The Investment Returns of Nonprofit Organizations

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Abstract

Nonprofit charities and foundations hold endowments and other investments. How do their investments perform? Some high-profile nonprofit endowments, importantly those of colleges and universities, have been studied before. This is the first study, to our knowledge, that looks at a large number of many different types of nonprofits. We use a large panel data set culled from the forms nonprofits must file with the IRS to investigate the determinants of investment performance. To understand why some organizations do well and others much less so, we regress the rate of return for each organization on various characteristics. Larger nonprofits, older nonprofits, and private foundations tend to earn higher returns. The evidence is mixed as to whether nonprofits that pay higher executive salaries and spend more on management earn higher returns. Certain types of nonprofits consistently do better than others, including those whose primary business is predominantly financial, such as insurance providers and pension or retirement funds.

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Nonprofit organizations, including public charities and private foundations, are granted special tax-exempt status by the federal government to encourage their work promoting the public interest. Nonprofits range widely in size, from small local organizations with no paid employees to large nationwide organizations that employ thousands. Nonprofits also vary in the ways they secure revenues. Those revenues have four major components: private donations, government grants, program service revenue, and investment returns on financial assets.

We focus on investment returns, a source of revenue that is particularly important for the largest nonprofits, which almost invariably have large endowments. For the 100 public charities with the largest levels of expenditure in 2007, the median ratio of endowment to expenditures was 0.755. A parallel calculation for those with the 100 largest endowments gives a median ratio of 7.50. This disparity is to be expected, since the first figure selected on expenditures, and the second on endowment size.

The largest endowments tend to belong to large private universities and private grant-making foundations. The largest endowment among all charities in 2007 was $42 billion; the 20th largest was $7.84 billion. When an organization's endowment is large, whether absolutely or relative to its expenditures, its rate of investment return is critical. Fortunately for the largest endowments, as has been suspected, they appear to secure superior investment returns on a forward looking basis. This happy picture, however, does not carry over to many other types of charitable organizations, which on average achieve substantially lower investment returns for their beneficiaries, their employees and their donors than should be possible. This analysis seeks to determine what factors affect the financial performance of U.S. nonprofits' investments.

This paper is written in mid-2011. Concerns with the financial meltdown of 2008-09 have receded. In that period, press reports indicated that many nonprofit endowments suffered significantly, including many that had been highly successful in the past. Nonsystematic data indicate that some are still suffering in the aftermath. Unfortunately, our data source extends only through 2007, and data on nonprofit performance during the period starting with the 2008 financial plunge is not available.[1]

A number of papers investigate the investment performance and portfolio management strategies of specific classes of nonprofits using survey data based on a subset of organizations of

[1] It is exceedingly unlikely that their poor performance in that period wiped out their superior performance in many prior years.

a specific type. Higher education institutions – frequently blessed with large endowments -- have received the most study. The National Association of College and University Business Officers (NACUBO) and the Commonfund Institute annually release a Study of Endowments documenting the performance of endowments of higher education institutions. Data were obtained from surveys given to endowment managers; the fiscal year 2010 study included data from 850 institutions.[2] The Commonfund Institute also releases annual reports on investment performance for nonprofits in various categories, including healthcare, private foundations, and operating charities. Its 2010 foundations report includes data from 175 institutions; its 2010 healthcare institutions report includes 85 nonprofit entities. These survey-based studies find similar patterns in investment performance: the nonprofits with the largest endowments tended to get higher rates of return, and they also tended to invest a higher fraction of their portfolio in alternative investments.

Other papers study the source of nonprofits' endowments, as part of the burgeoning literature on charitable contributions. For example, Ritchie and Eastwood (2006) examine how characteristics of the executives of nonprofits influence the magnitude and composition of contributions.

This is the first analysis that studies investment performance of nonprofits broadly, looking across institutions as diverse as colleges and universities, foundations, social service organizations, and hospitals. The goal is to compare and contrast, to see which characteristics lead nonprofits to do well and which to do poorly. We use a large data set based on the IRS forms that public charities and private foundations must submit annually.[3] While these forms, unlike financial reports filed by some charities, do not explicitly state the organization's rate of return on financial assets, this rate can be inferred from the reported data. Indeed, such inferred returns may be more reliable than charities' self reports, which are surely computed inconsistently across charities, partly due to temptations for creative calculation. Donors do not like to contribute to organizations that do not invest their monies well.

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[2] A number of papers have used data from NACUBO to study aspects of endowment performance. Dimmock (forthcoming) finds that universities with higher background risk invest more heavily in fixed income and less in alternatives. Larger universities hold more risky assets than smaller universities. Brown et. al. (2010) find that while asset allocation differs across endowments, in the cross section it is unrelated to returns. Lerner et. al. (2008) find that endowment size, student quality, and the use of alternative investments are all positively correlated with high returns.

[3] Our data section describes the minor class of exceptions.

We consider several different ways to infer investment returns. As a consistency check on our inferred returns, we compare the values we compute to investment returns reported by major private universities on a Bloomberg survey to see how well they match. To understand why some organizations do well, and others much less so, we first develop hypotheses from the literature that suggest various relationships. To test these hypotheses, we regress the rate of return for each organization on various measures of its qualities, including its size, age, category, and level of executive compensation. To convincingly test the direction of causality for such relationships would require a natural experiment. Unfortunately, no such experiment is available. Recognizing that we lack this gold standard test, the fact that a number of correlations confirm some of our hypotheses is reassuring. Such relationships have not been found before using nearly so general a dataset.

Our data set has been widely used in studies of the nonprofit sector, but never to our knowledge to analyze investment returns. This data set offers many advantages. It covers a broad range of nonprofits, including every nonprofit with $10 million or more in assets, as well as a random sample of smaller nonprofits. Furthermore, it provides considerable additional information about each nonprofit, enabling us to determine which factors promote better investment performance.

Our first step is to identify five hypotheses deduced from the literature and to provide an intuitive understanding of factors that have the potential to influence performance. All five of these hypotheses contribute to an overarching hypothesis of *focused attention.* Some nonprofits will be relatively more focused on investment performance than others, and those that are focused will secure superior investment returns. Intuition indicates that some observable characteristics of nonprofits will determine how strongly a nonprofit is focused on investment performance. Most nonprofits see themselves as fulfilling an important societal mission, such as educating children or eliminating disease. The more strongly the nonprofit is focused on its mission, other factors equal, the less attention it will pay to managing its endowment. Starting from the presumption that virtually any organization has limited attention, we posit that organizations that relegate endowment performance to a secondary consideration will perform less well. Of course, no organization would announce such a preference, thus we can only posit attributes that are likely to be related.

Our five hypotheses are the *size* hypothesis, the *management* hypothesis, the *compensation* hypothesis, the *age* hypothesis, and the *financial orientation* hypothesis. Each of these hypotheses should be understood to hold other factors equal.

It seems plausible that larger nonprofits would do better. They can afford more professional management and may get access to superior investments, say in private equity. Moreover, over a reasonable range, we would expect there to be economies of scale in securing returns, whether one uses outside managers or invests in house. For example, a nonprofit with twice the endowment of another that paid twice as much to its investment manager should get better results.[4] Moreover, it should also have access to better investment opportunities, say with hedge funds with superior records, which normally shun small investors.

Size Hypothesis (1): Larger nonprofits will secure greater investment returns.

Many nonprofits consider their public purpose to be their primary responsibility and would be hesitant to spend a great deal, either in executive time or direct dollars, on managing their endowments. Partly this has to do with how they present themselves to the public. Significant disparities in expenditures on management even emerge within nonprofits of the same size and type. Nonprofits that push mission at the expense of investment performance might also plausibly spend less on management generally. In effect we are arguing that there are pressures for nonprofits to spend less on financial management than would be optimal, given the "focused attention" issue.

Management Hypothesis (2): Nonprofits that spend more on management will secure greater investment returns.

We stress that these hypotheses are interpreted as holding all else equal. Management expenditures are correlated with overall endowment size, to be sure. Thus, we control for size in our regressions. But among two equal-sized charities, the hypothesis predicts that the one spending more on management will secure superior returns.

[4] Causality could flow in the opposite direction. Posit that for some unobservable reason, e.g., a particularly skilled investments professional leading its investment committee, certain nonprofits have inherent advantages on investment results over others. Over time they will get larger, implying that size will be positively correlated with investment return.

Nonprofits that place more emphasis on investment performance might also choose to pay higher executive salaries in general to attract talent. Higher salaries may also reflect a stronger belief that higher pay attracts talent.[5]

Compensation Hypothesis (3): Nonprofits that pay higher executive salaries will secure greater investment returns.

Older nonprofits have more experience securing investment returns, and thus we expect age to be correlated with investment performance, all else equal.

Age Hypothesis (4): Older nonprofits will secure greater investment returns.

Finally, we expect that nonprofits that focus on financial activities would perform better. Their high-level executives should be financially sophisticated. Equally important, we would expect their orientation to be toward financial performance. In this bailiwick, we would find insurance providers, pension and retirement funds, and private foundations. This leads to:

Financial Orientation Hypothesis (5): Organizations whose primary business is predominantly financial will secure greater investment returns.

These five hypotheses represent our prime understanding drawing on theory derived from the literature and common sense. However, we should note that nonprofits represent an extraordinarily diverse group of entities. It would be surprising if there were not other categories within which nonprofits earned significantly better or significantly worse returns than the norm. Thus, for example, we advance no prior beliefs as to whether art museums should do better than hospitals, or social service organizations should do better than environmental organizations. But it would be surprising if beyond statistical chance we did not find certain classes of nonprofits doing substantially better or worse than others, quite apart from our five hypotheses. Similarly, factors beyond those available for study surely play a role in influencing returns. For instance, it is likely that nonprofits with a greater percentage of business representation on their boards have more focused attention on endowment performance, but we are unable to observe this.

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[5] A major controversy erupted at Harvard University in 2003 when some alumni protested vociferously about paying executives at the in-house Harvard Management Company (HMC) compensation amounts of $25 million and up. The critics suggested that individuals should be willing to manage the Harvard endowment for no more than $1 million per year. The contrary argument was that the large payments were bonuses based on performance, that given the size of Harvard's endowment it was important to get the best, and that these salaries were actually small when compared to what top Wall Street professionals were being paid. In future years, the compensation at HMC went down considerably, but still it was manifold greater than the salary of the University's president or other top-paid salaries.

Section I below briefly describes nonprofit organizations in the US and their investment performance, as well as what past research has found relative to financial performance. Section II describes the data set used and provides some summary statistics. Section III details how the data were used to construct the nonprofit-specific rate of return. It also compares calculations here relative to those reported by some private universities. Section IV presents the empirical findings. Section V concludes.

I. Nonprofit Organizations and Financial Assets

Nonprofit organizations are misleadingly named. For many such organizations revenues notably exceed expenditures.[6] The defining trait of nonprofits is not that they do not make a profit. Rather, they face a non-distribution constraint: no party has a residual claim on any net income. If reserves build up, there are no shareholders, and executives are precluded from taking such income. In the United States, the provision of the tax code that grants most nonprofits their status is 501(c). This section lists 27 types of nonprofit organizations that are exempt from some federal income tax. 501(c)(3) organizations – by far the largest and best known group -- include various charitable, religious, and educational organizations. Other categories of nonprofits include labor unions (501(c)(5)), credit unions (501(c)(14)), and the National Railroad Retirement Investment Trust (a single organization that gets its own code section: 501(c)(28)). All the organizations in our data qualify under the 501(c)(3) section.

Such organizations are further divided into public charities and private foundations. (This division is defined in section 509(a).) A public charity typically receives a substantial fraction of its revenue from donors or grants, and provides charitable services. A private foundation typically receives most of its income from investment returns on and gifts to its endowment. It makes grants to public charities for performing charitable work, but it does not directly perform such work itself. Notable public charities include the American Red Cross and the Salvation Army. Significant private foundations include the Bill and Melinda Gates

[6] A small surplus is not surprising, since nonprofits, particularly those that must secure donor funds, strive not to incur a deficit, lest donors feel they are funding excess expenditure and possibly a threatened organization. But big surpluses seem inconsistent with the nonprofit mission. Anecdotal evidence suggests that hospitals in particular have done quite well recently. A 2010 Forbes.com article identifies the top 25 most profitable hospitals, and several nonprofits make the list, including those ranked third, fourth and fifth (Whelan 2010).

Foundation and the Ford Foundation. Public charities account for nearly 90% of all 501(c)(3) organizations.[7]

Before considering investment performance, a logical fundamental question to ask is why nonprofits hold any endowment at all. Fisman and Hubbard (2003, 2005) provide an answer. They focus on production smoothing or precautionary savings, namely that endowment funds are used to smooth the variability in other sources of funding, providing a relatively stable level of charitable services. They find evidence consistent with endowments being used as a precautionary savings device (2003) and find that the propensity to use funds in this way is curtailed in states with poor government oversight (2005). They interpret the last result as suggesting that nonprofit managers possibly use funds improperly for personal reasons.[8]

Precautionary savings, however, cannot account for a salient feature of nonprofit behavior. Of those with a major endowment, only a minority of them draw down their assets in a year, leaving aside the unusual years when investment returns are strongly negative. Of the nonprofits in our sample with over $10 million in net assets at the beginning of tax year 1987, a relatively "flat" year in which the S&P 500 stock index (including dividends) rose 5.3%, fewer than 20% ended that tax year with the value of their net assets reduced. The median growth in the endowments that year was 6.9%. In 2000, when the S&P fell by 9.1%, only 40% of nonprofits in our sample with over $10 million in net assets at the beginning of the year ended the year with their net assets reduced; the median endowment growth rate was 3.1%. In 2007, when the S&P 500 rose by 5.5%, about 37% of nonprofits in our sample with over $10 million in net assets at the beginning of the year ended the year with their net assets reduced, and the median endowment growth rate was 2.9%. (Unfortunately, data is not yet available for 2008, the year the financial crisis hit massively.) Looking across all the years in our data, it seems clear that many charities consider building their endowment to be a critical end unto itself. Foundations produce even more Midas-like behavior. Foundations are penalized financially by

[7] Foundations are overrepresented in our data set, since it overrepresents large organizations and foundations are on average larger than charities.

[8] They note, however, that there is a conflict between this need for precautionary savings and an agency problem created by giving managers control over the endowment. They look at nonprofit endowment data for correlations between endowment size and measures of government oversight, hypothesizing that there will be lower endowments where there is more oversight, due to less agency problems. They find no such correlation, however.

the government if they do not expend at least 5% of their assets in a period. This turns out to be a near binding constraint, though in most years most foundations earned far more than 5%.[9]

Nonprofit executives, like any executives, are agents for other parties. An intriguing question is: who is the principal for whom these executives serve as agents? Is it the board, the recipients of charitable services, or some ill defined future entity? Core et. al. (2006) examine the factors that lead endowment holdings to be excessive. They measure a nonprofit's excess endowment as being the residual from an estimated regression model of endowments on firm characteristics, and they look for correlations between this excess endowment and other firm characteristics.[10] Gentry (2002) examines endowment holdings of nonprofit hospitals, which are allowed to issue tax-exempt bonds. He finds that hospitals, as we would expect, engage in tax arbitrage by having these bonds issued instead of spending funds from their endowment. As much as $32.6 billion of the $55.9 billion total tax-exempt liabilities of hospitals could have been eliminated had hospitals used their endowments rather than issuing debt.[11]

The role of endowments for universities is much discussed. In 2010, the ten largest university endowments stretched from $5.7 billion to $27.6 billion.[12] The average percentage increase of these ten endowments over the prior year was 9.4%, compared to the S&P 500 gain of 11.7%. By contrast, before the collapse of financial markets and subsequent recession, university endowments tended to dramatically outperform market indices. The average percentage increase from 2006 to 2007 on the ten largest university endowments was 21.3%, compared to the S&P 500 gain of 21.6%. In the following fiscal year, they had an average percentage increase of 3.4% compared to the S&P 500 decrease of 13.12%. The ten largest university endowments as of June 2002 grew an average of 84.3% by June 2008, while the S&P 500 grew by 46% over that period. These growth percentages are not the rates of return on investments, since they include the net change in donations and expenses plus investment income. However, it seems unlikely that the needs of these universities grew by 84.3% over six

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[9] Satchell and Thorp (2007) determine the optimal dynamic consumption paths for charitable endowments, as a function of an organization's preferences over risk and intertemporal substitution.

[10] They find support for agency problems (a nonprofit manager may increase the organization's endowment beyond the optimal level and use excess funds for personal gain), consistent with Fisman and Hubbard (2005).

[11] Wedig et. al. (1996) also consider tax arbitrage possibilities for nonprofit hospitals, and Black (1980) considers tax arbitrage within pension funds run by for-profit firms. Fraser and Jennings (2006) use a behavioral asset allocation model to argue that foundations and endowments are excessively conservative.

[12] Summary statistics on university endowments are self-reported and presented in the annual National Association of College and University Business Officers (NACUBO) Endowment Study. Select tables are available publicly at: http://www.nacubo.org/Research/NACUBO_Endowment_Study/Public_NCSE_Tables_.html.

years. The best explanation is that endowment size itself is an important component of status or performance. To illustrate, many people know that Harvard has the largest endowment among universities. Few can name three distinguished professors there.

Considering only the self-reported rates of investment return, as of June 2010, the ten-year average annualized rate of return for college endowments larger than $1 billion was 5.0%, whereas for those with less than $25 million it was 2.8%.[13] These rates of return were achieved during a period where the S&P 500 price index suffered a 3.4% per-year loss. (All of these endowments held some bonds, which paid less than stocks over this period.) The 8% rate of excess return for the largest endowments is impressive, dramatically above what most top equity managers can claim. This provides suggestive evidence supporting Hypothesis 1. But of course we would expect that the larger endowments were the ones that had grown most swiftly, just as we would if looking at heights of 16-year-old boys. Thus, a more statistically justified assessment would look at the 10 largest college endowments at some specified date and ask how they did over the next decade. Our specialized data set on university and college endowments does not provide this figure, but we examine this effect of size on a forward looking basis in our regression results below (see Table 6).

Hansmann (1990) asks the question "why do universities have endowments?" He concludes that their large endowments are difficult to rationalize from standard economic models. He considers several potential explanations, including intergenerational equity, smoothing over lumpy income streams, the tax incentives of potential donors, the need for maintaining liquidity in the presence of income shocks, the preferences of donors or administrators, and the fact that universities have become accustomed to large endowments and have formed a building habit (though he does not provide a definitive answer to his question). Brown (1999) examines the investment strategy and performance of university endowments and

[13] The size of university endowments is creating controversy, as some legislators are calling for reevaluation of some schools' nonprofit status in the presence of these large holdings. A group of Harvard University alumni have formed and organization, Harvard Alumni for Social Action, that prods the university to use some of its $35 billion endowment towards more direct charitable work. A Massachusetts state representative has proposed a bill that would tax any university endowments over $1 billion at a 2.5% rate. Some federal legislators have suggested requiring universities to spend at least 5% of their endowments annually, as private foundations are required to (universities are classified as public charities and hence are not required to meet the 5% distribution rule). In September 2008 the Senate Finance Committee chaired a roundtable discussion of this issue. This is not the first time such a rule has been proposed. The Filer Commission on Private Philanthropy and Public Needs, which issued a far-reaching and detailed report on the nonprofit sector in 1977, recommended that all nonprofits, including universities, be subject to the 5% rule.

finds considerable variation among endowments in both investment strategy and performance. The average endowment outperformed the market after adjusting for risk. However, the observed risk level is lower than expected. Lerner et. al. (2007) analyze the investment behavior and performance of institutional investors, of which endowments are but one small component. Looking over a period when institutional investors made significant gains, they find that endowments achieve investment returns that are 121% of the average for such investors. They infer that endowment managers are taking advantage of information they garner as inside investors to improve returns, and do this better than the average institutional investor.

Agency considerations also provide a somewhat different argument as to why college and other endowments are large and spending is constrained to enable them to grow on average. College presidents and many other leaders of nonprofits have fundraising as a major responsibility. Fundraising success is more convincingly and visibly demonstrated by a large and growing endowment than merely by large annual figures for donations. Thus, big endowments serve to signal administrator success, and as a readily visible scorecard they become an end in and of themselves.[14] We focus not just on universities but on all charities. Our goal is to understand how effectively they invest, not to explain why so many of them have such large endowments. Alas, other researchers have not provided a satisfactory explanation of the large-endowment phenomenon. But whatever the explanation(s), it seems clear that it is highly desirable for an organization – or at least those in charge of the organization -- to have its endowment grow rapidly.

High investment returns would be a very welcome contributor to such growth, and that is the subject of our analysis. Moreover, even for a charity that wished to maintain a constant endowment size, or constant size relative to expenditures, greater returns would be welcome, since they would afford a higher level of expenditure.

II. Data

We use data collected by the National Center for Charitable Statistics (NCCS) at the Urban Institute. These data come from the IRS forms 990 (for public charities) and 990PF (for private foundations) that nonprofits are required to file annually. We use data from 1982 through

[14] On signaling, see Spence (2002); on principal-agent problems, which provide the need for signaling, see Pratt and Zeckhauser (1985).

2007, excluding 1984, when they were not collected. Unfortunately, this data set does not stretch beyond 2007, and thus misses the financial tsunami of 2008. Each charity in the data set is categorized according to the National Taxonomy of Exempt Entities (NTEE). Among the major groups are Arts, Culture and Humanities (A), Environment (C), Health Care (E), Medical Research (H), and Human Services (P). The Appendix describes the data in more detail.

Summary statistics from the entire sample are presented in Table 1, which reports the 25th, 50th, and 75th percentiles of certain variables, along with their means. All values are inflated or deflated by the CPI to 2007 dollars. The first two rows provide the beginning-of and end-of-year values for the net assets, or fund balances, listed by the organization.[15] This is the sum of total assets minus total liabilities as reported on the nonprofit's balance sheet. The median value of net assets is $10.2 million for nonprofits in this sample. The mean value, not surprisingly, is more than four times as high, illustrating the skew in endowment sizes. For all variables, the mean is much larger than the median and even larger than the 75th percentile, implying considerable skewness.

Our prime interest is investment returns. The next four rows represent four mutually exclusive categories of investment income: interest, dividend, other investment income (a small component of total income and is not present for most organizations and not asked of foundations) and net revenue from sale of assets (realized capital gains). This last category is highly variable across organizations. It has a higher mean value but a lower median value than either interest or dividends. Comparing the four types of investment income to the statistics for total income, in the following row, it can be seen that for most nonprofits these are modest sources of investment income.[16]

The next three rows present statistics on expenses. Management and general expenses is a category that includes payments for overall function and management. It includes the salaries and expenses of the organization's chief officer, expenses for board meetings, legal services, and office management, among others. It explicitly does *not* include either the direct conduct of program services or fundraising, both of which are tallied separately. Importantly for our

[15] While the Form 990 lists this value as "net assets or fund balances," we will also alternately refer to these holdings as the nonprofit's "endowment." Some nonprofits, notably universities, maintain an endowment that is only a part of their total fund balances; see the discussion in the following section.

[16] Unrealized capital gains represent a fifth and major component of investment returns. Such gains are not reported directly on the revenue section of the 990. They are reported in a subsequent section throughout the sample period, but this variable is only coded into the data for later years in the sample, presenting a challenge that we discuss below.

purposes, it also includes investment expenses, which may be associated with investment returns. Unfortunately, investment expenses are not reported separately from the rest of management and general expenses. The median value for management and general expenses is about $394,000. On average, management and general expenses represent about 10% of total expenses. The ratio of management and general expenses to total expenses tends to be somewhat larger for smaller organizations than for larger organizations, where size is measured by total expenses. The median value of the ratio for the lowest total expenditure decile is 0.21, and the median value for the highest expenditure decile is 0.11. Fundraising expenses (available only for public charities, not private foundations) are much smaller than management and general expenses. The majority of charities report zero fundraising expenses.

The next two rows are taken from the balance sheets of the Form 990s and Form 990PFs. Savings includes the sum of all interest bearing checking accounts, savings, and temporary cash investments. Investment securities include both publicly traded and non-publicly traded securities. The median and mean for securities is higher than that for savings. The last row represents the total compensation of officers, directors, trustees, and key employees.[17] The median value for this variable is below $10,000 while the mean is over $250,000, indicating the skewness in the size of charities.

For some nonprofits, total annual operating expenditures are tiny relative to a vast endowment, whereas for others the endowment is a small value compared to how much they spend in a year. Figure 1 considers how the ratio of the endowment to total expenses varies for nonprofits of different size. Nonprofits are grouped into ten deciles according to their total incomes in 2007 dollars. Within each group, the height of the bar is the median value of the ratio of net assets to total expenses. As size increases (where size is measured by total incomes), this ratio decreases.[18] Figure 2 plots the same statistic: the ratio of assets to expenses, but divides all organizations into deciles by size of assets, that is, beginning-of-year fund balances. Here, the asset/expense ratio increases with nonprofit size.[19]

[17] A "key employee" is defined as "any person having responsibilities, powers, or influence similar to those of officers, directors, or trustees."
[18] This same pattern holds when organizations are categorized by expenses rather than income.
[19] These patterns are not surprising. Selecting on the size of variable A makes it larger relative to variable B, unless B is strongly related to and increases more than proportionally with A.

III. Measuring Rate of Return on Investments and Comparing with Universities' Reported Rates of Return

Forms 990 and 990PF do not ask for the rate of return on the filing nonprofit's investment portfolio. However, that is the prime quantity that we seek. Some nonprofits disclose their rate of return in a financial report, but we know of no source that collects the data from these reports. Even if such reports were collected, a consistent methodology has significant advantages over self reports, given the potential for creative accounting and definition of variables.

To meet our objective, we create measures of the rate of return using the information in the 990 forms as described below. To get a sense of how good these created measures are, we compare our calculated values with those reported by the nation's largest universities, since investment returns for this particular class of nonprofits are announced and regularly collected. The calculation of our three measures of the rate of return is described in the Appendix.

Summary statistics for the three definitions of rate of return, labeled *ror1*, *ror2*, and *ror3*, are presented in Table 2. The first row presents the number of observations, and then the 25th percentile, median, 75th percentile, and mean values for *ror1*. The median rate of return is 4.74%, with an interquartile range of [1.07%, 10.5%]. However, the mean value is 219%. The mean value is so large because a small number of the calculated rates of return are very large and swamp the average calculation. In fact, the largest value is over 200,000%, which is clearly in error due to mistakes in the numbers on the federal forms. Our concern is not with obvious errors due to extreme outliers, but with the reliability of the data in general. Our calculated rates are vulnerable to inaccuracies in reported data values. Charities may not accurately record their net assets, may not use consistent accounting methods at the beginning and end of the year, or may simply make clerical errors.[20] Beyond the concerns or errors and inconsistencies, our assumption about when expenses and revenues occur may give us values that are slightly off base.

We deal with the errors problem by trimming extreme values. Let *sp_ret* be the return on the S&P 500 index in a particular year, in percent. The final column in row 1 shows the fraction of observations that lie within the range [–50% + *sp_ret*, 50% + *sp_ret*]. Fewer than 6% of observations fall outside of this range. Those observations that perform either extremely well or

[20] Froelich et. al. (2000) study the adequacy and reliability of data from the Form 990. They fund that the data from the most basic categories of revenues, expenses, and net assets are consistent with more detailed audit information.

extremely poorly compared to that year's average market performance according to our calculations are likely to be giving us erroneous values. The following row recalculates the summary statistics omitting the small fraction of observations lying outside that range. While the median and quartile values do not change much, the mean is quite a bit smaller and provides a more reasonable value.[21] In the regression results below, we will only use the observations that fall within this range. Regressions that include these extreme outliers are inconsistent.

The summary statistics for *ror2* are systematically higher than those for *ror1* by around one percentage point. As before, a small fraction of observations throw off the mean value of the rate of return. If we omit rate of return values less than 50% + *sp_ret*, or greater than –50% + *sp_ret*, the mean as well as the quartiles values are much more in line with the previous calculations. On the other hand, *ror3* seems to be significantly higher than the other values. This is likely due to the substitution of "other changes in net assets" for unrealized capital gains (as described in the Appendix). For most charities these values are identical, but for some they differ, and these differences lead to a systematic overestimate of the rate of return. We thus proceed with caution when using *ror3*, but remain reasonably confident about the reliability of the other two measures of the rate of return.[22]

Though the measures reflect internal consistency with each other, we also seek an external measure of validation. We can do this for the sample of the largest universities in the country. The rate of return on their endowments is widely reported. We use the reported rates of return from a 2005 Bloomberg survey of the 25 largest higher-education endowments.[23] We compare these reported rates of return with the four definitions of rate of return generated from our data. We also compare the university's endowment size, as reported in the National Association of College and University Business Officers (NACUBO) Endowment Study, with

[21] We experimented with different values for the boundaries of exclusion, being more conservative ([–25%+ *sp_ret*, 25% + *sp_ret*]) and more liberal ([–100% + *sp_ret*, 100% + *sp_ret*]). Reducing the values for the bounds clearly increases the percentage of observations that we have to omit. It also has a small effect on the mean values of rates of return; the more observations that we include the higher is our calculated mean. However, the regression results presented below are fairly robust to different definitions of these bounds. We also look for something that characterizes charities with rates of return outside of these bounds by running a regression where the dependent variable is an indicator of whether the calculated rate of return is outside of [–50%+ *sp_ret*, 50% + *sp_ret*]. Larger charities (measured by beginning-of-year net assets) are less likely to have excluded rates of return (though simply eliminating all observations with beginning-of-year net assets less than $1 million or $10 million does not substantively reduce the fraction of observations with excluded rates of return). There are also some significant coefficients on charity type and year.

[22] Note the appropriate calculation of investment rates of return does not depend on when investment returns, say dividends or capital gains, are reaped during the year. That timing is all appropriately part of the ror calculation.

[23] The survey results are available here: http://www.bloomberg.com/apps/news?pid=10000103&sid=afIqiSrR2HUY.

the value of net assets reported in the 990. While the Bloomberg survey includes 25 universities, the 990 forms are only filed for non-governmental nonprofits, so the five public universities on the list (Texas, California, Texas A&M, Michigan, Virginia) are omitted from our analysis.[24]

Table 3 presents these comparisons. The first two columns list the endowment size at the end and beginning of fiscal year 2004, as reported in the NACUBO survey. The next two columns are the values listed on the Form 990 for net assets or fund balances at the beginning and end of the year. The bottom of the table displays the correlation coefficient between the corresponding values from the NACUBO survey and the Form 990 for the beginning and end of the year. The first fact to note is that the NACUBO survey values are high. Indeed, for every university, the highest estimate of its endowment returns comes from the survey, presumably indicating that universities are conducting this calculation in the manner that puts their performance in the most favorable light. It is reassuring that the correlation coefficients between the fund balances reported in the NACUBO survey and those reported on the Form 990 are quite high; both are over 99%. There is a significant bias in the columns from the 990. In every case the fund balance listed in the 990 is higher than the endowment value as reported in the survey. There is a simple explanation. A university's net assets as listed on the 990 include the endowment as well as funds in the general operating account. Funds in an operating account can also be invested and thereby earn investment income, but they are typically managed separately from the funds in the endowment. To the extent that we are interested in a nonprofit's overall investment performance, we should want to consider the return on the entire fund balance, including the endowment, the general operating account, and other funds. But to the extent that we want to compare our calculated rates of return to the ones in the survey, we should focus solely on the endowment. Unfortunately, the 990 does not separately list endowment funds and endowment investment income.[25]

The next column lists the rate of return *on the endowment*, as reported in the Bloomberg survey. These rates of return are quite high compared to the summary statistics in Table 2.

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[24] FY 2004 runs from July 2003 to June 2004 and is the most recent year for which we have Form 990 data (from the 2003 SOI file). It is also the earliest year for which we could find reported endowment returns. The NACUBO survey is available from earlier years, but university-level endowment returns are not reported, only university-level endowment size and aggregate summary statistics of rates of return.

[25] Most universities and only some nonprofits release financial reports that may indicate the return on the endowment, but these are not coded into the dataset. We met with employees of Harvard University's Office of the Controller (formerly Office of Financial Services) to determine, for Harvard at least, if endowment information can be separately identified using only the 990 information. They indicated that this was not the case.

Taking the Bloomberg results as gospel and comparing the returns it reports to average annual rates of return on securities, universities tended to do well in their investments over the period of study.[26] The last three columns then present rates of return as calculated by the information in the 990s and described above. The values in all three columns are usually lower than the self reported rates of return on the endowment. This is presumably because of the downward bias from including all funds, not just the endowment, in the calculation. Operating funds are appropriately invested in short-term, liquid securities, hence in expectation earn significantly less than the endowment.[27] Again, we have no way to measure the return on just the endowment from the 990s. However, the correlation coefficients show that, for *ror1* and *ror3*, the calculated values of the rate of return are strongly positively correlated with the reported values. This correlation is not quite as high for *ror2*.

In summary, the results from these largest private universities suggest that our calculated rates of return are giving us a good indication of the relative investment performance of this class of nonprofits using any of a variety of measures. Absolute performance numbers will, of course, depend on which computational conventions one employs. The calculated values for both the rate of return and the fund balances do not fully align, but we did not expect them to, since we cannot separate the endowment from other funds, which can be a significant portion of the total. Whatever combination of funds is invested, our primary concern is with the overall investment performance of the nonprofits, not just of their endowments. Obviously, the smaller is an organization's endowment relative to other financial quantities (such as operating budget), the more important it is to include returns on all funds.[28]

Before turning to our regression analyses, which provide more detailed insight into the determinants of investment performance, we test for persistence in investment performance using our measures of rates of return. That is, before asking what determines whether some types of

[26] These results are before the 2008 financial crisis, where large university endowments are widely perceived to have done even more poorly than the hard-hit market average.

[27] Operating funds are usually small but not insubstantial relative to the endowment. At Harvard University, for example, the general operating account was about 18% of the value of the endowment at the end of both the 2006 and 2007 fiscal years, according to its financial report. During the financial crisis Harvard was criticized for investing much too much of its operating funds in its endowment (Healy 2009).

[28] We would like to compare apples to apples – what does nonprofit A earn on its endowment and what does nonprofit B earn on its endowment. Consider a situation where A has an operating budget that is just 1% of its endowment, and B has one that is 50% of its endowment. Suppose A earns 12% on its endowment and 4% on its operating budget; B earns 13% on its endowment and 5% on its operating budget. Though B is earning higher returns, a calculation like ours that cannot differentiate an endowment will show A earning a higher return.

charities do better than others, we ask whether in fact some charities do perform consistently better than others. To answer this question, we conduct a simple analysis. For each charity, we take the arithmetic mean of the calculated rate of return (here using *ror1*) in all odd-numbered years, and the arithmetic mean in all even-numbered years, and evaluate the correlation coefficient between these two values over all charities. It would be surprising if this correlation were not high because some organizations invest more effectively than others, focus more attention on securing high returns, etc.[29]

As before, we drop outliers, those whose average rates of return as calculated end up higher than 50% or less than –50% plus the average growth rate in the S&P 500 for those years. This drops 11% of the charities. The correlation coefficient between average returns in odd-numbered years and average returns in even-numbered years is a robust 0.305.[30] This is statistically significant at the 99% confidence level. The significance remains even after controlling for the age and endowment size of the organization. The key finding is that some nonprofits invest much more effectively than do others.

Some classes of charities, such as universities, may be much more focused on their endowments than others, in part because their endowments are more significant relative to other financial quantities. Thus we repeat this exercise looking within charity type for the 26 alphabetic charity categories. 25 out of 26 categories of charity show correlation coefficients that are significantly positive.[31] For these 25, the correlation coefficients range from a high of 0.6299 for Mutual and Membership Benefits charities to a low of 0.098 for Philanthropy, Voluntarism and Grantmaking foundations. Thus, among each charity type, some entities invest better than others.

IV. Regression Results

Regression analysis now enables us to look for relationships between nonprofit characteristics and the rates of return on investments that they receive. For robustness, we will use all three calculations of the rate of return. The base econometric specification is

[29] We thank Larry Summers for suggesting this test. Note that if charities overreport ending values for their endowments in a year, that will overestimate returns for that year and underestimate it for the following year, tending to produce a negative correlation between odd and even numbered years.

[30] Note, there is a bias to underestimate this correlation given that end-of-year values are not reported precisely. Then an overstated value for year one, will lead to greater than true reported returns in year one and less than true reported returns in year two. Hence the correlation between odd and even years will be biased negatively.

[31] The exception is Crime and Legal-Related nonprofits.

$$ror_{it} = \beta X_{it} + \gamma Z_i + \theta_t + \varepsilon_{it}.$$

The dependent variable is the rate of return of nonprofit i in year t. It is regressed on X_{it}, which may include a number of variables that vary by organization and by year. The regression also includes Z_i, variables that vary only by nonprofit but are constant throughout time. We also include a time-specific effect θ_t and an error term ε_{it}.

Some of the variables comprising X_{it} and Z_i are listed in the summary statistics of Table 1. We include these variables to test the hypotheses described in the introduction. First, the size hypothesis predicts that larger nonprofits will reap higher rates of return, so we include as a regressor the charity's size, as measured by the beginning-of-year fund balance. Second, the management hypothesis predicts that spending more on management will raise a nonprofit's rate of return. We thus include the total amount of management and general expenses. The compensation hypothesis predicts that nonprofits paying higher executive salaries will secure higher rates of return, so we include total executive compensation in X_{it}.[32] The age hypothesis predicts that older charities will secure higher rates of return, so we include the charity's age in Z_i.[33]

Lastly, the financial orientation hypothesis predicts that nonprofits that are predominantly financially oriented will earn higher returns. We test this by including a set of indicator variables for nonprofit type, as measured by the NTEE classification system described earlier. We include an indicator for whether the nonprofit is a private foundation (thus using the Form 990PF) rather than a public charity; we expect foundations to earn higher returns.

We include indicator variables for the state in which the organization is located and the year. We use the natural log of all of the financial variables and the age, but the dependent variable, the rate of return, can take negative values, so we do not take its log. Our coefficients thus represent what are sometimes called semi-elasticities.

We do not include an organization fixed-effect α_i. Our hypotheses are about differences *between* organizations and types of organizations rather than differences *within* an organization.

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[32] Initially we regress on the magnitude of management expenses and compensation, but in robustness checks below we will also include them as a fraction of total expenses.. Executive compensation is taken from Form 990 line 25 and Form 990PF line 13, and defined (from the Form 990/990PF instructions) as "total compensation paid to officers, directors, trustees and key employees."

[33] The age is measured from the date reported on the 990 when the charity was given its nonprofit status by the IRS. This variable is not available in the SOI dataset, but it is in the NCCS Core dataset, and so we use that dataset for this single variable (almost all of the charities in the SOI dataset are also in the Core dataset). Age is, of course, time-varying, but we also include a time-fixed effect, which makes the time-varying aspect wash away.

For instance, Hypothesis 1 claims that organizations with larger endowments tend to earn higher returns. It does not claim that if an organization has a higher than average endowment at the start of one particular year then it will earn a higher than average return that year. This second claim would be picked up in a fixed-effects framework, but the first claim (our hypothesis) would be washed out. Furthermore, even if we were primarily interested in the within-organization effect, it is unlikely that the effect would be localized within a single year. For instance, the effect of an increase in management expenses within an organization may increase its investment return but only over time. A fixed-effects estimator would only pick up the contemporaneous effect.[34] Instead, our preferred specifications are a pooled OLS estimator and a between estimator, that is, the coefficients derived from a regression on group means.

Our main results are presented in Table 4. Columns 1-3 report results from pooled OLS regressions, and columns 4-6 report results using the between estimator. We use each of the three calculated values of rate of return and include all observations for which the calculated rate of return lies inside of [–50% + *sp_ret*, 50% + *sp_ret*]. Regressions that do not exclude these outliers (not reported) have a very low R^2 value (less than 0.01), and produce coefficients are both inconsistent and unreasonable. Thus, we focus on results that exclude observations that have unreasonable values for the rate of return. Standard errors are clustered by state. State and year coefficients, not reported, are available from the authors.

The coefficient on net assets in Table 4 is always positive and is significant in five of the six columns. The dependent variable in all of these regressions is the rate or return in percentage, so the magnitudes of the coefficients on the log of net assets indicate that a doubling of a charity's net assets increases the rate of return by 0.24% to 0.43%. An order of magnitude (tenfold) increase in assets raises the rate by 2.4% to 4.3%. Larger charities thus get a higher rate of return. The effect is statistically significant, albeit moderate in absolute size. Compare it, for example, to the standard deviation in the calculated rates of return of 9.6%. This larger-assets-higher-return result is predicted by Hypothesis 1. It is also consistent with results found in earlier smaller scale studies of endowments for colleges and universities (NACUBO-

[34] See Gregory and Ruhm (2011) for a similar argument against using a fixed-effects framework in a regression of wages on BMI (especially their footnote 11).

Commonfund Institute 2010, Figure 2.1; Lerner et. al. 2008) and for foundations (Commonfund Institute 2010a, Figure 2.4).[35]

There are at least three complementary explanations for Hypothesis 1 and this result. First, larger nonprofits could do better on their investments because they reap economies of scale, as we described earlier. Second, a persistent unobservable organization-fixed effect – for example, a terrific endowment manager – could lead to a positive correlation between size and investment returns, since organizations that have invested well in the past will be larger, and will continue to do well in the future. Since our hypotheses are primarily about differences between organizations and organization types, we interpret the unobservable organization-fixed effect as consistent with the hypothesis. Third, net assets could be positively correlated with the rate of return because net assets, as measured in our data set, can include both endowments funds and general operating funds. If larger nonprofits also have a substantially smaller fraction of their net assets reserved for their general operating fund, as we might expect, and if these monies are kept in more liquid assets offering lower returns, then this will push larger nonprofits into having better calculated rates of return.[36]

To address the third explanation for the correlation between assets and investment performance, namely a lesser proportion of assets in operating funds, we exploit the fact that the organization's non-investment income (which we observe) can be used as a proxy for general operating funds. Thus our proxy value for endowments assets is net assets minus non-investment income. Regressing the rate of return measures on the log of this variable rather than the log of net assets yields a significantly positive coefficient, though of a smaller magnitude than those shown in Table 4.

The next row in Table 4 shows the effect from a charity's expenditure on management and general expenditures, which includes investment expenses. Hypothesis 2 predicts that higher spending in this category, holding endowment size fixed, should lead to higher rates of return. We find this using the measures *ror2* and *ror3* in columns 2-3 and 5-6. Here all expense categories are entering absolutely. Later we consider regressions where they are expressed as a fraction of total expenses. A doubling of management and general expenditures leads to an

[35] A similar report on healthcare nonprofits (Commonfund Institute 2010c, Figure 1.4) does not find any correlation between size and returns.
[36] We described this phenomenon earlier in conjunction with Table 3.

increase in the charity's rate of return of 0.06% to 0.10%.[37] However, when measure *ror1* is used, we find a negative correlation with management expenses. The next row shows the effect from executive compensation. It is significantly positive in two columns, consistent with our third hypothesis, but significantly negative in two other columns. Lerner et. al. (2008) find that for college and university endowments, compensation of investment officers seems to increase with excess returns. Positing skill in investment, hence persistence in performance, the relationship of higher compensation to better performance could come primarily from rewards to past performance, as opposed say to paying more to get better or more personnel at the outset. Additionally, officer compensation or managerial expenses might be tied to charitable output, e.g., a manager or officer might get paid more if the nonprofit serves more people or cures more cases of a disease. As we do not observe charitable output, this is an omitted variables problem. As long as charitable output is uncorrelated with investment returns, the omission will not bias our results.

The age of a nonprofit is positively correlated with its rate of return in all columns, significantly so in five of the six columns.[38] This corroborates our fourth hypothesis.

Hypothesis 5 predicts that organizations whose primary business is predominantly financial will secure higher returns. We suspect that most private foundations fall into this group of organizations. This indicator is missing from the regressions in columns 2 and 5, since the *ror2* calculation is not available for foundations. In all other columns, it is significantly positive. Foundations earn a rate of return 1.3–3.5 percentage points higher than charities as a whole. However, we must qualify this finding by pointing out that the calculation of the rate of return differs between charities and foundations because they report on different forms, as described earlier. It is possible that this coefficient is biased. We cannot disentangle the effect of being a foundation from the effect of filling out a 990PF instead of a 990.[39]

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[37] A back-of-the-envelope calculation suggests that this increase in management expenses would be far from cost-effective for a charity with median expenses and a median endowment. The median value of management and general expenses is $749,000. The median endowment is $10.7 million, so a 0.04% increase in the rate of return will generate only an extra $4,300. We also can not dismiss the possibility that management teams with higher investment returns due to chance get rewarded with higher salaries.

[38] This is consistent with findings in Lerner et. al. (2007), who find that older organizations earn higher returns for institutional investors, including endowments, pension funds, banks, etc.

[39] For example, the 990PF does not have a category "other investment income," which is included in the 990 and used in our calculation of non-investment income. If foundations have such income but do not report it, our calculation of non-investment income will be too high and our rate of return calculation will be too low.

The next twenty-five rows further investigate Hypothesis 5 by showing the coefficients on variables that indicate nonprofit category. Of the twenty-six categories, the omitted one is "Unknown," and in columns 2 and 5 we also omit the category "Mutual and Membership Benefit" since no observations of the "Unknown" category have the data necessary to construct *ror2*. In all columns, most of these categories are statistically lower than the omitted category. Certain category indicators consistently have higher coefficients. These categories are mutual and membership benefit (which has the highest value in five of the six columns and the second highest in the other), medical research (among the five highest coefficients in all six columns), philanthropy, voluntarism & grantmaking foundations (among the five highest coefficients in five of the six columns), and public and societal benefit (among the five highest coefficients in three of the six columns).

Mutual and membership benefit organizations include insurance providers and pension and retirement funds. The category of medical research covers not only the research organizations themselves but also fundraising and support organizations for medical research.[40] The most commonly represented public and societal benefit organizations are financial institutions, primarily related to student loans. Philanthropy, voluntarism & grantmaking foundations include both private foundations and community foundations, including local United Way chapters. These categories of charities comprise our financial charities and their high rates of return support Hypothesis 5. Type of charity matters to rates of returns, and those we would expect to do well.

Our base case regressions in Table 4 provide strong evidence supporting hypotheses 1 (size), 4 (age) and 5 (financial orientation). The evidence for hypotheses 2 (management) and 3 (compensation) is mixed.

Table 5 considers alternate specifications of the regressions. Each column uses *ror1* as the dependent variable, and each column except for column 3 runs a pooled OLS regression. State, year, and organization-type fixed effects are included. In the first column, we include additional organization-level covariates measuring income and expenditure categories (unavailable for foundations). Fundraising expenses are positively correlated with returns.

[40] These results may be compared to those in Commonfund Institute (2010b), where operating charities are divided into three categories: cultural, religious, and social service. The mean values of rates of return suggest that cultural charities do the best and social service charities do the worst, though the differences are quite small and the sample size is small (66 charities total).

Direct public support includes private donations of both money and goods, including donations from individuals and foundations. Indirect public support is a small component of revenue for most charities. It predominantly represents revenues collected indirectly though organizations running federated fundraising campaigns, the majority coming from the United Way. Government grants include monies received from federal, state, or local governments that are treated as contributions. Program service represents income from providing the services that serve as the basis for the organization's tax-exempt status.[41] Each of these four income categories is negatively correlated with investment returns. This suggests a substitution between investment income and these other sources of income. Column 2 includes management expenses and executive compensation expressed as a fraction of total expenditure rather than absolute levels. Management expenses are negatively correlated and executive compensation positively correlated with returns.

In column 3, we include organization-fixed effects. Although not our preferred specification for reasons discussed earlier, we present results here. This is the only place in which the size hypothesis is not supported; the coefficient on assets is significantly negative. Hypotheses 2 and 3, though, are supported by the fixed-effects regression. Lastly, column 4 includes interaction terms between management expenses and executive compensation and four quartiles of organization size, measured by net assets. Though the evidence for hypotheses 2 and 3 is mixed, it may be the case that it appears more straightforward for larger vs. smaller nonprofits. The effect of compensation is insignificant for all size quartiles (quartile 1, the smallest nonprofits, is the omitted group). However, the effect of management expenses appears to be smaller for larger nonprofits. Perhaps only the smallest nonprofits see any effect from paying more to managers (though even for the excluded group the coefficient is not significantly positive).

We are also interested in whether larger organizations do better on a forward-looking basis. It is not surprising that the largest endowments in 2007 did better over the previous ten years. That outcome would result if returns were merely random. Our concern is whether the largest endowments in 1997 did better over the next ten years. For each charity, we calculate the

[41] Examples of program service revenues include tuition for nonprofit schools or universities, admission fees for museums or concert halls, patient charges for hospitals, and interest income on credit union loans. Program service revenue can also come from governments; for example, Medicaid or Medicare payments for health services count as program service revenue and not government grants.

average rate of return over the fourteen years between 1994 and 2007. We regress this average on the organization's endowment at the beginning on 1993.[42] We also include average values of the other regressors over those years and state- and type-fixed effects. Results are presented in Table 6, where the three columns use the three definitions for rates of return. In all three regressions, we observe a statistically significant positive relationship between the charity's endowment in 1993 and its average rate of return over the next fourteen years, with semi-elasticity values ranging between 0.195 and 1.16. Thus, if charity B is twice as large as charity A, its annual rate of return will be 0.2% to 1.1% higher on average. This shows that larger charities indeed do better on a strictly forward-looking basis, as predicted by Hypothesis 1.

In addition to looking at investment returns, we would like to look at some investment decisions that nonprofits make. Some important information is not compiled, such as whether the nonprofits hired external investment advisors, whether they engaged in active vs. passive investing, or invested in publicly traded funds vs. off-market deals.[43] Fortunately, we do have information on the composition of portfolios. Thus, we can observe the fraction of a nonprofit's investment assets that is held in investment securities, as opposed to being held in cash, real estate, or "other" investments. These data are available only in the balance sheets of the Forms 990 and 990PF, and we have a smaller sample size for which these are available, as discussed in the Appendix.

Table 7 reports regression results where the dependent variable is the ratio of securities investments to total investments. The median value of this ratio is 16%, its 75th percentile is 89%, and its 25th percentile is 0%. Thus, the composition of portfolio holdings varies enormously. Column 1 reports a pooled OLS regression, and column 3 a between-effects regression. Consistent evidence emerges across both columns: larger endowments place a higher fraction of investments in securities. Higher executive compensation is associated with a higher fraction of the endowment in securities. Management expenses are negatively correlated with

[42] Though we have data going back to 1982, we begin at 1993 since a larger number of charities are present in the data set (11,000 vs. 5,000).

[43] Studies that rely on survey data from a smaller number of charities or foundations, including the Commonfund and NACUBO studies, have more information on asset allocation, including investments in alternative strategies. Lerner et. al. (2008) find that the use of alternative investments by higher education endowments has grown from 1993-2005, that larger endowments and Ivy League schools are more likely to have a higher share of alternatives, and that the use of alternatives is correlated with higher returns. Many university endowments, particularly larger endowments, were hard hit in the financial tsunami surrounding 2008. Data that will not be available for a while will tell whether particular classes of assets contributed disproportionately to these poor returns, and whether over the long run these endowments still benefited from their different investment allocations.

the securities proportion. Older charities have a higher fraction of investments in securities, as do foundations. The coefficients on the organization categories indicate that the same types of charities that exhibited higher investment returns in Table 4 also invest a higher fraction of their endowment in securities. None of the results from Table 7 is surprising, since they track fully with our results on investment returns. The types of organizations that secure higher on average investment returns are able to do so because of their more intensive investment in higher-return instruments. Table 7 thus provides complementary support for hypotheses 1, 4 and 5. As before, hypotheses 2 and 3 are not supported.

V. Conclusion

We investigated the investment returns that are earned by nonprofit organizations in the United States. These returns can be very large relative to the organization's operating budget. This income supports public purposes, and as such is generally tax-exempt. These factors make this income a public policy concern. Yet little is known about whether nonprofits invest effectively, and what characteristics of nonprofits lead them to earn higher returns. We use data from IRS forms, which are required and available for nearly all nonprofits, to answer these questions. We construct measures of organizations' rates of return on their investments, and we see how the rates of return relate to characteristics of the organizations. We find that larger nonprofits, older nonprofits, and private foundations tend to earn higher rates of return. Nonprofits whose business is predominantly financial, including mutual and membership benefit organizations and grantmaking organizations also earn higher returns. These results are consistent with a general focused attention hypothesis. That is, some types of nonprofits are more focused on their investment performance than are others and, as predicted, those organizations to systematically secure higher returns. Our five specific hypotheses are offshoots of this general hypothesis. The size hypothesis, the age hypothesis, and the financial orientation hypothesis are supported by the data. The compensation hypothesis and the management hypothesis are neither supported nor contradicted.

Some past studies have examined the determinants of nonprofits' financial performance in areas apart from investments. Others have examined the reasons for nonprofits to hold endowments, and still others have examined investment returns in the special and well studied class of endowments of colleges and universities. To our knowledge, however, this is the first

paper to systematically study nonprofits' investment returns. It addressed a simple yet important question: what are the determinants of the rates of return for charities? Our answers, though, come with some caveats. Perhaps the most important is the fact that, while we use an extensive data set on thousands of nonprofits of all types, we do not directly observe a nonprofit's investment rate of return. Rather, we calculate that rate based on variables that are reported annually to the IRS. While this approach surely encounters some error, we are reasonably confident in the results it gives, since many of our regression results are robust to different specifications of the rate of return. Additional qualifications for this analysis apply to the limitations of our sample, which contains only 501(c)(3) organizations. Also, while data are available for almost all such organizations, the data set that we use represents only a fraction of all nonprofits and oversamples larger ones. We use this data set both because it covers so many charities and such a broad range of them, and because it contains a number of variables that help us measure the rate of return. Moreover, public policy concerns are greater for larger than smaller organizations. Finally, those concerns are likely strongly related to the monies involved. The 100 largest endowments in 2007 (roughly those over $2 billion) accounted for more than 30% of total endowment funds among the 27,000 charities we studied in 2007. They also accounted for 14% of expenditures.

Our data set runs through 2007. As we write in mid-2011, the economy is recovering from the financial crisis, which (as one indicator) saw a maximum drop in the S&P500 of 45% from its 2007 high. The effect on nonprofits, as on any other business, was both large and qualitatively unlike any slide in the post WWII era. Data are not yet available, but we can speculate as to how different nonprofits were affected. We have shown that larger nonprofits are more likely to hold a larger fraction of their endowments in securities, and they are also probably more likely to hold alternative investments.[44] If alternative investments did worse than other investments through the crisis, as is widely suspected, then the monotone relationship between fund size and investment performance that we find up through 2007 will have eroded.

Bearing these cautions in mind, we have shed light on the critical area of nonprofit investment performance, though our work represents just a beginning. In particular, our analysis is silent about the implications for optimal policies on critical matters such as taxation, required payout rates, and standards for prudent investment policies. Finally, since virtually all nonprofits

[44] Dimmock (forthcoming) and Lerner et. al. (2008) show that this is true for higher education endowments.

would prefer higher returns, our findings and those of studies to follow may help nonprofits manage their investments more effectively.

References

Black, Fischer. "The Tax Consequences of Long-Run Pension Policy." *Financial Analysts Journal*, Vol. 36, No. 4 (July/August 1980), p. 21-28.

Brown, Keith, Lorenzo Garlappi and Cristian Tiu. " Asset Allocation and Portfolio Performance: Evidence from University Endowment Funds." *Journal of Financial Markets*, Vol. 13, No. 2 (May 2010), p. 268-294.

Brown, William. "University Endowments: Investment Strategies and Performance." *Financial Practice and Education*. Vol. 9, No. 2 (Fall/Winter 1999), p. 61-69.

Commonfund Institute. "Commonfund Benchmarks Study: Foundations Report." 2010a.

_____. "Commonfund Benchmarks Study: Operating Charities Report." 2010b.

_____. "Commonfund Benchmarks Study: Healthcare Organizations Report." 2010c.

Core, John, Wayne Guay, and Rodrigo Verdi. "Agency Problems of Excess Endowment Holdings in Not-For-Profit Firms." *Journal of Accounting and Economics*, Vol. 41, No. 3 (September 2006), p. 307-333.

Dimmock, Stephen. "Background Risk and University Endowment Funds." *Review of Economics and Statistics,* forthcoming.

Fisman, Raymond and Glenn Hubbard. "The Role of Nonprofit Endowments." In Glaeser, Edward (ed.), *The Governance of Not-for-profit Organizations*. Chicago and London: University of Chicago Press (2003).

Fisman, Raymond and Glenn Hubbard. "Precautionary Savings and the Governance of Nonprofit Organizations." *Journal of Public Economics*, Vol. 89, No. 11-12 (December 2005), p. 2231-2243.

Fraser, Steve, and William Jennings. "Behavioral Asset Allocation for Foundations and Endowments." Available at http://ssrn.com/abstract=911626 (June 2006).

Froelich, Karen, Terry Knoepfle, and Thomas Pollak. "Financial Measures in Nonprofit Organization Research: Comparing IRS 990 Return and Audited Financial Statement Data." *Nonprofit and Voluntary Sector Quarterly*, Vol. 29, No. 2 (June 2000), 232-254.

Gentry, William. "Debt, Investment and Endowment Accumulation: The Case of Not-For-Profit Hospitals." *Journal of Health Economics*, Vol. 21, No. 5 (September 2002), p. 845-872.

Gregory, Christian and Christopher Ruhm. "Where Does the Wage Penalty Bite?" in Grossman, Michael and Naci Mocan (ed.), *Economic Aspects of Obesity*. Chicago: University of Chicago Press (2011), p. 315-347.

Hansmann, Henry. "Why Do Universities Have Endowments?" *Journal of Legal Studies*, Vol. 19, No. 1 (January 1990), p. 3-42.

Healy, Beth. "Harvard Ignored Warnings about Investments." *Boston Globe*, (November 29, 2009).

Lerner, Josh, Antionette Schoar, and Wan Wongsunwai. "Smart Institutions, Foolish Choices: the Limited Partner Performance Puzzle." *Journal of Finance*, Vol. 62, No. 2 (April 2007), p. 731-764.

_____, _____, and Jialan Wang. "Secrets of the Academy: The Drivers of University Endowment Success." *Journal of Economic Perspectives*, Vol. 22, No. 3 (Summer 2008), p. 207-222.

National Association of College and University Business Officers and Commonfund Instutute "NACUBO-Commonfund Study of Endowments." 2010.

Pratt, John and Richard Zeckhauser, eds. *Principals and Agents: The Structure of Business*. Boston: Harvard University Press (1985).

Ritchie, William, and Karen Eastwood. "Experience and its Relationship to the Financial Performance of Nonprofit Organizations." *Nonprofit Management and Leadership*, Vol. 17, No. 1 (Fall 2006), p. 67-82.

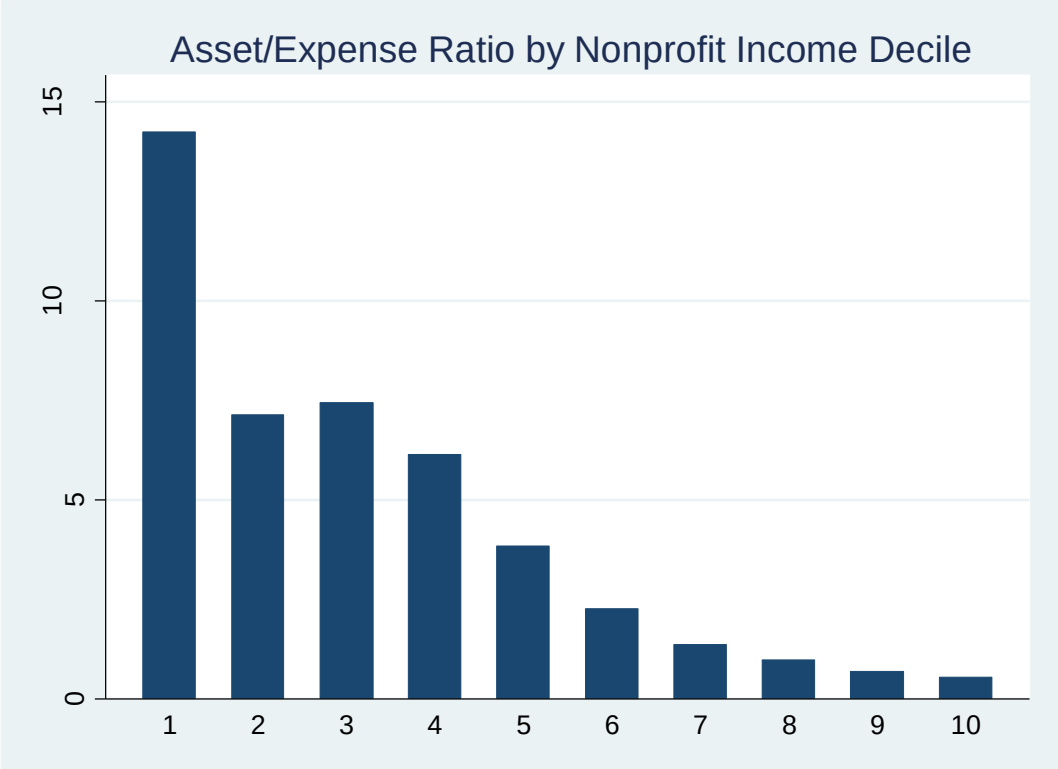
Satchell, Stephen, and Susan Thorp. "Scenario Analysis with Recursive Utility: Dynamic Consumption Plans for Charitable Endowments." EFA 2008 Athens Meetings Paper. Available at http://ssrn.com/abstract=1096427 (December 2007).

Spence, Michael. "Signaling in Retrospect and the Informational Structure of Markets." *American Economic Review*, Vol. 92, No. 3 (June 2002), p. 434-459.

Wedig, Gerard, Mahmud Hassan and Michael Morrisey. "Tax-Exempt Debt and the Capital Structure of Nonprofit Organizations: An Application to Hospitals." *Journal of Finance*, Vol. 51, No. 4 (September 1996), p. 1247-1283.

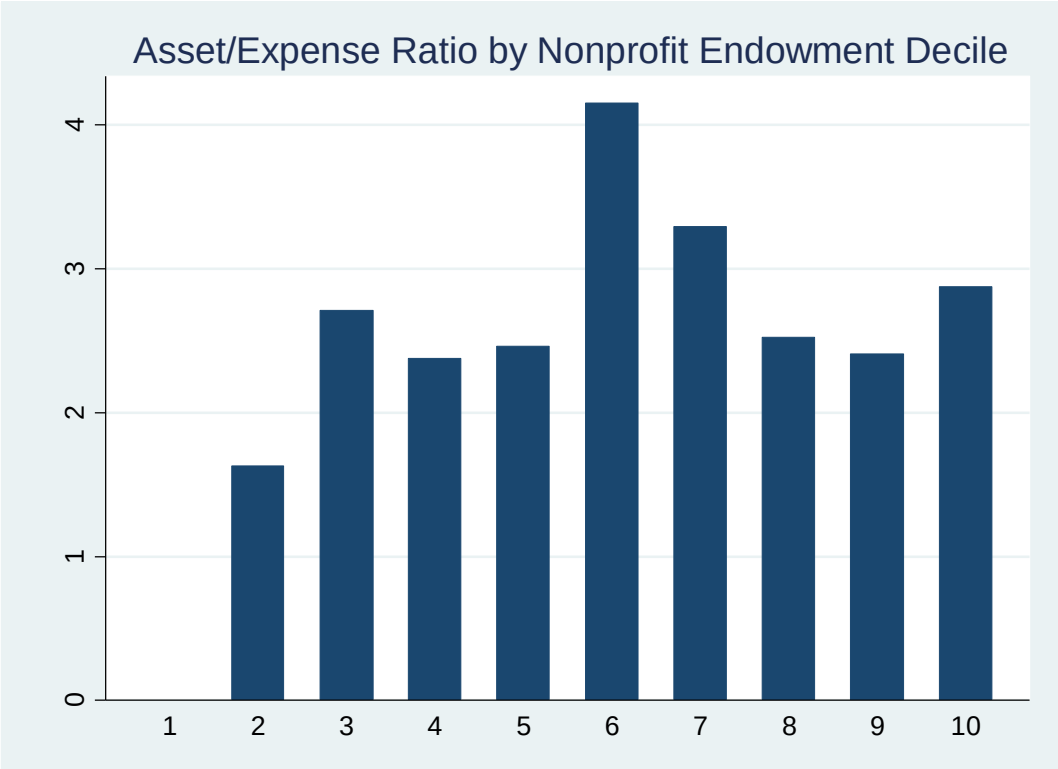
Whelan, David. "America's Most Profitable Hospitals." Forbes.com (August 2010): http://www.forbes.com/2010/08/30/profitable-hospitals-hca-healthcare-business-mayo-clinic.html

Figure 1



Note: The groups in the *x*-axis are the deciles of the distribution of total incomes. The *y*-axis values are the median within the decile of the ratio of endowment to total expenditures. Data are from 1982-2007.

Figure 2



Note: The groups in the *x*-axis are the deciles of the distribution of total beginning-of-year endowment. The *y*-axis values are the median within the decile of the ratio of endowment to total expenditures. Data are from 1982-2007

Table 1 **Summary Statistics**

	p25	p50	p75	mean
Net assets, beginning-of-year	1357179	1.02E+07	3.46E+07	5.50E+07
Net assets, end-of-year	1632967	1.16E+07	3.78E+07	6.01E+07
Interest income	0	13232.02	169533.2	458750.8
Dividend income	0	44547.74	594684	1472545
Other investment income*	0	0	0	346130.3
Net revenue from sale of assets	0	0	278156.9	2151130
Total income	777147.5	5216385	2.53E+07	4.48E+07
Management and general expenses	42125.33	394316.8	2598748	5073791
Fundraising expenses*	0	0	162280.4	436256.2
Total expenses	605152.3	3764837	2.15E+07	4.03E+07
Savings, end-of-year†	33.80576	350057.2	2585390	5715655
Investment securities, end-of-year†	0	951824.3	1.33E+07	3.60E+07
Compensation of officers and directors	0	9533.806	214685.4	296200.6

Note: Data are from 1982-2007 SOI files. All statistics are from all 394,964 observations, except for those marked with an asterisk (*), which are only available for the 291,338 observations of charities, and those marked with a dagger (†), unavailable in the 1998 file and only available for the remaining 381,294 observations. All values are deflated by the CPI to 2007 dollars.

Table 2 **Rate of Return Summary Statistics**

	N	p25	p50	p75	Mean	Percentage ∈ [–50% + *sp_ret*, 50% + *sp_ret*]
ror1	347798	1.07%	4.74%	10.5	219%	94.1%
ror1 | *ror1* ∈ [–50% + *sp_ret*, 50% + *sp_ret*]	327305	0.97%	4.39%	9.30%	5.99%	
ror2	64877	1.62%	5.91%	13.3%	38500%	92.8%
ror2 | *ror2* ∈ [–50% + *sp_ret*, 50% + *sp_ret*]	60191	1.47%	5.40%	11.4%	7.34%	
ror3	200528	2.84%	7.75%	15.3%	104700%	91.3%
ror3 | *ror3* ∈ [–50% + *sp_ret*, 50% + *sp_ret*]	183104	2.87%	7.34%	13.4%	8.94%	

Note: Data are from 1982-2007 SOI files. The definitions of rate of return (*ror1, ror2, ror3*) are given in the text.

Table 3 **Comparison of Calculated and Reported Rates of Return**

Institution	Endowment (000s) End of FY 2004 - NACUBO	Endowment (000s) Beginning of FY 2004 - NACUBO	Fund Bal (000s) End of FY 2004 - 990	Fund Bal (000s) Beginning of FY 2004 - 990	Rate of Return FY 2004 - Bloomberg	ror1	ror2	ror3
Harvard University	22143649	18849491	26924708	23107711	21.10%	19.80%	11.65%	21.70%
Yale University	12747150	11034600	13747084	12027930	19.40%	18.99%	19.83%	19.84%
Stanford University	9922000	8614000	13080612	11551151	18.00%	14.22%	16.27%	15.90%
Princeton University	9928200	8730100	10427330	9376207	16.50%	14.48%	15.82%	15.82%
MIT	5865212	5133613	7760024	6953253	18.10%	13.74%	15.32%	15.32%
Columbia University	4493085	4343151	6168916	5977224	16.90%	5.81%	13.03%	7.38%
University of Pennsylvania	4018660	3547473	5568519	5071427	16.90%	9.80%	13.21%	12.94%
Washington Univ.	4000823	3470072	5362749	4728606	18.20%	13.95%	18.89%	18.97%
Emory University	4535587	4019766	5155385	4872177	14.60%	8.66%	10.22%	10.05%
Northwestern University	3668405	3051167	4720140	4238724	19.20%	13.00%	16.06%	16.06%
University of Notre Dame	3095703	2573346	4046685	3436922	20.30%	18.90%	21.27%	22.20%
University of Chicago	3620728	3221851	4188840	3735249	16.60%	15.50%	16.64%	18.72%
Cornell University	3238350	2854771	5480422	5002938	16.10%	11.47%	15.34%	15.67%
Duke University	3313859	3017261	5082822	4471507	18.00%	14.00%	20.02%	21.51%
Rice University	3302455	2937649	3769197	3389700	17.20%	15.22%	16.86%	16.89%
Dartmouth College	2454293	2121183	3076295	2689220	18.60%	15.76%	16.43%	16.43%
Vanderbilt University	2296262	2019139	3559376	3134584	16.90%	13.03%	15.26%	16.00%
Univ. of Southern California	2399960	2113666	3565987	3174724	16.90%	10.01%	14.46%	13.10%
Johns Hopkins University	2055542	1714541	3207943	2974771	15.30%	8.83%	12.75%	12.82%
Brown University	1647295	1461327	2200244	1918913	16.30%	13.23%	16.23%	16.23%
Correlation of 990 data with reported survey data			0.9914	0.9909		0.7601	0.4581	0.6939

Note: Reported endowments are from the 2004 NACUBO Endowment Study. Reported rates of return are from the 2005 Bloomberg survey of higher education endowments. All other values are generated from data in the 2003 SOI files (for the fiscal year running from July 2003 to June 2004). Definitions of rate or return are given in the text.

Table 4 **Base Case Regressions**

	(1) ror1	(2) ror2	(3) ror3	(4) ror1	(5) ror2	(6) ror3
log(Net Assets, Beginning of Year)	0.250***	0.386***	0.245***	0.350***	0.427***	0.325***
	(0.0211)	(0.0329)	(0.0240)	(0.0239)	(0.0456)	(0.0354)
log(Management Expenses)	-0.0354**	0.0878***	0.0683***	-0.0462***	0.0944***	0.105***
	(0.0166)	(0.0184)	(0.0180)	(0.0138)	(0.0258)	(0.0208)
log(Executive Compensation)	-0.00147	0.00966	0.0205***	-0.0288***	0.0462***	-0.0256**
	(0.00602)	(0.00924)	(0.00704)	(0.00858)	(0.0150)	(0.0116)
log(Age)	0.0318	0.214***	0.499***	0.350***	0.286***	0.776***
	(0.0730)	(0.0594)	(0.0589)	(0.0439)	(0.0888)	(0.0624)
Foundation	3.465***		1.392***	2.662***		1.332***
	(0.116)		(0.161)	(0.145)		(0.190)
ntee1==A Arts, Culture & Humanities	-2.206***	-3.373***	-2.495***	-5.407***	-3.937***	-3.778***
	(0.364)	(1.070)	(0.388)	(0.533)	(1.148)	(0.715)
ntee1==B Education	-2.016***	-2.655**	-1.278***	-4.619***	-2.949***	-2.444***
	(0.273)	(1.009)	(0.379)	(0.518)	(1.130)	(0.691)
ntee1==C Environment	-2.853***	-2.908**	-2.161***	-5.550***	-3.180**	-3.607***
	(0.478)	(1.184)	(0.493)	(0.616)	(1.236)	(0.823)
ntee1==D Animal-Related	-1.809***	-3.102**	-2.260***	-4.707***	-3.396***	-3.839***
	(0.392)	(1.189)	(0.473)	(0.665)	(1.293)	(0.892)
ntee1==E Health Care	-3.417***	-2.446**	-2.221***	-5.348***	-1.653	-2.466***
	(0.287)	(1.089)	(0.479)	(0.520)	(1.128)	(0.697)
ntee1==F Mental Health	-3.307***	-2.616**	-2.432***	-5.736***	-2.878**	-3.658***
	(0.323)	(1.193)	(0.443)	(0.590)	(1.217)	(0.823)
ntee1==G Volunt. Health Associations	-1.382***	-2.760**	-2.213***	-3.669***	-3.838***	-3.157***
	(0.369)	(1.249)	(0.418)	(0.636)	(1.297)	(0.878)
ntee1==H Medical Research	0.685	-2.168*	-0.689	-1.948***	-1.870	-1.604*
	(0.603)	(1.124)	(0.559)	(0.671)	(1.300)	(0.892)
ntee1==I Crime & Legal-Related	-1.938***	-2.474**	-1.785**	-5.224***	-2.764**	-3.179***

	(0.515)	(1.008)	(0.690)	(0.723)	(1.403)	(1.022)
ntee1==J Employment	-3.329***	-2.748**	-2.090***	-6.023***	-3.125**	-3.636***
	(0.319)	(1.148)	(0.489)	(0.648)	(1.285)	(0.907)
ntee1==K Food, Agriculture & Nutrition	-3.177***	-3.481***	-2.921***	-5.847***	-4.313***	-4.772***
	(0.395)	(1.244)	(0.593)	(0.852)	(1.541)	(1.209)
ntee1==L Housing & Shelter	-2.215***	-2.561**	-2.428***	-4.564***	-2.378**	-4.251***
	(0.400)	(1.090)	(0.518)	(0.549)	(1.197)	(0.784)
ntee1==M Public Safety	-3.356***	-3.113***	-1.601**	-6.485***	-2.274	-3.051***
	(0.415)	(1.091)	(0.794)	(0.810)	(1.698)	(1.171)
ntee1==N Recreation & Sports	-3.132***	-3.752***	-2.821***	-5.712***	-3.620***	-3.838***
	(0.316)	(1.092)	(0.510)	(0.593)	(1.261)	(0.811)
ntee1==O Youth Development	-2.104***	-2.599**	-1.774***	-4.409***	-3.441***	-3.267***
	(0.383)	(1.037)	(0.403)	(0.614)	(1.235)	(0.839)
ntee1==P Human Services	-2.222***	-2.624**	-1.873***	-5.010***	-2.915**	-3.392***
	(0.265)	(1.078)	(0.375)	(0.526)	(1.136)	(0.709)
ntee1==Q International, Foreign Affairs & National Security	-1.453***	-3.406***	-2.006***	-4.409***	-3.167**	-2.666***
	(0.527)	(0.989)	(0.403)	(0.632)	(1.243)	(0.860)
ntee1==R Civil Rights, Social Action & Advocacy	-2.887***	-1.736	-2.382***	-5.760***	-4.072**	-4.636***
	(0.786)	(1.382)	(0.661)	(0.971)	(1.716)	(1.354)
ntee1==S Community Improvement	-2.100***	-2.658**	-2.612***	-4.895***	-2.812**	-4.083***
	(0.349)	(1.145)	(0.567)	(0.581)	(1.225)	(0.811)
ntee1==T Philanthropy, Voluntarism & Grantmaking Foundations	-0.103	-2.283**	-1.600***	-2.936***	-2.708**	-2.390***
	(0.247)	(1.031)	(0.404)	(0.501)	(1.157)	(0.668)
ntee1==U Science & Technology	-1.238*	-3.512***	-1.956***	-3.475***	-4.344***	-2.964***
	(0.629)	(1.153)	(0.684)	(0.690)	(1.317)	(0.930)
ntee1==V Social Science	0.886	-2.496*	-2.190***	-2.380**	-3.681**	-3.497**
	(0.641)	(1.431)	(0.540)	(1.020)	(1.715)	(1.394)
ntee1==W Public & Societal Benefit	0.0991	-3.379***	-1.968***	-2.433***	-2.391*	-1.979**
	(0.581)	(1.046)	(0.636)	(0.692)	(1.391)	(0.937)
ntee1==Y Mutual & Membership	1.503***		-1.721***	0.316		-1.151

Benefit						
	(0.446)		(0.541)	(0.746)		(0.980)
Constant	4.476***	8.686***	9.192***	3.899***	0.232	1.594
	(0.333)	(1.270)	(0.509)	(1.086)	(1.880)	(1.528)
Observations	274,523	57,542	153,816	274,523	57,542	153,816
R-squared	0.115	0.210	0.161	0.099	0.042	0.037

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Data are from 1982-2007 SOI files. Columns (1) to (3) are pooled OLS regressions; columns (4) to (6) are between effects regressions. The calculated rate of return *ror2* is available for public charities only. The omitted charity type (ntee1) is "Z Unknown," and also "Y" in columns (2) and (5). State and year indicators are included in the regressions, though not reported.

Table 5 **Alternate Specifications**

	(1) ror1	(2) ror1	(3) ror1	(4) ror1
log(Net Assets, Beginning of Year)	0.495***	0.457***	-1.611***	0.461***
	(0.0373)	(0.0319)	(0.0306)	(0.0317)
log(Management Expenses)	0.0898***	-0.135***	0.0708***	0.0321
	(0.0222)	(0.0303)	(0.00760)	(0.0202)
log(Executive Compensation)	0.0215	0.110***	0.0167***	0.000832
	(0.0135)	(0.0264)	(0.00448)	(0.0125)
log(Age)	0.0923	0.0539		0.0406
	(0.0574)	(0.0744)		(0.0738)
log(Fundraising Expenses)	0.0253***			
	(0.00545)			
log(Direct Public Support)	-0.0551***			
	(0.00901)			
log(Indirect Public Support)	-0.0280***			
	(0.00518)			
log(Government Grants)	-0.0559***			
	(0.00550)			
log(Program Service Revenue)	-0.155***			
	(0.0105)			
Foundation		3.520***		3.463***
		(0.122)		(0.119)
(sizequartile==2)*lnmgmtgenexp				-0.0394***
				(0.0111)
(sizequartile==3)*lnmgmtgenexp				-0.0937***
				(0.0135)
(sizequartile==4)*lnmgmtgenexp				-0.120***
				(0.0129)
(sizequartile==2)*lncomp				-0.00236
				(0.0130)
(sizequartile==3)*lncomp				-0.00279
				(0.0129)
(sizequartile==4)*lncomp				0.00341
				(0.0144)
Constant	-0.672	1.280***	31.97***	1.112**
	(0.900)	(0.451)	(0.487)	(0.533)
Observations	237,752	274,013	327,224	274,523
R-squared	0.120	0.116	0.102	0.116

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Data are from 1982-2007 SOI files. The variables fundraising, direct public support, indirect public support, government grants, and program service revenue are available for public charities only. State, year, and charity type indicators are included in the regressions, though not reported.

Table 6 Investment Performance on a Forward-Looking Basis

	(1) ror1	(2) ror2	(3) ror3
log(Net Assets, Beginning of Year)	0.195***	1.166***	1.146***
	(0.0680)	(0.107)	(0.104)
log(Management Expenses)	-0.0331	-0.159***	-0.212***
	(0.0353)	(0.0600)	(0.0575)
log(Executive Compensation)	0.00495	-0.0265	0.00553
	(0.0203)	(0.0391)	(0.0379)
log(Age)	-0.375***	0.170	0.258
	(0.145)	(0.260)	(0.256)
foundation	14.15***	15.92**	2.534
	(1.279)	(6.351)	(1.636)
Constant	-2.757	-9.559*	-36.62***
	(6.671)	(5.110)	(7.635)
Observations	9,330	6,695	8,027
R-squared	0.045	0.061	0.056

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Data are from 1993-2007 SOI files. State, year, and charity type indicators are included in the regressions, though not reported.

Table 7 **Investment Strategy**

	(1) secratio	(2) secratio
log(Net Assets, Beginning of Year)	0.0558***	0.0521***
	(0.00141)	(0.00105)
log(Management Expenses)	-0.00811***	-0.00909***
	(0.000721)	(0.000595)
log(Executive Compensation)	-4.27e-05	0.000915**
	(0.000481)	(0.000358)
log(Age)	0.0317***	0.0309***
	(0.00369)	(0.00191)
Foundation	0.348***	0.350***
	(0.0105)	(0.00761)
ntee1==A Arts, Culture & Humanities	-0.00733	-0.0162
	(0.0160)	(0.0227)
ntee1==B Education	0.0247*	0.0422*
	(0.0136)	(0.0220)
ntee1==C Environment	-0.0371*	-0.0269
	(0.0212)	(0.0262)
ntee1==D Animal-Related	0.0404*	0.0270
	(0.0212)	(0.0283)
ntee1==E Health Care	-0.194***	-0.135***
	(0.0139)	(0.0221)
ntee1==F Mental Health	-0.170***	-0.137***
	(0.0211)	(0.0252)
ntee1==G Volunt. Health Associations	-0.00208	0.0143
	(0.0264)	(0.0275)
ntee1==H Medical Research	0.112***	0.116***
	(0.0217)	(0.0283)
ntee1==I Crime & Legal-Related	-0.0357	-0.0252
	(0.0312)	(0.0312)
ntee1==J Employment	-0.0999***	-0.0736***
	(0.0222)	(0.0278)
ntee1==K Food, Agriculture & Nutrition	-0.101***	-0.0387
	(0.0283)	(0.0370)
ntee1==L Housing & Shelter	-0.229***	-0.182***
	(0.0130)	(0.0234)
ntee1==M Public Safety	-0.114***	-0.0683*
	(0.0321)	(0.0354)
ntee1==N Recreation & Sports	-0.0868***	-0.0677***
	(0.0145)	(0.0255)
ntee1==O Youth Development	-0.00735	0.0231
	(0.0175)	(0.0265)

ntee1==P Human Services	-0.0841***	-0.0555**
	(0.0154)	(0.0224)
ntee1==Q International, Foreign Affairs & National Security	-0.00813	0.0209
	(0.0408)	(0.0273)
ntee1==R Civil Rights, Social Action & Advocacy	0.0398	0.0713*
	(0.0501)	(0.0431)
ntee1==S Community Improvement	-0.146***	-0.121***
	(0.0212)	(0.0250)
ntee1==T Philanthropy, Voluntarism & Grantmaking Foundations	0.0708***	0.0958***
	(0.0127)	(0.0214)
ntee1==U Science & Technology	-0.0450*	-0.0214
	(0.0248)	(0.0294)
ntee1==V Social Science	0.134***	0.0924**
	(0.0328)	(0.0437)
ntee1==W Public & Societal Benefit	-0.0900***	-0.0435
	(0.0267)	(0.0287)
ntee1==Y Mutual & Membership Benefit	0.188***	0.212***
	(0.0309)	(0.0316)
Constant	-0.614***	-0.510***
	(0.0340)	(0.0819)
Observations	186,000	186,000
R-squared	0.352	0.444

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Data are from 1982-2007 SOI files. The dependent variable is the ratio of investments in securities to total investments. Column 1 is from a pooled OLS regression and column 2 is from a between effects regression. State and year indicators are but not reported.

Appendix

Data Description

Public charities can file either the Form 990 or, if they have gross receipts less than $100,000 and net assets less than $250,000, the Form 990 EZ. Private foundations must file the Form 990 PF. Religious organizations and those with less than $25,000 in gross receipts are not required to file at all.[45] To avoid selection problems, given that only some religious organizations choose to file, they are eliminated from the sample.[46] The Form 990 includes information on various categories of revenues, including private donations, government grants and program service revenue, and of expenses, including management and fundraising expenses. It also contains a balance sheet, listing beginning-of-year and end-of-year values for cash, investment securities, land, and other assets and liabilities.

The NCCS assembles several data sets from these IRS forms. Its "Core" files contain observations from almost every nonprofit that files in a given year, providing upwards of 300,000 observations per year. However, the Core files include only a limited number of variables for each observation. Instead of the Core files, we use the IRS Statistics of Income (SOI) files, which contain fewer observations of nonprofits but more variables per observation. The subset of charities chosen to be included in the SOI file is not random; they include every nonprofit with $10 million or more in assets, and a random sample of all other nonprofits. We choose to use this data set for two reasons. First, the larger number of variables included allows us to use more detailed information to create a more accurate measure of the rate of return on a nonprofit's investments. Second, we believe that investment performance is much more important for larger nonprofits. Thus, we have a complete sample for them, albeit not for their smaller brethren.

The number of nonprofits per year ranges from a low of 3,053 in 1985 to a high of 27,803 in 2007. The total number of observations in the data set is 394,964, and the total number of nonprofits represented is 49,468 (30,409 charities and 19,059 foundations). Foundations do not appear in the data set until 1995 and are missing from 1997 entirely. The median number of

[45] Although organizations with "exclusively religious activities," including congregations and mission societies, are not required to file, religious organizations that receive a majority of their revenue from serving the general public are required to file Form 990. These include religious colleges and universities, health organizations (such as the Sisters of Mercy hospital chain) and human services organizations (such as Lutheran Social Services).

[46] This removes 1.87% of all observations.

years that a charity is in the panel is seven, the 25th and 75th percentile values of this statistic are three years and 15 years, respectively (686 charities, or 2.2% of the total, are in the panel for all 25 years). For foundations, the median number of years appearing in the data set is five, and the 25th and 75th percentiles are two and nine, respectively (890 foundations, 4.7% of the total, are in the panel for all 12 years) [47] We use data from Form 990 and 990PF only, not Form 990 EZ. Form 990 EZ does not have enough variables for us to construct a measure of the rate of return; few charities in the SOI data use the 990 EZ anyways (652 nonprofits in 2003, compared to 13,633 filing the 990). Foundations report revenues and expenses differently in their Form 990PF than do charities in the 990.

Calculation of Rates of Return

If nonprofits did nothing with their funds other than sit and watch them grow, then calculating the rate of return would require a simple comparison of the beginning- and end-of-year fund balances. Fortunately for those who are served by nonprofits, but unfortunately for our research agenda, nonprofits both receive and spend significant amounts of money during the year. For many nonprofits, annual revenues and/or expenses dwarf the value of the fund balance. In fact, the median value of the ratio of total expenses to net assets is 0.45, and for 36% of observations this ratio exceeds one. And 90% of charities had outflows as a percentage of assets in excess of 4%. Obviously, we must account for inflows and outflows in calculating rates of return for charities.

Thus we need the values of expenses and income for each year for each charity. Both of these values, fortunately, are reported in the 990s and in the 990PFs. However, the value for total revenue includes revenue from investments: interest, dividends, and realized capital gains. Thus, what we really want is total income from all other sources, what we call "non-investment income." This is calculated as total revenues minus the sum of interest income, dividend income, capital gains income, and other investment income (although this last category is not reported in the 990PF).

[47] The charities that are in the data set for more years are more likely to be larger. The median value of fund balances for charities in the data set for less than four years is $1.45 million (in 2007 dollars), whereas the median value for charities in the data set for more than 18 years is $32 million. Of the observations of charities with more than $10 million in net assets, 50% are in the data set for at least 17 years, whereas only 23% of charities with net assets less than $10 million are in the data set for so long.

Knowing expenses and non-investment income is not enough to determine the rate of return. We also need to know when these expenses were incurred and when revenues were received. Unfortunately, this information is not reported. So, we make the assumption that all revenues and expenses occur evenly spaced throughout the year at the middle of each month. Then, our first measure of rate of return, *ror1*, is calculated based upon this implied cash flow.[48] We also experimented with alternative assumptions about when non-investment income and expenses were realized, including at the beginning of the year or in the middle of the year. The calculated rates of return varied little from the rates under the mid-month assumption.[49]

To obtain sensible values for rate of return under these assumptions, we must engage in some data cleaning. A small percentage of charities list negative or zero values for net assets at the beginning- or end-of-year. These numbers could conceivably reflect debts, or they may represent clerical errors. If the first, they are not of interest, since our concern is with charities with significant endowments, which would require positive values at the beginning and end of the year. If an error, they should be eliminated. This leads us to drop these observations (28,397 observations).[50] Similarly, if total expenditures or total income (not including capital losses) is listed as negative, then this will prevent our rate of return calculations from being correct, so we drop those observations as well (5,457 observations).[51] We drop those observations for which non-investment income is reported as negative, since this is evidence of clerical error. (13,312 observations).[52] In total, 11.9% of observations are dropped. By any measure, these dropped observations come from charities that are much smaller on average than the rest of our sample.

This definition of the rate of return on investments only uses data on net assets, income and expenses, available in Part 1 of the Form 990 and the Form 990PF. However, the forms also

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[48] Formally, this amounts to solving a nonlinear equation for a rate of return that sets the net present value of the account equal to zero, where the opening balance is negative, the closing balance is positive, and net non-investment income is applied monthly.

[49] The larger are expenses and non-investment income relative to investment income, the greater will be the variation in rates depending on the timing assumption. Substantial disparities only occur if both non-investment income and expenses are large, and one comes in early in the year, and the other late. We are overestimating rates of return for entities that spend late in the year, or that receive income early in the year, and vice versa.

[50] These charities tended to have small endowments anyway. For nonprofits with non-positive beginning-of-year endowments, their median for end-of-year endowment size, looking at values that were not negative, was just $937,000, though the 95th percentile was $52.7 million. We drop only those observations with suspect data, not every observation for that charity throughout the panel.

[51] These charities do not necessarily have small endowments. Their 95th percentile for end-of-year endowment size was $164 million.

[52] These charities also do not necessarily have small endowments. Their 95th percentile for end-of-year endowment size was $116 million.

contain a balance sheet that provides more detailed information on a nonprofit's assets. Specifically, it contains the beginning-of-year and end-of-year values of savings and temporary cash investments, investments in securities, investments in land, buildings and equipment, and other investments. The sum of these amounts tells how much of a nonprofit's gross assets are actually investment assets rather than operating funds. From these gross assets we subtract investment liabilities, which consist of mortgages, other notes payable, and those items listed under "other liabilities." This sum gives us a measure of net investment assets. However, the investment liabilities are not coded into the data for the private foundations, and thus we cannot subtract them out to calculate net investment assets. While the end-of-year values are coded into the SOI files for these variables, the beginning-of-year values are not, except for 2003 onwards. It is the beginning-of-year values that we want to use as our starting values in calculating the rate of return, so we take advantage of the panel nature of the dataset to construct a beginning-of-year value for each organization by looking at its tax return from the previous year. Of course, this means that we only have observations for these variables for organizations that appear in both year t and year $t - 1$. Furthermore, these balance sheet variables are not available for 1998. We call the sum of these four beginning-of-year assets minus liabilities *investment assets.* We have 293,257 observations for this variable.

Given the total amount of net investment assets at the beginning of the year, to calculate the rate of return we also need the total amount of investment income. The reported investment income is the sum of interest, dividends, realized capital gains, and "other" investment income, but it does not include unrealized capital gains. Unrealized capital gains are not reported on the 990PF. They are reported on the 990 but only coded into the dataset for years 1997 and beyond. Furthermore, even in these years many charities did not report this variable. Our second measure of rate of return is thus restricted to this smaller number of observations. It is

$$ror2 = (total\_income - noninvinc + unrealized\_gains)/investment\_assets.$$

Although unrealized capital gains are not reported most years, another variable on both forms is available to use as a stand-in for these gains. This is the value for "other changes in net assets or fund balances," which accounts for the disparity between net assets at the beginning and end of the year that is not explained by income minus expenditures. It includes unrealized capital gains, but may also include other changes, such as adjustments of earlier years' activity. For our third measure of the rate of return, we use this value to stand in for these capital gains, giving us a

much higher number of observations than in *ror2*. We feel that this third measure incorporates a good proxy for unrealized gains, and we get validation for this assumption by comparing these two values (reported unrealized capital gains and "other changes in net assets or fund balances") among the observations for which we do observe both values. Of these 119,234 observations, 47.9% have identical values for the two variables, and in general differences between the two measures are tiny.[53] Thus, we conclude that "other changes" appropriately measures unrealized capital gains for those observations where we do not observe unrealized capital gains. This leads to our third measure of the rate of return:

$$ror3 = (total\_income - noninvinc + other\_changes\_assets)/investment\_assets.$$

[53] The median of the absolute value of the percentage difference between the two reported values is 0.00857%. The median of the ratio of reported unrealized capital gains to reported "other changes in net assets" is 1, as is the 95th percentile of that ratio.