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# Do nonprofits manipulate investment returns?

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## HIGHLIGHTS

- We find a discontinuity around zero in the distribution of the rates of return on investments for tax-exempt organizations.
- Rates of return are significantly more likely to be slightly positive than slightly negative.
- This pattern is found for a wide range of nonprofit missions.
- This suggests that some tax-exempt organizations manipulate investment returns to avoid reporting negative returns.

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## ABSTRACT

We provide evidence that nonprofit organizations manipulate reported investment returns to avoid investment losses. We find a sharp discontinuity around zero in cross-sectional distribution of the rates of return on investments for tax-exempt organizations: rates of return are significantly more likely to be slightly positive than slightly negative. This pattern is found for a wide range of nonprofit missions, including religious related charities and community improvement organizations.



Public charities frequently rely on the investment returns of their endowment and other internal investment funds to finance operations. Tax-exempt status releases charities from paying income tax on investment returns. Nevertheless, they must disclose their performance to the general public through IRS tax forms. The information disclosure *per se* carries no tax implications. However, potential donors may take investment returns as a signal of sound financial management. Furthermore, employees who oversee investments may view their job performance as tied to reported returns.

In this paper, we provide evidence that public charities manipulate their investment returns information. To the extent that returns on risky investments are stochastic and are not manipulated, we expect the *pdf* of risky investment returns to be continuous in the rate of return (Lee and Lemieux, 2010). We find a sharp discontinuity of the rate of return on investments around zero for tax-exempt organizations: rates of return are significantly more likely to be slightly positive than slightly negative. This pattern is found for a wide range of nonprofit missions, including religious related charities and community improvement organizations. These findings suggest that a significant percentage of tax-exempt organizations with negative investment returns manipulate their reported investment returns upwards.

This paper relates to a larger literature on earnings management that considers how firms use accounting techniques to generate financial reports that depict a positive view of the firm's financial position. Burgstahler and Dichev (1997) provide evidence that for-profit firms manipulate reported earnings to avoid earnings decreases and losses. Bergstresser et al. (2006) show that for-profit firms with large pension plans manipulate reported earnings through manipulating the assumed rates of return on pension assets. Bollen and Pool (2009) find discontinuities in the pooled distribution of *monthly* hedge fund returns but not in the *bimonthly* returns, which suggests that hedge funds manipulate reported returns but reconcile them with actual returns over the course of

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two months. In contrast, we find a discontinuity at zero even for the six-year average rate of return of nonprofit endowment funds.

A separate strand of research studies financial disclosure management of nonprofits. Most research in this area uses accounting models to compare reported activities with predicted activities. There is evidence that some nonprofits manipulate the allocation of expenses across different categories to reduce tax liabilities on taxable activities (Weisbrod and Cordes, 1998; Yetman, 2001) or to increase reported program-spending ratios (Trussel, 2003). Hofmann and McSwain (2013) review this literature. To our knowledge, ours is the first paper to consider the manipulation of reported investment returns at nonprofits. More broadly, our regression discontinuity approach to evaluate the potential for manipulation in investment returns fits within the sleuthing literature of "forensic economics" (Zitzewitz, 2012).

## 1. Data

We analyze microdata from the IRS Statistics of Income (SOI) Form 990 sample files. Most tax-exempt organizations with gross receipts over $200,000 or total assets greater than $500,000 are required to file Form 990. The SOI sample files contain all financial variables on Form 990 for all filing organizations with more than $10 million in assets plus a random sample of approximately 4000 filing organizations with assets between $25,000 and $10 million.[1] All major universities and hospitals are included in the SOI files because of their size. However, because religious organizations of any size are not required to file Form 990, the SOI files do not contain a representative sample of religious organizations.

Although the IRS SOI data files are available from 1988 onwards, *full* information on investment returns was not included in the IRS SOI files until 2012. Investment returns are reported through four separate components on Form 990: interest and dividends, bond proceeds, net *realized* gains from sales of securities, and net *unrealized* gains on investments. While the first three components have always been part of Form 990, the last component –net *unrealized* gains on investments –was not included in Form 990 until 2012.[2] We make use of the two years of investment returns data that are currently available –2012 and 2013. For graphical clarity, we restrict our analysis sample to institution-year observations with rates of return on investments between -0.2 and 0.4. Over 95% of institution-year observations with non-missing data for all four components of investment returns have rates of return in this range.

Key for us, Form 990 also includes detailed balance sheet information. In particular, investments in interest-bearing checking or savings accounts and investments on securities are separately reported, which allows us to estimate the share of investments held in risky assets. Below, we focus on organizations with at least 95% of their investments in (risky) securities.

To examine a longer time horizon, we utilize information on endowment funds reported in Schedule D of Form 990. Starting from 2008, organizations that have established endowment funds are also required to report the amount and returns of their endowment funds. We use this information to estimate the rate of return on endowment funds for years 2008–2013. Although endowment returns information is available for a longer time horizon, we do not observe the asset allocation of endowment funds. As a result, our endowment returns analysis sample may include organizations that invest a large percent of their funds in risk-less assets.

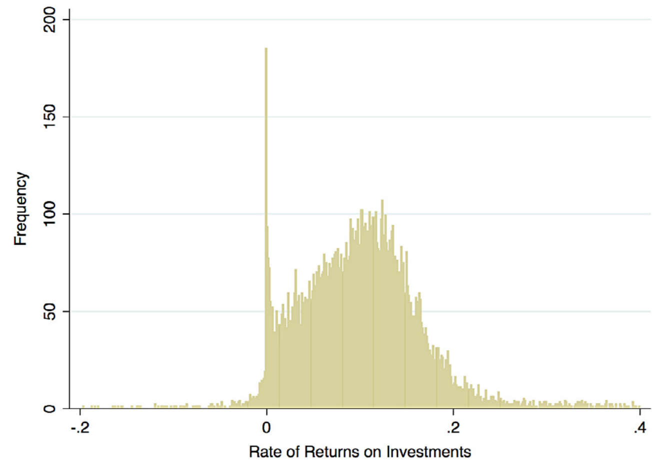


**Fig. 1.** Histogram for rate of return on investment. Note: This figure shows a histogram of the rate of return on investment for institution-year observations during 2012 and 2013. The sample includes tax-exempt organizations in the SOI study that held at least 95% of their total investments on securities (as opposed to risk-free, interest-bearing assets). The bin size is 0.00117, chosen to match the bin size that would be used in the McCrary's density test.

Appendix Table A.1 lists the definitions of variables used in subsequent analysis and the locations of the corresponding data items on Form 990.

## 2. Evidence for the manipulation of investment returns

We begin with graphs showing the distribution of the rate of return on investments. We use McCrary (2008)'s density test to test for a discontinuity in the distribution of the rate of return around zero. McCrary's density test entails estimating local linear regressions of the density function of the running variable (the rate of return, in this case) on either side of the cutoff (zero, in this case). The discontinuity at the cutoff is then estimated as the log difference in the value of the density functions on the two sides of the cutoff.[3]

Fig. 1 presents a histogram of the rate of return on investment, with a bin width of 0.00117, chosen to match the bin size that would be used in the McCrary's density test.[4] A discontinuity is clearly discernible at zero. The first six bins to the right of zero together account for 546 organizations. This means that out of the 11,395 organizations in our restricted sample, 546 reported investment returns between zero and 0.007 (excluding zero). If we assume that the rates of return follow a continuous normal distribution with the same mean and variance as the sample mean and variance, there would be 1.4% of observations between zero and 0.007. In other words, if the rates of return were normally distributed with no discontinuity at zero, there would be approximately 160 organizations reporting rates of returns between zero and 0.007. Under these assumptions, approximately 386 out of the 11,395 tax-exempt organizations in our sample (3.4%) may have misreported their returns to avoid reporting negative returns.

Fig. 2 presents the McCrary's density test of a discontinuity around zero. The graph shows estimates of local linear regressions

1 The SOI data files can be found at https://www.irs.gov/uac/soi-tax-stats-charities-and-other-tax-exempt-organizations-statistics.

2 Prior to 2012, "net unrealized gains on investments" was included in Schedule D of Form 990, part XI. However, this particular line in Schedule D was only completed by those institutions that have obtained separate, independent audited financial statements and whose audited statement employed a different reporting methodology from Form 990. Some institutions also report their unrealized investment returns through a separate attachment to Form 990. These data are not included in the IRS SOI files, although it is possible to manually extract information on unrealized gains and losses from these attachments.

3 Formally, McCrary (2008) defines the discontinuity estimate to be $\hat{\theta} = \ln \lim_{r \downarrow c} \hat{f}(r) - \ln \lim_{r \uparrow c} \hat{f}(r)$, where $r$ is the running variable and $c$ is the cutoff.

4 Formally, McCrary (2008) defines the bin size as $\hat{b} = 2\hat{\sigma} n^{-1/2}$, where $\hat{\sigma}$ is the sample standard deviation of the running variable.