Online Appendix to "Winning Teams or Winning Pay? The Impact of Team Allocation on Fund Manager Compensation and Careers"

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 Empirical Tests and Results

B.1 Robustness of Main Results

Table B4 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 B5 - B9 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.

Team allocations may be influenced by a manager's prior investment skill and visibility. This can create spurious correlations between compensation and current skill and visibility if these traits persist over time. To address this, we control for skill and visibility histories from $t-2$ to $t-1$. Panel A shows that these histories does not confound the effects of team quality.[19] Additionally, controlling for compensation history yields similar effects of team skill and visibility, suggesting

[19] In Appendix Table B7, we analyze the effects of manager history using year-by-year skill estimates to avoid overlapping years and reduce high correlations between skill measures from prior years.

that compensation trends also do not affect our main results.

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 seniority-based 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 B4, 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.

B.2 Robustness of DiD Results

B.2.1 Robustness to Manager Development Stage

Unobserved time-varying factors at the manager level may potentially introduce bias into our results. For example, a sharp transition in a manager's development stage, from "junior" to "leading," coinciding with team transitions, could explain the pronounced changes in compensation and other variables observed in Figures 3 and 4. Our current specification addresses this issue imperfectly. While we include observable proxies for development stage, such as manager age and three types of experience (experience in asset management, the mutual fund industry, and specific fund management), these variables change smoothly over time and may not fully capture sharp transitions in development stage.

To address this concern more rigorously, we employ two approaches. First, we develop two new proxies for significant, sharp changes in a manager's development stage and re-estimate the effects of team transitions on compensation using these proxies. Second, we apply the novel methodology from Cinelli and Hazlett (2020) to provide an upper bound on the potential bias from omitted variables, such as unobserved, time-varying manager-specific factors.

We start with the proxies for sharp changes in development stage. The first proxy, "role promotion," is constructed using an indicator variable that equals one if the manager holds an additional role, such as head of the investment committee, chief investment strategist, chief investment officer, or CEO. It reflects within-company promotions that likely signal manager potential observed privately by the fund family. The second proxy is based on the number of funds a manager oversees, reflecting asset management skill-specific internal promotions based on private information held by the fund family. To capture sharp differences, we define "fund promotion" as an event of 50% increase in the number of portfolio funds, which, for the average manager, translates to overseeing two additional mutual funds.

We first examine the pairwise correlations between the newly constructed promotion variables and our previously used "high-to-low" and "low-to-high" team transition indicators. The aim is to investigate how internal promotions are related to different types of team transitions. Panel A of Appendix Table B11 reveals that both types of promotions have only weak correlations with "low-to-high" transitions for both measures of team quality. In contrast, promotions exhibit stronger

correlations, ranging from 0.31 to 0.42, with transitions from "high-to-low" teams.

We next estimate our main DiD specifications while controlling for both promotion variables, with the results presented in Panel B of Appendix Table B11. For brevity, we focus solely on the estimated effects of transitions for the first year ($i = 0$). Although both role and fund promotions are associated with an 8%-11% increase in compensation, including these variables in the regression model either does not significantly alter the effect of team transitions (in the case of low-to-high transitions) or slightly reduces the effect, as seen with high-to-low transitions.

The results for high-to-low transitions indicate that the transition effect weakens when managers are simultaneously required to take on additional responsibilities and receive corresponding compensation. However, the magnitude of this decline is modest and does not fully offset the transition effect. For instance, compared to the results in Figure 3 on the impact of transitions based on investment skill, the effect decreases from nearly 12% to 9.7%. Similarly, in Figure 4, the effect of transitions based on visibility drops from 14% to 11%. Thus, we conclude that while the coincidence of promotions with team transitions has an impact, it does not negate the effect of the transitions themselves. The results from the low-to-high transitions indicate that these transitions do not impact compensation, even when accounting for the manager being compensated for additional responsibilities.

B.2.2 Robustness to Unobserved Confounders

We next estimate potential bias from omitted variables using the methods of Cinelli and Hazlett (2020). This approach calculates the maximum bias from an unobserved confounder as influential as all our control variables combined in explaining compensation and team transition. Bias estimates rely on two partial R^2 statistics: one for compensation and another for team transition. Assuming a worst-case scenario, the test calculates the maximum bias such a highly influential confounder could introduce. Small estimated bias under this assumption suggests our results are robust to unobserved confounders.

We calculate the maximum potential bias using the formulas from Cinelli and Hazlett (2020) for all of our main DiD specifications, as shown in Figures 3 and 4. For brevity, we focus our discussion on the effects of "high-to-low" transitions, which are both economically and statistically significant in Figures 3 and 4, but we also report the results for "low-to-high" transitions for

completeness. Overall, we find that the bias estimates are modest: 4.1% for transitions based on team skill and 3.7% for transitions based on team visibility. Intuitively, after accounting for fixed effects, the control variables - including manager and team characteristics - explain only a modest portion of the residual variation in both compensation and team transitions, leading to small bias estimates.

To evaluate the relative impact of this bias on our estimates, Appendix Table B12 provides bounds equal to the estimated effects of team transitions plus and minus the bias. Across all specifications, the lower bound on the transition effect remains positive and economically meaningful: 8.3% for team skill and 10.6% for team visibility. This indicates that the potential bias is unlikely to significantly attenuate the main effects.

In the last column of Appendix Table B12, we present results from the most restrictive tests, showing 95% confidence intervals where the standard errors account for the uncertainty from both the transition effect estimates and the bias. The lower bound of these intervals represents an extreme scenario where both the true effect and the bias are two standard errors below their means. Even under this scenario, the transition effect remains positive, albeit more modest. Based on these combined tests, we conclude that the potential bias from a strong unobserved confounder cannot entirely eliminate the effects of team transitions.

B.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 B14, 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 3, reinforcing the robustness of our results against the alternative interpretation of mechanical "skill improvement".

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.

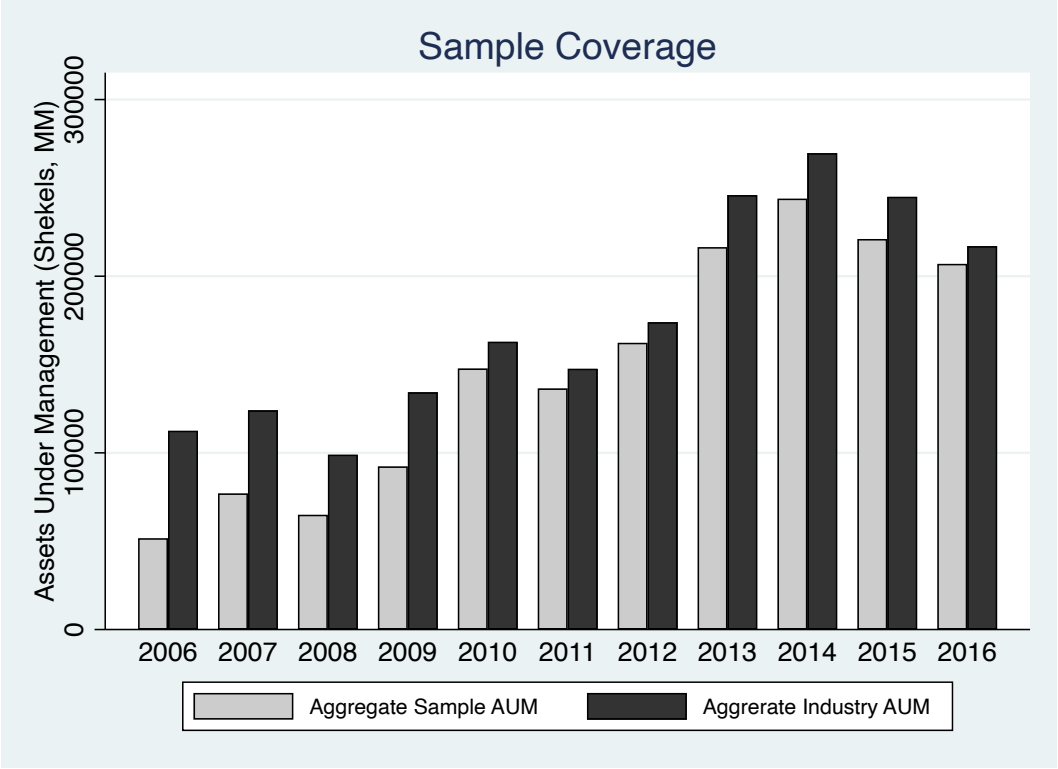

Table B1: Sample Composition

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: Robustness to Different Time Horizons

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 columns (7) and (8) of Table 2. In these tests, we use alternative skill estimates: alpha calculated over 3-year and 5-year periods, and the Berk and Van Binsbergen (2015) skill measure averaged over the same durations. All other variables are defined in the caption of Table 2. *,**, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Standard errors double-clustered by manager and year are in parentheses.

$y =$	$Log(Compensation_{m,t})$			
	3 Years		5 Years	
	BVB	Alpha	BVB	Alpha
$1_{Team_{m,t}}$	0.048	0.079	0.031	0.069
	(0.097)	(0.074)	(0.090)	(0.099)
$Skill_{m,t}$	0.0025***	0.410**	0.0024**	0.311***
	(0.0008)	(0.161)	(0.0010)	(0.081)
$Team\ Skill_{m,t}$	-0.0020**	-0.563**	-0.0018**	-0.357**
	(0.0010)	(0.232)	(0.0008)	(0.162)
$Visibility_{m,t}$	0.0013***	0.0011***	0.0011***	0.0010***
	(0.0004)	(0.0003)	(0.0004)	(0.0003)
$Team\ Visibility_{m,t}$	-0.0018***	-0.0012**	-0.0013***	-0.0010***
	(0.0006)	(0.0005)	(0.0004)	(0.0004)
Observations	1,389	1,276	1,265	1,119
R-squared	0.338	0.768	0.553	0.861
Manager Characteristics	Yes	Yes	Yes	Yes
Team Characteristics	Yes	Yes	Yes	Yes
Firm $\times$ Year FE	Yes	Yes	Yes	Yes
Manager FE	Yes	Yes	Yes	Yes

Table B3: Correlation between Manager and Team Characteristics

This table reports the pairwise correlations between manager skill, team skill, manager visibility, and team visibility. *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.

Pairwise Correlations				
	$Skill_{m,t}$	$Team\ Skill_{m,t}$	$Visibility_{m,t}$	$Team\ Visibility_{m,t}$
$Skill_{m,t}$	1.000	0.456	0.321	0.299
$Team\ Skill_{m,t}$	0.456	1.000	0.432	0.379
$Visibility_{m,t}$	0.321	0.432	1.000	0.415
$Team\ Visibility_{m,t}$	0.299	0.379	0.415	1.000

Table B4: 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 B5 - B9. *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 Fund Experience	-0.0013**	-0.0013***	Table B5
	(0.0006)	(0.0004)	
Manager and Team Asset Management Industry Experience	-0.0013**	-0.0010***	Table B5
	(0.0006)	(0.0003)	
Manager and Team Education	-0.0015**	-0.0011**	Table B5
	(0.0006)	(0.0005)	
Variance of Skill within Team	-0.0014**	-0.0011***	Table B6
	(0.0005)	(0.0003)	
Variance of Visibility within Team	-0.0012**	-0.0010***	Table B6
	(0.0004)	(0.0003)	
Skill History from $t-2$ to $t-1$	-0.0016***	-0.0013***	Table B7
	(0.0005)	(0.0004)	
Visibility History from $t-2$ to $t-1$	-0.0013**	-0.0011*	Table B7
	(0.0006)	(0.0005)	
Compensation History from $t-2$ to $t-1$	-0.0012**	-0.0012**	Table B8
	(0.0005)	(0.0004)	
Panel B: Modifications			
Seniority-Based Contribution to Fund Management	-0.0011**	-0.0009**	Table B9
	(0.0004)	(0.0004)	
Subsample of Large Firms	-0.0018**	-0.0013**	Table B9
	(0.0008)	(0.0005)	
BvB Skill Measure With Style-Adjusted Returns	-0.0014**	-0.0011***	Table B9
	(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 B5: 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 B6: 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 B7: 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, calculated on a year-by-year basis to avoid overlapping years. *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)
$1_{Team_{m,t}}$	0.073	0.068	0.081
	(0.072)	(0.074)	(0.084)
$Skill_{m,\widehat{t}}$	0.0019**	0.0021**	0.0020**
	(0.0009)	(0.0008)	(0.0008)
$Skill_{m,\widehat{t-1}}$	0.0011**		0.0017*
	(0.0005)		(0.0008)
$Skill_{m,\widehat{t-2}}$	0.0004		0.0005
	(0.0009)		(0.0010)
$Team\ Skill_{m,t}$	-0.0016***	-0.0013**	-0.0011**
	(0.0005)	(0.0006)	(0.0005)
$Visibility_{m,t}$	0.0011***	0.0010***	0.0012***
	(0.0004)	(0.0005)	(0.0004)
$Visibility_{m,t-1}$		0.0008*	0.0006*
		(0.0004)	(0.0003)
$Visibility_{m,t-2}$		0.0004	0.0003
		(0.0005)	(0.0004)
$Team\ Visibility_{m,t}$	-0.0013***	-0.0011**	-0.0012**
	(0.0004)	(0.0005)	(0.0005)
Observations	1,476	1,476	1,476
R-squared	0.874	0.879	0.876
Manager characteristics	Yes	Yes	Yes
Team characteristics	Yes	Yes	Yes
Firm $\times$Year FE	Yes	Yes	Yes
Manager FE	Yes	Yes	Yes

Table B8: 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 B9: 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 B10: 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

Table B11: Robustness to Promotions Around Team Transitions

This table presents the results of two tests examining the relationship between manager promotions and team switching. Panel A reports the correlations between promotion events and team switching events. Panel B presents the results of estimating the effects of team switching on manager compensation while controlling for promotions. The methodology and definitions of team switching events are detailed in Section 5.3. $\mathbb{1}_{RolePromotion_{m,t\to t+5}}$ equals one if the manager assumes an additional role, such as head of the investment committee, chief investment strategist, chief investment officer, or CEO. $\mathbb{1}_{FundPromotion_{m,t\to t+5}}$ equals one if there is a 50% increase in the number of portfolio funds. 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.

Panel A: Correlations				
	Team Skill		Team Visibility	
	$\mathbb{1}_{me}^{L\to H}$	$\mathbb{1}_{me}^{H\to L}$	$\mathbb{1}_{me}^{L\to H}$	$\mathbb{1}_{me}^{H\to L}$
$\mathbb{1}_{RolePromotion_{m,t}}$	0.112	0.375	0.045	0.342
$\mathbb{1}_{FundPromotion_{m,t}}$	0.135	0.310	0.078	0.418

Panel B: Effects of Team Quality and Promotions				
$y =$	$Log(Compensation_{m,t})$			
	Team Skill		Team Visibility	
	(1)	(2)	(3)	(4)
$\mathbb{1}_{me}^{L\to H} \times \mathbb{1}_0$	0.013		0.009	
	(0.121)		(0.068)	
$\mathbb{1}_{me}^{H\to L} \times \mathbb{1}_0$		0.097**		0.113***
		(0.041)		(0.033)
$\mathbb{1}_{RolePromotion_{m,t}}$	0.112**	0.105*	0.097**	0.085**
	(0.045)	(0.053)	(0.039)	(0.037)
$\mathbb{1}_{FundPromotion_{m,t}}$	0.118**	0.110**	0.102*	0.095*
	(0.048)	(0.044)	(0.055)	(0.048)
Observations	1,040	1,040	1,040	1,040
R-squared	0.770	0.785	0.791	0.798
Manager characteristics	Yes	Yes	Yes	Yes
Team characteristics	Yes	Yes	Yes	Yes
Firm ×Year FE	Yes	Yes	Yes	Yes
Manager FE	Yes	Yes	Yes	Yes

Table B12: Robustness to Unobserved Confounders

This table presents the results from Cinelli and Hazlett (2020)'s tests applied to all main DiD specifications shown in Figures 3 and 4. The Bias represents the maximum potential bias calculated using Cinelli and Hazlett (2020)'s approach, as described in Section B.2.2. The Estimate Bounds are the estimated effects of team transitions plus and minus the bias. The 95% confidence intervals are computed using standard errors that account for uncertainty from both the transition effect estimates and the bias.

Dependent Variable	Estimate	Bias	Estimate Bounds	95% CI
Team Skill				
$\mathbb{1}_{me}^{L\to H} \times \mathbb{1}_0$	0.014	0.010	[0.004; 0.024]	[-0.005; 0.033]
$\mathbb{1}_{me}^{H\to L} \times \mathbb{1}_0$	0.124	0.041	[0.083; 0.165]	[0.045; 0.203]
Team Visibility				
$\mathbb{1}_{me}^{L\to H} \times \mathbb{1}_0$	0.008	0.009	[-0.001; 0.017]	[-0.005; 0.021]
$\mathbb{1}_{me}^{H\to L} \times \mathbb{1}_0$	0.143	0.037	[0.106; 0.180]	[0.056; 0.230]

Table B13: Effects of Team Transitions on the Direction of Specialization

This table presents the results from estimating the effects of team switching on the direction of specialization. The measure of $D_{i,t}$, defined in Section 6.2, captures the distance in industry or style weights between the new manager and the specialist team member. A specialist member is defined as a team member whose specialization level is in the top 30% of the specialization distribution for the same year. The estimation methodology is detailed in Section 5.3.The table provides separate results for each specialization type: industry specialization and style specialization. All specifications include the full set of manager and team characteristics from Table 2. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Standard errors are double-clustered by manager and year and are reported in parentheses.

$y =$	$D_{i,t}$			
	Industry Specialization		*Style Specialization*	
	(1)	(2)	(3)	(4)
$\mathbb{1}_{me}^{L\to H} \times \mathbb{1}_0$	-0.121**		-0.164*	
	(0.054)		(0.101)	
$\mathbb{1}_{me}^{H\to L} \times \mathbb{1}_0$		-0.082		0.075
		(0.077)		(0.059)
Observations	885	675	1,021	943
R-squared	0.403	0.532	0.491	0.425
Manager characteristics	Yes	Yes	Yes	Yes
Team characteristics	Yes	Yes	Yes	Yes
Firm $\times$Year FE	Yes	Yes	Yes	Yes
Manager FE	Yes	Yes	Yes	Yes

Table B14: 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 manager's 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)	(0.0003)		(0.0003)
$Team\ Skill_{m,t}$	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)		(0.0006)	(0.0006)
$Team\ Visibility_{m,t}$		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 B15: Industry Classifications

This table provides the list of industry classifications used to calculate the industry specialization measure described in Section 6.2.

Industry
Banks and Holding Companies
Mortgage and Financial Institutions
Insurance Companies and Agencies
Retail Trade
General Services
Tourism and Hotels
Computers
Financial Services
Real Estate and Development
Agriculture
Food and Tobacco
Textiles
Metal
Electricity and Electronics
Building Materials
Chemicals
Wood and its Products
Miscellaneous Industries
Investments and Holding
Oil and Gas Exploration

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.[20]

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

[20] 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.[21]

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

[21] 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.

[22] 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 3 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.