Online Appendix for
“Fund Flows and Income Risk of Fund Managers”

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Abstract

This is the supplemental material for the paper titled “Fund Flows and Income Risk of Fund Managers” (Cen et al., 2023). It explains how we use fund prospectuses, LinkedIn profiles, and company websites to fill out incomplete manager names. It also provides supplementary analysis for the relation of compensation with revenue, flow, and performance. In addition, it presents additional analysis for the IV regressions and studies the relation between pay and value added.

Keywords: Fund managers, Manager compensation, Career concerns, Mutual fund flows, Fund performance, Labor economics. (**JEL:** G11, G23, J24, J31, J33, J44)

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1 Using Fund Prospectuses, LinkedIn Profiles, and Company Websites to Fill Out Incomplete Manager Names

We first use the fund managers' last names and the fund names to retrieve related mutual fund prospectuses (i.e., Form 485BPOS) from the SEC website. This method allows us to obtain the full names, including suffixes and middle initials, of most of the remaining managers. When these prospectuses do not provide complete names, we turn to LinkedIn profiles for additional details. The names and geographical information of the employers (i.e., mutual funds) help verify the accuracy of the LinkedIn results. For managers still lacking full names, we consult other sources, including official company websites, obituaries, and the CFA member directory. In cases of discrepancies, such as name abbreviations, we perform manual checks across all resources, prioritizing fund prospectuses when they provide the necessary details. This rigorous approach ensures the accuracy and completeness of the collected names, and our dataset includes full names for over 98% of the fund-year observations.

2 Additional Analysis for the Relation of Compensation with Revenue, Flow, and Performance

Longer Performance Evaluation Periods. Following the methodology of Ibert et al. (2018), we investigate the relation of fund manager compensation with revenue and performance over extended evaluation periods. Specifically, in Columns (1) to (4) of Table OA.1, we incorporate the returns of fund managers for years $t-1$, $t-2$, $t-3$, and $t-4$ as part of the independent variables. Additionally, in Columns (3) to (4) of Table OA.1, we replace the revenue with revenue orthogonalized to current and lagged returns, and include this in our list of independent variables. Our findings reaffirm that fund revenue and orthogonalized revenue are significantly correlated with compensation. However, historical returns and flows do not exhibit a significant correlation with compensation after controlling for revenues.

Table OA.1: Longer performance evaluation periods.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$\ln(Pay_{m,t})$				$\ln(Pay_{m,t}/Pay_{m,t-1})$			
$\ln(Rev_{m,t-1})$	0.233***	0.101***						
	[5.83]	[3.05]						
$\ln(Rev^{Orth}_{m,t-1})$			0.233***	0.101***				
			[5.83]	[3.05]				
$\ln(1+R^{gross}_{m,t-1})$	0.389	0.091	0.341	0.070	0.209	0.353*	0.235	0.387**
	[1.21]	[0.74]	[1.06]	[0.57]	[1.36]	[1.95]	[1.54]	[2.13]
$\ln(1+Flow_{m,t-1})$	0.014	0.094	0.014	0.094	0.159***	0.194**		
	[0.11]	[1.57]	[0.11]	[1.57]	[5.99]	[2.57]		
$\ln(1+Flow_{m,t-2})$					−0.074	−0.067		
					[−1.24]	[−0.98]		
$\ln(1+Flow^{Orth}_{m,t-1})$							0.158***	0.194**
							[6.00]	[2.56]
$\ln(1+Flow^{Orth}_{m,t-2})$							−0.074	−0.068
							[−1.24]	[−0.98]
$\ln(1+R^{gross}_{m,t-2})$	0.314	0.132	0.280	0.140	0.229	0.364**	0.242*	0.403**
	[1.37]	[0.76]	[1.47]	[0.83]	[1.62]	[2.51]	[1.83]	[2.61]
$\ln(1+R^{gross}_{m,t-3})$	0.301	0.131	0.319	0.165	−0.060	−0.000	−0.063	−0.003
	[1.50]	[0.89]	[1.62]	[1.12]	[−0.88]	[−0.00]	[−0.93]	[−0.03]
$\ln(1+R^{gross}_{m,t-4})$	0.122	0.072	0.122	0.072	−0.028	0.022	−0.028	0.022
	[0.68]	[0.35]	[0.68]	[0.35]	[−0.32]	[0.17]	[−0.32]	[0.17]
Adjusted R^2	0.140	0.803	0.140	0.803	0.102	0.190	0.102	0.190
Manager FE	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes. This table examines the relation of fund manager compensation with revenue and performance with longer performance evaluation periods. The dependent variable in columns (1) to (4) is the natural log of the fund manager's labor income in year t. The dependent variable in columns (5) to (8) is the compensation growth of fund managers in year t, which is the difference in the natural log of the fund manager's labor income in year t compared to year $t-1$. The independent variables include the natural log of the revenue generated by the manager in year $t-1$, the natural log of the annual fund returns at the manager level in years $t-1$, $t-2$, $t-3$, and $t-4$, the natural log of the annual fund flows at the manager level in years $t-1$ and $t-2$. The independent variables also include revenue and flows orthogonal to historical returns. Specifically, $Rev^{Orth}_{m,t-1}$ is the revenue at the manager level in year $t-1$ that is orthogonal to the annual fund returns at the manager level in years $t-1$, $t-2$, and $t-3$. $Flow^{Orth}_{m,t-1}$ is the fund flow at the manager level in year $t-1$ that is orthogonal to the annual fund returns at the manager level in years $t-1$, $t-2$, and $t-3$. $Flow^{Orth}_{m,t-2}$ is the fund flow at the manager level in year $t-2$ that is orthogonal to the annual fund returns at the manager level in years $t-2$, $t-3$, and $t-4$. Standard errors are double-clustered at both the manager and year levels. The sample period of the data is from 2000 to 2014. We include t-statistics in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Using Risk-Adjusted Returns as Alternative Performance Measures. In Table 2 of the main text, we have examined the relation between the compensation of fund managers and their performance, measured by gross returns. In this section, we employ alphas estimated by the CAPM model and the excess returns over the Vanguard index fund benchmark portfolio as alternative measures of performance.

To estimate the CAPM alphas of a fund, we regress the excess fund returns over the risk-free rates against the market excess returns, utilizing a 3-year rolling window. This is done provided

Table OA.2: Relation of fund manager compensation with revenue and risk-adjusted returns.

	Panel A: Relation of fund manager compensation with revenue and CAPM alphas							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$\ln(Pay_{m,t})$							
$\ln(Rev_{m,t-1})$	0.238***	0.143***	0.238***	0.44***	0.238***	0.144***	0.238***	0.145***
	[5.61]	[2.98]	[5.60]	[3.01]	[5.62]	[3.06]	[5.62]	[3.07]
$\ln(1+R^{abn,capm}_{m,t-1})$	0.390	0.175	0.336	0.064				
	[0.88]	[0.35]	[0.81]	[0.14]				
$\ln(1+R^{abn,van}_{m,t-1})$					0.391	−0.044	0.400	−0.172
					[0.96]	[−0.07]	[1.04]	[−0.30]
$\ln(1+Flow_{m,t-1})$			0.071	0.057			0.061	0.708
			[0.46]	[0.75]			[0.40]	[0.95]
Adjusted R^2	0.140	0.836	0.140	0.836	0.140	0.836	0.140	0.836
Manager FE	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes. This table examines the relation of fund manager compensation with revenue and performance. The dependent variable is the natural log of the fund manager's labor income in year t. The independent variables include the natural log of the revenue generated by the manager in year $t-1$, the natural log of the annual fund performance at the manager level in year $t-1$, and the natural log of the annual fund flows at the manager level in year $t-1$. We measure performance with CAPM alphas and Vangard excess returns. Standard errors are double-clustered at both the manager and year levels. The sample period of the data is from 2000 to 2014. We include t-statistics in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

there are at least 12 monthly observations within the rolling window:

$$Ret_{i,t-\tau} - Rf_{t-\tau} = R^{abn,capm}_{i,t} + \beta^{mkt}_{i,t} \times (Ret^{mkt}_{t-\tau} - Rf_{t-\tau}) + \varepsilon_{i,t-\tau}, \text{ with } \tau = 0, 1, \cdots, 35, \quad \text{(OA.1)}$$

where $R^{abn,capm}_{i,t}$ denotes fund i's CAPM alphas in month t.

We proceed to compute the monthly manager-level CAPM alphas by aggregating the monthly fund-level CAPM alphas across all funds overseen by manager m. The average is weighted based on the one-month lagged fund asset, divided by the number of managers.

$$R^{abn,capm}_{m,t} = \frac{1}{TNA_{m,t-1}} \sum_{i \in \Omega_{m,t-1}} \frac{TNA_{i,t-1}}{M_{i,t-1}} R^{abn,capm}_{i,t}. \quad \text{(OA.2)}$$

To determine the CAPM alphas of manager m on an annual basis, we aggregate the monthly manager-level CAPM alphas for each year.

To estimate the excess returns over the Vanguard index fund benchmark portfolio, we follow Berk and van Binsbergen (2015) to project the excess fund returns onto the the excess returns of a set of Vanguard index funds, which include S&P 500 Index Fund (VFINX), Extended Market

Index Fund (VEXMX), Small-Cap Index Fund (NAESX), European Stock Index Fund (VEURX), Pacific Stock Index Fund (VPACX), Value Index Fund (VVIAX), Balanced Index Fund (VBINX), Emerging Markets Stock Index Fund (VEIEX), Mid-Cap Index Fund (VIMSX), Small-Cap Growth Index Fund (VISGX), and Small-Cap Value Index Fund (VISVX). We determine the date to include the above index funds to the benchmark set based on their inception dates as illustrated in Table 1 of Berk and van Binsbergen (2015). Specifically, for each fund i, we run the following regression with a 3-year rolling window. This is done provided there are at least 12 monthly observations within the rolling window:

$$Ret_{i,t-\tau} - Rf_{t-\tau} = R_{i,t}^{abn,van} + \sum_{j=1}^{n(t)} \beta_{i,t}^{Vanguard,j} \times (Ret_{t-\tau}^{van,j} - Rf_{t-\tau}) + \varepsilon_{i,t-\tau}, \tag{OA.3}$$

where $\tau = 0, 1, \cdots, 35$. Here, $R_{i,t}^{abn,van}$ denotes fund i's excess returns over the Vanguard index fund benchmark portfolio in month t, and $n(t)$ represents the number of Vanguard index funds included in the benchmark set in month t.

We proceed to compute the monthly manager-level Vanguard excess returns by aggregating the monthly fund-level excess returns across all funds overseen by manager m. The average is weighted based on the one-month lagged fund asset, divided by the number of managers.

$$R_{m,t}^{abn,van} = \frac{1}{TNA_{m,t-1}} \sum_{i \in \Omega_{m,t-1}} \frac{TNA_{i,t-1}}{M_{i,t-1}} R_{i,t}^{abn,van}. \tag{OA.4}$$

To determine the Vanguard excess returns of manager m on an annual basis, we aggregate the monthly manager-level excess returns for each year.

We then use CAPM alpha and Vanguard excess returns as alternative performance measures to examine their relation with fund managers' compensation. Consistent with the findings in the main text, as illustrated in Table OA.2, these performance measures are insignificantly related to compensation after we control for fund revenues.

Table OA.3: Relation of fund manager compensation with revenue and performance in the subsample without AUM reallocation among managers.

	Panel A: Total pay											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	$\ln(Pay_{m,t})$						$\ln(Pay_{m,t})$					
$\ln(Rev_{m,t-1})$	0.259***	0.225**	0.260***	0.218**	0.259***	0.225**						
	[5.18]	[2.53]	[5.13]	[2.43]	[5.15]	[2.51]						
$\ln(A_{m,t-1})$							0.260***	0.228***	0.262***	0.228**	0.261***	0.229**
							[5.45]	[2.66]	[5.45]	[2.58]	[5.46]	[2.59]
$\ln(1+R^{gross}_{m,t-1})$	0.503	0.339			0.507	0.310	0.406	0.259			0.441	0.270
	[1.08]	[1.43]			[1.11]	[1.44]	[0.78]	[1.60]			[0.85]	[1.62]
$\ln(1+Flow_{m,t-1})$			0.008	0.098	0.015	0.070			0.011	0.025	0.013	0.027
			[0.05]	[0.88]	[0.09]	[0.63]			[0.06]	[0.19]	[0.07]	[0.21]
Adjusted R^2	0.162	0.846	0.160	0.845	0.162	0.846	0.170	0.846	0.170	0.846	0.171	0.846
Manager FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Panel B: Base pay and bonus											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	$\ln(Base_{m,t})$						$\ln(Bonus_{m,t})$					
$\ln(Rev_{m,t-1})$	0.180***	0.096**	0.182***	0.103**	0.181***	0.104**	0.679***	0.577**	0.686***	0.584**	0.680***	0.596***
	[4.23]	[2.25]	[4.21]	[2.36]	[4.21]	[2.23]	[3.17]	[2.55]	[3.21]	[2.63]	[3.18]	[2.68]
$\ln(1+R^{gross}_{m,t-1})$	0.239	0.113			0.175	0.104	0.941	1.018**			0.861	1.173**
	[0.42]	[0.53]			[0.32]	[0.41]	[1.07]	[2.10]			[0.91]	[2.33]
$\ln(1+Flow_{m,t-1})$			0.168	0.225**	0.159	0.219**			0.518	0.279	0.449	0.386
			[0.83]	[2.27]	[0.80]	[2.23]			[0.50]	[0.59]	[0.43]	[0.79]
Adjusted R^2	0.106	0.808	0.107	0.809	0.107	0.809	0.082	0.785	0.082	0.785	0.082	0.786
Manager FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes. This table examines the relation of fund manager compensation with revenue and performance in the subsample without AUM reallocation among managers. Specifically, we require that there be no change in the set of fund shares overseen by manager m or in the number of co-managers for manager m in year $t-1$. In Panel A, the dependent variable is the natural log of the fund manager's labor income in year t. The independent variables include the natural log of the revenue generated by the manager in year $t-1$, the natural log of the AUM at the manager level in the last month of $t-1$, the natural log of the annual fund returns at the manager level in year $t-1$, and the natural log of the annual fund flows at the manager level in year $t-1$. In Panel B, the dependent variable in Columns (1) – (6) is the natural log of the fund manager's base pay in year t. The dependent variable in Columns (7) – (12) is the natural log of the fund manager's bonus in year t. Base pay and bonus are defined in Table 5. The independent variables include natural log of the revenue generated by the manager in year $t-1$, the natural log of the annual fund returns at the manager level in year $t-1$, and the natural log of the annual fund flows at the manager level in year $t-1$. Standard errors are double-clustered at both the manager and year levels. The sample period of the data is from 2000 to 2014. We include t-statistics in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Subsample Without AUM Reallocation Among Managers. Fund companies actively reallocate their AUM among managers by assigning or withdrawing them to and from funds (e.g., Berk, van Binsbergen and Liu, 2017). When AUM reallocation occurs, changes in AUM are largely the decisions of mutual fund firms, rather than reflections of fund returns and flows. As a result, the relation between changes in AUM (and revenue changes) and performance or flows can be obscured when conditional on AUM reallocation. Here, we demonstrate the robustness of our findings by examining a subsample where AUM reallocation is absent. Specifically, we focus on

Table OA.4: Relation of fund manager compensation with revenue and performance excluding fund managers working in the state of Illinois.

	(1)	(2)	(3)	(4)
	$\ln(Pay_{m,t})$		$\ln(Pay_{m,t}/Pay_{m,t-1})$	
$\ln(Rev_{m,t-1})$	0.221***	0.110**		
	[5.16]	[2.59]		
$\ln(1+Flow_{m,t-1})$	0.034	0.091	0.136***	0.168**
	[0.26]	[1.61]	[5.00]	[2.23]
$\ln(1+Flow_{m,t-2})$			−0.063	−0.077
			[−1.23]	[−1.05]
$\ln(1+R^{gross}_{m,t-1})$	0.301	0.055	0.198	0.381*
	[0.96]	[0.60]	[1.28]	[2.09]
$\ln(1+R^{gross}_{m,t-2})$			0.079	0.322**
			[0.55]	[2.30]
Adjusted R^2	0.153	0.780	0.102	0.189
Manager FE	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes

Notes. This table examines the relation of fund manager compensation with revenue and performance excluding fund managers working in the state of Illinois. The dependent variable in columns (1) and (2) is the natural log of the fund manager's labor income in year t. The dependent variable in columns (3) and (4) is the compensation growth of fund managers in year t, which is the difference in the natural log of the fund manager's labor income in year t compared to year $t-1$. The independent variables include the natural log of the revenue generated by the manager in year $t-1$, the natural log of the annual fund returns at the manager level in years $t-1$ and $t-2$, and the natural log of the annual fund flows at the manager level in years $t-1$ and $t-2$. Standard errors are double-clustered at both the manager and year levels. The sample period of the data is from 2000 to 2014. We include t-statistics in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

scenarios where the set of fund shares overseen by manager m remains unchanged in year $t-1$. Additionally, since the AUM of a fund is divided among its co-managers and manager-level AUM is used as weights to convert fund-level flows and returns to manager-level variables, we also require that the number of co-managers remains constant in year $t-1$. As demonstrated in Table OA.3, our findings stay consistent after conditioning on the absence of AUM reallocation among managers.

Excluding Fund Managers Working in the State of Illinois. We address the limitation of our data excluding the state of New York. The LEHD data requires approval from each state, and our research project has access to data from 17 states, achieving a coverage rate comparable to a typical research project. However, our lack of access to data from New York raises the possibility that our findings may not represent the compensation structure of fund managers in major financial centers like New York City. This concern is unlikely to be substantial in reality. First, the labor market for fund managers in the US is fluid. It is unlikely that fund managers in New York City have labor contracts dramatically different from those in other parts of the country. Second, Chicago,

Table OA.5: Relation of base pay and bonus with AUM and performance.

Panel A: Baseline regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	$\ln(Base_{m,t})$						$\ln(Bonus_{m,t})$					
$\ln(A_{m,t-1})$	0.150***	0.078**	0.150***	0.078**	0.150***	0.076**	0.499***	0.415**	0.499***	0.403**	0.498***	0.412**
	[4.85]	[2.33]	[4.85]	[2.31]	[4.85]	[2.20]	[2.87]	[2.29]	[2.86]	[2.19]	[2.86]	[2.25]
$\ln(1+R^{gross}_{m,t-1})$	0.069	−0.193			0.050	−0.229	0.609	0.833**			0.578	0.881**
	[0.23]	[−1.20]			[0.18]	[−1.35]	[0.68]	[2.16]			[0.57]	[2.16]
$\ln(1+Flow_{m,t-1})$			0.045	0.087	0.043	0.097			0.308	0.198	0.282	0.138
			[0.35]	[1.59]	[0.35]	[1.65]			[0.61]	[0.63]	[0.58]	[0.45]
Adjusted R^2	0.080	0.756	0.080	0.757	0.080	0.757	0.050	0.773	0.050	0.772	0.050	0.773
Manager FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Relation with systematic and idiosyncratic flows

	(1)	(2)	(3)	(4)	(5)	(6)
	$\ln(Pay_{m,t})$		$\ln(Base_{m,t})$		$\ln(Bonus_{m,t})$	
$\ln(A_{m,t-1})$	0.250***	0.147***	0.162***	0.079**	0.632***	0.367**
	[5.20]	[2.89]	[4.12]	[2.15]	[3.71]	[2.18]
$\ln(1+R^{gross}_{m,t-1})$	0.367	0.039	0.220	−0.096	0.526	0.768*
	[0.89]	[0.25]	[0.66]	[−0.55]	[0.66]	[1.74]
$\ln(1+Systematic\ Flow_{m,t-1})$	0.219	0.184	0.216	0.249	0.199	−0.208
	[0.66]	[0.60]	[0.68]	[0.87]	[0.49]	[−0.46]
$\ln(1+Idiosyncratic\ Flow_{m,t-1})$	−0.016	0.131	−0.090	−0.086	0.371*	0.442*
	[−0.11]	[1.61]	[−0.52]	[−1.10]	[1.73]	[1.72]
Adjusted R^2	0.155	0.816	0.090	0.759	0.068	0.847
Manager FE	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes. This table examines the relation of base pay and bonus levels with AUM and performance. In Panel A, the dependent variable in Columns (1) – (6) is the natural log of the fund manager's base pay in year t. The dependent variable in Columns (7) – (12) is the natural log of the fund manager's bonus in year t. Base pay and bonus are defined in Table 5. The independent variables include the natural log of the AUM at the manager level in the last month of $t-1$, the natural log of the annual fund returns at the manager level in year $t-1$, and the natural log of the annual fund flows at the manager level in year $t-1$. In Panel B, the dependent variables are the natural log of the fund manager's total pay, base pay, and bonus in year t. We further decompose the fund flows into systematic and idiosyncratic flows at the manager level, which are then used to replace the fund flows in the independent variables. Standard errors are double-clustered at both the manager and year levels. The sample period of the data is from 2000 to 2014. We include t-statistics in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

another financial hub in the US, is included in our data through the state of Illinois. If managers in financial hubs have significantly different labor contracts, we would expect discrepancies in the findings of Table 2 of the main text when excluding such hubs. However, as shown in Table OA.4, our results remain consistent, suggesting that the exclusion of financial hubs such as New York does not significantly impact our findings.

Relation of Base Pay and Bonus with AUM and Performance. We decompose total compensation into base pay and bonus and examine their relation with AUM and performance separately. Specifically, we regress base pay and bonus on lagged AUM, flow, and return. Table OA.5 presents the results. As indicated in Columns (1) to (6) of Panel A, base pay, similar to total pay, shows a significant correlation with AUM, but it does not have a significant correlation with either flow or return after controlling for AUM. In contrast, the pattern for bonuses differs. After controlling for AUM, lagged return is still positively and significantly correlated with bonuses, particularly when manager fixed effects are included, as seen in Columns (8) and (12) of Panel A in Table OA.5.

In Panel B of Table OA.5, we further analyze the breakdown of flows into systematic and idiosyncratic components to examine their relation with compensation. As shown in Columns (5) and (6), idiosyncratic flows are positively and significantly correlated with bonus level, even when controlling for AUM. This suggests that, akin to the case with performance, mutual funds reward the flows attributable to the individual abilities of fund managers, and this reward extends beyond mere compensation for revenue.

Relation of Compensation Growth with AUM Growth. We examine whether the observed correlation of compensation growth with both flow and return can be attributed to a correlation between compensation growth and AUM growth. Specifically, we conduct a regression analysis of compensation growth on AUM growth, flow, and returns. We then check whether AUM growth can drive out flow and returns in predicting compensation growth. To ensure a clean setting, we focus on the subsample without AUM reallocation among managers. This is because AUM growth in scenarios with AUM reallocation is a result of changes in the set of funds (or fund shares) overseen by the managers, reflecting decisions made by the fund family rather than the managers' own efforts to grow the underlying assets through attracting flows and delivering performance. The detailed results of this analysis are presented in Table OA.6. Columns (1) to (4) in Panel A of Table OA.6 demonstrate that flow and return are strongly correlated with pay growth individually. However, after controlling for AUM growth, neither flow nor return has a statistically significant correlation with compensation growth (see Columns (5) to (8) in Panel A of Table OA.6), suggesting that both flow and return primarily influence pay growth through AUM growth. In Panels B and C of Table OA.6, we examine the relation between base pay growth and bonus growth with AUM growth, respectively. We find that AUM growth can also drive out flow

Table OA.6: Relation of compensation growth with AUM growth in the subsample without AUM reallocation.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Compensation growth and AUM growth								
	$\ln(Pay_{m,t}/Pay_{m,t-1})$							
$\ln(1+Flow_{m,t-1})$	0.227***	0.249**			−0.125	−0.283		
	[2.81]	[2.23]			[−0.76]	[−1.02]		
$\ln(1+R^{gross}_{m,t-1})$			0.364**	0.546**			0.067	0.225
			[2.20]	[2.07]			[0.43]	[0.84]
$\ln(A_{m,t-1}/A_{m,t-2})$					0.310**	0.408**	0.231***	0.252**
					[2.12]	[2.09]	[2.93]	[2.33]
Adjusted R^2	0.254	0.396	0.251	0.394	0.317	0.399	0.286	0.399
Manager FE	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Base pay growth and AUM growth								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$\ln(Base_{m,t}/Base_{m,t-1})$							
$\ln(1+Flow_{m,t-1})$	0.177***	0.219**			−0.178	−0.308		
	[3.22]	[2.60]			[−0.97]	[−1.18]		
$\ln(1+R^{gross}_{m,t-1})$			0.231*	0.200**			−0.057	0.146
			[1.77]	[2.16]			[−0.35]	[1.01]
$\ln(A_{m,t-1}/A_{m,t-2})$					0.285*	0.347**	0.162***	0.207***
					[1.87]	[2.21]	[3.02]	[2.73]
Adjusted R^2	0.039	0.292	0.034	0.224	0.047	0.298	0.040	0.297
Manager FE	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel C: Bonus growth and AUM growth								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$\ln(Bonus_{m,t}/Bonus_{m,t-1})$							
$\ln(1+Flow_{m,t-1})$	0.380**	0.449**			−0.089	−0.223		
	[2.41]	[2.15]			[−0.49]	[−0.74]		
$\ln(1+R^{gross}_{m,t-1})$			0.521*	0.869**			0.140	0.303
			[1.74]	[2.08]			[0.35]	[0.68]
$\ln(A_{m,t-1}/A_{m,t-2})$					0.293*	0.541**	0.427**	0.445*
					[1.75]	[2.00]	[2.03]	[1.83]
Adjusted R^2	0.056	0.251	0.026	0.249	0.101	0.286	0.057	0.254
Manager FE	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes. This table examines the relation of compensation growth with AUM growth. We focus on the subsamples without AUM reallocation among managers. Specifically, we require that there be no change in the set of fund shares overseen by manager m or in the number of co-managers for manager m in year $t-1$. In Panel A, the dependent variable is the compensation growth of fund managers in year t, calculated as the difference in the natural log of the fund manager's labor income between year t and year $t-1$. In Panel B, the dependent variable is the base pay growth of fund managers in year t, calculated as the difference in the natural log of the fund manager's base pay between year t and year $t-1$. In Panel C, the dependent variable is the bonus growth of fund managers in year t, calculated as the difference in the natural log of the fund manager's bonus between year t and year $t-1$. The independent variables include the natural log of the annual fund flows at the manager level in year $t-1$, the natural log of the annual fund returns at the manager level in year $t-1$, and the growth of AUM in year $t-1$, calculated as the difference in the natural log of AUM between the last month of year $t-1$ and the last month of year $t-2$. Standard errors are double-clustered at both the manager and year levels. The sample period of the data is from 2000 to 2014. We include t-statistics in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table OA.7: Relation of the instrumental variable for AUM with flows and returns.

	(1)	(2)	(3)	(4)
	$\ln(1+R^{gross}_{m,t})$		$\ln(1+Flow_{m,t})$	
$\Delta\widehat{me}_{m,t}$	0.516***	0.541***	−0.019	−0.021
	[4.42]	[3.82]	[−0.42]	[−0.57]
Adjusted R^2	0.139	0.243	0.002	0.347
Manager FE	No	Yes	No	Yes

Notes. This table examines the relation of the instrumental variable for AUM with flows and returns. The dependent variable in Columns (1) and (2) is the natural log of the annual fund returns at the manager level in year t, while the dependent variable in Columns (3) and (4) is the natural log of the annual fund flows at the manager level in year t. The independent variables is the changes of the instrumental variable for AUM from year $t-1$ to t (i.e., $\Delta\widehat{me}_{m,t} = \widehat{me}_{m,t} - \widehat{me}_{m,t-1}$). Standard errors are double-clustered at both the manager and year levels. The sample period of the data is from 2000 to 2014. We include t-statistics in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

and returns in predicting both base pay growth and bonus growth.

3 Additional Analysis for the IV Regressions

Relation of the IV with Flows and Returns. In the main text, we present results from the IV regressions to provide causal evidence for the relation between AUM and compensation. To further illustrate the economic channel through which the instrumental variable $\widehat{me}_{i,t}$ affects AUM, we examine the relation between the instrumental variable and fund flows and returns in this section.

Specifically, we regress fund flows and returns in year t on changes in the instrumental variable from year $t-1$ to t (i.e., $\Delta\widehat{me}_{m,t} = \widehat{me}_{m,t} - \widehat{me}_{m,t-1}$). As presented in Table OA.7, the instrument primarily influences contemporaneous fund returns while it does not move in tandem with flows. This finding is intuitive: an increase in demand from other investors drives up the prices of the underlying stocks, which, in turn, generates positive fund returns for the focal investor due to spillover effects.

Compliers of the IV tests. we discuss the magnitude of the pay-to-revenue sensitivity in the IV regression. As shown in Panel B of Table OA.10 in the main text, the pay-to-revenue sensitivity ranges from 0.482 to 0.704, significantly larger than that observed in the OLS regressions, detailed in Panel A of Table 2 in the main text. This notable difference could be in part attributed to the

Table OA.8: Compliers of the IV tests are more likely to be managers from small funds.

	Panel A: Heterogeneity in the first-stage regressions, using $\widehat{me}_{m,t}$ as the IV for the levels of AUM and renenue			
	(1)	(2)	(3)	(4)
	$\ln(A_{m,t})$		$\ln(Rev_{m,t})$	
	Small Funds	Large Funds	Small Funds	Large Funds
$\widehat{me}_{m,t}$	0.713***	0.323***	0.712***	0.316***
	[9.16]	[4.20]	[8.87]	[3.96]
Adjusted R^2	0.724	0.687	0.703	0.619
Manager FE	Yes	Yes	Yes	Yes

	Panel B: Heterogeneity in the first-stage regressions, using $\Delta\widehat{me}_{m,t}$ as the IV for the growth of AUM and renenue			
	(1)	(2)	(3)	(4)
	$\ln(A_{m,t}/A_{m,t-1})$		$\ln(Rev_{m,t}/Rev_{m,t-1})$	
	Small Funds	Large Funds	Small Funds	Large Funds
$\Delta\widehat{me}_{m,t}$	0.555***	0.234*	0.780***	0.447**
	[2.77]	[1.75]	[3.62]	[2.60]
Adjusted R^2	0.292	0.375	0.479	0.458
Manager FE	Yes	Yes	Yes	Yes

Notes. This table examines heterogeneity in the first-stage IV regressions across fund size. Specifically, we sort fund managers into two groups (i.e., small funds and large funds) each year based on the AUM overseen by the manager in the last month of year $t-1$. Panel A examines the heterogeneity in the first-stage regressions, in which we use $\widehat{me}_{m,t}$ as the instrumental variable for the levels of AUM and revenue. In Columns (1) and (2), the dependent variable is the natural log of the AUM overseen by the manager in year t. In Columns (3) and (4), the dependent variable is the natural log of the revenue generated by the manager in year t. The independent variable is the instrumental variable $\widehat{me}_{m,t}$. Panel B examines the heterogeneity in the first-stage regressions, in which we use $\Delta\widehat{me}_{m,t}$ as the instrumental variable for the growth of AUM and revenue. In Columns (1) and (2), the dependent variable is the growth of AUM in year t, calculated as the difference in the natural log of AUM between the last month of year t and the last month of year $t-1$. In Columns (3) and (4), the dependent variable is the growth of revenue in year t, calculated as the difference in the natural log of the revenue generated by the manager between year t and year $t-1$. The independent variable is the instrumental variable $\Delta\widehat{me}_{m,t} = \widehat{me}_{m,t} - \widehat{me}_{m,t-1}$. Standard errors are double-clustered at both the manager and year levels. The sample period of the data is from 2000 to 2014. We include t-statistics in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

fact that the compliers in the IV regression are primarily managers from smaller funds, which are more likely to hold concentrated positions. Specifically, variations in the instrumental variables are more likely to result in changes in the AUM of these funds, since the exogenous variations in stock prices are less likely to be smoothed out at the fund level. Consistent with this conjecture, Table OA.8 demonstrates that such variations indeed lead to larger changes in the AUM for managers working in smaller funds. This suggests that the compliers of the IV regressions are predominantly managers from these funds. Given the concave relationship between a fund manager's compensation and the fund's AUM, managers from smaller funds exhibit a higher pay-to-revenue sensitivity. Thus, the IV regressions, which capture the average treatment effects for the compliers, are likely to estimate a higher pay-to-revenue sensitivity compared to the OLS

Table OA.9: Causal effects of AUM and revenue growth on compensation growth.

	Panel A: First-stage IV regressions			
	(1)	(2)	(3)	(4)
	$\ln(A_{m,t}/A_{m,t-1})$		$\ln(Rev_{m,t}/Rev_{m,t-1})$	
$\Delta\widehat{me}_{m,t}$	0.488***	0.382***	0.761***	0.653***
	[4.49]	[2.81]	[6.87]	[4.39]
F-test statistics	25.97	16.08	76.01	50.14
Manager FE	No	Yes	No	Yes

	Panel B: Second-stage IV regressions			
	(1)	(2)	(3)	(4)
	$\ln(Pay_{m,t}/Pay_{m,t-1})$		$\ln(Pay_{m,t}/Pay_{m,t-1})$	
$\ln(\widehat{A_{m,t-1}/A_{m,t-2}})$	0.502**	0.586**		
	[2.46]	[2.13]		
$\ln(\widehat{Rev_{m,t-1}/Rev_{m,t-2}})$			0.322***	0.343***
			[3.30]	[2.86]
Manager FE	No	Yes	No	Yes

	Panel C: Reduced-form regressions	
	(1)	(2)
	$\ln(Pay_{m,t}/Pay_{m,t-1})$	
$\Delta\widehat{me}_{m,t-1}$	0.245***	0.224***
	[3.52]	[3.02]
Adjusted R^2	0.040	0.280
Manager FE	No	Yes

Notes. This table provides causal evidence of the impact of fund AUM and revenue growth on the growth of manager compensation. The analysis is conducted in the subsample without AUM reallocation among managers. Specifically, we require that there be no change in the set of fund shares overseen by manager m or in the number of co-managers for manager m in year $t-1$. Panel A presents results from the first stage of the IV regressions. In Columns (1) to (2), the dependent variable is the growth of AUM in year t, calculated as the difference in the natural log of AUM between the last month of year t and the last month of year $t-1$. In Columns (3) to (4), the dependent variable is the growth of revenue in year t, calculated as the difference in the natural log of the revenue generated by the manager between year t and year $t-1$. The independent variables is the instrumental variable for AUM growth from year $t-1$ to t (i.e., $\Delta\widehat{me}_{m,t} = \widehat{me}_{m,t} - \widehat{me}_{m,t-1}$). F-test statistics are provided. Panel B presents results from the second stage of the IV regressions. The dependent variable is the compensation growth of fund managers in year t, calculated as the difference in the natural log of the fund manager's labor income between year t and year $t-1$. In Columns (1) to (2), the independent variable is the natural log of the AUM growth in year $t-1$ predicted by the first-stage regressions. In Columns (3) to (4), the independent variable is the natural log of the revenue growth in year $t-1$ predicted by the first-stage regressions. Panel C presents results from the reduced form regressions. The dependent variable is the compensation growth of fund managers in year t. The independent variable is the instrumental variable $\Delta\widehat{me}_{m,t-1}$. Standard errors are double-clustered at both the manager and year levels. The sample period of the data is from 2000 to 2014. We include t-statistics in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

regressions, for the reasons explained above.[1]

IV for the Growth of AUM and Revenue. We employ $\Delta\widehat{me}_{i,t}$ as an instrumental variable for AUM growth. We use the IV regressions to identify the causal impact of AUM growth on compensation growth. As in Table OA.6, we focus on the subsample without AUM reallocation among managers to ensure a clean setting. This set of results is presented in Table OA.9. The

[1] It is probable that other explanations exist for the disparity in pay-to-revenue sensitivity observed between the IV and OLS regressions. We do not assert that our explanation is the only one for this difference.

findings are consistent with those of Table OA.10 in the main text, providing additional causal evidence for AUM's role in influencing compensation.

Using $\widehat{me}_{m,t}$ directly as the IV. Panel A of Table OA.10 displays the results from the first-stage IV regressions. Columns (1) and (4) show that $\widehat{me}_{i,t}$ is highly correlated with contemporaneous AUM and fee revenue, respectively. The F-test scores all exceed 4.05, the Stock-Yogo critical value for rejecting the null of weak instruments (Stock and Yogo, 2005, table 5.2), demonstrating that the relevance condition of the instrumental variable is satisfied. To further illustrate the economic channel through which the instrumental variable $\widehat{me}_{i,t}$ affects AUM, we examine the relation between the instrumental variable and fund flows and returns in Online Appendix 3. Specifically, we regress fund flows and returns in year t on changes in the instrumental variable from year $t-1$ to t (i.e., $\Delta\widehat{me}_{m,t}$). As presented in Table OA.7, $\widehat{me}_{i,t}$ primarily influences contemporaneous fund returns while it does not move in tandem with flows. This finding is intuitive: an increase in demand from other investors drives up the prices of the underlying stocks, which, in turn, generates positive fund returns for the focal investor due to spillover effects.

Panel B of Table OA.10 presents the results from the second-stage IV regressions, wherein we regress compensation on predicted values of AUM and fund revenues. We have adjusted the standard errors to account for the fact that the independent variables are predicted values obtained from the first-stage regressions. Columns (1) and (4) indicate that the predicted AUM and fee revenue are positively correlated with compensation of fund managers in the subsequent year. The coefficient for the predicted values are statistically significant. In addition to the baseline regressions in Columns (1) and (4), we incorporate manager fixed effects or year fixed effects in both stages of the IV regression to isolate time-series or cross-sectional variations in the instrumental variable, respectively. As shown in Panels A and B of Table OA.10, our findings remain robust. Collectively, the results from the IV regression tests provide strong evidence supporting a causal relationship between compensation and both AUM and fee revenues.

The magnitude of the pay-to-revenue sensitivity warrants further discussion. As shown in Panel B of Table OA.10, the pay-to-revenue sensitivity ranges from 0.482 to 0.704, significantly larger than that observed in the OLS regressions, which ranges from 0.119 to 0.231 as shown in Panel A of Table 2. This notable difference could be in part attributed to the fact that the compliers in the IV regression are primarily managers from smaller funds, which are more likely to hold concentrated positions. Specifically, variations in the instrumental variables are more likely to result in changes in the AUM of these funds, since the exogenous variations in stock prices are less likely to be smoothed out at the fund level. Consistent with this conjecture, Table OA.8 in Online Appendix 3 demonstrates that such variations indeed lead to larger changes in the AUM for managers working in smaller funds. This suggests that the compliers of the IV regressions are predominantly managers from these funds. Given the concave relationship between a fund manager's compensation and the fund's AUM, managers from smaller funds exhibit a higher pay-to-revenue sensitivity. Thus, the IV regressions, which capture local average treatment effects for the compliers, are likely to estimate a higher pay-to-revenue sensitivity compared to the OLS regressions, for the reasons explained above.[2]

Beyond the IV regressions, we conduct a reduced-form regression, directly regressing compensation on the one-year lagged instrumental variable. As indicated in Panel C of Table OA.10, the coefficient for the instrumental variable is positive and statistically significant, offering additional corroborative evidence in support of the identification tests.

Finally, instead of using $\widehat{me}_{i,t}$ as an instrumental variable for AUM, we employ $\Delta\widehat{me}_{i,t}$ as an instrumental variable for AUM growth. We then use the IV regressions to identify the causal impact of AUM growth on compensation growth. This set of results is presented in Table OA.9 in Online Appendix 3. The findings are consistent with those in Table OA.10, providing additional causal evidence for AUM's role in influencing compensation.

Table OA.10: Causal effects of fund AUM and fee revenue on compensation.

	Panel A: First-stage IV regressions					
	(1)	(2)	(3)	(4)	(5)	(6)
		$\ln(AUM_{m,t})$			$\ln(Rev_{m,t})$	
$\widehat{me}_{m,t}$	0.464***	0.573***	0.648***	0.361***	0.527***	0.628***
	[2.74]	[11.03]	[3.62]	[2.72]	[10.28]	[3.58]
F-test statistics	13.50	91.61	16.63	13.67	88.48	16.67
Manager FE	No	Yes	No	No	Yes	No
Year FE	No	No	Yes	No	No	Yes

	Panel B: Second-stage IV regressions					
	(1)	(2)	(3)	(4)	(5)	(6)
		$\ln(Pay_{m,t})$			$\ln(Pay_{m,t})$	
$\ln(\widehat{AUM}_{m,t-1})$	0.546**	0.492***	0.467**			
	[2.35]	[3.58]	[2.44]			
$\ln(\widehat{Rev}_{m,t-1})$				0.704**	0.535***	0.482**
				[2.37]	[3.39]	[2.42]
Manager FE	No	Yes	No	No	Yes	No
Year FE	No	No	Yes	No	No	Yes

	Panel C: Reduced-form regressions		
	(1)	(2)	(3)
		$\ln(Pay_{m,t})$	
$\widehat{me}_{m,t-1}$	0.254***	0.282***	0.303**
	[4.21]	[3.85]	[2.45]
Adjusted R^2	0.011	0.617	0.069
Manager FE	No	Yes	No
Year FE	No	No	Yes

Notes. This table provides causal evidence for the roles of fund revenues in affecting manager compensation. Panel A presents results from the first stage of the IV regressions. In Columns (1) to (3), the dependent variable is the natural log of the AUM overseen by the manager in year t. In Columns (4) to (6), the dependent variable is the natural log of the revenue generated by the manager in year t. The independent variable is the instrumental variable $\widehat{me}_{m,t}$. F-test statistics are provided. Panel B presents results from the second stage of the IV regressions. The dependent variable is the natural log of the fund manager's labor income in year t. In Columns (1) to (3), the independent variable is the natural log of the AUM overseen by the manager in year $t-1$ predicted by the first-stage regressions. In Columns (4) to (6), the independent variable is the natural log of the revenue generated by the manager in year $t-1$ predicted by the first-stage regressions. Panel C presents results from the reduced form regressions. The dependent variable is the natural log of the fund manager's labor income in year t. The independent variable is the instrumental variable $\widehat{me}_{m,t-1}$. Standard errors are double-clustered at both the manager and year levels. The sample period of the data is from 2000 to 2014. We include t-statistics in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

4 Relation Between Pay and Value Added

As discussed in the main text, one alternative explanation for the correlation between manager compensation and fee revenue is that both are influenced by management skills. According to this alternative explanation, fund investors recognize these skills and consequently allocate their money to these funds, as modeled by Berk and Green (2004). Concurrently, mutual funds set their managers' compensation based on these skills, which leads to the observed correlation

[2] It is probable that other explanations exist for the disparity in pay-to-revenue sensitivity observed between the IV and OLS regressions. We do not assert that our explanation is the only one for this difference.

Table OA.11: Relation between pay and value added.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: Relation between pay and value added of next year												
	$arcsinh(VA^{capm}_{m,t})$						$arcsinh(VA^{van}_{m,t})$					
$\ln(Pay_{m,t-1})$	0.152*	0.130	0.052	0.087	0.034	0.064	0.193**	0.055	0.105	0.023	0.098	0.028
	[2.06]	[1.40]	[0.90]	[1.08]	[0.58]	[0.84]	[2.55]	[0.76]	[1.28]	[0.49]	[1.39]	[0.52]
$\ln(Rev_{m,t-1})$			0.324***	0.209***					0.284***	0.194***		
			[4.24]	[2.84]					[3.44]	[2.78]		
$\ln(A_{m,t-1})$					0.370***	0.222***					0.331***	0.192***
					[4.81]	[2.98]					[4.87]	[2.76]
Adjusted R^2	0.115	0.379	0.140	0.382	0.151	0.389	0.042	0.377	0.064	0.380	0.074	0.380
Manager FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Relation between pay and the average value added of next three years												
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	$arcsinh(\overline{VA}^{capm}_{m,t\rightarrow t+2})$						$arcsinh(\overline{VA}^{van}_{m,t\rightarrow t+2})$					
$\ln(Pay_{m,t-1})$	0.095	0.132	0.021	0.081	0.002	0.078	0.238**	0.115	0.136	0.078	0.120	0.066
	[1.11]	[1.21]	[0.28]	[0.82]	[0.03]	[0.78]	[2.45]	[1.43]	[1.47]	[0.80]	[1.46]	[0.72]
$\ln(Rev_{m,t-1})$			0.234***	0.151**					0.320***	0.134***		
			[3.12]	[2.53]					[3.24]	[2.49]		
$\ln(A_{m,t-1})$					0.283***	0.197***					0.361***	0.164***
					[3.68]	[2.73]					[4.52]	[2.55]
Adjusted R^2	0.108	0.482	0.121	0.485	0.129	0.485	0.045	0.572	0.073	0.534	0.085	0.534
Manager FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes. This table examines the relation between pay and value added. Panel A investigates the relation between pay and value added of next year, while Panel B investigates the relation between pay and the average value added of next three years. The dependent variable in Columns (1) to (6) is the inverse hyperbolic sine transformation (e.g., Burbidge, Magee and Robb, 1988) of value added computed as the product between AUM and gross CAPM alphas. The dependent variable in Columns (7) to (12) is the inverse hyperbolic sine transformation of value added computed as the product between AUM and the Vanguard excess returns. The independent variables include the natural log of the fund manager's labor income in year $t-1$, the natural log of the revenue generated by the manager in years $t-1$, and the natural log of the AUM managed by manages in year $t-1$. Standard errors are double-clustered at both the manager and year levels. The sample period of the data is from 2000 to 2014. We include t-statistics in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

between AUM and compensation. In Section 3.3, we employ an instrumental variable that captures the exogenous components of investor demand unrelated to the fund managers' families. This approach is used to provide causal evidence of the impact of fund revenue on compensation. In this section, we test the alternative explanation directly, utilizing the value-added measure developed by Berk and van Binsbergen (2015) as a proxy for fund managers' skills.

Specifically, we investigate whether fund manager compensation reflects management skills that extend beyond what is indicated by realized fund revenue. To explore this, we regress the value-added measure against compensation. Value added is defined as the product of before-fee alphas and AUM. We calculate alphas based on the CAPM alphas and the excess returns over the Vanguard index fund benchmark. Due to the distribution of the value-added measures having heavy tails at both the positive and negative sides, we apply the inverse hyperbolic sine transformation (e.g., Burbidge, Magee and Robb, 1988) to the value-added measures in our regressions.

In Panel A of Table OA.11, we regress the value-added measure against one-year lagged compensation. Although compensation can predict subsequent year's value added, this relation becomes statistically insignificant when we focus on the within-manager time-series variations by including manager fixed effects (see Columns (2) and (8)). This result holds true regardless of the gross alpha measures used. Furthermore, the relation between compensation and value added also loses statistical significance after controlling for either fund revenues or AUM. This finding is consistent across different measures of gross alphas and remains the same whether or not manager fixed effects are included. These results challenge the view that mutual funds compensate their managers based on skills beyond those reflected in realized fund revenues.

One potential concern with our analysis in Panel A of Table OA.11 is that the value-added measure, particularly when measured on a one-year basis, may be noisy. To address this concern, we average the value-added measures from year t to year $t+2$ and use this three-year average as the outcome variable. As shown in Panel B of Table OA.11, we observe similar results. These findings further undermine the alternative hypothesis that fund compensation reflects management skills rather than realized fund revenues.

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