

# Internet Appendix for “Paying Managers of Complex Portfolios: Evidence on Compensation and Performance from Endowments”

Matteo Binfarè and Robert S. Harris\*

## Abstract

We examine compensation for endowment Chief Investment Officers (CIOs) overseeing portfolios with significant allocations to alternatives. We find widespread use of bonuses and that large endowments with high alternative allocations hire CIOs with stronger backgrounds, pay them more, and have higher pay-for-performance sensitivity. We find weak evidence of a relationship between compensation and future performance. Our results align with contract theory predictions but differ from empirical findings on pension funds. Endowments pay CIOs more, rely more on bonuses, attract more experienced professionals, and have lower turnover than pensions. This suggests more effective talent management compared to politically influenced public pensions.

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\*Matteo Binfarè, mbinfare@missouri.edu, University of Missouri Robert J. Trulaske Sr. College of Business. Robert S. Harris, harrisr@arden.virginia.edu, University of Virginia Darden School of Business. We thank Hendrik Bessembinder (editor), an anonymous referee, Brad Barber, Greg Brown, Justin Birru, Yong Chen, Nathan Dong, Jonathan Fluharty, Thomas Gilbert, Juan-Pedro Gómez, Amit Goyal, Jillian Grennan, Fotis Grigoris, Umit Gurun, Steven Kaplan, Aymen Karoui, Victoria Ivashina, Josh Lerner, Francis Longstaff, Stefano Pegoraro, Philipp Schnabl, Stephan Siegel, Jay Wang, and conference participants at the 2022 Eastern Finance Association, the 33<sup>rd</sup> Australasian Finance and Banking Conference (AFBC), the 2020 Financial Management Association, the 2020 Southern Finance Association, and Korea University Business School for helpful comments and suggestions. Du Nguyen and Kyle Zimmerschied provided excellent research assistance. A previous version of the paper circulated under the title “What Drives Pay for Chief Investment Officers At Endowments?”. All errors are our own. Corresponding author: Matteo Binfarè, University of Missouri, Cornell Hall 420, Columbia, MO 65211, USA.

## A. Example of Incentive Plan

Compensation contracts for endowment officers can be quite detailed and thus result in complex links between compensation and performance. While such contracts are generally not publicly available, we obtained the Incentive Plan for the endowment office of a major university<sup>1</sup> which states the objective of “Total Cash Compensation that is competitive nationally and is commensurate with the performance of the University’s investment program, in order to attract and retain the highest caliber employees.” The document goes on to say that the plan objective includes motivating the investment office to “(i) maximize total return with an appropriate level of risk; (ii) achieve and exceed department performance targets; and (iii) provide a method for rewarding its employees who have made significant contributions to the success of the department.” The 26-page document goes through the details of how this is carried out for the CIO and other investment staff. Elements include:

- A targeted bonus percentage applied to base salary (e.g., target bonus of 130% of base, varying by seniority)
- Complex formulas to determine what fraction of this targeted percentage will be awarded based on performance, including setting a minimum and maximum bonus award (e.g., in this case 0 or up to 2 times target)
- Timetables for spreading the payments of the bonus over time (e.g., half this year and a quarter in each of the next two years) and provisions under which the deferred bonuses are forfeited (e.g., leaving university employ except under certain circumstances)

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<sup>1</sup>This text is a summary of features of the University of Michigan, Investment Office Incentive Plan, May 1, 2017 which became available following a Freedom of Information Act request and subsequent lawsuit by the Detroit Free Press. The plan was published by the newspaper after a judge ordered release. See the Institutional Investor, May 7, 2008.

- Roles for service providers, consultants and governance groups (e.g., compensation committee, human resources)
- A stated goal for total cash compensation (e.g., median compared to some universe of investment officers)

As stated in the plan, the bonus calculations use “a complex Funding Formula that rewards each eligible employee base on the team-oriented performance as measured by the rate of return on the University’s investment pools and on the employee’s individual performance”. Elements include:

- Two measures of rolling Three-Year Average Long Term Portfolio Performance, one against a custom benchmark and one against a larger set of over one hundred colleges and universities
- Two measures of rolling Three-Year Average “University Bank” Performance, one against a custom benchmark of performance on short-term pools, one against 90-day Treasury Bill rates
- Individual Performance Based on an annual performance review

The weights assigned to each of these five measures (summing to 100%) vary across levels of seniority. For instance, individual performance might carry 25% weight for the CIO but a 75% weight for an investment analyst (junior position). Weights for the long-term portfolio performance are over double those of the short-term investments. For each of the five elements of performance, the document contains detailed charts illustrating how the target bonus is adjusted based on performance.

## **B. Measure of Allocation to Alternative Assets**

We use Form 990, Schedule D, Part VII to calculate the proportion of assets allocated to alternative investments. This schedule reports the total value of any securities, partnerships, or funds

that are not publicly traded. Organizations must also describe the type of security and report the fair market value of each investment at the end of the tax year. Organizations are required to complete this schedule if their “investments-other securities” are equal to 5% or more of the total assets (based on Form 990, Part X, as the ratio of line 12 (“investments-other securities”) to line 16 (total assets)).

For each nonprofit-year observation, we manually review all entries and classify whether a security is an “alternative asset” (or not) since the reporting requirement does not provide standardized categorizations. Some nonprofits provide aggregated data (e.g., alternative assets, alternative securities, alternative strategies). Others list more granular categories (such as hedge funds, private equity, venture capital, and natural resources). If the filing has not already provided a measure of “alternatives”, we create one by combining hedge funds (i.e., absolute return, long/short, distressed, merger arbitrage, hedge strategies, multi-strategy, etc.), private capital (private equity, closely-held equity funds, buyout, venture capital, private debt, etc.), and real assets (real estate funds, hard assets, commodities, natural resources funds, timberland, etc.).

In most regressions, we use the percentage of endowment market values allocated to alternative investments. Since the reporting is for the nonprofit organization (not just the endowment), it is possible that Form 990 may include “investments-other securities” that are not part of the endowment. This might lead to “alternative asset” figures that exceed the value of the endowment. In those few cases, we divide the value of alternative investments by total assets of the nonprofit rather than by the market value of the endowment. Regression results are essentially unchanged if we divide alternative investments by total endowment assets for all nonprofits, or if we control for the natural logarithm of total alternative assets.

FIGURE IA.1

**Number of Filings by Type and Fiscal Year**

This figure shows total number of filings of non-profit tax-exempt organizations from 2009 to 2018 by form type as reported to the IRS. Form types include form 990, 990EZ, and 990PF. Private foundations file form 990PF, regardless of financial status. Tax-exempt organizations with gross receipts greater than or equal to \$200,000, or total assets greater than or equal to \$500,000 are required to file form 990. Tax-exempt organizations with gross receipts less than \$200,000, and total assets less than \$500,000 can file form 990 or form 990EZ.

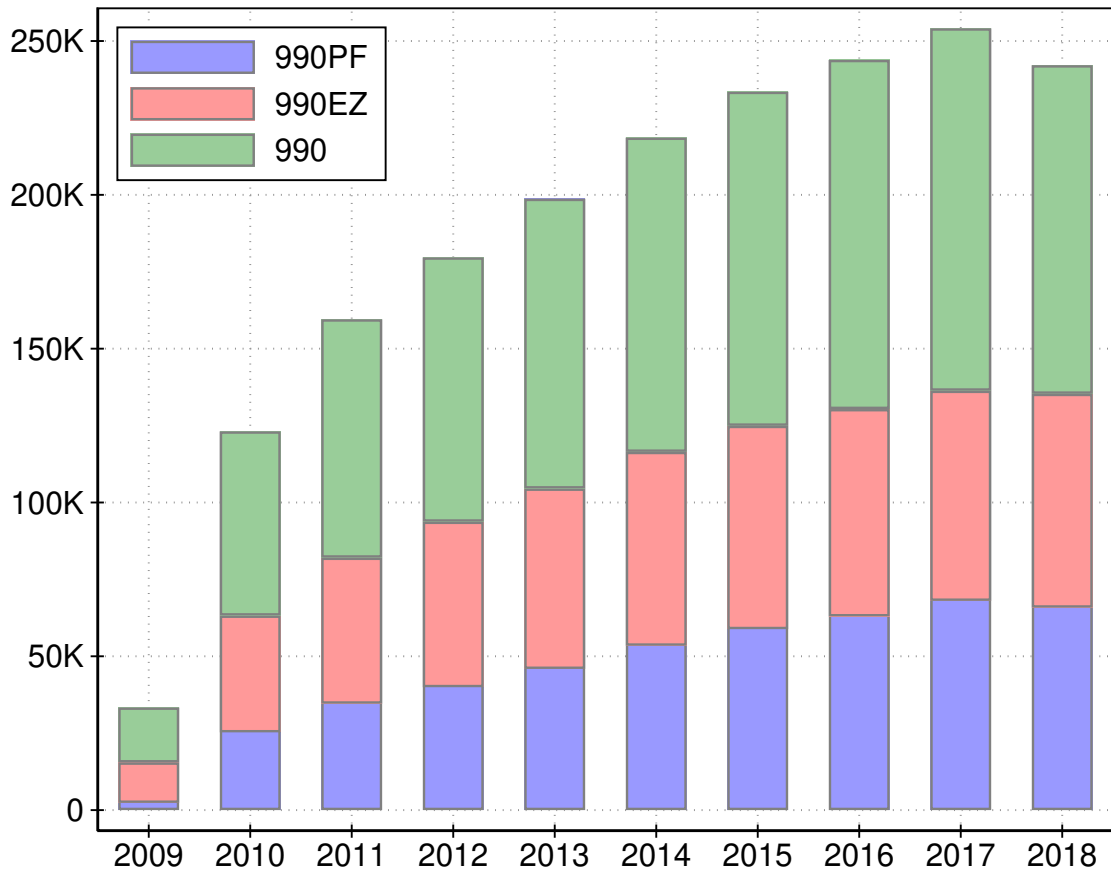


FIGURE IA.2

Example of Form 990, Schedule J, Part II and Schedule D, Part V.

This figure shows compensation information for certain Officers, Directors, Trustees, Key Employees, and Highest Compensated Employees, and endowment funds for Denison University. The figure represents part of Form 990, Schedule J, Part II, and Schedule D, Part V, in fiscal year 2018, or tax year beginning 07-01-2018, and ending 06-30-2019. The data is extracted from the Internal Revenue Service in its XML form.

**Part II Officers, Directors, Trustees, Key Employees, and Highest Compensated Employees.** Use duplicate copies if additional space is needed.  
 For each individual whose compensation must be reported on Schedule J, report compensation from the organization on row (i) and from related organizations, described in the instructions, on row (ii). Do not list any individuals that are not listed on Form 990, Part VII.  
**Note.** The sum of columns (B)(i)-(iii) for each listed individual must equal the total amount of Form 990, Part VII, Section A, line 1a, applicable column (D) and (E) amounts for that individual.

| (A) Name and Title   |      | (B) Breakdown of W-2 and/or 1099-MISC compensation |                                     |                                     | (C) Retirement and other deferred compensation | (D) Nontaxable benefits | (E) Total of columns (B)(i)-(D) | (F) Compensation in column (B) reported as deferred on prior Form 990 |
|--|------|--|-------------------------------------|-------------------------------------|--|-------------------------|---------------------------------|---|
|  |      | (i) Base compensation                              | (ii) Bonus & incentive compensation | (iii) Other reportable compensation |  |                         |                                 |   |
| 1 ADAM S WEINBERG<br>PRESIDENT                               | (i)  | 488,887  | 0                                   | 21,289                              | 346,065  | 29,625                  | 885,866                         | 0   |
|  | (ii) | 0  | 0                                   | 0                                   | 0  | 0                       | 0                               | 0   |
| 2 DAVID A ENGLISH<br>VP FINANCE & MGMT                       | (i)  | 253,713  | 0                                   | 12,623                              | 33,936   | 19,589                  | 319,861                         | 0   |
|  | (ii) | 0  | 0                                   | 0                                   | 0  | 0                       | 0                               | 0   |
| 3 JULIA BEYER HOUP<br>SECRETARY, VP INSTITUTIONAL ADVANCEMEN | (i)  | 213,889  | 0                                   | 41,306                              | 31,905   | 20,642                  | 307,742                         | 0   |
|  | (ii) | 0  | 0                                   | 0                                   | 0  | 0                       | 0                               | 0   |
| 4 KIMBERLY A COPLIN<br>PROVOST                               | (i)  | 206,478  | 0                                   | 19,063                              | 27,952   | 28,405                  | 281,898                         | 0   |
|  | (ii) | 0  | 0                                   | 0                                   | 0  | 0                       | 0                               | 0   |
| SKATHLEEN R BROWNE<br>CHIEF INVESTMENT OFFICER               | (i)  | 355,873  | 528,080                             | 39,783                              | 369,815  | 20,205                  | 1,313,756                       | 0   |
|  | (ii) | 0  | 0                                   | 0                                   | 0  | 0                       | 0                               | 0   |

**Part V Endowment Funds.** Complete if the organization answered "Yes" on Form 990, Part IV, line 10.

|  | (a) Current year | (b) Prior year | (c) Two years back | (d) Three years back | (e) Four years back |
|--|------------------|----------------|--------------------|----------------------|---------------------|
| 1a Beginning of year balance . . . . .                     | 851,697,224      | 799,420,398    | 725,829,566        | 814,564,881          | 801,306,901         |
| b Contributions . . . . .                                  | 10,280,334       | 15,174,247     | 12,311,432         | 7,278,192            | 6,672,152           |
| c Net investment earnings, gains, and losses               | 68,266,941       | 75,861,783     | 99,359,906         | -57,060,569          | 43,743,751          |
| d Grants or scholarships . . . . .                         | 11,379,862       | 10,908,258     | 10,693,292         | 10,162,221           | 9,553,747           |
| e Other expenditures for facilities and programs . . . . . | 29,612,608       | 27,850,946     | 27,387,214         | 28,790,717           | 27,604,176          |
| f Administrative expenses . . . . .                        |                  |                |                    |                      |                     |
| g End of year balance . . . . .                            | 889,252,029      | 851,697,224    | 799,420,398        | 725,829,566          | 814,564,881         |

FIGURE IA.3

**Total Number of CIOs by Fiscal Year**

This figure shows the total number of non-profit tax-exempt organizations that hire a CIO from 2009 to 2018 as reported to the Internal Revenue Service. We identify CIOs using the title description reported to the IRS Form 990, Schedule J, Part II, Column (A), or by collecting names for nonprofit CIOs from publicly available sources.

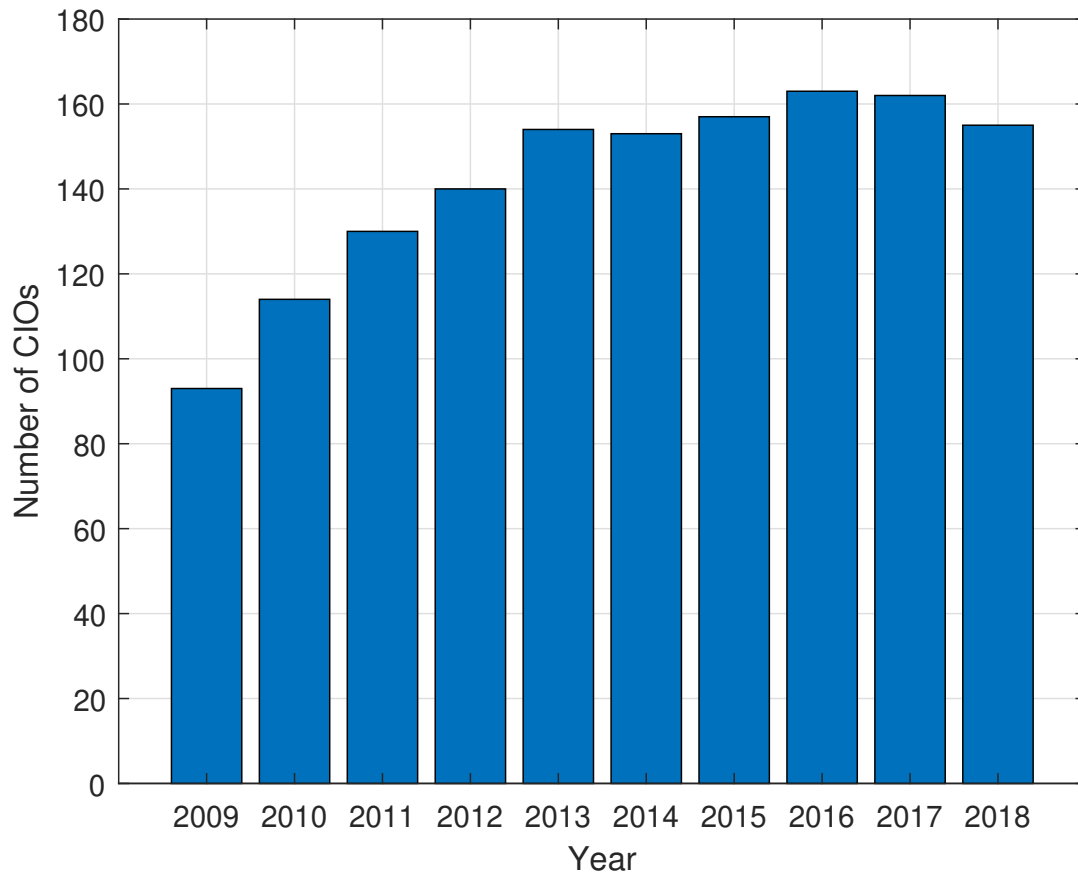


FIGURE IA.4

**Fraction of CIOs with Positive Bonuses**

This figure shows the fraction of CIOs with positive bonuses from 2009 to 2018 as reported to the Internal Revenue Service. We identify CIOs using the title description reported to the IRS Form 990, Schedule J, Part II, Column (A), or by manually collecting names for non-profit CIOs from publicly available sources. Large refers to endowment with asset under management (AUM) greater than \$1 billion.

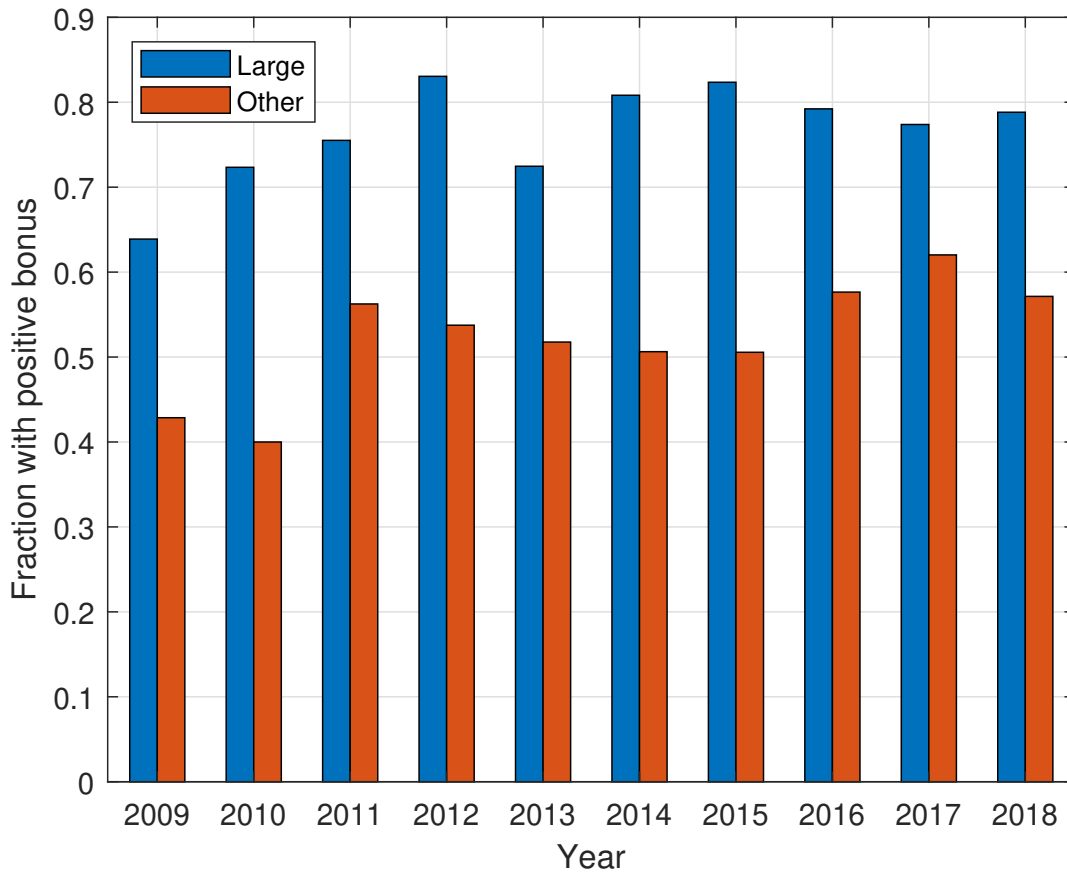




TABLE IA.1

**Non-Profit Foundations, Endowments and Chief Investment Officers in the United States**

This table reports summary statistics for all non-profit tax-exempt organizations with endowment funds that file IRS form 990 across NTEE Codes. It also reports on those who hire a Chief Investment Officer (CIO). Entries summarize data points within a non-profit before summarizing across NTEE Codes, and report the number (N) of unique organizations, the proportion of organizations with a dedicated endowment fund or a CIO, and mean values for the market value of the endowment, total assets of the nonprofit, the ratio of endowment market value to total assets, and net investment returns. All dollar figures are in millions of dollars. All figures are reported to the IRS, Form 990. The Appendix provides detailed variable descriptions.

| Sector                    | N       | With Endowment Fund |           |            |          |         |        | With CIO |          |            |          |         |       | Example                                |
|---------------------------|---------|---------------------|-----------|------------|----------|---------|--------|----------|----------|------------|----------|---------|-------|--|
|                           |         | N                   | % w/ End. | End. (\$M) | AT (\$M) | End./AT | R. (%) | N        | % w/ CIO | End. (\$M) | AT (\$M) | End./AT | R (%) |  |
| Arts, culture, humanities | 24,842  | 4,793               | 19.3      | 9.74       | 22.20    | 0.38    | 4.33   | 7        | 0.15     | 1,179      | 2,705    | 0.40    | 5.93  | Museum of Modern Art                   |
| Higher Ed.                | 9,767   | 3,490               | 35.7      | 124.00     | 235.00   | 0.50    | 5.41   | 119      | 3.41     | 2,389      | 4,170    | 0.57    | 7.67  | Princeton University                   |
| Education (other)         | 33,147  | 4,438               | 13.4      | 12.40      | 31.80    | 0.35    | 4.51   | 8        | 0.18     | 474        | 2,067    | 0.45    | 7.42  | Principia Corporation                  |
| Environment               | 12,612  | 1,913               | 15.2      | 4.98       | 16.40    | 0.31    | 3.96   | 0        | 0.0      | -          | -        | -       | -     | -                                      |
| Hospitals and Health      | 39,847  | 6,150               | 15.4      | 14.30      | 145.00   | 0.25    | 3.77   | 25       | 0.41     | 430        | 3,461    | 0.14    | 5.97  | The New York and Presbyterian Hospital |
| Human services            | 110,511 | 9,620               | 8.7       | 3.33       | 15.20    | 0.26    | 3.80   | 4        | 0.04     | 479        | 1289     | 0.50    | 6.62  | American Red Cross                     |
| International             | 5,639   | 532                 | 9.4       | 20.10      | 57.50    | 0.36    | 3.38   | 6        | 1.13     | 400        | 1,512    | 0.36    | 5.37  | The Rotary Foundation                  |
| Public, societal benefit  | 60,056  | 4,535               | 7.6       | 15.50      | 33.80    | 0.43    | 4.03   | 22       | 0.49     | 428        | 1,061    | 0.45    | 5.39  | Carnegie Institution of Washington     |
| Religion                  | 14,660  | 953                 | 6.5       | 4.66       | 11.80    | 0.39    | 3.60   | 0        | 0.00     | -          | -        | -       | -     | -                                      |
| Mutual benefit            | 9,227   | 648                 | 7.0       | 5.74       | 15.80    | 0.45    | 3.62   | 0        | 0.00     | -          | -        | -       | -     | -                                      |
| Unknown                   | 601     | 13                  | 2.2       | 0.41       | 1.59     | 0.30    | 1.12   | 0        | 0.00     | -          | -        | -       | -     | -                                      |
| Total                     | 320,909 | 37,085              | 11.6      | 20.30      | 63.20    | 0.32    | 4.12   | 191      | 0.52     | 1,680      | 3,434    | 0.48    | 7.01  | -                                      |

TABLE IA.2

**Compensation of Nonprofit CEOs and CFOs**

This table reports summary statistics for Chief Executive Officers (CEOs) and Chief Financial Officers (CFOs) at nonprofit tax-exempt organizations with endowment funds that hire a Chief Investment Officer. Panel A summarizes compensation figures for CEOs. Panel B summarizes compensation figures for CFOs. Entries summarize data points across all nonprofits and years, and report the number (N) of data points, mean value, standard deviation, and percentile values (25, 50, and 75). All compensation figures are in thousands of dollars. Total is total compensation package (both W-2/1099 MISC and non W-2 amounts), base is base compensation, bonus is bonus incentive compensation, other is the sum of other taxable compensation, retirement and deferred compensation, and other nontaxable compensation. All figures in Panel A are reported to the IRS, Form 990, Schedule J, Part II. The Appendix provides detailed variable descriptions.

|                                   | N    | Mean  | SD      | p25   | Median | p75     |
|-----------------------------------|------|-------|---------|-------|--------|---------|
| Panel A: Chief Executive Officers |      |       |         |       |        |         |
| Total                             | 1179 | 982.6 | 1,126.5 | 433.7 | 639.8  | 1,102.5 |
| Base                              | 1179 | 552.8 | 335.0   | 330.2 | 454.0  | 720.0   |
| Bonus & Incentive                 | 1179 | 134.4 | 606.2   | 0.0   | 0.0    | 64.4    |
| Other                             | 1179 | 295.4 | 549.6   | 62.7  | 131.5  | 313.0   |
| Other Taxable                     | 1179 | 138.9 | 461.2   | 4.5   | 21.2   | 80.6    |
| Non Taxable                       | 1179 | 51.5  | 58.9    | 15.6  | 27.1   | 68.4    |
| Deferred                          | 1179 | 105.0 | 203.9   | 23.9  | 35.7   | 107.5   |
| Panel B: Chief Financial Officers |      |       |         |       |        |         |
| Total                             | 1393 | 530.4 | 558.7   | 258.2 | 367.9  | 540.8   |
| Base                              | 1393 | 341.6 | 190.9   | 206.2 | 291.5  | 410.3   |
| Bonus & Incentive                 | 1393 | 81.6  | 317.7   | 0.0   | 0.0    | 29.9    |
| Other                             | 1393 | 107.2 | 210.0   | 38.0  | 56.8   | 94.6    |
| Other Taxable                     | 1393 | 40.4  | 170.0   | 0.5   | 5.5    | 24.8    |
| Non Taxable                       | 1393 | 19.7  | 15.0    | 10.6  | 17.8   | 24.6    |
| Deferred                          | 1393 | 47.1  | 87.2    | 17.9  | 25.5   | 38.5    |

TABLE IA.3

**Compensation and CIO's Educational Attainments**

This table shows the fraction of endowments with a CIO graduated from a selective undergraduate institution, the average ACT and SAT score of the CIO undergraduate institution, and the average admission rate of the CIO undergraduate institution by quartile of total CIO compensation.

| Total Comp. Quartile | Selective (%) | ACT  | SAT    | Admission Rate (%) |
|----------------------|---------------|------|--------|--------------------|
| 1                    | 21.7          | 28.2 | 1285.5 | 52.1               |
| 2                    | 41.3          | 29.3 | 1334.5 | 44.4               |
| 3                    | 53.1          | 30.4 | 1366.7 | 35.3               |
| 4                    | 70.1          | 31.1 | 1408.1 | 26.1               |

TABLE IA.4

**CIO Other W-2 and Non W-2 Compensation and Performance**

This table shows OLS regression coefficients and standard errors for the relationship between measures of compensation for Chief Investment Officers (CIOs) at nonprofit endowments, and CIO and endowment characteristics and past returns. The dependent variable is the natural logarithm of a measure of compensation in a given fiscal year as reported to the IRS, Form 990, Schedule J, Part II. Independent variables include the endowment annualized (geometric) net return over a three-year time frame ( $t, t - 1, t - 2$ ) and all control variables used in Table IV. The Appendix provides detailed variable descriptions. Each continuous variable is winsorized at the one percent level in both tails. All specifications include year and NTEE code fixed effects. Standard errors are adjusted for clustering at the nonprofit organization level. \*\*\*, \*\*, \* correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

|                            | Other W-2 Compensation |                   |                  |                   | Non-Taxable Compensation |                  |                   |                  |
|----------------------------|------------------------|-------------------|------------------|-------------------|--------------------------|------------------|-------------------|------------------|
|                            | All                    | All               | Small            | Large             | All                      | All              | Small             | Large            |
| $\bar{R}_{t:t-2}$          | 0.09**<br>[0.04]       | 0.01<br>[0.04]    | 0.05<br>[0.06]   | 0.04<br>[0.06]    | 0.00<br>[0.01]           | -0.01<br>[0.01]  | -0.00<br>[0.00]   | -0.01<br>[0.02]  |
| Ability Index              |                        | 0.12<br>[0.14]    | -0.14<br>[0.14]  | 0.14<br>[0.19]    |                          | 0.04<br>[0.03]   | 0.01<br>[0.01]    | 0.05<br>[0.04]   |
| Selective School           |                        | 0.36<br>[0.28]    | 0.54**<br>[0.27] | -0.04<br>[0.44]   |                          | 0.10**<br>[0.05] | -0.01<br>[0.02]   | 0.22**<br>[0.09] |
| Female                     |                        | -0.23<br>[0.31]   | -0.16<br>[0.52]  | -0.92**<br>[0.42] |                          | 0.10<br>[0.07]   | 0.04<br>[0.04]    | 0.05<br>[0.10]   |
| Tenure                     |                        | 0.03<br>[0.02]    | 0.03<br>[0.02]   | 0.02<br>[0.03]    |                          | 0.00<br>[0.00]   | 0.00<br>[0.00]    | 0.01<br>[0.01]   |
| Age                        |                        | 0.03*<br>[0.02]   | -0.00<br>[0.02]  | 0.07*<br>[0.03]   |                          | 0.00<br>[0.00]   | -0.00<br>[0.00]   | 0.00<br>[0.01]   |
| Log(voting)                |                        | 0.13<br>[0.26]    | 0.06<br>[0.32]   | 0.50<br>[0.36]    |                          | -0.01<br>[0.06]  | -0.04**<br>[0.02] | -0.00<br>[0.10]  |
| Independent (% voting)     |                        | -2.80**<br>[1.30] | -2.11<br>[1.41]  | -0.06<br>[2.18]   |                          | 0.22<br>[0.20]   | 0.13<br>[0.09]    | 0.10<br>[0.35]   |
| Financial Center           |                        | -0.00<br>[0.08]   | 0.10<br>[0.09]   | -0.10<br>[0.12]   |                          | -0.01<br>[0.02]  | 0.00<br>[0.00]    | -0.03<br>[0.03]  |
| Distributions (% expenses) |                        | -1.53<br>[0.94]   | -0.72<br>[0.73]  | -2.19<br>[2.03]   |                          | -0.19<br>[0.15]  | -0.07<br>[0.05]   | -0.35<br>[0.32]  |
| Log(AUM)                   |                        | 0.47***<br>[0.13] | 0.02<br>[0.17]   | 0.69**<br>[0.34]  |                          | 0.04*<br>[0.02]  | 0.02**<br>[0.01]  | -0.10<br>[0.06]  |
| Alternatives (%)           |                        | 0.67<br>[0.51]    | 1.13*<br>[0.66]  | 0.69<br>[0.69]    |                          | -0.06<br>[0.09]  | -0.04<br>[0.03]   | 0.02<br>[0.18]   |
| Year Fixed Effects         | Yes                    | Yes               | Yes              | Yes               | Yes                      | Yes              | Yes               | Yes              |
| NTEE Fixed Effects         | Yes                    | Yes               | Yes              | Yes               | Yes                      | Yes              | Yes               | Yes              |
| Adj.-R <sup>2</sup>        | 0.10                   | 0.23              | 0.20             | 0.23              | 0.01                     | 0.10             | 0.02              | 0.10             |
| Observations               | 1073                   | 857               | 400              | 457               | 1353                     | 1076             | 524               | 552              |

TABLE IA.5

**CIO Compensation and Cost of Living**

This table shows OLS regression coefficients and standard errors for the relationship between measures of compensation for Chief Investment Officers (CIOs) at nonprofit endowments and CIO characteristics. The dependent variable is the natural logarithm of a measure of compensation in a given fiscal year as reported to the IRS, Form 990, Schedule J, Part II. Independent variables include the natural logarithm of the seasonally adjusted Zillow Home Value Index (ZHVI) in a city at the start of the fiscal year, and all control variables of Table IV. The Appendix provides detailed variable descriptions. Each continuous variable is winsorized at the one percent level in both tails. All specifications include year and NTEE code fixed effects. Standard errors are adjusted for clustering at the nonprofit organization level. \*\*\*, \*\*, \* correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

|                                 | Total             |                    | Base              |                    | Bonus            |                    | Deferred       |                 |
|---------------------------------|-------------------|--------------------|-------------------|--------------------|------------------|--------------------|----------------|-----------------|
|                                 | (1)               | (2)                | (3)               | (4)                | (5)              | (6)                | (7)            | (8)             |
| Log(home value) <sup>city</sup> | 0.17***<br>[0.05] | 0.09*<br>[0.06]    | 0.10***<br>[0.03] | 0.06<br>[0.03]     | 0.27**<br>[0.12] | 0.01<br>[0.13]     | 0.13<br>[0.11] | 0.13<br>[0.12]  |
| Financial Center                |                   | -0.07***<br>[0.03] |                   | -0.04***<br>[0.01] |                  | -0.21***<br>[0.04] |                | -0.00<br>[0.06] |
| Controls                        | Yes               | Yes                | Yes               | Yes                | Yes              | Yes                | Yes            | Yes             |
| Year Fixed Effects              | Yes               | Yes                | Yes               | Yes                | Yes              | Yes                | Yes            | Yes             |
| NTEE Fixed Effects              | Yes               | Yes                | Yes               | Yes                | Yes              | Yes                | Yes            | Yes             |
| Adj.-R <sup>2</sup>             | 0.63              | 0.65               | 0.56              | 0.58               | 0.49             | 0.54               | 0.31           | 0.31            |
| Observations                    | 1054              | 1054               | 1054              | 1054               | 699              | 699                | 1008           | 1008            |

TABLE IA.6

**CIO Compensation and Being an Alum**

This table shows OLS regression coefficients and standard errors for the relationship between measures of compensation for Chief Investment Officers (CIOs) at nonprofit endowments and CIO characteristics. The dependent variable is the natural logarithm of a measure of compensation in a given fiscal year as reported to the IRS, Form 990, Schedule J, Part II. Independent variables include a 0/1 that takes a value of 1 if the CIO is an alum, 0 otherwise, and all control variables of Table V. The Appendix provides detailed variable descriptions. Each continuous variable is winsorized at the one percent level in both tails. All specifications include year fixed effects. Standard errors are adjusted for clustering at the nonprofit organization level. \*\*\*, \*\*, \* correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

|                     | Total           |                 | Base              |                  | Bonus           |                | Deferred         |                  |
|---------------------|-----------------|-----------------|-------------------|------------------|-----------------|----------------|------------------|------------------|
|                     | (1)             | (2)             | (3)               | (4)              | (5)             | (6)            | (7)              | (8)              |
| Alum                | -0.16<br>[0.12] | -0.06<br>[0.09] | -0.16**<br>[0.07] | -0.10*<br>[0.06] | -0.18<br>[0.24] | 0.13<br>[0.19] | -0.33*<br>[0.18] | -0.32*<br>[0.18] |
| Controls            | CIO             | All             | CIO               | All              | CIO             | All            | CIO              | All              |
| Year Fixed Effects  | Yes             | Yes             | Yes               | Yes              | Yes             | Yes            | Yes              | Yes              |
| NTEE Fixed Effects  | No              | Yes             | No                | No               | No              | No             | No               | No               |
| Adj.-R <sup>2</sup> | 0.38            | 0.71            | 0.37              | 0.62             | 0.34            | 0.61           | 0.20             | 0.37             |
| Observations        | 1000            | 845             | 1000              | 845              | 642             | 544            | 955              | 808              |

TABLE IA.7

**Determinants of CEO/CFO Compensation**

This table shows OLS regression coefficients and standard errors for the relationship between measures of compensation for CEOs and CFOs at non-profit organizations with endowments that hire a CIO and non-profit characteristics and past returns. The dependent variable is the natural logarithm of a measure of compensation in a given fiscal year as reported to the IRS, Form 990, Schedule J, Part II. Independent variables include the endowment annualized (geometric) net return over a three-year time frame ( $t$ ,  $t - 1$ ,  $t - 2$ ), and all controls from Table III in the main text. Large endowments have AUM greater than \$1 billion. The Appendix provides detailed variable descriptions. Each continuous variable is winsorized at the one percent level in both tails. All specifications include year and NTEE code fixed effects. Standard errors are adjusted for clustering at the nonprofit organization level. \*\*\*, \*\*, \* correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

|  | Total Compensation |        | Bonus Compensation |        |
|--|--------------------|--------|--------------------|--------|
|  | All                | Large  | All                | Large  |
| Panel A: Presidents and Chief Executive Officers |                    |        |                    |        |
| $\bar{R}_{t:t-2}$                                | 0.02*              | 0.01   | -0.02              | -0.09  |
|  | [0.01]             | [0.03] | [0.04]             | [0.09] |
| Controls   | Yes                | Yes    | Yes                | Yes    |
| Year Fixed Effects                               | Yes                | Yes    | Yes                | Yes    |
| NTEE Fixed Effects                               | Yes                | Yes    | Yes                | Yes    |
| Adj.-R <sup>2</sup>                              | 0.39               | 0.29   | 0.30               | 0.27   |
| Observations                                     | 1110               | 372    | 441                | 126    |
| Panel B: Treasurers and Chief Financial Officers |                    |        |                    |        |
| $\bar{R}_{t:t-2}$                                | 0.01               | -0.00  | -0.03              | -0.06  |
|  | [0.01]             | [0.02] | [0.03]             | [0.06] |
| Controls   | Yes                | Yes    | Yes                | Yes    |
| Year Fixed Effects                               | Yes                | Yes    | Yes                | Yes    |
| NTEE Fixed Effects                               | Yes                | Yes    | Yes                | Yes    |
| Adj.-R <sup>2</sup>                              | 0.47               | 0.50   | 0.37               | 0.48   |
| Observations                                     | 1309               | 481    | 522                | 177    |

TABLE IA.8

**Variance Decomposition Analysis**

This table reports a variance decomposition for the relationship between measures of compensation for Chief Investment Officers (CIOs) at nonprofit endowments, and CIO and endowment characteristics and past returns. The dependent variable is the natural logarithm of a measure of compensation in a given fiscal year as reported to the IRS, Form 990, Schedule J, Part II. Independent variables include all controls of Table V. The Appendix provides detailed variable descriptions. Each continuous variable is winsorized at the one percent level in both tails. Depending on the specification, we include year, NTEE code, fund, or manager fixed effects. We compute the partial sum of squares for each variable and fixed effects and normalize to sum to one across specifications.

|                                   | Base Compensation |      |      |      |      |      |      | Bonus Compensation |      |      |      |      |      |      |
|-----------------------------------|-------------------|------|------|------|------|------|------|--------------------|------|------|------|------|------|------|
| <b>Fixed Effects</b>              |                   |      |      |      |      |      |      |                    |      |      |      |      |      |      |
| Fiscal Year                       | 0.41              | 0.06 | 0.06 | 0.35 | 0.11 | 0.11 | 0.11 | 0.26               | 0.04 | 0.02 | 0.31 | 0.09 | 0.04 | 0.07 |
| NTEE Code                         | 0.59              | -    | -    | 0.42 | 0.16 | 0.19 | 0.14 | 0.74               | -    | -    | 0.36 | 0.09 | 0.19 | 0.09 |
| Endowment                         | -                 | 0.94 | -    | -    | -    | -    | -    | -                  | 0.96 | -    | -    | -    | -    | -    |
| Manager                           | -                 | -    | 0.94 | -    | -    | -    | -    | -                  | -    | 0.98 | -    | -    | -    | -    |
| <b>Nonprofit Characteristics</b>  |                   |      |      |      |      |      |      |                    |      |      |      |      |      |      |
| $\bar{R}_{t,t-2}$                 | -                 | -    | -    | 0.23 | 0.00 | -    | 0.00 | -                  | -    | -    | 0.33 | 0.01 | -    | 0.00 |
| Log(voting)                       | -                 | -    | -    | -    | 0.03 | -    | 0.03 | -                  | -    | -    | -    | 0.00 | -    | 0.00 |
| Independent (% voting)            | -                 | -    | -    | -    | 0.03 | -    | 0.03 | -                  | -    | -    | -    | 0.07 | -    | 0.05 |
| Financial Center                  | -                 | -    | -    | -    | 0.14 | -    | 0.11 | -                  | -    | -    | -    | 0.33 | -    | 0.24 |
| Distributions (% expenses)        | -                 | -    | -    | -    | 0.00 | -    | 0.01 | -                  | -    | -    | -    | 0.00 | -    | 0.00 |
| Log(AUM)                          | -                 | -    | -    | -    | 0.45 | -    | 0.29 | -                  | -    | -    | -    | 0.31 | -    | 0.15 |
| Alternatives (%)                  | -                 | -    | -    | -    | 0.08 | -    | 0.06 | -                  | -    | -    | -    | 0.09 | -    | 0.04 |
| <b>Managerial Characteristics</b> |                   |      |      |      |      |      |      |                    |      |      |      |      |      |      |
| Ability Index                     | -                 | -    | -    | -    | -    | 0.37 | 0.13 | -                  | -    | -    | -    | -    | 0.46 | 0.27 |
| Selective College                 | -                 | -    | -    | -    | -    | 0.26 | 0.08 | -                  | -    | -    | -    | -    | 0.26 | 0.07 |
| Female                            | -                 | -    | -    | -    | -    | 0.03 | 0.01 | -                  | -    | -    | -    | -    | 0.00 | 0.00 |
| Tenure                            | -                 | -    | -    | -    | -    | 0.03 | 0.01 | -                  | -    | -    | -    | -    | 0.02 | 0.01 |
| Age                               | -                 | -    | -    | -    | -    | 0.00 | 0.01 | -                  | -    | -    | -    | -    | 0.03 | 0.00 |
| Adj.- $R^2$                       | 0.10              | 0.77 | 0.81 | 0.14 | 0.49 | 0.34 | 0.55 | 0.05               | 0.81 | 0.84 | 0.1  | 0.44 | 0.32 | 0.54 |



TABLE IA.9

**CIO Bonus and Lagged Returns**

This table shows OLS regression coefficients and standard errors for the relationship between measures of compensation for Chief Investment Officers (CIOs) at nonprofit endowments, and CIO and endowment characteristics and past returns. The dependent variable is the natural logarithm of bonus compensation in a given fiscal year as reported to the IRS, Form 990, Schedule J, Part II. Independent variables include endowment net returns for the three prior years ( $t$ ,  $t - 1$ ,  $t - 2$ ) and all control variables used in Table IV. Large endowments have AUM greater than \$1 billion. The Appendix provides detailed variable descriptions. Each continuous variable is winsorized at the one percent level in both tails. All specifications include year and NTEE code fixed effects. Standard errors are adjusted for clustering at the nonprofit organization level. \*\*\*, \*\*, \* correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

|                            | All               | All                | Small              | Large              |
|----------------------------|-------------------|--------------------|--------------------|--------------------|
| $R_t$                      | 0.04***<br>[0.01] | 0.01<br>[0.01]     | 0.01<br>[0.02]     | 0.01<br>[0.01]     |
| $R_{t-1}$                  | 0.04***<br>[0.01] | 0.01<br>[0.01]     | -0.02<br>[0.02]    | 0.03**<br>[0.01]   |
| $R_{t-2}$                  | 0.02**<br>[0.01]  | -0.00<br>[0.01]    | -0.02**<br>[0.01]  | 0.02*<br>[0.01]    |
| Ability Index              |                   | 0.45***<br>[0.08]  | 0.56***<br>[0.14]  | 0.26***<br>[0.07]  |
| Selective School           |                   | 0.43**<br>[0.17]   | 0.51**<br>[0.24]   | 0.29**<br>[0.13]   |
| Female                     |                   | 0.04<br>[0.17]     | 0.38<br>[0.41]     | -0.30**<br>[0.15]  |
| Tenure                     |                   | 0.01<br>[0.01]     | -0.01<br>[0.02]    | 0.03***<br>[0.01]  |
| Age                        |                   | -0.01<br>[0.01]    | -0.02*<br>[0.01]   | 0.01<br>[0.01]     |
| Log(voting)                |                   | -0.04<br>[0.15]    | -0.39<br>[0.32]    | 0.12<br>[0.09]     |
| Independent (% voting)     |                   | -2.09***<br>[0.60] | -0.71<br>[0.88]    | -0.45<br>[0.60]    |
| Financial Center           |                   | -0.21***<br>[0.04] | -0.32***<br>[0.05] | -0.15***<br>[0.03] |
| Distributions (% expenses) |                   | -0.07<br>[0.44]    | 0.52<br>[0.55]     | -0.50<br>[0.39]    |
| Log(AUM)                   |                   | 0.30***<br>[0.10]  | -0.07<br>[0.13]    | 0.48***<br>[0.09]  |
| Alternatives (%)           |                   | 0.80**<br>[0.32]   | 0.67<br>[0.56]     | 0.84***<br>[0.31]  |
| Year Fixed Effects         | Yes               | Yes                | Yes                | Yes                |
| NTEE Fixed Effects         | Yes               | Yes                | Yes                | Yes                |
| Adj.-R <sup>2</sup>        | 0.15              | 17                 | 0.55               | 0.61               |
| Observations               | 872               | 708                | 275                | 433                |

TABLE IA.10

**CIO Compensation and Pay-for Performance**

This table shows OLS regression coefficients and standard errors for the relationship between measures of compensation for Chief Investment Officers (CIOs) at nonprofit endowments, and CIO and endowment characteristics and past returns. The dependent variable is the natural logarithm of a measure of compensation in a given fiscal year as reported to the IRS, Form 990, Schedule J, Part II. Independent variables include the endowment annualized (geometric) net return over a three-year time frame ( $t, t-1, t-2$ ), a 0/1 dummy that equals one if the endowment is large (more than \$1 billion in assets), their interaction, and all control variables used in Table IV. The Appendix provides detailed variable descriptions. Each continuous variable is winsorized at the one percent level in both tails. All specifications include year and NTEE code fixed effects. Standard errors are adjusted for clustering at the nonprofit organization level. \*\*\*, \*\*, \* correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

|                                       | Total             | Base             | Bonus            | Deferred        |
|---------------------------------------|-------------------|------------------|------------------|-----------------|
|                                       | (1)               | (2)              | (3)              | (4)             |
| $\bar{R}_{t:t-2} \times \text{Large}$ | 0.03***<br>[0.01] | 0.01**<br>[0.01] | 0.07**<br>[0.03] | 0.02<br>[0.02]  |
| $\bar{R}_{t:t-2}$                     | -0.01<br>[0.01]   | -0.00<br>[0.01]  | -0.02<br>[0.03]  | -0.01<br>[0.02] |
| Large                                 | -0.00<br>[0.09]   | 0.01<br>[0.06]   | 0.19<br>[0.21]   | 0.07<br>[0.20]  |
| Controls                              | Yes               | Yes              | Yes              | Yes             |
| Year Fixed Effects                    | Yes               | Yes              | Yes              | Yes             |
| NTEE Fixed Effects                    | Yes               | Yes              | Yes              | Yes             |
| Adj.-R <sup>2</sup>                   | 0.64              | 0.58             | 0.57             | 0.31            |
| Observations                          | 1077              | 1077             | 708              | 1023            |

TABLE IA.11

**CIO Bonus and Alternate Definitions of Bonus Earned**

This table shows OLS regression coefficients and standard errors for the relationship between measures of compensation for Chief Investment Officers (CIOs) at nonprofit organizations and endowment returns and nonprofit characteristics. The dependent variable is the natural logarithm of a measure of compensation adjusted downward for any current payments based on previously deferred compensation and upward for any compensation that is “earned” this year but whose payment is deferred in a given fiscal year as reported to the IRS, Form 990, Schedule J, Part II. Independent variables include all controls from Table V in the main text. Large endowments have AUM greater than \$1 billion. The Appendix provides detailed variable descriptions. Each continuous variable is winsorized at the one percent level in both tails. All specifications include year and NTEE code fixed effects. Standard errors are adjusted for clustering at the nonprofit organization level. \*\*\*, \*\*, \* correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

|                            | All               | All                | Small              | Large              |
|----------------------------|-------------------|--------------------|--------------------|--------------------|
| $\bar{R}_{t:t-2}$          | 0.09***<br>[0.03] | 0.01<br>[0.02]     | -0.03<br>[0.02]    | 0.05**<br>[0.03]   |
| Ability Index              |                   | 0.35***<br>[0.07]  | 0.34***<br>[0.10]  | 0.23***<br>[0.09]  |
| Selective School           |                   | 0.36**<br>[0.14]   | 0.39**<br>[0.19]   | 0.21*<br>[0.12]    |
| Female                     |                   | 0.05<br>[0.13]     | 0.56**<br>[0.26]   | -0.29**<br>[0.14]  |
| Tenure                     |                   | 0.02<br>[0.01]     | -0.00<br>[0.01]    | 0.03**<br>[0.01]   |
| Age                        |                   | -0.01<br>[0.01]    | -0.01<br>[0.01]    | 0.01<br>[0.01]     |
| Log(voting)                |                   | -0.09<br>[0.12]    | -0.20<br>[0.21]    | 0.01<br>[0.09]     |
| Independent (% voting)     |                   | -1.47**<br>[0.60]  | -0.06<br>[0.77]    | -0.27<br>[0.51]    |
| Financial Center           |                   | -0.17***<br>[0.04] | -0.27***<br>[0.05] | -0.12***<br>[0.03] |
| Distributions (% expenses) |                   | -0.25<br>[0.37]    | 0.18<br>[0.46]     | -0.48<br>[0.33]    |
| Log(AUM)                   |                   | 0.28***<br>[0.08]  | -0.05<br>[0.09]    | 0.43***<br>[0.10]  |
| Alternatives (%)           |                   | 0.73***<br>[0.26]  | 0.49<br>[0.43]     | 0.74**<br>[0.32]   |
| Year Fixed Effects         | Yes               | Yes                | Yes                | Yes                |
| NTEE Fixed Effects         | Yes               | Yes                | Yes                | Yes                |
| Adj.-R <sup>2</sup>        | 0.12              | 0.51               | 0.56               | 0.51               |
| Observations               | 866               | 702                | 272                | 430                |

TABLE IA.12

**Future Performance, CIO Compensation, and Past Returns: Full Sample**

This table shows OLS regression coefficients and standard errors for the relationship between future performance of nonprofit endowments, and CIO characteristics and compensation and nonprofit characteristics. The dependent variable is the annual (geometric) net return over the next three years ( $t + 1$ ,  $t + 2$ ,  $t + 3$ ). Independent variables include the natural logarithm of total compensation, and all control variables used in Table V. The Appendix provides detailed variable descriptions. Each continuous variable is winsorized at the one percent level in both tails. All specifications include year and NTEE code fixed effects. Standard errors are adjusted for clustering at the nonprofit organization level. \*\*\*, \*\*, \* correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

|                     | (1)               | (2)             | (3)               | (4)               |
|---------------------|-------------------|-----------------|-------------------|-------------------|
| Log(total comp.)    | 0.62***<br>[0.19] | 0.11<br>[0.26]  | 0.10<br>[0.21]    | 0.32**<br>[0.14]  |
| $\bar{R}_{t:t-2}$   |                   |                 | 0.43***<br>[0.06] | 0.46***<br>[0.05] |
| Ability Index       |                   | 0.02<br>[0.16]  | -0.03<br>[0.11]   |                   |
| Selective School    |                   | 0.33<br>[0.27]  | 0.16<br>[0.21]    |                   |
| Female              |                   | 0.34<br>[0.36]  | 0.28<br>[0.24]    |                   |
| Tenure              |                   | 0.00<br>[0.02]  | 0.01<br>[0.02]    |                   |
| Age                 |                   | 0.03<br>[0.02]  | 0.02<br>[0.02]    |                   |
| Financial Center    |                   | -0.09<br>[0.08] | -0.08<br>[0.06]   |                   |
| Log(AUM)            |                   | 0.31<br>[0.21]  | 0.10<br>[0.17]    |                   |
| Alternatives (%)    |                   | 0.88<br>[0.57]  | 0.62<br>[0.38]    |                   |
| Year Fixed Effects  | Yes               | Yes             | Yes               | Yes               |
| NTEE Fixed Effects  | Yes               | Yes             | Yes               | Yes               |
| Adj.-R <sup>2</sup> | 0.46              | 0.55            | 0.66              | 0.61              |
| Observations        | 922               | 732             | 688               | 865               |

TABLE IA.13

**Future Performance, CIO Compensation, and Past Returns: Large**

This table shows OLS regression coefficients and standard errors for the relationship between future performance of large nonprofit endowments, and CIO characteristics and compensation and nonprofit characteristics. The dependent variable is the annual (geometric) net return over the next three years ( $t + 1, t + 2, t + 3$ ). Independent variables include the natural logarithm of total compensation, and all control variables used in Table V. Large endowments have AUM greater than \$1 billion. The Appendix provides detailed variable descriptions. Each continuous variable is winsorized at the one percent level in both tails. All specifications include year and NTEE code fixed effects. Standard errors are adjusted for clustering at the nonprofit organization level. \*\*\*, \*\*, \* correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

|                     | (1)              | (2)               | (3)               | (4)               |
|---------------------|------------------|-------------------|-------------------|-------------------|
| Log(total comp.)    | 0.67**<br>[0.29] | 0.35<br>[0.37]    | 0.05<br>[0.20]    | 0.10<br>[0.18]    |
| $\bar{R}_{t:t-2}$   |                  |                   | 0.52***<br>[0.06] | 0.57***<br>[0.06] |
| Ability Index       |                  | 0.03<br>[0.19]    | -0.06<br>[0.11]   |                   |
| Selective School    |                  | 0.70*<br>[0.41]   | 0.52**<br>[0.22]  |                   |
| Female              |                  | 0.61<br>[0.48]    | 0.33<br>[0.26]    |                   |
| Tenure              |                  | 0.03<br>[0.04]    | 0.03<br>[0.02]    |                   |
| Age                 |                  | -0.06*<br>[0.03]  | -0.04**<br>[0.02] |                   |
| Financial Center    |                  | -0.08<br>[0.11]   | -0.05<br>[0.07]   |                   |
| Log(AUM)            |                  | -0.07<br>[0.34]   | -0.16<br>[0.20]   |                   |
| Alternatives (%)    |                  | 2.42***<br>[0.85] | 1.28**<br>[0.54]  |                   |
| Year Fixed Effects  | Yes              | Yes               | Yes               | Yes               |
| NTEE Fixed Effects  | Yes              | Yes               | Yes               | Yes               |
| Adj.-R <sup>2</sup> | 0.48             | 0.57              | 0.72              | 0.68              |
| Observations        | 400              | 352               | 334               | 381               |

TABLE IA.14

**Future Performance, CIO Compensation, and Past Returns: Small**

This table shows OLS regression coefficients and standard errors for the relationship between future performance of small nonprofit endowments, and CIO characteristics and compensation and nonprofit characteristics. The dependent variable is the annual (geometric) net return over the next three years ( $t + 1$ ,  $t + 2$ ,  $t + 3$ ). Independent variables include the natural logarithm of total compensation, and all control variables used in Table V. Small endowments have AUM lower than \$1 billion. The Appendix provides detailed variable descriptions. Each continuous variable is winsorized at the one percent level in both tails. All specifications include year and NTEE code fixed effects. Standard errors are adjusted for clustering at the nonprofit organization level. \*\*\*, \*\*, \* correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

|                     | (1)             | (2)              | (3)               | (4)               |
|---------------------|-----------------|------------------|-------------------|-------------------|
| Log(total comp.)    | -0.02<br>[0.40] | -0.28<br>[0.43]  | -0.08<br>[0.37]   | 0.02<br>[0.31]    |
| $\bar{R}_{t:t-2}$   |                 |                  | 0.30***<br>[0.07] | 0.36***<br>[0.07] |
| Ability Index       |                 | 0.07<br>[0.24]   | 0.04<br>[0.20]    |                   |
| Selective School    |                 | 0.20<br>[0.34]   | -0.04<br>[0.31]   |                   |
| Female              |                 | 0.57<br>[0.52]   | 0.49<br>[0.41]    |                   |
| Tenure              |                 | -0.02<br>[0.03]  | -0.01<br>[0.02]   |                   |
| Age                 |                 | 0.07**<br>[0.03] | 0.06**<br>[0.03]  |                   |
| Financial Center    |                 | -0.15<br>[0.10]  | -0.10<br>[0.09]   |                   |
| Log(AUM)            |                 | 0.32<br>[0.30]   | 0.15<br>[0.29]    |                   |
| Alternatives (%)    |                 | 0.29<br>[0.69]   | 0.43<br>[0.54]    |                   |
| Year Fixed Effects  | Yes             | Yes              | Yes               | Yes               |
| NTEE Fixed Effects  | Yes             | Yes              | Yes               | Yes               |
| Adj.-R <sup>2</sup> | 0.45            | 0.58             | 0.63              | 0.56              |
| Observations        | 522             | 380              | 354               | 484               |

TABLE IA.15

**CIOs with “Swensen Experience” and Control Group**

This table reports summary statistics for Chief Investment Officers (CIOs) with experience working at Yale with David Swensen and a control group of CIOs at other endowments. The control group is matched using propensity score matching on the natural logarithm of the endowment market value, tenure in the job, ability index, in the same NTEE code, and same fiscal year. The table reports mean and median values for “Swensen experience” and control endowment market values, share of assets allocated to alternative investments, CIO total compensation, and annual net returns, as well as  $p$ -values for the test of difference in means and medians. Mean differences are measured using the  $t$ -test; median differences are tested using quantile regression. The Appendix provides detailed variable descriptions. \*\*\*, \*\*, \* correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

|                      | Swensen Exp. [A] |       | Controls [B] |       | $p$ -val. [A]-[B] |         | $p$ -val. (Logs) [A]-[B] |       |
|----------------------|------------------|-------|--------------|-------|-------------------|---------|--------------------------|-------|
|                      | Mean             | P50   | Mean         | P50   | Mean              | P50     | Mean                     | P50   |
| AUM (\$M)            | 8,680            | 7,990 | 9,141        | 5,131 | 0.804             | 0.169   | 0.493                    | 0.273 |
| Alternatives (%)     | 0.58             | 0.44  | 0.54         | 0.55  | 0.385             | 0.241   | -                        | -     |
| Tot. Comp. (\$ '000) | 2,116            | 1,364 | 3,074        | 1,805 | 0.040**           | 0.307   | 0.812                    | 0.497 |
| $R_{t+1}$            | 10.32            | 11.88 | 7.90         | 8.21  | 0.065*            | 0.044** | -                        | -     |
| $\bar{R}_{t+1:t+3}$  | 10.00            | 10.37 | 7.30         | 7.71  | 0.000***          | 0.013** | -                        | -     |