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

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Abstract

Using unique Israeli tax data, we examine the influence of team allocation on mutual fund manager compensation, revealing a novel two-fold effect. Being part of a skilled team initially reduces immediate pay but boosts future compensation by fostering individual skill development. This finding suggests that a manager's compensation reflects both their existing abilities and the skill advancement opportunities provided by their team assignment inside the firm. The effect of team quality is more significant among top-performing and less experienced managers, shedding new light on the variations in pay-performance sensitivity and career compensation patterns in the asset management industry.

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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.

Recent studies have highlighted key factors affecting portfolio manager compensation. Ma, Tang and Gomez (2019) and Bai, Ma, Mullally and Tang (2023) show that manager pay often includes performance-based bonuses, linking compensation to performance. Additionally, Ibert, Kaniel, Van Nieuwerburgh and Vestman (2017) and Cen, Wei Dou, Kogan and Wu (2023) identify fund size and revenues as significant drivers of compensation. Despite these insights, a considerable part of the variation in managerial compensation remains unexplained, suggesting the need for deeper investigation into the relationships between fund managers and their fund families. As Ibert, Kaniel, Van Nieuwerburgh and Vestman (2017) note, fund managers' compensation depends not only on their individual performance, but also on 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. Literature suggests that team work substantially affects incentives and performance of individual team members in a variety of contexts through a variety of channels.[1] However, little is known about how team externalities are internalized in compensation. A major challenge is a lack of readily available and high-quality individual level data on each team member's characteristics, performance and compensation, and the latter is particu-

[1]Team production has become prevalent in many economic activities, such as asset management (Patel and Sarkissian (2021)), academic research (Azoulay, Graff Zivin and Wang (2010)), department sales (Chan, Li and Pierce (2014)), steel mills (Boning, Ichniowski and Shaw (2007)), sports industry (Ichniowski and Preston (2014)), and garment production (Hamilton, Nickerson and Owan (2003)). 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)).

larly rare. We overcome this challenge by assembling a large employment compensation dataset from the mutual fund industry in Israel. Spanning across almost the entire population of mutual fund portfolio managers in Israel managing 1,786 mutual funds from 2006-2016, our data combine proprietary compensation data from administrative tax records (an analog of the U.S. W-2 form) with publicly available data on their portfolio characteristics (an analog of the CRSP Mutual Fund Database). The combined dataset allows us to observe not only who works with whom on which fund, the firm affiliation of each manager, but also the revenue that each manager generates, the compensation that each manager receives, the skill composition within each team, and the media visibility of each manager.

The mutual fund industry provides an excellent laboratory for studying the role of team work in incentive provision. First, the industry is highly labor intensive with nearly 70% of funds being co-managed (Patel and Sarkissian (2017)). This implies that an individual manager's productivity depends not only on her own human capital, but also on her team capital – teams that are often assigned by firms. Second, a manager's productivity is well-defined, measured by a total fee revenue that a manager generates, which reflects market value of her output (Ibert et al. (2017)).[2]

A preliminary investigation of the data reveals interesting patterns. First, while there is substantial variation in manager compensation and revenue across firms, there is even more variation within firms. Standard manager characteristics and fund attributes, together with firm X year and manager fixed effects can explain only 52% of the variation in compensation and 62% in revenue. This suggests that manager characteristics and firm attributes, when evaluated in isolation, are not sufficient to explain the dispersion in managerial compensation. Second, adding interactions between manager and firm fixed effects boosts the amount of explained variations by an additional 22% for compensation and 17% for revenue, consistent with the presence of complementarities between managers and firms in this industry. Moreover, when we further include team-by-year fixed effects, the model's explanatory power significantly increases, accounting for an additional 16% of the variation in compensation and 15% in revenue. These findings underscore the sizable impact of team dynamics in determining compensation and productivity in asset management.

We interpret these patterns through the lens of a stylized employment compensation model.

[2]This is also consistent with commonly used productivity measures that are based on revenue per employee (Foster et al. (2008), Hsieh and Klenow (2009), Syverson (2011)).

For a forward-looking manager, the compensation consists of today's salary and the continuation value that she derives from working with a high-quality team and the latter is assigned by the firm. Since working with a high-quality team facilitates the growth of a manager's human capital, it would increase the manager's future productivity and hence future compensation. In equilibrium, a manager would be willing to receive lower compensation in the present in exchange for being assigned to a high-quality team which could enhance her future earning prospects. Firms differ in the level of team capital they assign to each manager, and managers differ in how much they benefit from working with a high-quality team, making the compensation contract specific to each manager-firm pair. For example, we would expect that lower-skill and younger mangers would benefit more from working with high-quality teams.

We consider two aspects of team capital: skill and visibility of team members. First, prior work shows that working with high-skill 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)). In the mutual fund industry, a team's overall investment skill is vital for generating fund flows (Sirri and Tufano (1998)). Thus, being part of a skilled team can aid managers in honing their own investment skills. Second, the industry is characterized by search frictions in that investors have limited resources to conduct fund search (Kaniel and Orlov (2021), Hortaçsu and Syverson (2004), Roussanov et al. (2021)), making media visibility a significant factor in attracting investors (Solomon et al. (2014), Gallaher et al. (2015) and Kaniel and Parham (2016)). Collaborating with more visible teammates may boost a manager's visibility among investors, leading to additional fund flows and increased revenues.[3]

Ultimately, the importance of team externalities in incentive provision is an empirical question. In our main analysis, we take the model's implications to the data and find strong support for the internalization of team externalities in manager compensation. We find 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,

[3]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.

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 current 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. These results are robust even after we control for a comprehensive set of time-varying manager, firm, fund attributes, as well as rich interactions of firm, year, manager and experience fixed effects. The estimates also stay stable across various methods used to assess manager skill or compute team variables. Taken together, we find that team capital, measured by skills and visibility, affects manager revenue and compensation in opposite directions. This evidence is hard to reconcile with a static performance-based compensation structure but fully consistent with the incentive provision for forward-looking managers in the presence of team externalities.

Even with the very rich set of controls and fixed effects at our disposal, one might still be concerned about the selection of managers into teams based on their time-varying unobserved attributes. For example, if more capable managers are more likely to be paired up and such capability varies over time in an unobserved way, it is likely to confound the positive team effects on manager revenue. We note that this is unlikely a big concern in our setting. If it was indeed the case, we should observe the team capital variables affect the expected revenue and manager compensation in the same direction. But the estimates show the opposite.

Nevertheless, to mitigate the possible bias from non-random manager assignments to teams, we further utilize a Differences-in-Differences (DiD) approach. Our methodology compares "switchers" (managers who change teams) and "stayers" (those who do not) within the same firm, under the assumption that, after accounting for a rich set of observed characteristics, their differences in outcomes are not systematically different in the absence of switching. We validate this approach by the standard DiD "parallel trends" tests, confirming no initial differences in outcomes like compensation between switchers and stayers before the switch. Finding no pre-existing differences lends credibility to our DiD design, as it suggests that the observed effects post-switching are likely due to the team change itself and not other factors.

Our DiD findings reinforce our initial evidence but reveal nuanced dynamics, particularly showing that only moves from high- to low-quality teams significantly affect compensation. Managers transitioning from high-skill to low-skill teams see a 12% increase in compensation, and those moving from high-visibility to low-visibility teams experience a 14% rise. These effects are pronounced and immediate after team transitions, aligning with the notion that they are directly caused by the team change. The lack of impact in low- to high-skill transitions might stem from wage stickiness, which typically prevents reductions in compensation. Interestingly, managers moving to high-quality teams might have earned more had they moved to low-quality teams. Comparatively, they earn less than their counterparts who switch to low-quality teams, which supports our hypothesis.

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 by investigating 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. We also show that that managers assigned to higher-skill teams show improved performance in managing "solo" funds, indicating genuine individual skill growth beyond the team's collective contribution. Utilizing our DiD designs, we scrutinize these effects and find that they become apparent immediately after the manager's transition to a high-quality team and continue to persist in the subsequent years. These findings further reinforce 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. 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.

In the final section of our analysis, we delve into the implications of our findings for recent asset management literature. First, we address the debate on the role of investment performance in

determining compensation. Ibert et al. (2017) highlight that in the Swedish mutual fund industry, manager compensation does not strongly correlate with performance. Similarly, Cen et al. (2023) observe a weaker connection between performance and pay levels in the U.S., though noting a stronger link with compensation growth. In contrast, Bai et al. (2023) document more substantial effects of performance on pay among U.S. mutual fund managers. We contribute by showing that the variability in pay-performance sensitivity can be partly explained through the lens of team quality's varying significance for different managers. When team quality is factored into the pay-performance equation, it reveals that the overall modest pay-performance sensitivity masks substantial differences in compensation incentives. This is because skilled managers, who often start working with similarly skilled colleagues, value team quality highly and are inclined to accept lower compensation for better team affiliations. This tendency contributes to the generally lower observed pay-performance sensitivities, emphasizing the nuanced influence of team dynamics in compensation structures.

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.

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.[4] 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.

[4] 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.

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.[5] 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.[6] This data allows us to track almost the entire population of mutual fund portfolio managers in Israel from 2010 to 2016.[7] 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.[8] 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. In our robustness checks, we also assume that senior managers play a larger role in managing funds, with assets

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

[6] 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 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.

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

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

allocated based on a manager's experience rather than equally among all managers.

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 operating for 8 years, and charges a percentage fee of 0.82%. Panel C presents the data at the firm-year level. While the average firm in our study has 3 portfolio managers and operates 28 mutual funds, most of our manager-year observations are drawn from larger firms - specifically the top 25% in terms of the number of managers. These larger firms typically have around 12 portfolio managers on average.

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.[9]

We define $1_{Team_{mt}}$ as an indicator variable that equals one if at least one of the funds in the

[9] 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).

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 presents the distribution of investment skills for both individual managers and their teams. The average skill level of a manager is quantified at 3.55 million shekels, while the team's investment skill averages 4.85 million shekels. However, there is significant variation in investment skills among both managers and teams, with the median manager and team demonstrating negative skills. These results align with U.S. fund-level findings by Berk and Van Binsbergen (2015), who associate negative skill with value destruction by fund managers, not value addition. In the context of their findings, most Israeli fund managers, like their U.S. counterparts, tend to erode value. Nonetheless, managers of larger funds typically contribute positively. Hence, since skilled managers control the majority of capital, the average manager ultimately adds value.

Media Visibility. We 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.[10] 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.[11]

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

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

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

(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.

3 Motivating Evidence

We first ask whether team allocation crucially affects compensation and productivity in asset management. To address this, we analyze the extent to which team allocation contributes to variations in compensation and revenue, particularly in comparison to other well-established determinants of these variables. We begin with the baseline econometric model:

$$y_{mft} = \lambda_t + \gamma X_{mft} + \epsilon_{mft}, \tag{8}$$

In this equation, y_{mft} represents one of two key outcome variables, either compensation or revenue, for a manager m from firm f in year t. The term λ_t refers to fixed effects for each year.

X_{mft} includes multiple time-varying manager and their portfolio characteristics such as: the manager's 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,[12] as well as the indicator variable for having additional responsibilities outside of portfolio management.[13] The inclusion of X_{mft} thus accounts for important time-varying determinants of compensation

[12]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.

[13]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.

highlighted by the prior work (Ibert et al. (2017) and Ma et al. (2019)).

To assess the significance of different factors in determining compensation, we incrementally incorporate various fixed effects into the baseline model and observe how they alter the explained variation in the outcome variables, as indicated by the model's R-squared value. Our focus is particularly on the influence of team characteristics, which are represented by team-by-year fixed effects. In order to thoroughly examine the impact of team allocation, we introduce these fixed effects towards the end of our process. This approach ensures that the effects attributed to team characteristics are not mistakenly accounted for by other variables in the model.

Figure 2 presents our results. Initially, our baseline model shows that observed characteristics of managers and portfolios explain 25% of the variation in compensation and 38% of the variation in revenue. Introducing firm fixed effects increases the R-squared to 47% for compensation and 53% for revenue. The addition of firm-by-year fixed effects further improves the R-squared to 52% for compensation and 62% for revenue. This model variation captures all changing firm-level characteristics, such as advertising, research, and distribution networks, which are crucial for a manager's output and compensation, as noted by Ibert et al. (2017).

In our next steps, we incorporate manager fixed effects to control for stable, unobserved characteristics of the managers. We also introduce an interaction between manager and firm fixed effects to capture the unique effects of specific manager-firm pairings. These additions substantially enhance the explanatory power of our model, raising the R-squared to 74% for compensation and 79% for revenue. This increase highlights the importance of the managers' unseen characteristics and the manager-firm match in determining outcomes. However, there is still a significant portion of variation in both compensation and revenue that remains unexplained, indicating the presence of other influential factors.

In the final step, we integrate team-by-year fixed effects, identified through changes in team assignments within firms over time. This addition significantly enhances the model's explanatory power, with the R-squared soaring to 90% for compensation and 94% for revenues. This marked improvement indicates that team allocation accounts for a significant portion of the variation - 16% in compensation and 15% in revenue - that was not explained by the standard factors included in our earlier specifications.

These findings indicate that team allocation plays a critical role in determining both compen-

sation and productivity variations. The effects we identify are separate from the influences of the firms themselves, as our specifications specifically includes firm-by-year fixed effects. While our results do not specify which characteristics are most influential, previous labor economics research points to factors like teammates' skill and overall quality (e.g., Hamilton et al. (2003) and Mas and Moretti (2009)). Building on these insights, we next focus on the impact of team quality, outlining our conceptual framework and discussing the testable hypotheses.

4 Conceptual Framework and 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 stylized employment model, providing a microfoundation for our conceptual development.

The model incorporates two important features of the mutual fund industry. First, working with better teams helps managers enhance their human capital. There has been plenty of evidence that teamwork fosters skill improvement through knowledge spillover (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)). In the mutual fund industry context, we focus on investment skill and media visibility as key dimensions of a portfolio manager's human capital. 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 term this mechanism the "human capital channel."

Second, enhanced human capital translates into higher productivity, where productivity is measured by managers' fund revenue. 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.

With these features, the model yields the following intuitive equilibrium relationship: managers seeking to maximize lifetime compensation accept lower current compensation for affilia-

tion with superior teams, resulting in a negative relationship between team quality and current compensation. This is because better team quality enhances future productivity and compensation via the human capital channel.

In what follows, we summarize the hypotheses generated from this stylized model.

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 7, 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)).

5 Effects of Team Quality on Compensation

5.1 Methodology

We start with estimating the following baseline specification:

$$y_{mft} = \lambda_m + \lambda_{ft} + \beta_1 Team\ Skill_{mft} + \beta_2 Team\ Visibility_{mft} + \gamma X_{mft} + \lambda Y_{mft} + \epsilon_{mft}, \tag{9}$$

where y_{mft} is the natural logarithm of the annual compensation for manager m of firm f in year t.[14] The team capital variables, measured by $Team\ Skill_{mft}$ and $Team\ Visibility_{mft}$, are constructed in Section 6.1. The key parameters of interest, β_1 and β_2, capture the role of team allocation in manager compensation.

Our key 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. Firstly, 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.

Secondly, we incorporate various time-varying characteristics of managers, denoted as X_{mft}, from Equation 8. By including X_{mft}, we account for additional selection factors that are key time-varying determinants of compensation, as highlighted in previous research.

Thirdly, we add time-varying firm fixed effects λ_{ft} which control for all the firm-specific shocks 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 incorporating a comprehensive array of observed characteristics and fixed effects into our model, the main remaining challenge is the potential sorting of managers into teams based on unobserved, *time-varying* factors. These factors are represented by the error term ϵ_{mft}. For

[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.

example, managers who improve certain unobservable skills over time might be more likely to join higher-quality teams and simultaneously experience changes in their compensation. In Section 5.3, we conduct a series of difference-in-differences (DiD) event studies, examining the effects of switching teams, which helps in mitigating these concerns.

5.2 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% ($28.81 \times (-0.0022) \times 100\%$).[15]

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 effects 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.

[15] 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.

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% ($22.08 \times (-0.0011) \times 100\%$).

In column (8), we revisit our analysis using the manager's risk-adjusted return, denoted as alpha (α), as a substitute for the skill measure from Berk and Van Binsbergen (2015). The results are consistent in both quantitative and qualitative terms: a one standard deviation increase in the team's α (6.29 percentage points) leads to a 3.71% reduction in compensation (calculated as $6.29\% \times (-0.59)$). Given that the Berk and Van Binsbergen (2015) measure is tailored to reflect decreasing returns to scale, these findings suggest that our main conclusions are robust and not overly sensitive to the specific nature of returns to scale in asset management.

An important issue we must consider is the possibility of a high correlation between team quality and manager characteristics, leading to the multicollinearity problem in our regression specifications. For instance, consider two managers overseeing a single fund, both commencing their roles simultaneously - resulting in a perfect correlation between team skill and manager skill. To address this issue, we assess the potential for multicollinearity using the Variance Inflation Factor (VIF) for the most restrictive specification in column (7). The VIFs for *Skill*, *Team Skill*, *Visibility*, and *Team Visibility* are quite low, at 1.34, 1.78, 2.34, and 1.09, respectively. This outcome suggests a low likelihood of multicollinearity problems. In a broader context, our findings indicate that team quality does not perfectly covary with the characteristics of individual team members because managers on the same team may also manage other funds individually or with different teams, or join the team at different points in time.

5.2.1 Robustness Checks

Table 3 shows the results from various robustness checks, using augmentations of Equation 9 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 seek to more accurately capture various

aspects of seniority by adding different measures of manager experience such as the average experience with portfolio funds and the overall asset management industry experience. We consider these factors both at the individual manager level and at the team level. After accounting for these varied types of experience, our results remain unchanged.

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.

Panel B details results from several modifications to our empirical approach. The first modification addresses the varying contributions of team members in fund management. While our main tests assume equal contribution by all portfolio managers, as per previous studies, the reality might differ. Senior managers, often more skilled and visible, may have a greater role in portfolio decisions and thus receive higher compensation. Consequently, managers working alongside more skilled and visible colleagues might receive lower pay due to their lesser contribution to the fund management process, a factor not fully captured by equal attribution to the fund's value added.

To account for this, we redefine our main variables, assuming team members contribute to fund management in proportion to their relative industry experience. For instance, in a two-member team with one manager having one year of experience and the other having two years, we attribute 1/3 of the fund's value added to the first manager and 2/3 to the second. This approach is similarly applied when we redefine variables that involve attributing assets to individual managers, such as revenue. The results in Panel B affirm that our main conclusions are consistent

under this revised assumption.

Our second modification concentrates on large firms with multiple managers and teams. Given that the average Israeli firm typically has 3 managers, there's a concern about sufficient variation in team assignments within firms for identifying team allocation effects. We address this by narrowing our sample to larger firms with at least four managers and two teams. The findings from this subsample, shown in Panel B of Table 3, are in line with our main results.

Lastly, we compute the baseline skill measure from Equation 2 using distinct style-adjusted benchmarks for each fund in a manager's portfolio, instead of using the same five benchmarks for all funds (details in Appendix A.2). This approach responds to the debate on the most relevant measures of fund risk-adjusted performance for investors (Berk and Van Binsbergen (2016) and Barber et al. (2016)). Our findings remain consistent using this alternative skill measure. Panel C also confirms the robustness of our results to various standard error clustering methods.

5.3 Event Studies Based On Team Switching

5.3.1 Methodology

Our remaining concern relates to addressing the potential impact of time-varying, unobserved characteristics of managers or teams that could influence both team allocation and compensation. To tackle this concern, we implement a difference-in-differences (DiD) event study methodology. This approach specifically examines the variations in compensation associated with managers switching teams. Given that this method necessitates a substantial number of transitions across various teams within firms, we limit our analysis to larger firms. These are defined as firms having a minimum of four managers and two 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 201 within-firm transitions between teams: 71 "low-to-high" and 35 "high-to-low" tran-

sitions based on team investment skill, and 67 "low-to-high" and 26 "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 not only to study the post-event dynamics but also to examine the pre-event trends in outcomes which, as we explain below, helps to validate our empirical design.

In our methodology, we estimate team quality effects by comparing outcomes between team switchers and stayers over time. Ideally, managers would be randomly assigned to these groups to ensure unbiased results. However, in the real-world, team changes are not random and can be influenced by factors like skill development, career advancement, team dynamics, or firm policies. These factors can also affect compensation and other outcomes, potentially leading to biased comparisons between switchers and stayers.

To mitigate the impact of these biases, we adopt a Difference-in-Differences (DiD) approach, which operates under less stringent assumptions than random assignment. By utilizing the standard DiD event study framework, we focus on estimating two distinct regression specifications:

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

$$y_{mfte} = \lambda_m + \lambda_{ft} + \lambda_e + \sum_{i=-3, i\neq -1}^{2} \left(\beta_i \times \mathbb{1}_{me}^{H\to L} \times \mathbb{1}_i\right) + \gamma X_{mt} + \lambda Y_{mt} + \epsilon_{mfte}, \tag{11}$$

Equation 10 is estimated on the sample of "low-to-high" transitions (using the $L \to H$ superscript), and Equation 11 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. This specification includes a rich set of control variables that we expand upon in detail below.

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.

5.3.2 Main Assumptions

The main assumption for identification is that being a switcher, whether from "low-to-high" or "high-to-low" teams, is uncorrelated with the unobserved factors that determine compensation, denoted as ϵ_{mfte}. Importantly, this assumption holds true conditionally, *given the control variables* included in our analysis. More formally, for the "low-to-high" transition specification in Equation 10, we require that:

$$\mathbb{E}(\mathbb{1}_{me}^{L\to H} \times \mathbb{1}_i \times \epsilon_{mfte} | \lambda_m, \lambda_{ft}, \lambda_{ft}, X_{mt}, Y_{mt}) = 0 \tag{12}$$

Equation 12 stipulates that it is enough to presume that being a switcher is not correlated with unobserved confounding factors, conditional on control variables included. In an ideal scenario, a controlled lab experiment would provide a stronger setting for isolating the effects of team transitions on compensation. In such an environment, the unobserved factors influencing compensation would be uncorrelated with treatment status, regardless of control variables. This is because, in a randomized assignment process, managers would be allocated to treatment and control groups independently of any specific characteristics related to the manager, team, or firm. This independence is a fundamental strength of experimental designs.

However, as indicated in Equation 12, our study does not rely on the assumption of random assignment to identify the effects of team transitions. Instead, we focus on the conditional ab-

sence of correlation, where control variables play an important role. For instance, if managers switch teams due to increased seniority (which in turn affects compensation), including seniority as a control variable helps mitigate this influence, aligning the observational study closer to an experimental setup.

This approach emphasizes the critical role of carefully selecting and including appropriate control variables in our analysis. Consequently, we integrate an extensive set of these variables in the specifications outlined in Equations 10 and 11. We first introduce all the control variables outlined in Equation 9: 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 eliminate any constant differences across cohorts of managers experiencing transition events.[16]

Our approach creates a robust framework for estimating the effects of team quality on outcomes like compensation. By conditioning on manager fixed effects λ_m, we effectively absorb the influence of slow-moving, both observable and unobservable, manager characteristics, such as innate skills or attitudes towards the firm and colleagues. Incorporating firm-by-year fixed effects λ_{ft} strengthens our analysis by controlling for any firm-specific changes or trends that occur annually. Factors like firm-wide compensation policies or team allocation strategies are examples of what these fixed effects help account for. Additionally, including a wide array of manager (X_{mt}) and team (Y_{mt}) characteristics in our model further validates the assumption in Equation 12. These variables could simultaneously influence both compensation and the likelihood of a manager switching teams, and controlling for them reduces the potential for omitted variable bias. While our empirical approach is not completely infallible - since it is impossible to control for every conceivable observable and unobservable factor - it is designed to minimize bias as much as possible within the constraints of non-experimental data.

[16]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.

5.3.3 Parallel Trends Test

Another advantage of our approach is that it allows for an empirical investigation of the parallel trends assumption implied by Equation 12, which is a cornerstone of the DiD methodology. This assumption posits that, were it not for the team transition, there would be no significant difference in outcomes between those who switch teams and those who remain in their original teams. We can test this assumption by visually examining trends in our outcome variables before any team switches occur. Formally, we can examine whether $\beta_i^{L\to H}$'s (or $\beta_i^{H\to L}$'s) are different from zero when $i = -3, -2$. Essentially, we ask whether, prior to switching, the trajectories of outcomes for switchers and stayers were similar (i.e. "paralell"). If the pre-switch trends in outcomes for switchers and stayers are indeed parallel, it strengthens our confidence that the differences we observe post-transition are due to the team switch and not other factors. Conversely, if pre-switch trends are notably different, it would suggest that our estimates might be biased by factors unrelated to the team switch.

The last advantage of this methodology is its ability to distinctly assess the impacts of different types of team transitions, such as "low-to-high" and "high-to-low." This granularity provides precise insights into how each kind of transition influences outcomes. Unlike our baseline analysis in Table 2, which encompasses both initial team assignments and subsequent transitions, the DiD method focuses specifically on the effects of these transitions. This targeted approach enhances our understanding of the dynamic ways in which team changes influence a manager's compensation over their career, offering a deeper perspective than just the initial placement in a team.

5.3.4 DiD Results

Figure 3 presents DiD test results for team skill transitions. The capped spikes show the 95% confidence intervals. These results align with our main hypothesis and previous findings from Table 2, but they highlight nuanced dynamics, particularly noting that only transitions from high- to low-skill teams significantly impact compensation.

Panel (a) examines low- to high-skill transitions. Before the transition, compensation trends for those switching teams and those staying are similar, supporting the parallel trend assumption. However, post-transition, there's no notable impact on compensation. Panel (b) focuses on high-

to low-skill transitions. Pre-transition trends are also consistent between groups. After switching, compensation for these managers increases by 12%, with a slight further increase of about 3% in the following year, leveling off at 13% in the second post-transition year.

These findings suggest that team allocation effects are more pronounced for managers moving from high- to low-skill teams, often leading to increased compensation. The absence of effects in low- to high-skill transitions could be due to wage stickiness, which makes compensation reduction unlikely. Interestingly, managers moving to high-skill teams might have earned more if they had transitioned to low-skill teams instead. In relative terms, they earn less compared to their counterparts moving to low-skill teams, aligning with our hypothesis.

The 13% increase in compensation for managers transitioning to low-skill teams aligns with findings from our initial analysis in Table 2. The difference in team skill levels, classified into high and low (upper and lower terciles), is approximately 71.75 million shekels or 2.5 standard deviations. According to estimates in Table 2, this magnitude of skill discrepancy corresponds to a 15% decrease in compensation, closely matching the DiD estimate. This comparison reinforces the internal consistency and robustness of our methodologies.

Figure 4 depicts outcomes of similar analyses, but using team visibility as a measure of quality. In panel (a), transitions from low-to-high visibility teams show no impact on compensation, with no significant trends observed prior to the transition. Panel (b), examining high-to-low visibility transitions, again reveals a compensation versus team quality trade-off. Here, switchers see a moderate increase in compensation of around 14%, within a confidence interval of [-26%; -4%].

Just as we did with the effects of team investment skill, we can compare these findings to the baseline results presented in Table 2. The average difference in visibility between high- and low-visibility teams is about 1.8 standard deviations. Using data from Table 2, we calculate the economic effect size of our initial model to be approximately -7%. This finding aligns closely with the DiD estimate's confidence interval, further affirming the consistency and reliability of our results across different methodologies.

In summary, the DiD tests not only align with our baseline tests but also highlight an asymmetric effect of team quality, primarily evident in transitions from high to low-quality teams. For additional validation, we conducted a first-difference analysis on compensation changes experienced by managers who switched teams within the same firm. This approach compares managers

against their own prior compensation levels, rather than contrasting a group of switchers with stayers. The findings, detailed in Appendix Table B7, are consistent with our DiD results, confirming that transitions from high-quality to low-quality teams tend to increase compensation. Importantly, the magnitudes of these effects are in line with our earlier estimates, further reinforcing the validity of our conclusions.

6 Examining the Mechanisms Behind the Effects of Team Quality

6.1 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 9 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 using the DiD approach. These test help mitigate the concern that the improvement in manager investment skill or visibility is driven by some time-varying unobservables rather than by team quality. We use the specifications from Equations 10 and 11, with skill and visibility growth as outcome variables.

Our findings, presented in Figures 5 and 6, further underscore the impact of team quality on individual team members' development, showing asymmetric effects similar to those observed in compensation. Figure 5 examines the influence of team investment skill on individual skill growth. Panel (a) indicates that moving from a low- to a high-investment-skill team leads to faster skill growth for individual managers, with no pre-transition disparity in skill growth between those who switch and those who stay. After transitioning to a higher-skill team, managers experience an approximate 9 pps increase in skill growth in the first year, accelerating slightly in the second year and stabilizing at an 11 pps in the third year. Contrarily, panel (b) shows that moving from a high- to a low-investment-skill team does not impact individual skill growth.

Similarly, Figure 6 reveals the effects of team visibility transitions on managers' visibility growth. Transitions from low- to high-visibility teams significantly boost individual visibility, with immediate effects in the first year post-transition (11 pps) that strengthen in the second year (14 pps) and stabilize in the third year (11 pps). However, transitions from high- to low-visibility teams do not exhibit noticeable changes in visibility growth.

Combining these insights with our compensation findings, we observe a clear pattern. Managers transitioning from low- to high-quality teams do not see changes in compensation, but they benefit from improved personal investment skills and visibility. Those moving to lower-quality teams gain in terms of compensation but miss out on the benefits of skill and visibility development. This pattern aligns with the economic logic of our framework, suggesting that managers face a trade-off between immediate financial rewards and long-term benefits of team affiliation.

6.2 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 6.1 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 9, 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 sizable. 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.

6.3 Additional Evidence from Solo-managed Funds

The impact of team quality on a manager's future skill development and compensation growth can be interpreted differently. Fund returns, which partly determine a manager's skill, are affected by the entire team's contributions. Because we use the same fund returns to measure both individual manager and team skills, being part of a higher-skill team could artificially inflate a manager's observed future skill. Consequently, the positive correlation between team quality and compensation growth might not necessarily signify an actual enhancement of the manager's own abilities. Instead, it could be a case of the manager "free-riding" on their teammates' skills.

To address this issue, we re-evaluate the influence of team allocation on skill growth using a subset of managers who manage both solo and team funds. In this analysis, team skill is calculated solely from team-managed funds, while individual manager skill is derived only from their solo-managed funds. This method allows us to determine if a manager demonstrates enhanced fund management capabilities on their own after being assigned to a more skilled team. An improvement in skill related to solo-managed funds is unlikely to result from the mechanical effects mentioned earlier.

The findings, as shown in columns (1)-(3) of Table 6, reveal that a higher team skill positively influences the growth of a manager's skill, as determined by their performance in managing solo funds. Moreover, columns (4)-(6) indicate an increase in revenue from solo-managed funds, suggesting that team allocation not only enhances managerial skills but also boosts the individual, manager-specific productivity. The magnitude of these effects aligns with the estimates from Table 4, reinforcing the robustness of our results against the alternative interpretation of mechanical skill improvement.

7 Implications for Pay-Skill Sensitivity and Returns to Experience

7.1 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) and Cen et al. (2023) observe a limited correlation between pay and performance in the Swedish and U.S. mutual fund industries, respectively. On the other hand, Bai et al. (2023) identify a stronger link between these two factors in the U.S. This variation in observed pay-performance sensitivity presents a quantitative puzzle for the standard incentive-based contracts that link managers' pay to their performance (Ma et al. (2019)).

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 add the interactions 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 7 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 the aforementioned studies, using 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%. This finding of a relatively low average sensitivity of pay to performance is consistent with the results observed in both the Swedish data by Ibert et al. (2017) and the U.S. data by Cen et al. (2023). 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. Conversely, for managers in lower-skill teams, compensation is much more performance-sensitive. This variation brings our findings more in line with those reported by Bai et al. (2023).

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 may appear small on average.

7.2 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 6.2), 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 8 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)).

8 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.

Our combined 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.

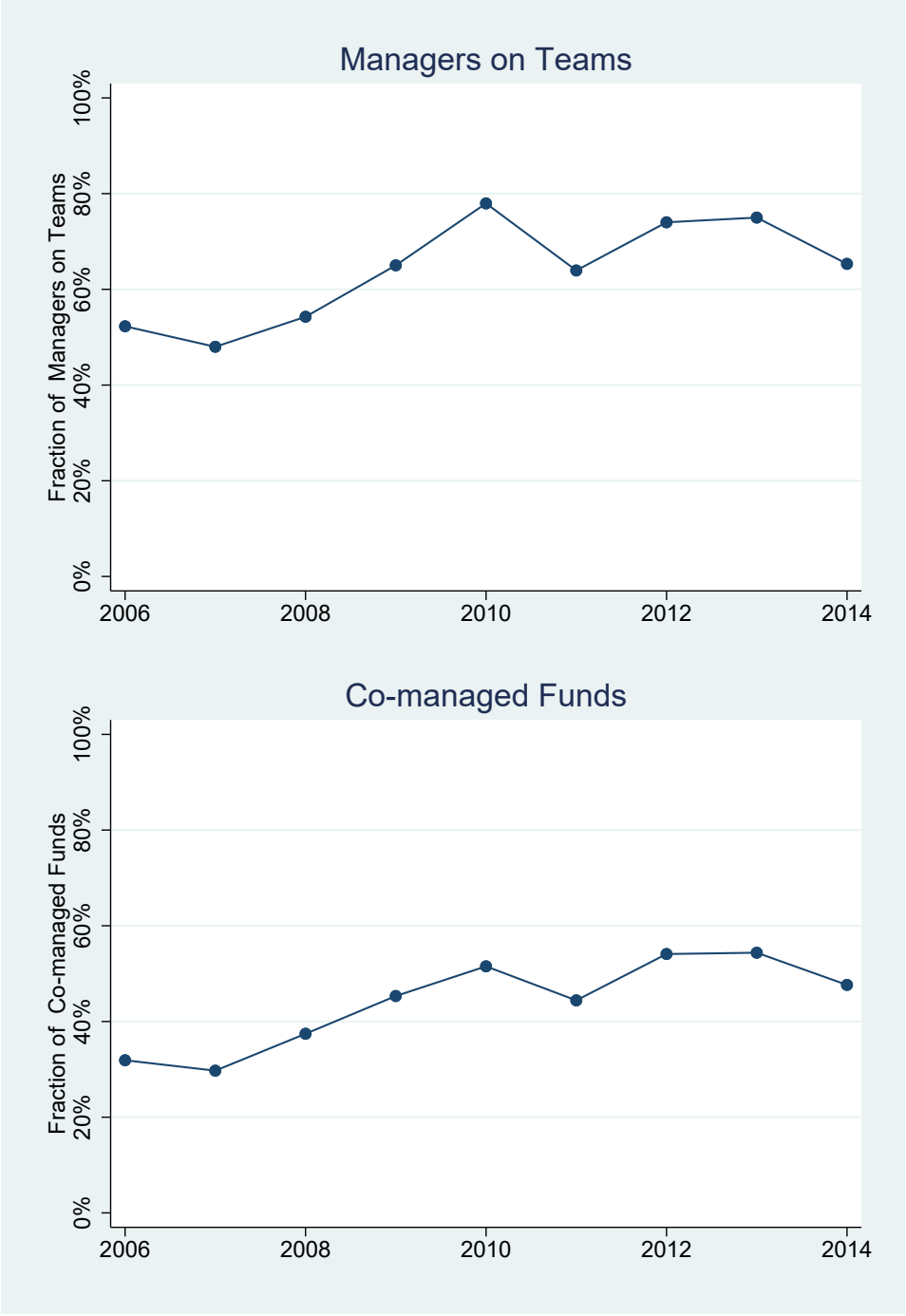


Figure 2: Variation in Compensation and Revenues

This figure displays the R-squared values from regressions of portfolio manager compensation and revenues on manager characteristics and various fixed effects. The first bar of each graph reports the R-squared from the baseline model which includes includes a range of time-varying characteristics of managers and their portfolio, along with time fixed effects. We include the following characteristics: manager's skill and visibility, portfolio revenues, manager's age and industry experience, number of funds under management, share of equity funds in the manager's portfolio, and an indicator variable for having additional responsibilities outside of portfolio management. These characteristics are detailed and explained in Table 1. The additional bars represent R-squared values from models that include extra fixed effects. This progression of models with increasing complexity helps in understanding how different variables and fixed effects contribute to explaining the variation in portfolio managers' compensation and revenues.

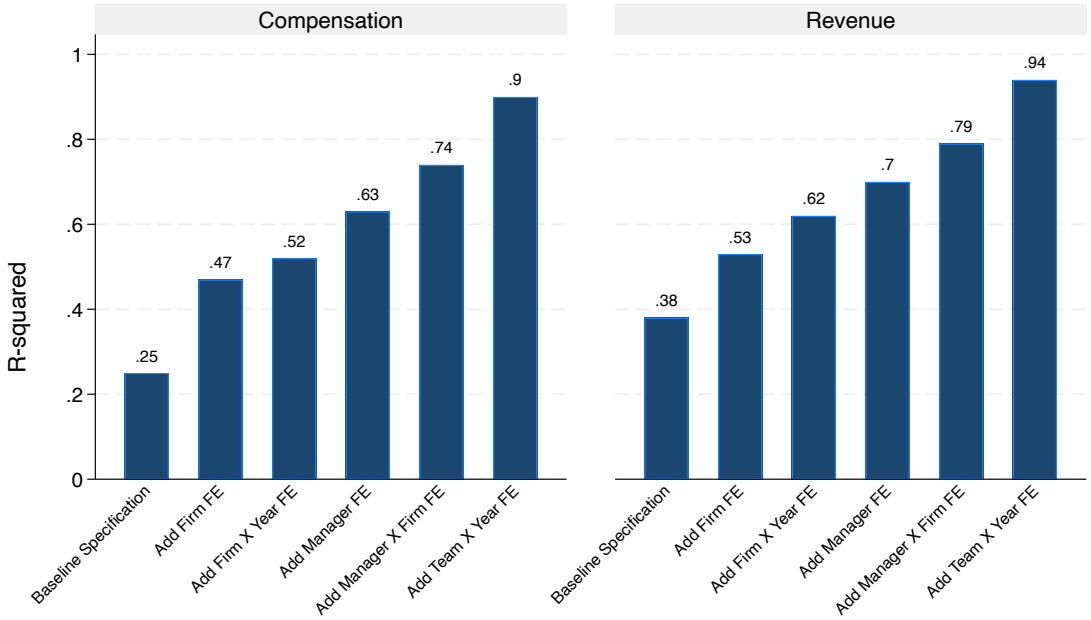


Figure 3: The Effects of Team Investment Skill on Compensation: Event Study from Transitions Across Teams

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 5.3. 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.

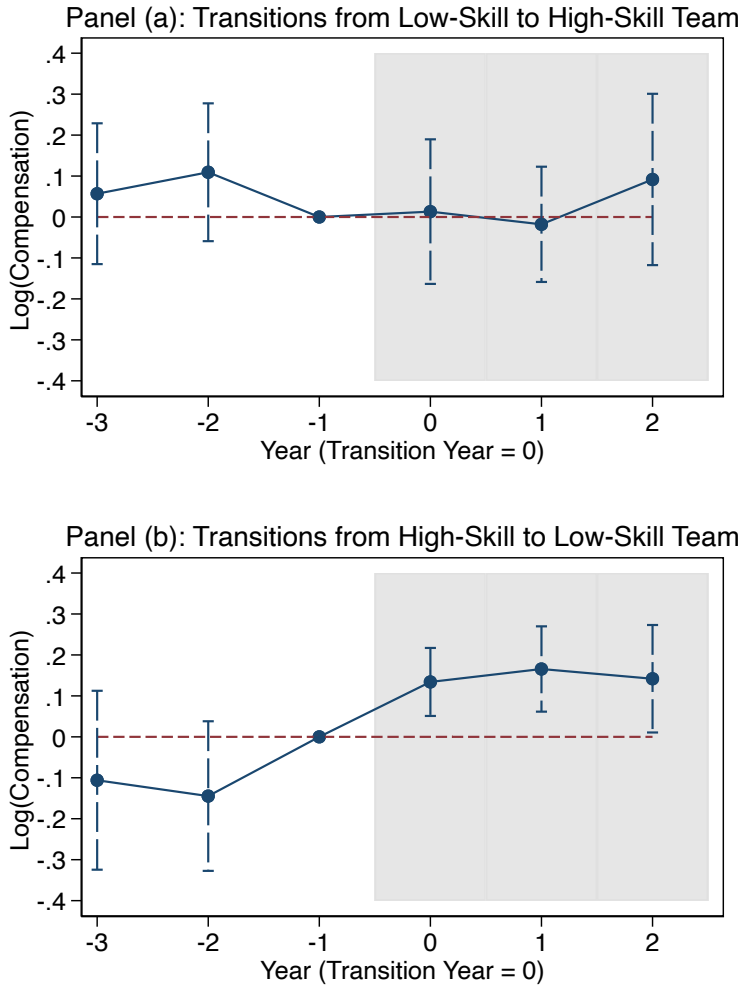


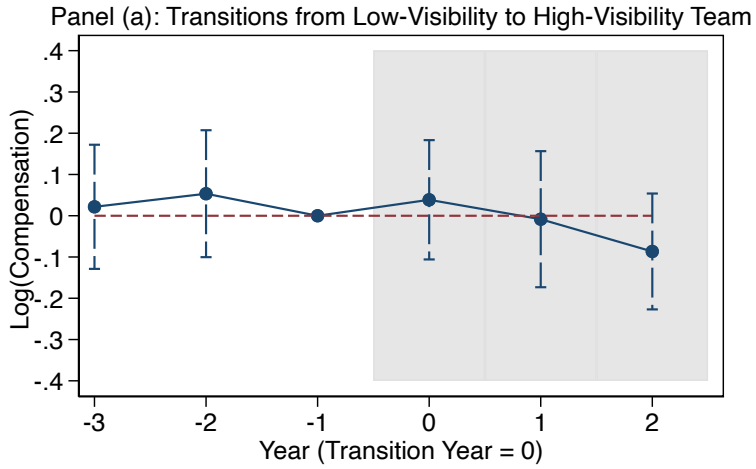
Figure 4: The Effects of Team Media Visibility on Compensation: Event Study from Transitions Across Teams

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 5.3. 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.



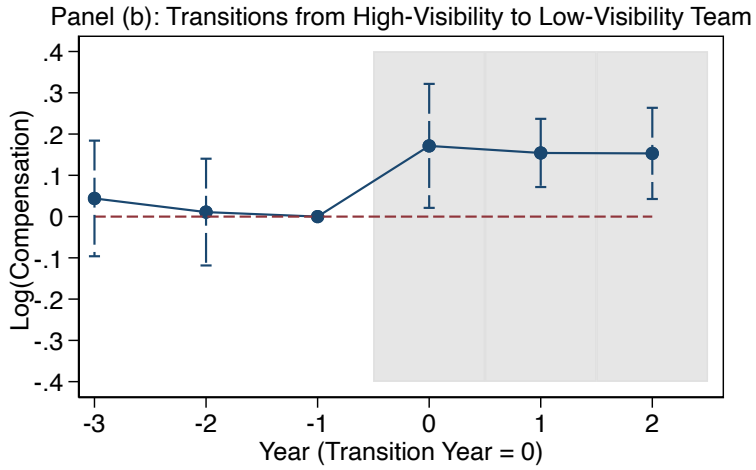


Figure 5: The Effects of Team Investment Skill on Manager Skill Growth: Event Study from Transitions Across Teams

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 5.3. 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.

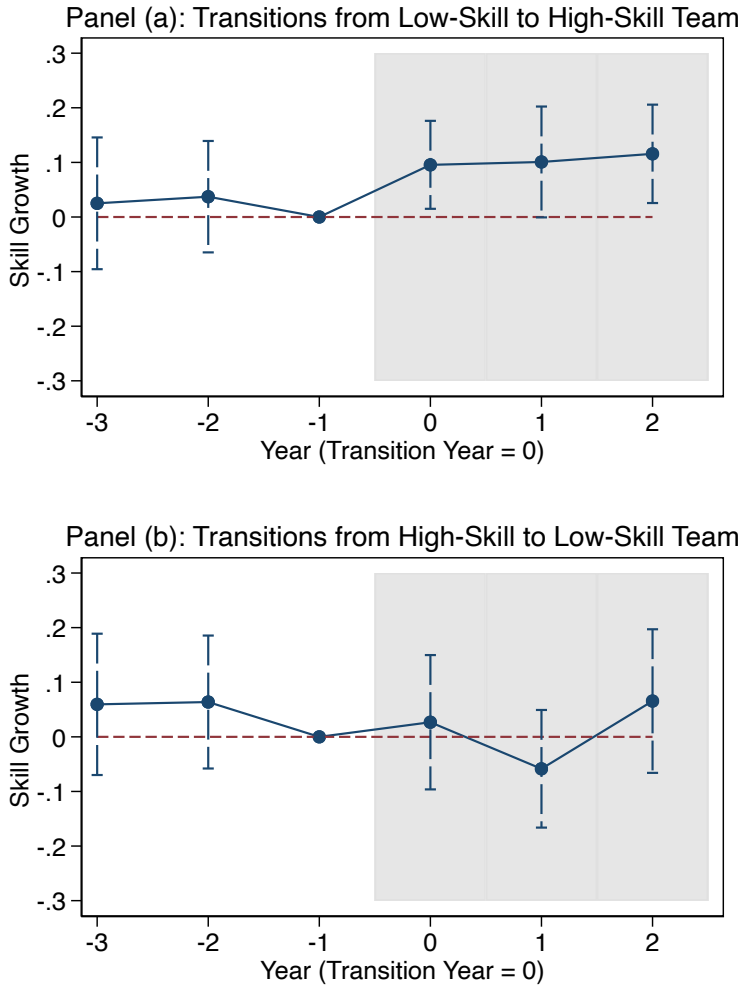


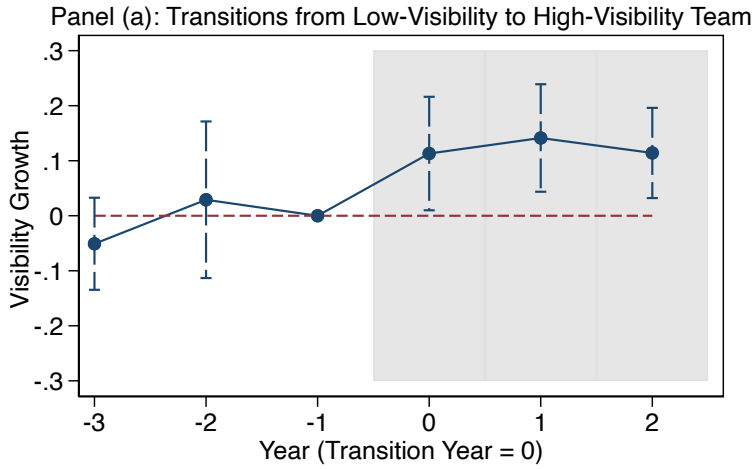
Figure 6: The Effects of Team Media Visibility on Manager Visibility Growth: Event Study from Transitions Across Teams

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 5.3. 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.



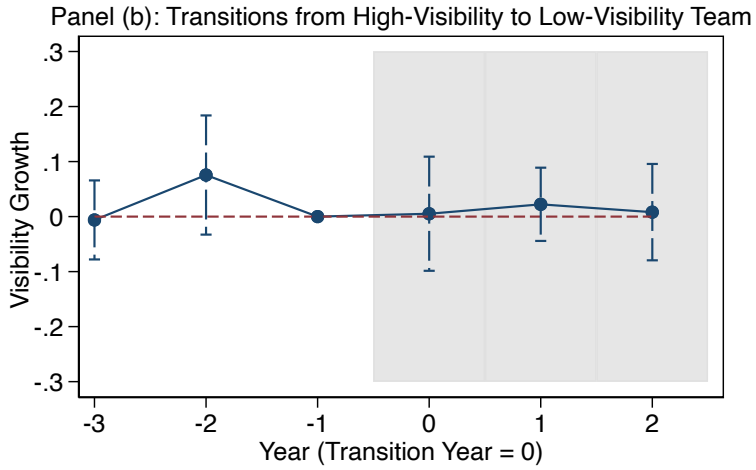


Table 1: Summary Statistics

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 in columns (1)-(7), and it is the manager's α from the Five-Benchmark Model (see Section 2.4) in column (8). *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)	(8)
Skill =	BvB	BvB	BvB	BvB	BvB	BvB	BvB	Alpha
$1_{Team_{m,t}}$	0.046	0.049	0.047	0.039	0.035	0.045	0.072	0.075
	(0.094)	(0.118)	(0.127)	(0.094)	(0.088)	(0.077)	(0.097)	(0.070)
$Skill_{m,t}$	0.0028***		0.0025**	0.0028***	0.0027**	0.0021**	0.0024***	0.44**
	(0.0009)		(0.0009)	(0.0009)	(0.00105)	(0.0010)	(0.0008)	(0.17)
$Team\ Skill_{m,t}$	-0.0022**		-0.0018**	-0.0017**	-0.0017**	-0.0013**	-0.0014**	-0.59**
	(0.0011)		(0.0007)	(0.0007)	(0.0007)	(0.0005)	(0.0005)	(0.24)
$Visibility_{m,t}$		0.0010**	0.0010**	0.0012***	0.0012***	0.0012***	0.0012***	0.0010***
		(0.0003)	(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***	-0.0011***
		(0.0005)	(0.0005)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0004)
Manager Characteristics								
$Log(Revenue_{m,t})$				0.096***	0.079***	0.082***	0.071**	0.075**
				(0.017)	(0.020)	(0.020)	(0.034	(0.032)
$Log(Manager\ Age_{m,t})$				0.658**	0.603**	0.784***	0.799**	0.702**
				(0.266)	(0.247)	(0.216)	(0.219	(0.257)
$Log(Industry\ Experience_{m,t})$				0.336***	0.359***	0.310***	0.286**	0.217**
				(0.067)	(0.066)	(0.074)	(0.092)	(0.104)
$1_{Additional\ Role_{m,t}}$				0.389***	0.374***	0.340***	0.315***	0.321***
				(0.076)	(0.076)	(0.082)	(0.079)	(0.094)
$Log(Number\ of\ Funds_{m,t})$				0.052	0.078	0.074	0.054	0.051
				(0.047)	(0.053)	(0.043)	(0.081)	(0.093)
$Equity\ Share_{m,t}$				0.051	0.058	0.034	0.054	0.040
				(0.079)	(0.077)	(0.087)	(0.058)	(0.054)
Team Characteristics								
$Log(Team\ Industry\ Experience_{m,t})$					0.028	0.014	0.014	0.013
					(0.014)	(0.015)	(0.018)	(0.017)
$Log(Team\ Size_{m,t})$					-0.382*	-0.385	-0.430	-0.398
					(0.179)	(0.255)	(0.299)	(0.375)
$Log(Team\ Age_{m,t})$					0.057*	0.039	0.048	0.041
					(0.030)	(0.044)	(0.045)	(0.051)
$Team\ Equity\ Share_{m,t}$					0.262	0.315*	0.244	0.291
					(0.156)	(0.152)	(0.190)	(0.192)
Observations	1,749	1,749	1,749	1,710	1,710	1,510	1,476	1,476
R-squared	0.342	0.341	0.346	0.553	0.559	0.611	0.873	0.782
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Firm $\times$Year FE	No	No	No	No	No	Yes	Yes	Yes
Manager FE	No	No	No	No	No	No	Yes	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 with modifications to measurement and sampling approaches. Panel C reports the results with 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: Modifications			
Seniority-Based Contribution to Fund Management	-0.0011**	-0.0009**	Table B6
	(0.0004)	(0.0004)	
Subsample of Large Firms	-0.0018**	-0.0013**	Table B6
	(0.0008)	(0.0005)	
BvB Skill 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 Manager Skill and Revenue: Solo-Managed Funds

This table presents the results from regressing the manager's 3-year skill growth rate and 3-year revenue growth rate on team and manager characteristics. The sample includes only the managers who have both team-managed and solo-managed funds in their portfolios. The skill and revenues are computed following the approach described in Section 2.3, but using only the solo-managed funds for each manager. *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.

$y =$	$\frac{\Delta Skill_{m,t\to t+3}}{Skill_{m,t}}$			$\Delta Log(Revenue)_{m,t\to t+3}$		
	(1)	(2)	(3)	(4)	(5)	(6)
$1_{Team_{m,t}}$	0.019	0.021	0.027	-0.092	-0.082	-0.094
	(0.102)	(0.137)	(0.130)	(0.128)	(0.185)	(0.135)
$Skill_{m,t}$	0.0013***		0.0012**	0.0007**		0.0007**
	(0.0005)		(0.0005)	(0.003)		(0.003)
$Team\ Skill_{m,t}$	0.004**		0.005**	0.003**		0.003**
	(0.002)		(0.002)	(0.001)		(0.001)
$Visibility_{m,t}$		0.0025	0.0028		0.0013	0.0011
		(0.0073)	(0.0045)		(0.0032)	(0.0024)
$Team\ Visibility_{m,t}$		0.0010	0.0010		0.002**	0.002**
		(0.0011)	(0.0017)		(0.001)	(0.001)
Observations	871	871	871	871	871	871
R-squared	0.701	0.713	0.742	0.667	0.671	0.699
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 7: 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 8: 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.

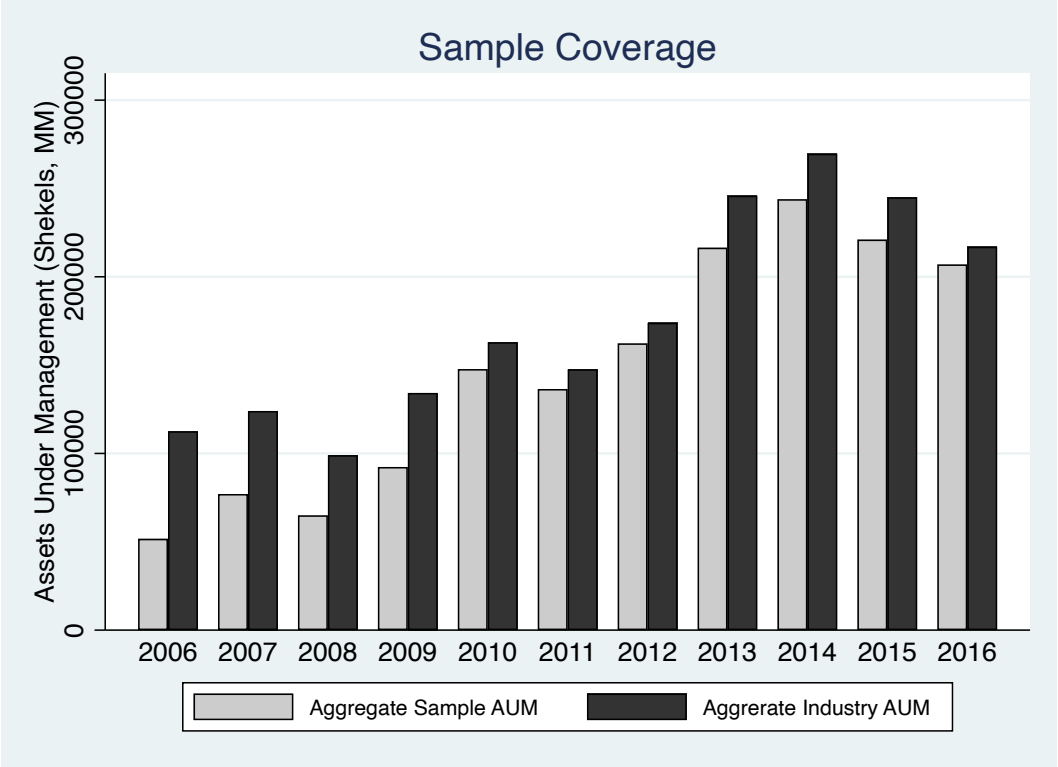


Table B1: Sample Composition

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, Team Member Contribution and Alternative Samples

This table presents the results from regressing compensation on team and manager characteristics with various modifications. *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), we attribute fund value-added, assets and revenues to individual managers based on the manager's mutual fund industry experience, instead of applying equal weights. 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 redefined appropriately. In column (3), we restrict the sample to include only the larger firms with at least four managers and two teams. 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)
$1_{Team_{m,t}}$	0.069	0.078	0.071
	(0.070)	(0.070)	(0.065)
$Skill_{m,t}$	0.0017**	0.0019**	0.0021**
	(0.0007)	(0.0008)	(0.0010)
$Team\ Skill_{m,t}$	-0.0011**	-0.0014**	-0.0018**
	(0.0004)	(0.0005)	(0.0008)
$Visibility_{m,t}$	0.0010***	0.0010**	0.0009**
	(0.0003)	(0.0005)	(0.0004)
$Team\ Visibility_{m,t}$	-0.0009**	-0.0011**	-0.0013**
	(0.0004)	(0.0005)	(0.0005)
Modification:	Seniority-Based Contribution to Fund Management	Measuring Skill Using Styled-Adjusted Returns	Subsample of Large Firms
Observations	1,476	1,476	1,031
R-squared	0.801	0.878	0.707
Manager characteristics	Yes	Yes	Yes
Team characteristics	Yes	Yes	Yes
Firm $\times$Year FE	Yes	Yes	Yes
Manager FE	Yes	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=$\Delta Log(Compensation)_{t,t+1}$		
$1^{L\to H}_{Team\ Skill}$	-0.21		-0.19
	(0.14)		(0.15)
$1^{H\to L}_{Team\ Skill}$	0.23***		0.19**
	(0.07)		(0.08)
$1^{L\to H}_{Team\ Visibility}$		-0.11	-0.13
		(0.09)	(0.10)
$1^{H\to L}_{Team\ Visibility}$		0.12**	0.11**
		(0.06)	(0.05)
Observations	201	201	201
R-squared	0.42	0.43	0.45
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.[17]

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

[17] As highlighted in Section 4, 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.[18]

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.[19] Secondly, the media visibility of team members can am-

[18] 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.

[19] 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 4. They serve as guiding principles, offering a structured framework to explore and validate the intricate relationships between team quality, manager compensation and productivity.