yes	Yes
Team characteristics	Yes	Yes
Firm $\times$Year FE	Yes	Yes
Manager FE	Yes	Yes

Table B7: Transitions Across Teams Within Firms: First-Difference Tests

This table presents the results from regressing one-year changes in manager compensation on team characteristics for the sample of managers who switched teams within firms. The changes are calculated as the differences in the outcome variables between the last year in the old team and the first year in the new team. *Compensation* is the manager's compensation in shekels. $1^{L\to H}_{Team\ Skill}$ indicator equals one if the manager switched to the high-skill team from the low-skill team, and $1^{H\to L}_{Team\ Skill}$ indicates a transition in the opposite direction. $1^{L\to H}_{Team\ Visibility}$ indicator equals one if the manager switched to the high-visibility team from the low-visibility team, and $1^{H\to L}_{Team\ Visibility}$ indicates a transition in the opposite direction. All the specifications include the full set of manager and team characteristics from Table 2. *,**, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Standard errors double-clustered by manager and year are in parentheses.

	(1)	(2)	(3)
	y=$\Delta Log(Compensation)_{t,t+1}$		
$1^{L\to H}_{Team\ Skill}$	-0.29**		-0.25**
	(0.13)		(0.12)
$1^{H\to L}_{Team\ Skill}$	0.23***		0.19**
	(0.07)		(0.08)
$1^{L\to H}_{Team\ Visibility}$		-0.12**	-0.14**
		(0.05)	(0.06)
$1^{H\to L}_{Team\ Visibility}$		0.13	0.19
		(0.07)	(0.11)
Observations	221	221	221
R-squared	0.46	0.47	0.49
Manager Characteristics	Yes	Yes	Yes
Team Characteristics	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

C Model

In this section, we present a straightforward framework to illustrate the compensation equilibrium in the presence of team externalities.

Labor Market Setup. Our model, adapted from Han and Miller (2015)'s dynamic employment network interactions, simplifies their detailed setting. We present this model heuristically due to our empirical focus, omitting complexities such as endogenizing entry and exit and compensation form choices.

The core concept lies in the value added by each portfolio manager, depending on their qualities and team integration. Positive team externalities boost a manager's human capital, enhancing future revenue. The revenue is split between the manager (as salary) and the firm (as profits). Firms set compensation and hire managers.

Consider a manager denoted as i working within a team indexed as j at time t within a specific firm. The manager's individual traits are represented by the vector x_{it}, while the collective attributes of the team are encapsulated in the vector y_{jt}. Both the manager's and the team's characteristics undergo dynamic updates over time or when the manager transitions between teams. The evolution of the manager's traits follows a deterministic law of motion: $x_{i,t+1} \equiv g\left(x_{it}, y_{jt}\right)$.

The manager's generated revenue at time t is denoted as $m_{it}(x_{it})$. Notably, revenue exhibits a positive correlation with x_{it}, symbolized by $\frac{\partial m_{it}}{\partial x_{it}} > 0$. This relationship underscores the intuitive principle that managers with superior attributes, such as heightened investment skills or visibility, are more productive and yield higher revenue.[19]

The manager's overall benefits from working with team j at time t within a specific firm can be construed as their lifetime compensation. This compensation encompasses the current salary, denoted as $b_j(m_{it})$, and the manager's anticipated future earnings by remaining with team j for at least one additional period, represented as $f_j(m_{i,t+1})$.

Specifically, the current salary is calculated as $b_j(m_{it}) = \alpha_t + \beta_{ijt} m_{it}(x_{it})$, where α_t captures a

[19] As highlighted in Section 3, existing literature consistently demonstrates positive correlations between revenue and manager investment skill and visibility. Since our focus revolves around the supply side dynamics between fund firms and their employed managers, we consider the demand side relationship $\frac{\partial m_{it}}{\partial x_{it}} > 0$ as a given constant. Introducing the complexities associated with investor behavior and demand-side frictions would undeniably enhance the model's realism. However, incorporating these factors would significantly augment the model's analytical intricacy without fundamentally altering the core implications regarding managerial compensation.

firm-wide bonus and $\beta_{ijt} m_{it}(x_{it})$ signifies a bonus component contingent on the manager's revenue.[20]

Similarly, the future compensation, denoted as $f_j(m_{i,t+1})$, is expressed as $f_j(m_{i,t+1}) = \alpha_{t+1} + \beta_{ij,t+1} m_{it}(x_{i,t+1})$. In achieving equilibrium, the firm selects an optimal split ratio, β_{ijt}, ensuring that the manager is indifferent between continuing with the current firm and receiving an alternative payoff u_{it} net of switching costs ϵ_{it}. Following Han and Miller (2015), the alternative payoff u_{it} can fall into one of two scenarios.

In the event the manager receives an alternative job offer from another firm, both firms strive to match the net value of the manager added to the firm's team. This competitive bidding process results in $u_{it} = b_k(m_{it}) + f_k(m_{i,t+1}|y_k)$ net of switching costs, where k denotes the team within the alternative firm under consideration. However, if the manager lacks another viable alternative, their outside option becomes leaving the profession. In this case, u_{it} denotes payoff from quitting. Consequently, the equilibrium compensation for managers, represented as (α, β), is determined by the equation:

$$b_j(m_{it}) + f_j(m_{i,t+1}) \equiv \alpha_t + \beta_{ijt} m_{it}(x_{it}) + \alpha_{t+1} + \beta_{ij,t+1} m_{i,t+1}(x_{i,t+1}) = u_{it} - \epsilon_{it}. \tag{B1}$$

Team Quality Effects. We empirically measure the manager's individual human capital x_{it} by their investment skill and media visibility, whereas team quality y_{jt} is captured by the average investment skill and visibility of team j. The impact of team quality through the human capital channel is outlined as follows:

Assumption 1 (Human Capital Channel). $\frac{\partial x_{i,t+1}}{\partial y_{jt}} > 0$

Assumption 1 posits that an increase in y_{jt} enhances the growth of agent i's human capital. Within the context of the mutual fund industry, this assumption captures two vital aspects. Firstly, substantial learning can transpire on the job, especially given the growing importance of teamwork, as evidenced by Patel and Sarkissian (2017). Therefore, a manager can significantly augment their investment skill by collaborating with highly proficient teams, benefiting from knowledge spillover and accumulated experience.[21] Secondly, the media visibility of team members can am-

[20] In the mutual fund industry, Ma et al. (2019) report that 79% of funds incorporate bonus components into their compensation contracts. Furthermore, Ibert et al. (2017) emphasize revenue as a fundamental driver of portfolio managers' compensation.

[21] In our framework, teamwork directly enhances investment performance by improving the individual managers'

plify the individual manager's prominence among investors. The evidence presented in Table 4 corroborates both aspects of this assumption. The following proposition summarizes the equilibrium effects of team quality.

Proposition 1 (Equilibrium Effects of Team Quality) *Under Assumption 1, the impact of enhanced team quality y_{jt} on the equilibrium outcomes can be summarized as follows:*

a. Reduction in Current Compensation (b_{ijt}): Managers strategically accept lower immediate earnings in anticipation of augmented future earnings due to enhanced skills and visibility within high-quality teams.

b. Increase in Compensation Growth ($\frac{b_{ij,t+1}}{b_{ijt}}$): Manager's future compensation increases as they enhance their skills and visibility within superior teams. Compensation growth intensifies due to both elevated future compensation and reduced immediate earnings.

c. Higher Revenue Growth ($\frac{m_{i,t+1}}{m_{it}}$): Managers with enhanced investment skills and visibility are more productive and generate higher revenue.

Proof. Following Assumption 1, higher y_{jt} leads to increased $x_{i,t+1}$. Consequently, $m_{i,t+1}$ rises due to the positive relationship represented by $\frac{\partial m_{it}}{\partial x_{it}} > 0$. Additionally, higher revenues boost $b_{ij,t+1}$, as compensation is directly linked to revenue. Notably, the right-hand side of Equation (B1) remains constant regardless of y_{jt}. Thus, in equilibrium, current compensation b_{ijt} must decline. Compensation growth experiences an upswing due to the amplified future earnings and reduced immediate compensation. Similarly, revenue growth increases owing to the anticipated rise in future revenues.

Proposition 1 establishes a crucial equilibrium connection between a manager's compensation and team quality. It illuminates that a manager willingly sacrifices their current salary to secure placement in a higher quality team. Such a strategic choice is driven by the understanding that such an allocation substantially amplifies the manager's future productivity and lifetime earnings. The proposition underscores the pivotal role played by team quality in shaping dynamics of human capital, productivity and compensation. In the absence of team externalities ($\frac{\partial x_{i,t+1}}{\partial y_{ijt}} = 0$), the compensation, revenue and human capital of manager i remain unaffected by team allocation.

Assumption 1 and Proposition 1 collectively yield empirically testable predictions. These pre-

investment skill. It's noteworthy that teamwork can also bolster investment performance through diverse perspectives (Evans, Prado, Rizzo and Zambrana (2021)) or by curbing excessive trading (Fedyk, Patel and Sarkissian (2020)).

dictions form the basis of our empirical analysis, as elaborated in Section 3. They serve as guiding principles, offering a structured framework to explore and validate the intricate relationships between team quality, manager compensation and productivity.