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Endowments, Governance, and the Nonprofit Form

Raymond Fisman* & Glenn Hubbard
COLUMBIA UNIVERSITY GSB

In for-profit enterprises, shareholders are the residual bearers of risk. By contrast, since nonprofits have no residual claimants, something else must act to absorb financial shocks to the organization. Nonprofit managers often describe the endowment, or fund balance, as serving this function. In this paper, we examine the role of the endowment as a precautionary savings device for nonprofit organizations. We find very strong evidence in support of the role of the endowment in allowing for smoothing of program expenditures. However, providing managers with a large, discretionary fund raises significant concerns regarding the governance of the organization. We are similarly concerned with free cash flow in for-profit enterprises when shareholders do not carefully monitor the behavior of managers, we may be concerned about the possibility of expropriation of discretionary funds by nonprofit managers. Taking advantage of differences in nonprofit oversight across states in the U.S., we show that organizations in poor governance states, relative to strong governance states (1) have managerial compensation that is more highly correlated with inflows of donations; (2) derive a smaller percentage of their revenues from donations; (3) allocate a smaller percentage of donations in the endowment for future expenditures. We argue that this provides some evidence of governance problems in the nonprofit form, and suggests an important role for oversight for overcoming these difficulties.

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*Corresponding Author: Assistant Professor, Graduate School of Business, Uris 614, Columbia University, New York, NY 10027, (212) 854-9157, Fax: (212) 316-9219, Email: rf250@columbia.edu

Theories of nonprofit organizations have generally centered on the motivations of not-for-profit entrepreneurs. More precisely, most theories of nonprofits are based on one of two ideas: (1) a desire to provide a product at the low marginal cost of production, perhaps due to externalities created by the good (see, for example, Weisbrod, 1988); or (2) an interest in signaling the production of a high-quality good where quality is difficult to observe or verify (e.g., Hansmann (1996); Glaeser and Shleifer, 2000). Regardless of the motivations of the nonprofit's founder, a key connecting idea among these theories is the assumption of the nondistribution constraint as the defining characteristic of the nonprofit form.

In this paper, we take Hansmann's definition of nonprofits as a point of departure, and examine the implications for the financial structure and governance of nonprofit organizations, regardless of their underlying motivations. Our argument is based on the observation that in a for-profit organization, shareholders act as the residual bearer of risk. Thus, in nonprofits, there must be some other means of absorbing shocks that exist in a world of uncertain donations and uncertain needs for program expenditures. One possibility would be to simply allow for shocks to revenue streams to be passed on to program expenditures, thus effectively making the recipients of the organization's services bear the burden. However, a desire for “production smoothing” naturally leads to a search for an alternative buffer. Thus, nonprofit organizations will hold precautionary savings in the form of endowment fund balances, to protect against adverse revenue shocks.

This need to maintain a fund balance to smooth the provision of services leads, potentially, to some issues of governance and managerial discretion. This stems from ideas generated in the corporate finance literature, which has often focused on the agency problems created by giving managers access to discretionary funds in for-profit organizations (Jensen, 1986). The problem is that, given the opportunity, for-profit managers will 'steal' from the firm, by consuming perquisites in one form or another. If we believe that managers in nonprofits are not fundamentally different from managers in for-profit, this raises a dilemma for donors to nonprofit organizations. On the one hand, there is a need for a fund balance to smooth consumption. However, there may be concerns that managers may take advantage of these funds to slack off, pursue pet

projects, or even pay themselves a higher salary. Two solutions exist: donors may insist that funds be spent right away, thereby ensuring that their donations are put to good use at the expense of the production smoothing ability of the organization. Alternatively, donors may rely on monitoring technologies which guarantee that all funds, both present and future, are spent appropriately. The purpose of this paper is to carefully layout the theory underlying this 'donor's dilemma', and to provide a number of statistical tests, using data from U.S. charities, to assess the validity of the theory.

The evidence is broadly supportive of our framework. We begin by showing that the precautionary savings model of nonprofit endowments performs well as a predictor of endowment sizes. The second part of our empirical results looks at evidence on the resultant governance problems. First, we show that governance problems seem to loom larger in nonprofits in states with weak oversight by the State Attorney General, by showing that executive compensation is much more sensitive to the inflow of private donations in these states. We then show that donors respond to such concerns: in states with weak oversight, a smaller proportion of private donations flows into the endowment.

The rest of the paper is structured as follows: in section I, we provide a simplified model to highlight the key features of our theory. Section II lays out the empirical framework for the regression analyses. The IRS/Urban Institute data are described in section III, and we report our results in section IV. Section V concludes.

I. A Simple Theory of Nonprofit Governance

To fix ideas, consider first the problem faced by a not-for-profit entrepreneur who derives utility from providing a charitable good. The entrepreneur must raise donations to finance the provision of the good in two-periods. The output of the good produced by the not-for-profit firm over the two periods is Q_1 in the first period and Q_2 in the second period; the cost of the good is unity. The entrepreneur receives donations D_1 from a pioneer donor in the first period. Because of the nondistribution constraint on the firm, those donations may be used to finance current production of the good (Q_1) or carried over as fund balances F to finance a portion of second-period production (Q_2). Second-period donations from other donors are uncertain; they are high (D_{2H}) or low (D_{2L}) with equal

probability. We assume for simplicity that the rate of interest and rate of time preference are equal to zero. Hence the not-for-profit entrepreneur's problem is given by:

$$\max_{Q_1 Q_2} U(Q_1) + \tfrac{1}{2}[U(Q_{2L}) + U(Q_{2H})] \quad (1)$$

Subject to:

$$Q_{2i} = D_1 - Q_1 + D_{2i} + F, \; i = L, H \quad (2)$$

$$Q_1 \quad D_1, \quad (3)$$

Where $U' > 0$ and $U'' < 0$. Equation (2) balances the sources and uses of funds in the second period. Equation (3) represents the external financing constraint (first-period expenses cannot exceed first-period contributions).

The optimal choice of first-period and second-period output of the not-for-profit good solves:

$$U'(Q_1) = \tfrac{1}{2}[U'(Q_{2L}) + U'(Q_{2H})] + \lambda_1, \quad (4)$$

Where λ_1 is the Lagrange multiplier on the endowment nonnegativity constraint, (3) Under uncertainty, the first-order condition indicates a tradeoff between the marginal utility of producing an additional unit of the not-for-profit good in period 1 and the expected marginal benefit of saving the unit cost for use in period 2. As the spread between D_{2L} and D_{2H} increases (and, hence, between Q_{2L} and Q_{2H}), the not-for-profit entrepreneur will all else equal, choose to produce less in period 1, carrying an endowment forward to finance a portion of production in period 2.

The possibility that the entrepreneur may allocate some endowment funds toward purposes other than future production of the not-for-profit good can be illustrated as follows. In equilibrium, the entrepreneur "diverts" a fraction s of the endowment F, receiving a net benefit $(s - \varnothing/2\, s^2)F$, where $\varnothing$ indexes the enforcement technology available to monitor the entrepreneur (this diversion need not represent stealing, but simply the use of funds for perquisites, organizational slack, or other purposes valued by the not-for-profit entrepreneur but not related to the production of the not-for-profit good). Higher values of $\varnothing$ are associated with greater monitoring and oversight and, hence, a lower net benefit of diversion.

Noting that $Q_1 = D_1 - F$ and $Q_{2i} = (1 - s)F + D_{2i}$ (i = L,H) and letting the donor specify F, the not-for-profit entrepreneur's problem becomes:

$$\text{Max}_s\ U(D_1 - F) + \tfrac{1}{2}[U((1 - s)F + D_{2L}) + U((1 - s)F + D_{2H})] + (s - \varnothing/2\ s^2)F \qquad (5)$$

Subject to:

$$Q_{2i} = D_1 - Q_1 + D_{2i} + (1 - s)F,\ i = L, H$$

$$Q_1 \quad D_1.$$

Choosing s yields:[1]

$$-\tfrac{1}{2}[U'((1-s)F + D_{2L}) + U'((1-s)F + D_{2H})] + 1 - \varnothing s = 0,$$

so that $ds/d\varnothing < 0$. That is, the equilibrium rate of endowment diversion s depends negatively on $\varnothing$. Greater monitoring and enforcement lead to a lower level of endowment diversion.

The entrepreneur must raise donations to finance the output of the good produced by the not-for-profit firm; further, with uncertainty over future donations, some carryover of endowment fund balances is valuable for smoothing output of the good. Prospective pioneer donors understand the possibility of diversion, which can affect both initial donations (D_1) and the ability of the not-for-profit entrepreneur to convert current donations to endowment. In period 1, the pioneer donor contributes D_1 and specifies the portion to be spent in the current period ($D_1 - F$); the entrepreneur diverts sF. In period 2, the entrepreneur and the pioneer donor expect donations from other donors of D_{2L} of D_{2H} with equal probability, and remaining funds—D_{2i}+(1 – s)F, i = L, H—are spent. As we show below, the potential for diversion creates a trade off between the benefit of endowment funds as precautionary saving (illustrated earlier) and the cost of endowment funds in diversion. While donors may limit diversion by increasing the required "burn

[1] Assuming that the non-negativity constraint does not bind.

rate" for current donations, that higher burn rate reduces the ability of the not-for-profit firm to smooth production of the not-for-profit good.[2]

We assume that pioneer donors derive utility from the production of the not-for-profit good—$V(Q_1, Q_2)$, where $V' > 0$ and $V'' < 0$. For simplicity, we assume that their own utility is linear in net wealth—gross wealth W less donations D_1. That is, pioneer donors maximize:

$$\max_{D_1,F} V(D_1 - F) + \tfrac{1}{2}[V((1-s)F + D_{2L}) + V(1-s)F + D_{2H})] + W - D1, \qquad (6)$$

subject to $D_1 < W$ (Recall that $Q_1 = D_1 - F$ and that $Q_{2i} = (1 - s)F + D_{2i}$, i = L,H). The first-order conditions for D_1 and F are given by:

$$V'(D_1 - F) = 1, \qquad (7)$$

And

$$- V'(D_1 - F) + \tfrac{1}{2}(1 - s)[V'((1 - s)F + D_{2L}) + V' ((1 - s)F + D_{2H})] = 0. \qquad (8)$$

The former condition simply reflects the idea that the donor contributes to the level at which the marginal utility of not-for-profit good production equals the marginal utility of income to finance other consumption. The second condition can be used to derive $dF/d\varnothing$, the effect of monitoring and enforcement on endowment creation. Recall from the entrepreneur's problem that $ds/d\varnothing < 0$. One can then straightforwardly show that $dF/d\varnothing > 0$ (a higher monitoring and enforcement leads to higher endowment balances), $dD_1/d\varnothing$ (higher monitoring and enforcement leads to higher donations), and $d(F/D_1)/d\varnothing$

[2] The tradeoff described here is analogous to that experience by a for-profit entrepreneur attempting to raise external equity financing for investment and production. With the possibility of stealing from funds raised, the entrepreneur is forced to hold a larger share of the firm's equity than is efficient for diversification, and the firm's marginal required rate of return on investment projects is higher than a neoclassical benchmark. Greater monitoring and oversight from legal and regulatory regimes in place reduces stealing, inside ownership levels, and the marginal cost of capital for investment. For alternative models and descriptions, see LaPorta, Lopez-di-Silanes, Shleifer, and Vishny (1998, 1999), Shleifer and Wolfenzon (2000), and Himmelberg, Hubbard and Love (2001).

> 0 (higher monitoring and enforcement leads to an increase in the portion of donations assigned to endowment.[3]

The simple comparative static results yield four predictions for empirical analysis. First, endowment balances are valuable as precautionary saving for not-for-profit firms with variable contributions" greater volatility of donations should be associated with a larger endowment to smooth production of the not-for-profit good, all other things equal. Second, with $dD_1/d\varnothing > 0$, more 'donative' organizations should exist where monitoring and oversight of not-for-profit organizations is relatively strong. Third, with $ds/d\varnothing < 0$, all else being equal, lower levels of fund diversion should occur where monitoring and oversight are strong. Fourth, recall that the possibility of fund diversion creates a tradeoff between the use of endowment funds as precautionary saving and the donor's anticipation of partial dissipation of those funds. This tension leads to the prediction that $d(F/D_1)/d\varnothing > 0$: assignment of donations to endowment fund balances is larger where monitoring and oversight are stronger.

II. Empirical Strategy

1. Evaluating the precautionary savings theory of endowments

Before addressing the governance issues that are at the core of this paper, we first examine the hypothesis of the endowment as a form of precautionary savings. As explained in the previous section, if precautionary savings is a primary motive for holding an endowment, then organizations with highly uncertain cash flows, large fixed

[3] Expanding (8) yields:

$$-V''(D_1 - F)[\frac{dD_1}{d\varnothing} - \frac{dF}{d\varnothing}] - \tfrac{1}{2}[V'((1-s)F + D_{2L}) + V'((1-s)F + D_{2H})]\frac{ds}{d\varnothing}$$
$$+ \tfrac{1}{2}(1-s)[((1-s)\frac{dF}{d\varnothing} - F\frac{ds}{d\varnothing})(V''((1-s)F + D_{2L}) + V''((1-s)F + D_{2H}))] = 0$$

With linear utility in wealth for the donor, $V''(D_1 - F)[\frac{dD_1}{d\varnothing} - \frac{dF}{d\varnothing}] = 0,$ so that $\frac{dD}{d\varnothing} = \frac{dF}{d\varnothing}.$ From the entrepreneur's problem, $ds/d\varnothing < 0$. Hence, with V' > 0 and V'' < 0, $dF/d\varnothing > 0$ (and $dD_1/d\varnothing > 0$). Note that $d(F/D_1)/d\varnothing = \frac{1}{D_1}\frac{dF}{d\varnothing}(1 - \frac{F}{D_1}) = 0$

costs, and limited alternative means of financing should hold larger endowments (relative to size of organizational mission). Since the availability of outside financing obviates the need for cash on hand, organizations that have access to financing should have less of a need for an endowment. Cash flow volatility will also matter less to organizations with opportunities for outside financing, since shocks may be absorbed through borrowing. Hence, our theory of endowments suggests a complementarity between cash flow volatility and financing alternatives. Similarly, we expect that organizations that are highly capital intensive will have trouble adjusting their costs in the face of shocks, and will therefore require larger endowments. Conversely, labor-intensive organizations will find it relatively easy to make adjustments in reaction to shocks. Also, as before, this suggests a complementarity between cash flow volatility and labor intensity. That is, we will be running a regression of the form:

$$(Endowment/Expenses)_{ijk} = \alpha + \beta_1 * Volatility_{ijk} + \beta_2 * (Financing\ Alternatives) +$$

$$\beta_3 * (Labor\ intensity) + \beta_4 * (Financing\ Alternatives) * Volatility_{ijk} + \quad (9)$$

$$\beta_5 * (Labor\ intensity) * Volatility_{ijk} + \gamma_j + \eta_k + \varepsilon_{jk}$$

for organization i in industry j and state k.

Another way of looking at the role of the endowment in smoothing income is to look at the connection between revenues and expenditures across years for a given organization. If the endowment acts as a buffer, then organizations with larger endowments should have a looser connection between current revenues and current expenditures, because the gap may be absorbed by the endowment. Hence, we examine:

$$log(Expenditures_{it}) = \alpha + \beta_1 * log(Revenues_{it}) + \quad (10)$$

$$\beta_2 * log(Revenues_{it}) * (Endowment/Expenses)_i + \gamma_i + \varepsilon_y$$

for organization i in year t. To avoid generating results uncontaminated by accounting relationships, we use the beginning of period endowment intensity, which does not have within-organization variation. However, we may still identify a coefficient on the interaction term, which our theory of endowments predicts to be negative.

2. Examining the link between governance and endowments

As we describe in further detail below, there are significant differences across U.S. states in the extent of oversight of nonprofits by state authorities. First, we search for evidence that donors actually have good reason to be concerned about the behavior of managers in states with poor oversight. There are many ways in which managers in nonprofit organizations might take advantage of the discretion they are given over funds. Most obviously, managers with little oversight might be tempted toward perquisite consumption. While it is very difficult to observe the consumption of perquisites, we might look for managerial discretion in a more easily observable context: executive compensation. To examine this possibility, we look at the sensitivity of managerial pay to the inflow of donations. If managers in states with lower oversight consume more perquisites in this way, then a higher proportion of the inflow of donations should be paid to managers. Hence, we consider:

$$log(Managerial\ Compensation_{it}) = \acute{a} + \hat{a}_1 * log(Donations_{it}) + \hat{a}_2 * Oversight_i * log(Donations_{it}) + \varsigma_i + \mathring{a}_y \quad (11)$$

where we expect $\hat{a}_1>0$ and $\hat{a}_2<0$.

Conditional on the existence of governance problems, the basic prediction of our model is that donors should be reluctant to allow organizations to put funds into an endowment for future use. To examine this possibility, we look at the interaction of oversight and donations, to test the hypothesis of differential elasticities across states of changes in endowment with respect to donations. If it is the case that nonprofit managers may abuse discretionary funds, then donors should be less inclined to allow managers to

use donations to build up to an endowment: donors should insist that funds are spent right away. Hence, we examine:

$$Älog(Endowment_{it}) = á + â_1 * log(Donations_{it}) + \quad (12)$$

$$â_2 * Oversight_i * log(Donations_{it}) + ç_i + å_y$$

Here, we predict $â_2 > 0$, i.e., a higher elasticity in higher oversight states of change in endowment with respect to donations.

We view these regressions as the core tests of our hypotheses, particularly since the specifications allow for the inclusion of organization fixed effects, which goes some way in controlling for cross-firm heterogeneity. We also report several additional tentative results that rely solely on the cross-sectional heterogeneity across states. In particular, our model of donor behavior predicts that nonprofits in states with poorer oversight should have greater difficulties in attracting donations. Accordingly, organizations in such states should be less reliant on donations. That is:

$$Donations_{is}/Revenues_{isj} = á + â_1 * Oversight_s + Controls_{isj} + ç_j + å_{sj} \quad (13)$$

for firm i in industry j and state s.

III. Data

For this paper, we concentrate on charitable nonprofits (so-called 501(c)3 organizations, named for the section of the U.S. tax code that gives them tax-exempt status), making use of the IRS Statistics of Income files. This is a data set compiled by the National Center for Charitable Statistics (NCCS) at the Urban Institute, which is derived from data taken from the Form 990's that tax-exempt organizations must file with the IRS. These data contain all 501(c)(3) organizations with more than $10 million in assets plus a random sample of approximately 4,000 smaller organizations. Most financial variables on the

Form 990 are included, and the data are considered to be more reliable than the data in the IRS's unedited files due to substantial error checking by the NCSS.[4]

Our measure of the endowment, or net assets, is from the Form 990; this is simply total assets less total liabilities.[5] Nonprofit scholars generally use the term endowment to refer to a restricted fund where, at least in theory, the principal cannot be spent. They are therefore careful to make a distinction between restricted (endowment) and unrestricted (fund balance) funds. We do not believe that any such distinction is necessary here for the following reason: Restricted (endowment) funds are held primarily by large educational institutions and hospitals. These organizations are generally able to borrow against the value of their endowments, and may furthermore use the interest generated by the endowments to make interest payments on their loans. Particularly given that these organizations are generally able to float tax exempt bonds, it would appear that the restriction on endowment payout is not binding.

We focus on volatility as a predictor of endowment size, and use the standard deviation of detrended log(Revenues) as the relevant measure.[6] This construction incorporates both price and donation shocks. In estimating equation (9), we also include covariates to control for labor intensity and access to alternative financing. We measure labor intensiveness by the ratio of total wages to total expenses (LABIN).[7] To proxy for access to financing, we use a dummy variable that takes on a value of one if the organization obtained a loan during the decade 1987-96 (DEBT). Obviously, there is an offsetting effect here: organizations with large endowments may borrow against their endowments, thereby generating a positive relationship between DEBT and endowment intensity. Hence, in this case, there is a bias against finding a negative relation.

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[4] For more details, see the NCCS WebSite at http://nccs.urban.org/index.htm.

[5] An alternative, and perhaps more direct, measure of the endowment is the organization's holdings that could potentially be used to finance program expenditure. More precisely, we may use:

ENDOWMENT = CASH + BANK DEPOSITS + SECURITIES + REAL ESTATE INVESTMENT

This measure is very highly correlated with reported fund balance ($\tilde{n}$=0.96), and using it as an alternative yields virtually identical results. Regressions available from the authors.

[6] We detrend the data to net out large, but predictable, revenue changes.

[7] Note that, in many ways, a more sensible measure of labor intensity would be to deflate by physical capital. However, since physical capital is a significant part of the endowment, it would be almost tautological to have such a variable on the right hand side of the regression.

To examine the relationship between expenditures and revenues, we look at the link between total revenues (REVENUES), which incorporates income from services as well as donations, and total expenses (EXPENSES), which includes program expenses as well as all types of overhead. Finally, to look at the elasticity of change and endowment with respect to donations, we require a measure of donation inflows, which is given by total private donations (DONATIONS), as well as a measure of endowment change, ÄENDOWMENT = log(End of Year Endowment) – log(Beginning of Year Endowment).

Because we examine the difference in elasticity across organizations that exist in different legal environments, we need a measure of nonprofit oversight. Fortunately, there is tremendous variation across states in the regulation of nonprofit organizations. The Office of the Ohio Attorney General carefully documented these differences in a report in 1974. As the authors of the article emphasize, there remain dramatic differences in the resources allocated to oversight of nonprofits, as well as the scope for actions against nonprofits by the state attorneys general. To measure oversight, we employ a simple 'headcount' of powers of the state Attorneys General, which are listed in the Ohio Attorney General's report, and which we outline briefly in Appendix 1. There are eight possible powers; each state's score is listed in Appendix 2. For the regressions, these values were divided by eight, to allow scores to range from zero to one. These numbers are based on the regulation of nonprofits in 1974, which is the most recent information available. However, this is not of great concern, as there have been almost no changes since then in state-level nonprofit statutes.[8]

The SOI files contain annual observations on 10-12,000 organizations per year, varying by year, for 1987-96, with approximately 18,000 organizations filing in at least one year. Prior to 1987, data were collected on a much smaller sample of organizations. Organizations that do not file every year are somewhat problematic, in terms of matching up years across the sample. Hence, we limit our analyses to organizations that filed with the IRS every year during this period, approximately 5300. This restriction also removes many of the outlying and unreliable organizations from the sample. After removing mutuals (dominated by TIAA), grant making foundations and trusts, and organizations

[8] Personal communication, Marion Fremont-Smith.

whose industry is 'unknown', the sample is reduced to 5007 organizations. Furthermore, we limit the sample to organizations that consistently report sensible values for the variables that are central to our analyses. Thus, we remove organizations with negative reported revenues or expenses, a 1987 endowment rate of greater than 100, and a negative ratio of private donations to revenues. This resulted in a further reduction of 461 firms, leaving a total of 4546 organizations. Finally, for the regressions looking at the sensitivity of endowment changes to donation inflows, we require data on donations, change in endowment, and legal regime.[9] This results in a further drop in sample size of 371 firms.

Basic summary statistics are contained in Table 1. Table 2 presents the distribution of median values by industry for a subset of variables. One important point to note is that the sample is dominated by health-care organizations, which are primarily hospitals. Because hospitals tend to be larger than other nonprofits, health care is even more dominant in the revenue-weighted distribution of organizations (see column (2)). However, health-care appears to be systematically different from other nonprofit activities; in particular, the median donation rate is significantly below that of other sectors. In general, as numerous scholars have noted (see, for example, Weisbrod, 1997), hospitals behave increasingly like for-profit organizations; thus, to the extent that we are interested in documenting differences between for-profits and nonprofits, we may wish to focus on other sectors. We report empirical results for nonprofit organization samples including an excluding hospitals.

SOI Compensation Files

As described above, we will also examine the relationship between the inflow of donations and the compensation of officers in nonprofits, and look at how this varies across states. The donations data are from the SOI files, as previously described. The

[9] Note: we also exclude all organizations that switch state of incorporation during the sample period; there are 116 such organizations. One would think that having within-firm variation in legal regime would be very useful for us. However, most of these changes seem to be because of errors in the data: the majority (79) of these organizations have only a single observation where the state differs, and this is often not the first or last year. Finally, anecdotally, we observed that the states' abbreviations were very often very close for organizations that switch between states (e.g., AR and AL; NY and NJ).

executive compensation data are derived from the IRS's Statistics of Income, Form 990 Part V files, which contain the salaries, expenses, and benefits received by officers in a subset of nonprofits. Consistent with other work on nonprofit compensation using the IRS data (see, for example, Hallock, 2000), we use the log of total pay and benefits received by the highest-paid officer in each organization as our measure of compensation (PAY). There is considerable, though not complete, overlap in coverage of organizations by the regular SOI file and this compensation file. Furthermore, the SOI compensation file only covers the years 1992-96. A total of 4784 organizations appear at least once in the file; after merging the data sets and deleting observations lacking in data on donations or pay, we were able to generate a balanced panel of 2868 organizations.

IV. Results

Endowment as Precautionary Savings

The basic prediction of the precautionary savings model is that organizations with uncertain cash flows should hold larger endowments. Furthermore, factors that make it more difficult for an organization to react to shocks to cash flows exacerbate the problems associated with volatility. In the regressions that follow, we use labor intensity as a proxy for financial flexibility, and the DEBT dummy variable to proxy for alternative financing options. Hence, our specification is as follows:

$$ENDOWMENT_i/EXP_i = \alpha + \beta_1*VOLATILITY_i + \beta_2*LABIN_i + \beta_3*DEBT_i +$$

$$\beta_4*LABIN_i*VOLATILITY_i + \beta_5*DEBT_i*VOLATILITY_i + \gamma_J + \varepsilon_i$$

where γ_S is an effect that is specific to industry/sector J. The results for the regressions without interaction terms are listed in Table 3.[10] Even after allowing for industry fixed effects, the results are strongly consistent with the precautionary savings theory of endowment size. In particular, the coefficient on volatility is large, positive, and

[10] Note that the sample size is considerably smaller for regressions involving LABIN, since many organizations do not report assets on a sufficiently disaggregated level.

precisely estimated; the point estimate implies that a one standard deviation increase (0.15) in volatility is associated with an increase in endowment ratio of approximately 1.8. Of course, we have included in this regression observations from many organizations whose endowments are very large (it is hard to imagine that endowment ratios of 50 or 100 could be justified based solely upon concerns of precautionary savings). Similarly, it is unlikely that an organization holding, say, only 0.1 percent of annual expenses in savings, is at its equilibrium endowment rate. To address these concerns, we re-estimate equation (9) omitting observations with the top and bottom one percent of observations of endowment values; the point estimate of $\hat{a}_1$ is only marginally reduced, and the coefficient remains precisely estimated. Another way of dealing with these outliers is to take the log of the endowment rate as our dependent variable; as we are completely agnostic with respect to the functional form of the relationship we are examining, this diminishing returns specification is perhaps more sensible. When repeated in this way, the results are once again strongly consistent with the precautionary savings hypothesis (see Table 3(B)).

Turning to the other regressors, coefficient estimates are broadly consistent with the precautionary savings theory: both LABIN and LOAN have large, negative estimated coefficients. In Table 4, we look at the interactions between volatility and these variables. As predicted, there is a strong complementarity between LOAN and volatility, and LABIN and volatility. This complementarity reflects the fact that these factors provide other means of dealing with shocks.

Moving on to the panel results, our claim is that organizations that are blessed with large endowments will have more freedom to make expenditures, even when there is an adverse shock to revenues. That is, we will be looking at a cash flow sensitivity regression that is somewhat analogous to the investment/cash flow regressions that have grown so common in the corporate finance literature (for the original contribution, see Fazzari et al, 1988). Our basic specification is as follows:

$$EXPENDITURE_{it} = \acute{a}_i + \hat{a}_1 * REVENUE_{it} + YEAR\ DUMMIES + \mathring{a}_t$$

In this regression, the organization fixed effect ($á_i$) captures the non-time-varying quality of opportunities available to different organizations. We expect this relationship to be weaker for high endowment organizations. Thus, we examine:

$$EXPENDITURE_{it} = á_i + â_1*REVENUE_{it} + â_2*REVENUE_{it}*[ENDOWMENT/EXP]_i + YEAR\ DUMMIES + å_t$$

We use initial endowment rate (i.e., endowment rate in 1987) to mitigate problems potentially arising from accounting identities governing the relationship between expenses and endowment. Hence, the endowment rate has only an organization subscript (i.e., no time subscript). The results show that, not surprisingly, log revenues are highly correlated with log expenditures (see Table 5)[11]. Much more interesting is the fact that this relationship is much stronger for organizations with relatively low endowments, that is, the coefficient on the interaction term is highly significant. Its size implies that moving from the 10th percentile to the 90th percentile of log of endowment rate reduces the elasticity of expenditures with respect to revenues from approximately 0.8 to approximately 0.5.[12]

The governance implications of endowment requirements

We begin by looking for evidence of whether there is reason for donors in states with poor oversight to be more concerned about the misuse of funds, by looking at the sensitivity of managerial compensation to the inflow of donations. As a baseline, we report the results of a standard 'pay for performance'-type regression for nonprofit managers:

$$\log(PAY_{it}) = á_i + â_1*\log(DONATIONS_{it}) + YEAR\ DUMMIES + å_t$$

[11] Note that fixed effects are not particularly good at dealing with time trends, hence, we may wish to detrend the data. When the regression is repeated using detrended revenues and expenditures, exactly the same results hold

[12] We obtain virtually identical results using ENDOWMENT/EXPENSES interacted with log(REVENUES), if outliers are omitted. For the full sample, results are only marginally weaker.

When we run this regression for the full sample, the relationship is extremely weak (see Table 6). Note, however, that we are including a large number of organizations that are largely non-donative, and therefore have very little variation in the log of donations. This is also reflected in the extremely low R-squared of this regression. Hence, we also restrict the sample to organizations that obtained at least some small proportion of their revenues from donations (we use as cutoffs 1%, 5%, and 10%). Having omitted "non-donative" organizations we do in fact find a significant elasticity of executive compensation with respect to donation inflows.

Now, it is not clear how to interpret these results: it may be executives are paid more for performing well, and bringing in more donations (pay for performance); alternatively, donations may be extracted by executives in the form of higher salaries and perquisites (consistent with explanations in corporate finance). To try to differentiate between these two hypotheses, we take advantage of differences in regulatory oversight across states. If the free cash flow hypothesis is correct, the coefficient on log(DONATIONS) should be much higher in states with lax oversight. We do not have any reason per se to expect that pay for performance should differ drastically across states. Hence, we estimate:

$$\log(PAY_{it}) = \alpha_i + \beta_1 * \log(DONATIONS_{it}) + \beta_2 * \log(DONATIONS_{it}) * REGULATION_S + \gamma_t$$

We present the results in Table 7. The coefficient on log(DONATIONS) is now marginally larger than in the previous set of regressions, and the coefficient on the interaction term is negative, and sufficiently large as to suggest that the sensitivity of managerial compensation to donations drops to close to zero in high oversight states.

We now turn to the question of whether donors respond to potential monitoring problems by limiting the extent to which funds may flow into the endowment. That is, we look at the following:

$$\Delta \log(ENDOWMENT_{it}) = \alpha_i + \beta_1 * \log(DONATIONS_{it})$$

$$+ \beta_2 * \log(DONATIONS_{it}) * REGULATION + YEAR\ DUMMIES + \varepsilon_t$$

Once again, we find that for the full sample, the interaction term is not significant; this is not surprising for reasons described above. However, when we look at more donative organizations, we find a higher sensitivity of change in endowment size to inflows of donations. This holds for various choices of donation rate cutoffs, and is also robust to the exclusion of hospitals from the sample (see Table 8). Thus, we provide evidence that donors in weak oversight states may be more reluctant to make donations that end up in a fund for future use, relative to donors in states with strong oversight.

We may further examine some of the other predictions of our model, using exclusively the cross-sectional variation in monitoring across states. Instead of taking steps to ensure a high "burn rate" of donations, potential donors could simply keep their money for themselves. If this is the case, we may expect donation rates to be lower in states with poor oversight. We run the following:

$$DONATIONS/REVENUES_i = \alpha + \beta_1 * REGULATION_s + \beta_2 * \log(State\ Income_s)$$

$$+ \beta_3 * \log(REVENUE_i) + INDUSTRY\ DUMMIES + \eta$$

Consistent with our hypothesis that organizations in states with poor oversight are less able to attract donations, we find a negative coefficient on REGULATION, over a range of specifications (see Table 9).

Conclusion

The nonprofit form constitutes an extremely important part of the American economy. It is therefore surprising how little attention economists have paid to the behavior of such organizations. In this paper, we take a first look at some fundamental issues of governance in nonprofits that stem directly from the nondistribution constraint that defines the nonprofit form. We find that our precautionary savings model of the

endowment is supported by the data. Furthermore, we find evidence of a number of governance issues associated with the existence of endowments. Our results should not be viewed as a condemnation or critique of the nonprofit form. Rather, our findings highlight the importance of appropriate monitoring of organizations without shareholders that might otherwise serve the purpose. We do, in fact, find evidence that government monitoring is effective, and absent this monitoring, that donors respond by constraining managers by limiting the accumulation of reserves.

Table 1: Summary Statistics

	Mean	Std. Dev.	Min	Max	Obs
ENDOWMENT ($1,000)	39736.24	159664.90	0	5207517	4546
Endowment/Expenses	3.17	6.75	0	98.62	4546
log(Endowment/Expenses)	1.00	0.77	0	4.60	4546
Volatility	0.15	0.15	0.01	1.56	4546
Expenses ($1,000)	33436.97	101734.80	9.671	4039460	4546
Revenues ($1,000)	36431.88	108203.10	6.608	4108413	4546
Private Donations/Revenues	0.14	0.21	0	1	4546
(Labor Costs)/(Total Expenses)	0.41	0.20	0	0.89	4546
Loan Dummy	0.67	0.47	0	1	4546
Private Donations ($1,000)	2642.20	14095.07	0	667663	4546
Total Compensation of highest paid officer	173171.4	162066.9	220	3270905	2868

Notes: Volatility is the standard deviation of detrended revenues for 1987-96

Table 2: Selected Statistics, by Industry

	% of Total Revenue	% of Total Value of Endowment	Donations Revenues	% of Total Organizations
Arts	2.25	4.17	0.345	6.03
Education	26.67	49.32	0.196	29.45
Environment	0.11	0.26	0.404	0.86
Animal Related	0.21	0.38	0.323	0.81
Health	61.89	34.53	0.033	37.62
Mental Health	0.31	0.23	0.079	1.36
Diseases	0.76	0.51	0.188	1.08
Medical Research	0.53	3.43	0.297	0.97
Crime, Legal Related	0.12	0.08	0.284	0.37
Employment, Job Related	0.07	0.07	0.037	0.66
Food, Agriculture, and Nutrition	0.01	0.01	0.421	0.09
Housing, Shelter	0.06	0.06	0.108	1.21
Public safety	0.04	0.02	0.159	0.24
Recreation/sports	0.18	0.23	0.235	0.79
Youth Development	0.16	0.25	0.264	1.19
Human services	2.76	3.66	0.149	11.92
international/foreign affairs	1.11	0.65	0.380	0.99
Civil Rights/Social Action	0.04	0.03	0.664	0.15
Community Improvement	0.18	0.28	0.128	1.12
Science research	1.86	1.06	0.102	1.32
Social science research	0.15	0.18	0.277	0.33
society benefit	0.27	0.29	0.216	0.48
Religious	0.26	0.28	0.440	0.92

Table 3(A): Determinants of Endowment Intensity

Dependent Variable: Endowment/Expenses

	(1)	(2)	(3)	(4)	(5)
Volatility	16.72	14.51	12.15	11.99	8.05
	(0.97)	(1.27)	(1.27)	(1.41)	(1.86)
log(REVENUE)		-0.56	-0.31	-0.40	-0.23
		(0.26)	(0.19)	(0.22)	(0.15)
LABOR INTENSITY			-5.40	-5.29	-3.82
			(1.31)	(1.44)	(0.20)
LOAN DUMMY			-2.09	-2.10	-1.68
			(0.28)	(0.29)	(0.11)
CONSTANT	0.66	10.05	10.03		
	(0.34)	(4.25)	(3.65)		
R2	0.14	0.16	0.2	0.22	0.34
Obs.	4546	4546	4546	4546	4451
Industry FE's	No	No	No	Yes	Yes
Outliers Excluded	No	No	No	No	Yes

Notes: Standard Errors in Parentheses. All regressions use robust standard errors.

Table 3(B): Determinants of Endowment Intensity, using logs.

Dependent Variable: log(Endowment/Expenses)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Volatility	2.18	1.76	1.42	1.49	2.17	2.21	1.91	1.85
	(0.13)	(0.24)	(0.25)	(0.24)	(0.14)	(0.11)	(0.14)	(0.11)
log(REVENUE)		-0.11	-0.07	-0.05		0.01	0.03	0.00
		(0.06)	(0.04)	(0.04)		(0.02)	(0.02)	(0.01)
LABOR INTENSITY			-0.68	-0.61			-0.45	-0.42
			(0.14)	(0.16)			(0.10)	(0.07)
LOAN DUMMY			-0.37	-0.34			-0.28	-0.29
			(0.06)	(0.06)			(0.07)	(0.06)
CONSTANT	0.68	2.47	2.40		0.86	0.71	0.80	
	(0.15)	(0.84)	(0.75)		(0.09)	(0.33)	(0.27)	
R2	0.18	0.23	0.31	0.4	0.18	0.18	0.23	0.31
Obs.	4546	4546	4546	4546	2836	2836	2836	2836
Industry FE's	No	No	No	Yes	No	No	No	Yes
Hospitals Excluded	No	No	No	No	Yes	Yes	Yes	Yes

Notes: Standard Errors in Parentheses. All regressions use robust standard errors.

Table 4: Complementarity of Labor Intensity/Alternative Financing & Volatility

Dep. Variable	ENDOWMENT/EXP		log(1+ENDOWMENT/EXP)	
	(1)	(2)	(3)	(4)
Volatility	16.78	24.14	2.01	2.53
	(1.12)	(1.87)	(0.13)	(0.12)
log(REVENUE)	-0.38	-0.35	-0.05	-0.05
	(0.21)	(0.19)	(0.04)	(0.03)
LABOR INTENSITY	-4.99	0.92	-0.57	-0.07
	(1.35)	(0.74)	(0.15)	(0.07)
LOAN DUMMY	-0.82	-1.99	-0.20	-0.33
	(0.20)	(0.25)	(0.05)	(0.05)
LABOR INTENSITY *VOLATILITY	-7.70		-0.83	
	(1.82)		(0.17)	
LOAN DUMMY *VOLATILITY		-33.97		-2.91
		(5.02)		(0.63)
R2	0.23	0.24	0.41	0.42
Obs.	4546	2836	4546	2836
Industry FE's	Yes	Yes	Yes	Yes

Notes: Standard Errors in Parentheses. All regressions use robust standard errors.

Table 5: Sensitivity of Expenses to Revenue Inflows

Dependent Variable: log(EXPENSES)

	(1)	(2)	(3)
log(REVENUE)	0.62	0.83	0.77
	(0.00)	(0.01)	(0.01)
log(REVENUE)*		-0.14	-0.16
(1987 log(Endowment/Exp))		(0.00)	(0.00)
Within R2	0.68	0.69	0.68
Obs.	45460	45460	28360
Hospitals Excluded	No	No	Yes

Notes: Standard Errors in Parentheses. All regressions include organization-specific fixed effects.

Table 6: Sensitivity of Executive Pay to Donation Inflows

Dependent Variable: log(Executive Pay)

	(1)	(2)	(3)	(4)
log(DONATIONS)	-0.001	0.010	0.017	0.019
	(0.002)	(0.003)	(0.004)	(0.004)
Cutoff Value of Donation Rate	None	0.01	0.05	0.1
R2	0.068	0.089	0.083	0.083
Observations	14340	8240	6405	4915

Notes: Standard Errors in Parentheses. All regressions include organization-specific fixed effects.

Table 7: Sensitivity of Executive Pay to Donation Inflows, variation across states

Dependent Variable: log(Executive Pay)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(DONATIONS)	0.000	0.017	0.032	0.044	0.021	0.023	0.038	0.058
	(0.003)	(0.005)	(0.007)	(0.008)	(0.005)	(0.006)	(0.008)	(0.009)
log(DONATIONS)*	-0.001	-0.014	-0.029	-0.048	-0.029	-0.012	-0.026	-0.050
REGULATION	(0.005)	(0.008)	(0.010)	(0.012)	(0.008)	(0.010)	(0.011)	(0.013)
Cutoff Value of Donation Rate	None	0.01	0.05	0.1	None	0.01	0.05	0.1
Hospitals Excluded	No	No	No	No	Yes	Yes	Yes	Yes
R2	0.068	0.089	0.083	0.083	0.077	0.096	0.092	0.097
Observations	14340	8240	6405	4915	8630	7130	5940	4610

Notes: Standard Errors in Parentheses. All regressions include organization-specific fixed effects.

Table 8: Sensitivity of Change in Endowment to Donation Inflows

Dependent Variable: Älog(Endowment)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(DONATIONS)	0.003	0.006	0.006	0.011	0.006	0.003	0.005	0.010
	(0.002)	(0.003)	(0.004)	(0.005)	(0.003)	(0.004)	(0.003)	(0.005)
log(DONATIONS)*	0.002	0.006	0.016	0.015	0.008	0.032	0.015	0.025
REGULATION	(0.003)	(0.005)	(0.007)	(0.007)	(0.004)	(0.007)	(0.005)	(0.008)
Cutoff Value of Donation Rate	None	0.01	0.05	0.1	None	0.01	0.05	0.1
Hospitals Excluded	No	No	No	No	Yes	Yes	Yes	Yes
Within R2	0.006	0.011	0.012	0.017	0.019	0.018	0.022	0.024
Observations	41750	26470	20800	16660	25820	22470	19090	15480

Notes: Standard Errors in Parentheses. All regressions include organization-specific fixed effects.

Table 9: Donation Reliance as a Function of State Regulation

Dependent Variable: (Private Donations 1987-1996)/(Revenues 1987-1996)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(State Income)	-0.043	-0.027	-0.108	-0.054	-0.105	-0.084	-0.137	-0.089
	(0.039)	(0.039)	(0.049)	(0.027)	(0.024)	(0.024)	(0.036)	(0.024)
REGULATION	0.037	0.042	0.045	0.035	0.024	0.029	0.031	0.027
	(0.021)	(0.018)	(0.023)	(0.017)	(0.014)	(0.013)	(0.019)	(0.013)
log(REVENUES)		-0.040	-0.019	-0.040		-0.024	-0.021	-0.026
		(0.002)	(0.003)	(0.002)		(0.003)	(0.004)	(0.003)
CONSTANT	0.549	1.031	1.562	1.306				
	(0.388)	(0.391)	(0.507)	(0.280)				
R2	0.003	0.11	0.03	0.12	0.27	0.3	0.16	0.31
Obs.	4452	4452	2754	3749	4452	4452	2754	3749
Industry FE's	No	No	No	No	Yes	Yes	Yes	Yes
Hospitals Excluded	No	No	Yes	No	No	No	Yes	No
New York & Texas Excluded	No	No	No	Yes	No	No	No	Yes

Notes: Standard Errors in Parentheses. All regressions use robust standard errors with state-level clustering..

Appendix 1: Powers of the State Attorneys General in Nonprofit Oversight

Thanks to the United States' common law heritage, most regulation of nonprofits devolved to the states, which exhibit a very large amount of variation in their extent of oversight. Almost uniformly, the power to monitor and prosecute nonprofits has been allocated to the State Attorney General. The Office of the Ohio Attorney General has documented the basic legislative enactments that allow the state Attorney General to oversee nonprofit organizations, and how these basic enactments vary across states. The eight statutes covered by the report are listed below; for further details, see Commission on Private Philanthropy and Public Needs, 1977).

1. Is the Attorney General the enforcing authority?
2. It is the Attorney General a necessary party for enforcement?
3. Does the Attorney General have the power to institute suits to enforce the charitable trust?
4. Is registration with the Attorney General required?
5. Are periodic reports to the Attorney General required?
6. Does the enforcing authority have subpoena power?
7. Does the enforcing agency have rulemaking authority?
8. Are probate judges required to notify the enforcing authority whenever a will containing a charitable bequest is admitted?

Appendix 2: State-level Oversight by Attorneys General

Alabama	0	Montana	0
Alaska	0	Nebraska	1
Arizona	0	Nevada	8
Arkansas	1	New Hampshire	2
California	8	New Jersey	2
Colorado	2	New Mexico	2
Connecticut	3	New York	7
Delaware	1	North Carolina	3
Florida	1	North Dakota	2
Georgia	7	Ohio	7
Hawaii	2	Oklahoma	1
Idaho	3	Oregon	7
Illinois	7	Pennsylvania	2
Indiana	2	Rhode Island	8
Iowa	4	South Carolina	5
Kansas	1	South Dakota	3
Kentucky	3	Tennessee	2
Louisiana	0	Texas	3
Maine	3	Utah	1
Maryland	2	Vermont	2
Massachusetts	7	Virginia	4
Michigan	7	Washington	8
Minnesota	3	West Virginia	1
Mississippi	1	Wisconsin	5
Missouri	2	Wyoming	1