

# What are the capital structure determinants for tax-exempt organizations?

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## Abstract

I study the determinants of capital structure in the absence of tax incentives. I find that debt use is positively related to asset tangibility, growth, and size, and negatively related to age, liquidity, and profitability. Tax-exempt sector-specific findings indicate that debt is also positively related to the efficacy of state laws against the misuse of assets and to the percentage of decision makers that are paid and negatively related to decision-maker compensation and to charitable contributions. Religious organizations most commonly borrow from internal sources, those in education use tax-exempt bonds, while human services organizations use mortgages and notes payable.

*Keywords:* Capital structure, Tax-exempt organizations, Agency cost theory, Pecking order theory, Trade-off theory

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# 1 Introduction

There are over one million tax-exempt organizations in the United States.<sup>1</sup> Altogether, they account for over \$2.4 *trillion* in total assets. Yet there is relatively little research into the financing structure of these organizations or the underlying determinants of their capital structure choice. The purpose of this study is to help fill this gap in the literature.

There are several advantages to studying the capital structure decision for tax-exempt organizations. Because the debt ratios of tax-exempt organizations are unaffected by corporate income taxes, equity market timing, and signaling effects, they are a natural sample upon which to assess the empirical predictions of the theory of capital structure. In comparison, it is well known that difficulties in estimating marginal tax rates and the endogeneity of corporate income taxes can complicate the study of taxable corporations.<sup>2</sup> Likewise, Baker and Wurgler (2002) and Leary and Roberts (2005) point out that the debt ratios of taxable corporations partly represent the cumulative effects of equity market timing. Ross (1977) also points out that taxable corporations issue debt to send signals to shareholders about the company's future prospects.

Despite these advantages, the focus of much of the existing research is limited to the health care industry. For example, Gentry (2002) looks into whether hospitals engage in tax-arbitrage by indirectly financing their endowments via tax-exempt bonds. Wedig, Sloan, Hassan, and Morrissey (1988) find that hospitals that are more dependent on revenue from cost-based payors use more debt than other hospitals do. Wedig, Hassan, and Morrissey (1996) find that tax-exempt hospitals behave as if they have target levels of tax-exempt debt, that debt targeting is constrained by the availability of capital projects, and that excess debt capacity stimulates investment. Hassan, Wedig, and Morrissey (2000) study whether hospitals provide charity care to gain access to the tax-exempt bond market. Bacon (1992) finds that hospital debt increases with asset tangibility, growth, and lagged leverage, and decreases with profitability. Bowman (2002) stands out among these studies because it expands the scope of organizations beyond hospitals to include organizations from the arts and cultural, college and university, and human services industries.

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<sup>1</sup>Source: National Center for Charitable Statistics.

<sup>2</sup>See Graham (1996) for a discussion of these issues.

This study makes several major improvements to this line of research. First, this study uses a much larger and broader data set than the other studies do. This helps to mitigate concerns over the generalizability and unbiasedness of the test results. It also allows me to control for size- and industry- related effects unaccounted for in the prior research. Likewise, by including organizations from all of the tax-exempt industry groupings, I am able to test for industry effects and to observe the heterogeneity of debt between industries.

Second, I expand the definition of leverage beyond the simple ratio of total liabilities to total assets to include the ratios of financial debt, tax-exempt debt, and taxable debt to financial capital. Rauh and Sufi (2008) suggest that studies that ignore this type of debt heterogeneity miss a substantial percentage of capital structure variation and that recognition of debt heterogeneity leads to new insights into the determinants of corporate capital structure. Each of these debt ratio variables also allows for robustness checks on the others as well as on the robustness of the overall test results.

Third, I discover several new capital structure determinants applicable to tax-exempt organizations. These include age, compensation, governance, and the efficacy of the state regulatory environment.

Collectively, these improvements are a significant upgrade to the data, methods, and analysis used in the previous tax-exempt research. By making these improvements, this study provides new, more accurate, and more generalizable insight into the underlying determinants of the capital structure decision within the tax-exempt sector.

Overall, I find that the debt ratios for tax-exempt organizations are lower than those of the taxable corporations from Compustat. The mean ratio of financial debt to total assets for my sample is 16%. This compares to ratios of about 25% to 27% for the broad samples of Compustat companies referenced in Frank and Goyal (2003) and Welch (2007). The tax-exempt industry with the largest mean ratio of financial debt to total assets is human services (23%), followed by public utilities (19%), and education (15%). The tax-exempt industry with the smallest mean ratio of financial debt to total assets are mutual benefit organizations (5%), followed by organizations involved in international and foreign affairs (4%), and professional societies and associations (4%).

Cross-sectional analysis indicates that debt is positively related to asset tangibility, growth, and size, and negatively related to age, liquidity, and profitability. Tax-exempt sector-specific findings indicate that debt is also positively related to the efficacy of state laws against the theft and misuse of assets and to the percentage of decision makers that are paid, and negatively related to decision-maker compensation and to the amount of contributions, gifts, and grants. Industry effects are also significant. There is also considerable heterogeneity in the sources of debt financing. Religious organizations most commonly borrow from their own officers, directors, trustees, and key employees, those in education most commonly use tax-exempt bonds, while those in human services most commonly borrow in the form of mortgages and other notes payable.

The results from this study are also broadly consistent with other studies. For tax-exempt organizations, both Bacon (1992) and Bowman (2002) also find that debt is positively related to asset tangibility and growth and negatively related to profitability, while Bowman (2002) also finds that debt is positively related to size. Likewise, Bowman (2002) also finds significant industry effects. For taxable corporations, debt also generally increases with asset tangibility and size and decreases with profitability.<sup>3</sup> On the other hand, there is generally a negative relation between debt and growth for taxable corporations.<sup>4</sup> The significance of the industry effects is also consistent with the prior literature on taxable corporations.<sup>5</sup>

The results from this study are also broadly consistent with the empirical predictions of the trade-off, pecking order, and agency costs theories of capital structure. For example, the positive relation between debt and growth and size is consistent with the predictions of both the trade-off and pecking order theories, while the negative relation between debt and age, liquidity, and profitability is consistent with the predictions of the pecking order and agency cost theories.

Interested readers will find more detailed explanations about these findings, the data, and the econometric method within the remainder of the paper. In Section 2, I discuss how the theory

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<sup>3</sup>See, for example, the survey results in Harris and Raviv (1991) or other studies by Frank and Goyal (2007), Friend and Lang (1988), and Rajan and Zingales (1995). One exception is Dittmar (2004), which finds that profitability does not affect the use of debt.

<sup>4</sup>See, for example, Booth, Aivazian, Demircuc-Kunt, and Maksimovic (2001), Kester (1986), and Titman and Wessels (1988) for a positive relation and Dittmar (2004), Fama and French (2002), Frank and Goyal (2007), and Rajan and Zingales (1995) for a negative relation.

<sup>5</sup>See, for example, Bradley, Jarrell, and Kim (1984) and Titman and Wessels (1988).

of capital structure applies to tax-exempt organizations. In Section 3, I introduce the data and explain the sample selection process. The detailed results of single and multiple variable analysis of the data are presented in Section 4 and in Section 5. The results of robustness tests are reported in Section 6. Section 7 concludes.

## 2 The theory of capital structure

I begin this section with a brief discussion about the theory of capital structure. Following that discussion, I describe the attributes that the theory predicts will help to explain the capital structure decision for tax-exempt organizations.

First is the trade-off theory. The theoretical foundation for the trade-off theory comes from Modigliani and Miller (1963), which suggests that the optimal capital structure is all debt because of the tax deductibility of interest expense. Castanias (1983) and Stiglitz (1972) extend the Modigliani and Miller (1963) theorem by including the possibility of financial distress costs. From these analysis, the premise of the trade-off theory is that companies seek to find the mix of debt and equity that strikes the perfect balance between the benefits of debt (e.g., tax savings) and the costs (e.g., financial distress costs).

For tax-exempt organizations, the expectation is that there is little to no benefit from the deductibility of interest expense.<sup>6</sup> However, even without a tax savings benefit, tax-exempt organizations can benefit from debt by leveraging their capital investments and increasing their return on equity. Likewise, tax-exempt organizations must also trade off between the benefits from making capital investments and the costs of financial distress because of their inability to access the equity markets.

Next is the pecking order theory developed in Myers (1984) and Myers and Majluf (1984). According to the pecking order theory, external sources of capital are subject to adverse selection because insiders have more information than outside investors do. Outsiders are aware of their relative ignorance and demand a premium on their investment returns. Organizations will therefore

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<sup>6</sup>Some tax-exempt organizations do incur federal income tax liabilities, however. The IRS refers to this type of income as “unrelated business gross income.” See also Yetman and Yetman (2009) for insight into the reasons why tax-exempt organizations place their taxable activities into subsidiaries.

prefer internal sources of funds and to hold excess reserves to fund their investments.

For tax-exempt organizations, the adverse selection costs associated with debt include not only the interest expense, but also restrictive bond covenants or other restrictions on managerial discretion. Inasmuch as these costs can give decision makers the incentive to prefer internal sources of capital, the pecking order theory suggests that organizations will turn to external debt only when internal sources are insufficient to fund their capital investments.

Last are the theories that focus on agency costs developed in Berger, Ofek, and Yermack (1997), Galai and Masulis (1976), Grossman and Hart (1982), Jensen (1986), Jensen and Meckling (1976), Myers (1977), Stulz (1990), and others. Berger, Ofek, and Yermack (1997) show that entrenched managers avoid debt because of personal risk aversion. Galai and Masulis (1976), Jensen and Meckling (1976), and Stulz (1990) point out that debt encourages decision makers to make riskier investments because losses fall on the bondholders while gains accrue to the shareholders. Grossman and Hart (1982) suggest that debt is beneficial because it gives managers the incentive to work harder, consume fewer perquisites, and make better investment decisions. Jensen (1986) argues that debt reduces the amount of free cash flow available for managers to waste and increases their incentive to make decisions in line with the interests of shareholders. Lastly, Myers (1977) shows that companies will have difficulty financing their investment opportunities when the benefits accrue to existing bondholders.

For tax-exempt organizations, theories based on agency costs predict that a combination of personal risk aversion, entrenchment, and reputational and career concerns will deter decision makers from taking on debt. These effects could be even more pronounced in the tax-exempt sector because of the lack of discipline provided by a market for corporate control.

Having now broadly discussed how the theory of capital structure applies to tax-exempt organizations, I now turn to a more detailed description of the attributes that each of the theories predicts will help to explain the capital structure decision. These attributes are age, asset tangibility, charitable contributions, governance and state laws, growth, liquidity and profitability, and size. Within each of the following subsections I discuss each attribute, its anticipated relation to the use of debt, and describe the empirical proxy by which the attribute is represented in the econometric models.

## 2.1 Age

There are several explanations for why debt might be related to the age of the organization. Newly established organizations might not have a long enough record of accomplishment to demonstrate their creditworthiness to lenders. Berger and Udell (1998) suggest that start-up organizations have difficulty raising capital because they are informationally opaque. Diamond (1989) suggests that organizations with shorter track records also have a greater probability of default. Less mature organizations can also lack the resources necessary to produce the audit-quality financial statements required for bank financing. Petersen and Rajan (1994) find that the interest rate that banks charge decreases with age.

Insomuch as better established organizations are able to obtain more debt or receive more favorable repayment terms, the trade-off theory suggests that debt will increase with age. On the other hand, it is possible that tax-exempt organizations will either pay off debt or accumulate retained earnings as they age. This would be consistent with the preference for internal sources suggested by the pecking order theory. If this is the case, then the older organizations will have less debt. From an agency cost perspective, older organizations will have less debt to the extent that their decision makers are more risk averse, more entrenched, or have greater reputational and career concerns. To study the effect of age on the use of debt, I define the variable RULAGE as the number of years between the date when the IRS issued the organization's tax-exempt status ruling and the fiscal year ending date.

## 2.2 Asset tangibility

In the event of default, tangible assets provide creditors with a secondary source for repayment of outstanding debt. Secured debt also mitigates the asset substitution problem identified in Galai and Masulis (1976) and Jensen and Meckling (1976). For these reasons, organizations with a greater share of tangible assets are expected to benefit from more favorable financing terms than others are able to. Because of this, the trade-off theory suggests that there is a positive relation between debt and the proportion of the organization's assets that are tangible. Tangible assets can also mitigate concerns over insider resource expropriation. This also suggests that there is a positive relation

between debt and asset tangibility from the agency cost point of view. To study the effect of asset tangibility on the use of debt, I define the variable TANGBL as inventories plus land, buildings, and equipment, all divided by total assets.

### **2.3 Charitable contributions**

Tax-exempt organizations generate part of their revenue from contributions, gifts, and grants. Insomuch as reliance on contributions increases the riskiness of the organization's cash flow, the trade-off theory predicts a negative relation between debt and the amount of contributions received. Likewise, contributions are an equity-like source of capital that can offset the need for debt. This also suggests that there is a negative relation between debt and the amount of contributions from the pecking order point of view. From an agency cost perspective, a better ability to raise money via contributions can signal confidence by donors in the management of the organization. In this case, debt will increase with the amount of contributions. To study the effect of contributions on the use of debt, I define the variable DIRSUP as the percentage of gross revenue from contributions, gifts, and grants from individuals. Likewise, I define the variable OTHSUP as the percentage of gross revenue from private charitable agencies and government grants. The sum of DIRSUP and OTHSUP represents the percentage of total annual gross revenue from the total amount of contributions, gifts, grants, and similar amounts received by the organization.

### **2.4 Governance and state laws**

According to Fama and Jensen (1983b), the tax-exempt organizational form minimizes agency costs by eliminating the role of shareholders. But for tax-exempt organizations, an agency problem still arises between donors, creditors, and decision makers. With respect to the capital structure decision, the agency problem arises when decision makers choose a capital structure for their own personal benefit rather than for the benefit of the organization.

Fama and Jensen (1983a) suggest that it is only the tax-exempt board members who work without pay who credibly certify that they, "are motivated to take their decision control task seriously." To study the effect of governance structure on the use of debt, I define the variable INSIDR as the

percentage of officers, directors, trustees, and key employees that are paid. Because the amount of pay could also matter, I define the variable INSPAY as the total amount of compensation paid to the organization's officers, directors, trustees, and key employees, as a percentage of gross revenue.

If heavier debt loads can reduce wasteful spending, then the trade-off theory suggests that tax-exempt organizations will use more debt when decision makers take their guardianship role more seriously. This suggests that there is a negative relation between debt and the variables INSIDR and INSPAY. Likewise, the agency cost theory also predicts that there is a negative relation between debt and INSIDR and INSPAY inasmuch as personal risk aversion, entrenchment, and reputational and career concerns lessen the use of debt.

State laws and regulations also govern the capital structure decision. For instance, Garvey and Hanka (1999) find that companies protected by state anti-takeover laws substantially reduce debt and that unprotected companies do the reverse. Wald and Long (2007) find that state anti-takeover laws are positively associated with debt and that state laws restricting cash payouts reduce leverage.

For tax-exempt organizations, Desai and Yetman (2006) develop a governance index that measures the efficacy of state laws designed to detect and prosecute instances of asset theft and misuse within tax-exempt organizations. To the extent that these types of legal protections reduce the cost of debt, the trade-off theory predicts a positive relation between debt and the efficacy of the state regulatory environment. Inasmuch as state laws also mitigate adverse selection concerns and reduce agency costs, the pecking order and agency cost theories also predict that debt will increase. To study the effects of state laws on the use of debt, I define the variable GOVERN as the sum of the detection and prosecution index variables from Desai and Yetman (2006).

## **2.5 Growth**

Another attribute that can affect capital structure is growth. If tax-exempt organizations must trade off between the gains from making capital investments and the costs of financial distress, then the trade-off theory suggests a positive relation between debt and growth. Likewise, the pecking order theory suggests that high-growth organizations will use more debt because they are unable to fund all of their investment opportunities with internal sources. But from the agency cost

perspective, organizations with investment opportunities are unable to secure financing when some of the benefits accrue to existing creditors. To avoid this “debt overhang” problem, high-growth organizations will use less debt. To study the effects of growth on the use of debt, I define the variable GROWTH as the year-to-year percentage change in total assets, and the variable CAPEX as the annual expenditure on land, buildings, and equipment, as a percentage of total assets.

## 2.6 Liquidity and profitability

The trade-off theory predicts that more liquid and more profitable organizations will use more debt because they have a lower probability of bankruptcy and because they receive more favorable repayment terms. On the other hand, the pecking order theory predicts that more liquid and more profitable organizations will use less debt because of the availability of internal funds. From the agency cost perspective, liquidity and profitability have a negative effect by giving decision makers the opportunity to avoid debt in light of personal risk aversion, entrenchment, and reputational and career concerns. To study the effects of liquidity and profitability on the use of debt, I define the variable FCF as net income, less noncash contributions, plus depreciation, plus interest expense, minus the change in restricted assets, all divided by total assets, and the variable LIQDITY as the ratio of net working capital to total assets.<sup>7</sup>

## 2.7 Size

There are several explanations for why debt typically increases with firm size. Ang, Chua, and McConnell (1982) and Warner (1977) suggest that the direct costs of bankruptcy are inversely related to size. Titman and Wessels (1988) suggest that larger organizations are more diversified and less prone to bankruptcy. Smith (1977) and Titman and Wessels (1988) suggest that it is less expensive for larger organizations to issue long-term debt. To the extent that financial distress costs and bankruptcy risk are inversely related to size or that debt is less expensive for larger organizations, the trade-off theory suggests that larger organizations will use more debt than smaller organizations do. Likewise, the pecking order theory predicts that larger organizations will use more

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<sup>7</sup>See Statement of Financial Accounting Standards (FASB) No. 117 for a description of the rule that requires tax-exempt organizations to classify net assets based on the existence or absence of donor-imposed restrictions.

debt to the extent that informational opacity decreases with size. From the agency cost perspective, if the decision makers of larger organizations are more risk averse, more entrenched, or have greater reputational and career concerns, then larger organizations will use less debt. To study the effects of size on the use of debt, I define the variable  $\text{LN}(\text{GRREV})$  as the natural logarithm of the organization's total annual gross revenue.

### 3 Data and sample selection

#### 3.1 Data source

In place of tax returns, IRS section 501(c)(3) tax-exempt organizations must file annual information-only Form 990, Form 990-PF, or Form 990-EZ with the IRS.<sup>8</sup> Form 990 is required for all tax-exempt organizations, referred to by the IRS as public charities, that receive broad-based financial support from the general public. Private foundations, which are grant-making organizations, file Form 990-PF. Form 990-EZ is a simplified version of Form 990 for public charities with less than \$250,000 in total assets and less than \$100,000 in gross revenue. The IRS provides optically scanned Form 990s, as well as information from its Business Master Files, to Philanthropic Research Inc. (PRI). I use this data to form a panel data set of public charities from 1998 to 2003. This is the period for which electronic data was available for a reasonable cost.<sup>9</sup>

#### 3.2 Sample selection

Beginning with the entire PRI data set, representing a total of 338,864 organizations and 1,388,480 firm-year observations, I keep the public charities that report twelve months of activity using the accrual method of accounting. From these, I remove financial intermediaries and institutions such as credit unions, insurance providers, pension and retirement funds, and fraternal societies. For quality and accuracy, I exclude firm-years when an organization's balance sheet accounts do not

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<sup>8</sup>General exceptions to this include organizations that have not received tax-exempt status from the IRS, churches, temples, mosques, and most other faith-based organizations, public charities with incomes of \$25,000 or less, and subsidiary organizations.

<sup>9</sup>Froelich, Knoepfle, and Pollak (2000) find that the IRS Form 990 is a reliable source of information for basic income statement and balance sheets entries and that other variables exhibit reasonable consistency with audited financial statements.

balance or sum correctly. For independence between observations, I exclude organizations related through common membership, governing bodies, trustees, and officers, and eliminate observations from organizations with fiscal year-ends that overlap due to a change in reporting period. Likewise, I exclude data from group returns filed for affiliated organizations and separate returns filed by organizations covered by an IRS group ruling.<sup>10</sup> I also exclude organizations with less than \$250,000 in total assets or less than \$100,000 in gross revenue. Lastly, I exclude organizations headquartered outside the fifty United States and the District of Columbia. Applying these data filters leaves me with a final sample of 63,970 organizations and 225,143 firm-year observations. Missing data reduces the sample to 61,644 organizations and 216,047 firm-year observations.

### **3.3 Industry classification system**

In the mid-1980s, the IRS developed the National Taxonomy of Exempt Entities–Core Codes (NTEE–CC) classification system. Under the NTEE–CC, public charities are classified into one of three major industry groupings: (1) mutual benefit, (2) operating, or (3) supporting. Mutual benefit organizations are voluntary associations organized exclusively for the benefit of their members. Operating public charities produce a product or service that is consumed by the general public. Supporting organizations are primarily fund-raising organizations for single or multiple operating organizations. I use the NTEE–CC classification system to group organizations into industries.

### **3.4 Debt ratio variables**

According to Welch (2007), it is incorrect to represent leverage with a debt ratio whose converse is not an equity ratio. To avoid this pitfall, I calculate two debt ratio variables whose converses are equity ratios. The first is the ratio of total liabilities to total assets. I refer to this ratio as the total liabilities ratio. The second is the ratio of financial debt to financial capital. Financial debt is the sum of loans payable to the organization’s officers, directors, trustees and key employees (also referred to herein as insiders), tax-exempt bonds, and mortgages and other notes payable. Financial capital is the sum of financial debt and total net assets. I refer to this ratio as the financial debt

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<sup>10</sup>See IRS Publication 557 for details on what it means for an organization to be covered by an IRS group ruling.

ratio.

One of the components of financial debt is loans from insiders. This raises a question about whether this type of financing represents a true fixed-charge liability. This is because it is likely that insiders will defer payments on these loans when the benefits from the organization's continuing operations (e.g., salary, benefits, reputation, status) exceed the costs of deferred payments (e.g., lost principal and interest). In fact, it is only in the extreme case when bankruptcy is inevitable that it seems possible that insiders would repay themselves at the expense of the organization's continuing operations. This means that loans from insiders are really a form of equity-like financing. To account for this, I develop a third debt ratio variable that treats loans from insiders as equity. This third variable is the ratio of outside debt to financial capital. Outside debt is the sum of tax-exempt bonds and mortgages and other notes payable. I refer to this ratio as the outside debt ratio.

Lastly, to study the use of tax-exempt bond financing, I calculate the ratios of both taxable debt and tax-exempt bonds to financial capital. Taxable debt is the sum of loans from insiders and mortgages and other notes payable. I refer to these two ratios as the taxable debt ratio and the tax-exempt debt ratio, respectively.

In total, there are five debt ratio variables. Each captures a different perspective on the capital structure decision and provides new insight into the use of debt within the tax-exempt sector. Each of the debt ratio variables also allows for robustness checks on the others as well as on the robustness of the overall test results.

These test results and the method by which I obtain them are the focus of the following section. In it, I present the results of both single and multiple variable analysis of the data. This includes a detailed discussion of the relation between each of the debt ratio variables and the organization's attributes.

## **4 Single variable analysis**

### **4.1 Balance sheets**

Table 1 reports the results of a common-size balance sheet analysis.

[insert Table 1 about here]

The operating organizations have the largest ratio of total liabilities to total assets (34%), while the supporting organizations have the smallest (20%), and the mutual benefit organizations are in the middle (25%). The operating organizations also have the largest ratio of financial debt to total assets (17%), while this ratio is much smaller for both the mutual benefit and supporting organizations (5%). Greater debt use by the operating organizations is probably related to their relatively larger investment in tangible assets. Land, buildings, and equipment comprise 35% of total assets for the operating organizations, but only 13% of total assets for the mutual benefit organizations, and 10% for the supporting organizations.

## 4.2 Financial debt

Table 2 reports the percentage of firm-years with non-zero financial debt sorted by industry. Because public utilities are oftentimes regulated with respect to their capital structures, I report them as a separate industry within the “Public and societal benefit” classification.

[insert Table 2 about here]

A majority of tax-exempt organizations has no financial debt outstanding whatsoever. Only 2% have loans from insiders, 3% have tax-exempt bonds, and 43% have mortgages and other notes payable.

Religious organizations are the most likely to have loans from insiders. Within the religious industry grouping, the most likely to have loans from insiders are the Buddhism organizations. Specifically, 16% of the 56 Buddhism organizations, 11% of the 207 organizations involved in religious media and communications, and 8% of the 79 organizations involved in religious radio have loans from insiders. On the other hand, of the 61 public utilities, none of them have loans from insiders, while only 0.8% of the 125 mutual benefit organizations, 0.8% of the 1,692 management and technical assistance, and 0.8% of the 3,788 professional societies and associations have loans from insiders. The most likely organizations to have tax-exempt bonds are in education. Overall, 9% of education organizations have tax-exempt bonds. Within education, the most likely organizations

to have tax-exempt bonds are universities. Specifically, 43% of the 1,683 universities, 30% of the 1,415 undergraduate colleges, and 19% of the 637 graduate and professional schools have tax-exempt bonds. The least likely organizations to have tax-exempt bonds are the mutual benefit and the alliances and advocacy organizations. None of the 125 mutual benefit and only 0.1% of the 1,846 alliances and advocacy organizations have tax-exempt bonds. Human services organizations are the most likely to use mortgages and other notes payable; 54% of the 86,760 human services organizations report mortgages and other notes payable. Within human services, the most likely organizations to use mortgages and other notes payable are in the low-income and subsidized rental housing area; 90% of the 1,752 organizations in low-income and subsidized rental housing, 88% of the 304 organizations involved in housing rehabilitation, and 84% of the 164 organizations involved in independent housing for people with disabilities have mortgages and other notes payable. The least likely organizations to have mortgages and other notes payable are the supporting organizations. Only 17% of the 19,888 of these organizations have mortgages and other notes payable.

### 4.3 Debt ratios

Table 3 reports summary statistics for the debt ratio variables sorted by industry. The data used to create Table 3 are winsorized at the first and ninety-ninth percentiles to mitigate the influence of outliers.

[insert Table 3 about here]

Table 3 indicates that the mean total liabilities ratio is mostly uniform across the industries. The largest mean total liabilities ratio is 50% for public utilities. The smallest is 16% for the environment and animals organizations. Most others fall between 20% and 35%. The organizations with the largest mean financial debt ratios are in human services (26%) and public utilities (28%). The smallest is 5% for the mutual benefit and supporting organizations and those involved in international and foreign affairs. Similarly, the largest mean outside debt ratio belongs to the human services organizations and the public utilities at 25% and 28%, respectively. The smallest belongs to the mutual benefit, supporting, and international and foreign affairs organizations at 5%.

Human services organizations and public utilities also have the largest mean taxable debt ratios at 24% and 26%, respectively. The mutual benefit, supporting, and international and foreign affairs organizations, again, have the smallest at 5%. Education and health organizations have the largest mean tax-exempt debt ratios at 2%. All of the other types of organizations have mean tax-exempt debt ratios less than 1%.

## 5 Multiple variable analysis

To study the effects of the organization's attributes described in Section 2 on the debt ratio variables described in Section 3, I use a multiple variable regression model with controls for both industry- and time- related fixed effects. Because only a small percentage of organizations have tax-exempt bonds, I have excluded analysis of the tax-exempt debt ratio from this part of the study. As before, the data used in the analysis are winsorized at the first and ninety-ninth percentiles. Table 4 summarizes the descriptive statistics.

[insert Table 4 about here]

The statistics in Table 4 indicate that the median financial debt, outside debt, and taxable debt ratios are zero. Sample organizations are also small, old, and growing. The mean gross revenue for sample organizations is \$4.3 million with a median of \$1.3 million. The mean and median age of sample organizations are 24 and 21 years, respectively. The mean and median year-to-year percentage change in total assets are 9% and 5%, respectively. The mean percentage of officers, directors, trustees, and key employees that are paid is only 13%. The median is 5%. As a percentage of gross revenue, the mean and median compensation are 4% and 2%, respectively.

Before proceeding with the regression analysis, I check for multicollinearity in the regressors. Table 5 summarizes the results. There does not appear to be much reason for concern. The largest Pearson correlation coefficient is between LIQDTY and TANGBL ( $\rho = -0.43$ ).

[insert Table 5 about here]

## 5.1 The model

Due of the heavy censoring of the debt ratio variables at zero, I analyze the data using the type I tobit model. Because capital structure is likely highly autocorrelated, I calculate Huber-White clustered standard errors.

The specific form of the model I estimate is,

$$\ell_{jt} = \alpha + \sum_{i=1}^N \beta_i \times DTERM_{ijt} + \sum_{k=1}^N \gamma_k \times DUMMY_{kjt} + \varepsilon_{jt}, \quad (1)$$

where  $\ell_{jt}$  represents a debt ratio variable for organization  $j$  at time  $t$ ,  $\alpha$  is an intercept term, and  $\beta_i$  is a vector of parameter estimates of the marginal effects of  $DTERM_{ijt}$  on  $\ell_{jt}$ .  $DTERM_{ijt}$  represents each of the  $i$  attributes and industry dummies. The  $\gamma_k$  is a vector of parameter estimates of the marginal effects of  $DUMMY_{kjt}$  on  $\ell_{jt}$ .  $DUMMY_{kjt}$  represents  $k = 3$  dummy variables, INDDUM, YRDUM, and TAXDUM. INDDUM and YRDUM are industry and year dummies, respectively, while TAXDUM is a dummy variable that is set to one for the 6,016 organizations and 16,684 firm-year observations when the organization reported unrelated business gross income of \$1,000 or more. The  $\varepsilon_{jt}$  is a mean zero disturbance term.

## 5.2 Results and analysis

The results of the tobit regressions are presented in Table 6 and in Table 7. Table 6 summarizes the attribute effects and Table 7 summarizes the industry effects.

[insert Table 6 about here]

### 5.2.1 Attribute effects

The results in Table 6 indicate that debt is positively related to asset tangibility, growth, and size. Asset tangibility has the largest overall economic impact. A change from the twenty-fifth to the seventy-fifth percentile in TANGBL increases the financial debt, outside debt, and taxable debt ratios by about 37 percentage points, while the total liabilities ratio increases by ten percentage points. The finding of a positive relation between debt and asset tangibility is consistent with the

predictions of the trade-off theory and the agency cost theory inasmuch as the collateral value of tangible assets lowers the cost of debt financing or mitigates concerns over resource expropriation.

A change from the twenty-fifth to seventy-fifth percentile in GROWTH increases the financial debt, outside debt, and taxable debt ratios by about five percentage points and the total liabilities ratio by about two percentage points. A similar change in CAPEX results in a negligible 0.4 percentage point increase in the financial debt, outside debt, and taxable debt ratios, while the total liabilities ratio decreases by about the same amount. The finding of a positive relation between debt and growth is consistent with the trade-off theory to the extent that tax-exempt organizations must trade off the benefits from making capital investments against the costs of financial distress. It is also consistent with the predictions of the pecking order theory, which suggests that growing organizations will turn to external sources only when internal funding sources are insufficient to fund their capital investments. This, however, is inconsistent with the agency cost perspective and the idea that tax-exempt organizations are concerned with “debt overhang” and the effect that existing debt could have on the ability to fund future growth.

A change from the twenty-fifth to the seventy-fifth percentile in the size variable LN(GRREV) increases the total liabilities and financial debt ratios by about five percentage points. A similar change in LN(GRREV) increases the outside debt ratio by about six points and the taxable debt ratio by about two points. The finding of a positive relation between debt and size is consistent with the predictions of the trade-off theory inasmuch as financial distress costs are inversely related to size or that debt financing is less expensive for larger organizations. Size also has the largest effect on the outside debt ratio, suggesting that larger organizations are less dependent on loans from insiders than smaller organizations are. The positive relation is also consistent with the pecking order theory to the extent that larger organizations are less informationally opaque. From the agency cost perspective, the positive relation between size and debt is inconsistent with the idea that the decision makers in large organizations are more risk averse, more entrenched, or have greater reputational and career concerns than in small organizations.

The results in Table 6 also indicate that debt is negatively related to age, liquidity, and profitability. Liquidity has the largest overall economic impact. A change from the twenty-fifth to the

seventy-fifth percentile in LIQDTY decreases the financial debt, outside debt, and taxable debt ratios by 15 to 16 percentage points and the total liabilities ratio by 13 percentage points. A similar change in FCF decreases all of the debt ratio variables by four to five percentage points. The negative relation between debt and liquidity and profitability is inconsistent with the trade-off theory because the cost of debt financing is expected to be lower when the organization is more liquid and more profitable. It is consistent with the pecking order theory in that organizations with more internal funding sources use less debt. It is also consistent with the agency cost perspective inasmuch as the decision makers of more liquid and more profitable organizations avoid debt to reduce their personal risk exposure. Likewise, a change from the twenty-fifth to the seventy-fifth percentile in RULAGE decreases the financial debt, outside debt, and taxable debt ratios by about 13 percentage points, while the total liabilities ratio decreases by about 12 percentage points. This is inconsistent with the trade-off theory because the cost of debt financing is expected to be lower for older organizations. It does suggest, however, that the pecking order of financing can change over time as the older organizations either pay off debt or retain earnings in lieu of paying dividends. The decision makers in older organizations could also be more risk averse, entrenched, or have greater reputational and career concerns than others do, consistent with the agency cost theory.

Table 6 also indicates that debt is positively related to attributes unique to tax-exempt organizations. For instance, I find that debt is positively related to the variable GOVERN. A change from the twenty-fifth to the seventy-fifth percentile in GOVERN increases each of the debt ratio variables by two to three percentage points. This is consistent with the trade-off, pecking order, and agency cost perspectives. It is consistent with the trade-off theory in that more stringent regulation lowers the cost of debt financing. It is consistent with the pecking order theory to the extent that more stringent regulation lowers adverse selection costs. It is consistent with the agency cost theory inasmuch as lenders are more willing to extend credit when there are better legal protections against the theft and misuse of the organization's assets.

Another finding unique to tax-exempt organizations is that debt is positively related to the percentage of officers, directors, trustees, and key employees that are paid. This is inconsistent

with the trade-off theory insomuch as heavier debt loads improve efficiency when decision makers take their guardianship role more seriously. The finding of a positive relation between debt and INSIDR is also unexpected from the agency cost perspective because debt is expected to encourage managerial self-discipline. It is unclear why insiders would choose to discipline themselves in the absence of any kind of market for corporate control. One explanation for this would be that outside donors require some amount of debt financing to encourage decision makers to run the organization more efficiently. Another, is that fear of donation expropriation prevents organizations with weaker governance from raising substantial contributions. Nevertheless, the effects here are small. A change from the twenty-fifth to the seventy-fifth percentile in INSIDR increases each of the debt ratio variables by a negligible 0.3 to 0.5 percentage points. On the other hand, the financial debt, outside debt, and taxable debt ratios all decrease by about three percentage points for a similar increase in INSPAY, while the total liabilities ratio decreases by one percentage point. The inference here is that if a larger amount of decision-maker pay is a reflection of weaker governance, then organizations with a bigger payroll do not seek to benefit from the disciplining effects of heavier debt loads.

Another significant tax-exempt sector-related attribute is the amount of contributions. I find that for a change from the twenty-fifth to the seventy-fifth percentile in DIRSUP, the financial debt, outside debt, and taxable debt ratios each decrease by 12 to 13 percentage points, while the total liabilities ratio decreases by eight percentage points. Likewise, the financial debt, outside debt, and taxable debt ratios each decrease by between four and five percentage points for a similar change in OTHSUP, while the total liabilities ratio increases by a negligible 0.4 percentage points. This is consistent with the trade-off theory insomuch as dependence on the generosity of outsiders reduces the amount of fixed-charge financing the organization is able to repay. This is also consistent with the pecking order theory because charitable contributions are an equity-like source of financing that can offset the need for external debt. Lastly, this is inconsistent with the agency cost perspective to the extent that contributions are a signal of benefactors' confidence in the management of the organization.

Lastly, I also find that organizations with taxable income use more debt. The financial debt,

outside debt, and taxable debt ratios each increase by three to four percentage points when the organization reports unrelated business gross income of \$1,000 or more. This is obviously consistent with the expectations of the trade-off theory in that organizations seek to benefit from the deductibility of interest expense.

The results are also broadly consistent with related studies of both tax-exempt organizations and taxable corporations. The main area of difference seems to be with the relation between debt and GROWTH and CAPEX. I find a positive relation while the current view is that there is a negative relation. This can probably be explained by differences in interpretation of the meaning of growth. For taxable corporations, growth means future growth as reflected by the market-to-book ratio. Since tax-exempt organizations do not have an easily identifiable market value, the growth variables in this study represent actual growth. The finding of a positive relation between debt and growth in this study suggests that tax-exempt organizations use debt to finance actual growth. It says nothing about how debt is related to their growth opportunities. This interpretation is consistent with Bacon (1992), Bowman (2002), Kester (1986), and Titman and Wessels (1988), all of which show a positive relation between debt and actual growth.

### **5.2.2 Industry effects**

Table 7 indicates that the industry effects are significant. Significant industry effects are also found in Bradley, Jarrell, and Kim (1984) and Titman and Wessels (1988) for taxable companies, while Bowman (2002) finds significant industry effects for tax-exempt organizations. A Wald test also indicates joint significance of the industry effects at the 0.01 level.

The public utilities have the largest total liabilities ratio. It is 21 percentage points larger than that of the organizations in the environment and animals industry, which is the industry with the smallest ratio. Public utilities are followed by research institutes and public policy, alliances and advocacy, and public and societal benefit organizations. The public and societal benefit organizations have the largest financial debt ratio. It is 31 percentage points larger than the industry with the smallest ratio, professional societies and associations. Following the public and societal benefit organizations, are the human services, public utilities, religious, health, and education or-

ganizations. The public and societal benefit organizations have the largest outside debt ratio. It is about 30 percentage points larger than the industry with the smallest ratio, professional societies and associations. The public and societal benefit organizations are followed by the human services, public utilities, religious, health, and education organizations. The public and societal benefit organizations have the largest taxable debt ratio, about 30 percentage points larger than that of the professional societies and associations.

## **6 Robustness tests**

In this section I report the results from robustness tests of the regression results. These include checks for endogeneity, the exclusion of the RULAGE variable, and the inclusion of a variable representing bankruptcy risk.

### **6.1 Endogeneity**

Endogeneity is a concern with this study. For example, the amount of contributions could depend on capital structure; benefactors might be unwilling to make donations to organizations with a high risk of financial distress. Likewise, the ability of decision makers to take compensation could depend on the amount of fixed-charge financing the organization is obligated to repay. To reduce concerns over endogeneity, I re-run the tobit regressions substituting in one-year lags for each of the explanatory variables. I find that both the magnitude and direction of the parameter estimates are essentially identical to those presented in the tables.

### **6.2 The age variable**

The IRS Business Master Files include the field RULEDATE indicating the year and month when the organization obtained recognition from the IRS of its tax-exempt status. I use RULEDATE to calculate RULAGE, which I use as a proxy for the organization's age. While RULEDATE can be used as a proxy for when an organization was created, it is necessary to understand its origins and flaws before reaching conclusions about its usefulness. First, some tax-exempt organizations pre-date the 1913 ratification of the sixteenth amendment to the US Constitution authorizing Congress

to collect income taxes. Second, the IRS files themselves were also only computerized during the 1960's. Third, sometimes an organization will reorganize in some fundamental way that requires a new status ruling from the IRS. In this case, RULEDATE would reflect the date on which the organization obtained its new recognition from the IRS.

Despite these concerns, Grønbjerg and Paarlberg (2002) find that state incorporation by tax-exempt organizations occurs on average only 2.4 years before the organization receives formal recognition by the IRS of its tax-exempt status. While their sample was limited to organizations located in Indiana, and while there was some variability in that estimate, it does provide some comfort that RULAGE is a useful, but imprecise proxy for the age of the organization. Nevertheless, due the concerns raised here, I run tests that exclude the RULAGE variable from the analysis. The results from when I exclude RULAGE are essentially the same as those presented in the tables except that the variable LN(GRREV) changes sign from positive to negative when the taxable debt ratio is the dependent variable.

### 6.3 Bankruptcy risk

Heavy debt loads increase the likelihood of incurring financial distress costs.<sup>11</sup> The trade-off theory suggests that tax-exempt organizations will use less debt to avoid these costs. The pecking order and agency cost theories suggest that adverse selection costs, personal risk aversion, and concerns over future contributions will also reduce debt when the probability of bankruptcy is greater.

To determine the effect of bankruptcy risk on the use of debt, I define the variable ZSCORE, as the variant of the Altman (1968) Z-score, used in MacKie-Mason (1990) and Graham (2000). ZSCORE is calculated as  $(3.3 \times \text{EBIT} + \text{gross revenue} + 1.4 \times \text{total net assets} + 1.2 \times \text{net working capital}) \div \text{total assets}$ . A higher ZSCORE means a lower probability of bankruptcy.

When ZSCORE is included as an explanatory variable, the results are essentially the same as those in the tables except that the sign on FCF changes from negative to positive. The coefficient estimate for ZSCORE itself is negative and significant in all four models.

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<sup>11</sup>Bowman (1999) points out that federal law precludes creditors from forcing financially distressed tax-exempt organizations into bankruptcy court. However, tax-exempt organizations themselves can initiate legal action to seek protection from creditors or to liquidate.

## 7 Conclusion

Altogether, tax-exempt organizations in the United States account for over \$2.4 *trillion* in total assets, yet we know relatively little about the financing structure of these organizations or the underlying determinants of their capital structure choice. This, even though their capital structure decision is uncomplicated by tax, equity market timing, or signaling effects.

This study identifies and analyzes the effects of several attributes on the use of debt. These include the age of the organization, asset tangibility, the amount of contributions, governance and state laws, growth, liquidity and profitability, and size. Industry effects are also identified and discussed. Results are interpreted in light of the trade-off, pecking order, and agency cost theories of capital structure. Comparisons with both the prior taxable and tax-exempt literature are made.

The analysis indicates that many tax-exempt organizations have no outstanding debt whatsoever. Only 2% have loans payable to their own officers, directors, trustees, and key employees, 3% have tax-exempt bonds, and 43% have mortgages and other notes payable. Cross-sectional analysis indicates debt is positively related to asset tangibility, growth, and size, and negatively related to age, liquidity, and profitability. Tax-exempt sector-specific findings indicate that debt is also positively related to the efficacy of state laws against the theft and misuse of assets and to the percentage of decision makers that are paid, and negatively related to decision-maker compensation and to the amount of contributions, gifts, and grants. Tax effects are also identified for organizations with unrelated business income. Industry effects are significant. There is also considerable heterogeneity in the sources of debt. Religious organizations most commonly borrow from their own officers, directors, trustees, and key employees, those in education most commonly use tax-exempt bonds, while those in human services most commonly borrow in the form of mortgages and other notes payable. The final results are broadly consistent with the predictions of the trade-off, pecking order, and agency cost theories of capital structure as well as with other studies of both tax-exempt organizations and taxable corporations.

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Table 1

**Common-size balance sheets for tax-exempt organizations**

The value of each balance sheet item is reported as a percentage of the book value of total assets averaged across all sample organizations. The sample is comprised of 225,143 firm-year observations for the years 1998–2003.

	Public charities		
	Mutual benefit	Operating	Supporting
<b>ASSETS</b>			
Cash, savings, and temporary cash investments	31.6	25.6	29.9
Accounts, pledges, grants, and other receivables	14.8	15.2	17.0
Inventories for sale or use	3.5	1.3	0.8
Prepaid expenses and deferred charges	1.2	1.1	0.5
Total current assets	51.1	43.2	48.2
Investments			
Securities	23.5	10.5	29.4
Land, buildings, and equipment	1.5	4.0	1.9
Other	9.1	3.1	7.8
Land, buildings, and equipment	12.5	35.4	9.5
Other assets	2.3	3.8	3.2
Total assets	100.0	100.0	100.0
<b>LIABILITIES</b>			
Accounts payable and accrued expenses	8.2	8.6	4.1
Grants payable	4.3	0.5	4.5
Deferred revenue	5.1	3.6	1.5
Total current liabilities	17.6	12.7	10.1
Loans from insiders	0.0	0.3	0.1
Tax-exempt bonds	0.0	1.2	0.4
Mortgages and other notes payable	4.5	15.1	4.2
Other liabilities	3.0	4.7	5.6
Total liabilities	25.1	34.0	20.4
Total net assets	74.9	66.0	79.6
Total liabilities and net assets	100.0	100.0	100.0

Table 2

**Percentage of firm-years with non-zero financial debt by NTEE–CC classification system**

Financial debt is defined as the book value of loans from insiders, tax-exempt bonds, and mortgages and other notes payable. The sample is comprised of 225,143 firm-year observations for the years 1998–2003.

Industry	N	Loans from insiders	Tax-exempt bonds	Mortgages and other notes payable
Public charities				
Mutual benefit	125	0.8	0.0	21.6
Operating				
Alliances and advocacy	1,846	2.1	0.1	23.1
Management and technical assistance	1,692	0.8	0.9	24.4
Professional societies and associations	3,788	0.8	0.8	18.8
Research institutes and public policy	1,705	2.3	0.9	22.4
Support not elsewhere classified	1,518	2.2	1.6	28.6
Arts, culture, and humanities	20,640	4.4	1.6	35.8
Education	25,866	3.0	9.2	48.0
Environment and animals	6,344	2.7	1.4	30.7
Health	33,071	1.4	4.7	46.2
Human services	86,760	1.6	2.3	53.9
International and foreign affairs	2,856	4.0	0.5	17.6
Public and societal benefit	13,774	1.5	0.9	39.5
Public utilities	61	0.0	1.6	41.0
Religious	4,863	5.8	0.6	43.4
Other operating	346	2.6	0.3	37.9
Supporting	19,888	0.9	1.0	16.9

Table 3

**Debt ratios for tax-exempt organizations by NTEE-CC classification system**

Total liabilities is the ratio of total liabilities to total assets. Financial debt is the ratio of loans from insiders plus tax-exempt bonds plus mortgages and other notes payable to financial capital. Outside debt is the ratio of tax-exempt bonds plus mortgages and other notes payable to financial capital. Taxable debt is the ratio of loans from insiders plus mortgages and other notes payable to financial capital. Tax-exempt debt is the ratio of tax-exempt bonds to financial capital. Financial capital is the sum of financial debt and total net assets. All financial statement variables are stated at their book values. All variables are winsorized at the one percent level to mitigate the effects of outliers. The sample is comprised of 225,143 firm-year observations for the years 1998–2003.

Industry	N	Total liabilities			Financial debt			Outside debt			Taxable debt			Tax-exempt debt		
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	
Public charities	125	25.1	31.4	5.2	16.6	5.2	16.6	5.2	16.6	5.2	16.6	5.2	16.6	0.0	0.0	
Mutual benefit																
Operating																
Alliances and advocacy	1,846	27.6	30.7	6.8	20.2	6.6	19.7	6.8	20.1	7.7	19.4	6.8	20.1	0.0	0.8	
Management and technical assistance	1,692	34.2	30.2	8.0	20.5	8.0	20.5	7.7	19.4	7.7	19.4	7.7	19.4	0.3	3.3	
Professional societies and associations	3,788	29.7	29.0	5.7	18.7	5.5	18.2	5.4	18.3	5.4	18.3	5.4	18.3	0.3	3.2	
Research institutes and public policy	1,705	29.5	33.2	7.6	23.5	6.8	21.8	7.1	22.0	7.1	22.0	7.1	22.0	0.4	4.1	
Support not elsewhere classified	1,518	29.8	34.2	12.6	29.2	12.1	28.6	11.8	28.2	11.8	28.2	11.8	28.2	0.6	5.1	
Arts, culture, and humanities	20,640	21.2	27.6	9.0	20.9	8.3	19.5	8.5	20.4	8.5	20.4	8.5	20.4	0.4	3.8	
Education	25,866	32.5	30.4	18.1	28.2	17.7	27.6	15.5	27.4	15.5	27.4	15.5	27.4	2.4	8.7	
Environment and animals	6,344	15.5	23.7	6.7	17.7	6.5	17.2	6.3	17.2	6.3	17.2	6.3	17.2	0.4	3.6	
Health	33,071	34.3	32.3	17.7	29.3	17.5	29.0	15.6	27.7	15.6	27.7	15.6	27.7	1.6	7.9	
Human services	86,760	37.9	38.3	25.5	39.0	25.3	38.8	24.0	38.0	24.0	38.0	24.0	38.0	0.9	6.3	
International and foreign affairs	2,856	25.0	31.7	5.1	17.9	4.2	15.6	5.1	17.8	5.1	17.8	5.1	17.8	0.0	1.0	
Public and societal benefit	13,774	33.6	32.6	16.1	29.3	15.9	29.0	15.6	28.7	15.6	28.7	15.6	28.7	0.3	3.6	
Public utilities	61	49.7	39.4	27.9	38.1	27.9	38.0	26.2	36.9	26.2	36.9	26.2	36.9	0.8	6.3	
Religious	4,863	26.8	33.7	15.9	29.8	15.2	29.2	15.6	29.5	15.6	29.5	15.6	29.5	0.2	2.9	
Other operating	346	29.1	33.9	13.5	26.4	13.0	26.1	13.5	26.3	13.5	26.3	13.5	26.3	0.0	0.5	
Supporting	19,888	19.9	28.2	5.2	18.5	5.1	18.2	4.7	17.4	4.7	17.4	4.7	17.4	0.3	3.6	

Table 4

**Descriptive statistics for debt ratio and explanatory variables**

Total liabilities is the ratio of total liabilities to total assets. Financial debt is the ratio of loans from insiders plus tax-exempt bonds plus mortgages and other notes payable to financial capital. Outside debt is the ratio of tax-exempt bonds plus mortgages and other notes payable to financial capital. Taxable debt is the ratio of loans from insiders plus mortgages and other notes payable to financial capital. Tax-exempt debt is the ratio of tax-exempt bonds to financial capital. Financial capital is the sum of financial debt and total net assets. CAPEX is the change in gross land, buildings, and equipment, divided by total assets. DIRSUP is the percentage of gross revenue from contributions, gifts, and grants from the general public. FCF is net income less noncash contributions plus depreciation plus interest expense minus the change in restricted assets, all divided by total assets. GOVERN is the sum of the detection and prosecution state-level governance index from Desai and Yetman (2006). GROWTH is the year-to-year percentage change in total assets. GRREV is gross revenue in (\$000's). INSIDR is the percentage of officers, directors, trustees, and key employees receiving payments from the organization. INSPAY is total insider compensation as a percentage of gross revenue. LIQDTY is the ratio of working capital to total assets. OTHSUP is the percentage of gross revenue from contributions, gifts, and grants from government and charitable organizations. RULAGE is the number of years between the fiscal year-end date and the date the IRS issued the determination letter recognizing the organization's tax-exempt status. TANGBL is the sum of gross investments in inventories, land, buildings, and equipment divided by total assets. All financial statement variables are stated at their book values. All variables except GOVERN are winsorized at the one percent level to mitigate the effects of outliers. The sample is comprised of 216,047 firm-year observations for the years 1998–2003.

Debt ratio variables	Mean	Median	Std. Dev.	Percentile	
				25 <sup>th</sup>	75 <sup>th</sup>
Total liabilities	31.8	19.3	34.1	4.7	48.9
Financial debt	17.6	0.0	32.0	0.0	22.0
Outside debt	17.3	0.0	31.6	0.0	21.5
Taxable debt	16.3	0.0	31.0	0.0	18.5

  

Explanatory variables	Mean	Median	Std. Dev.	Percentile	
				25 <sup>th</sup>	75 <sup>th</sup>
CAPEX	5.5	1.6	11.6	0.1	5.3
DIRSUP	24.5	9.8	30.3	0.6	39.7
FCF	4.2	3.6	19.4	-2.0	11.1
GOVERN	11.3	13.0	3.1	9.0	13.0
GROWTH	8.8	4.9	24.4	-3.0	17.2
GRREV	4,326.8	1,300.4	9,954.8	573.9	3,426.3
INSIDR	13.0	5.3	23.3	0.0	13.6
INSPAY	4.1	2.0	5.7	0.0	6.0
LIQDTY	31.5	23.2	30.6	7.4	52.0
OTHSUP	21.4	1.5	31.8	0.0	36.1
RULAGE	23.5	20.6	16.2	10.4	32.5
TANGBL	61.0	57.0	50.6	12.9	96.5

Table 5

**Pearson correlation coefficients for explanatory variables**

CAPEX is the change in gross land, buildings, and equipment, divided by total assets. DIRSUP is the percentage of gross revenue from contributions, gifts, and grants from the general public. FCF is net income less noncash contributions plus depreciation plus interest expense minus the change in restricted assets, all divided by total assets. GOVERN is the sum of the detection and prosecution state-level governance index from Desai and Yetman (2006). GROWTH is the year-to-year percentage change in total assets. LN(GRREV) is the natural logarithm of gross revenue. INSIDR is the percentage of officers, directors, trustees, and key employees receiving payments from the organization. INSPAY is total insider compensation as a percentage of gross revenue. LIQDITY is the ratio of working capital to total assets. OTHSUP is the percentage of gross revenue from contributions, gifts, and grants from government and charitable organizations. RULAGE is the number of years between the fiscal year-end date and the date the IRS issued the determination letter recognizing the organization's tax-exempt status. TANGBL is the sum of gross investments in inventories, land, buildings, and equipment divided by total assets. All financial statement variables are stated at their book values. All variables except GOVERN are winsorized at the one percent level to mitigate the effects of outliers. The sample is comprised of 216,047 firm-year observations for the years 1998–2003.

	CAPEX	DIRSUP	FCF	GOVERN	GROWTH	LN(GRREV)	INSIDR	INSPAY	LIQDITY	OTHSUP	RULAGE
DIRSUP	0.00										
FCF	0.15	-0.04									
GOVERN	-0.02	0.01	-0.01								
GROWTH	0.36	0.16	0.33	0.00							
LN(GRREV)	0.02	-0.15	-0.02	0.03	0.02						
INSIDR	0.02	-0.04	0.01	0.02	0.00	0.15					
INSPAY	-0.02	0.13	-0.03	0.02	-0.06	-0.26	0.30				
LIQDITY	-0.16	0.22	0.12	0.02	0.13	-0.13	0.01	0.13			
OTHSUP	0.07	-0.29	0.05	-0.02	0.04	0.01	0.01	0.02	0.07		
RULAGE	-0.08	-0.10	-0.05	0.02	-0.17	0.29	-0.01	-0.10	-0.17	-0.09	
TANGBL	0.22	-0.26	-0.05	-0.05	-0.18	-0.06	-0.02	-0.09	-0.43	0.03	0.11

Table 6

**Type I tobit regressions for attribute effects**

Total liabilities is the ratio of total liabilities to total assets. Financial debt is the ratio of loans from insiders plus tax-exempt bonds plus mortgages and other notes payable to financial capital. Outside debt is the ratio of tax-exempt bonds plus mortgages and other notes payable to financial capital. Taxable debt is the ratio of loans from insiders plus mortgages and other notes payable to financial capital. Financial capital is the sum of financial debt and total net assets. CAPEX is the change in gross land, buildings, and equipment, divided by total assets. DIRSUP is the percentage of gross revenue from contributions, gifts, and grants from the general public. FCF is net income less noncash contributions plus depreciation plus interest expense minus the change in restricted assets, all divided by total assets. GOVERN is the sum of the detection and prosecution state-level governance index from Desai and Yetman (2006). GROWTH is the year-to-year percentage change in total assets. LN(GRREV) is the natural logarithm of gross revenue. INSIDR is the percentage of officers, directors, trustees, and key employees receiving payments from the organization. INSPAY is total insider compensation as a percentage of gross revenue. LIQDTY is the ratio of working capital to total assets. OTHSUP is the percentage of gross revenue from contributions, gifts, and grants from government and charitable organizations. RULAGE is the number of years between the fiscal year-end date and the date the IRS issued the determination letter recognizing the organization's tax-exempt status. TANGBL is the sum of gross investments in inventories, land, buildings, and equipment divided by total assets. TAXDUM is a dummy variable that is set to one if the organization reported taxable income from unrelated business operations over \$1,000 and zero, otherwise. Also included are dummy variables for each of the years 1999–2003. All financial statement variables are stated at their book values. All variables except GOVERN and TAXDUM are winsorized at the one percent level to mitigate the effects of outliers. Huber-White clustered standard errors are in parenthesis.

Variable	Predicted sign	Total liabilities	Financial debt	Outside debt	Taxable debt
CAPEX	(+/-)	-0.083*** (0.008)	0.075*** (0.012)	0.074*** (0.012)	0.068*** (0.012)
DIRSUP	(+/-)	-0.213*** (0.005)	-0.341*** (0.009)	-0.350*** (0.009)	-0.315*** (0.008)
FCF	(+/-)	-0.306*** (0.006)	-0.348*** (0.010)	-0.347*** (0.010)	-0.338*** (0.010)
GOVERN	(+)	0.603*** (0.040)	0.619*** (0.068)	0.599*** (0.068)	0.663*** (0.068)
GROWTH	(+/-)	0.118*** (0.004)	0.230*** (0.008)	0.225*** (0.008)	0.228*** (0.008)
LN(GRREV)	(+/-)	2.636*** (0.111)	3.080*** (0.179)	3.215*** (0.180)	1.122*** (0.181)
INSIDR	(-)	0.032*** (0.005)	0.029*** (0.008)	0.022*** (0.008)	0.034*** (0.008)
INSPAY	(-)	-0.144*** (0.021)	-0.438*** (0.042)	-0.468*** (0.042)	-0.424*** (0.041)
LIQDTY	(+/-)	-0.282*** (0.005)	-0.361*** (0.009)	-0.359*** (0.009)	-0.324*** (0.009)
OTHSUP	(+/-)	0.012*** (0.004)	-0.148*** (0.007)	-0.144*** (0.007)	-0.107*** (0.007)
RULAGE	(+/-)	-0.524*** (0.008)	-0.607*** (0.014)	-0.586*** (0.014)	-0.585*** (0.014)
TANGBL	(+)	0.119*** (0.004)	0.446*** (0.006)	0.445*** (0.006)	0.445*** (0.006)
TAXDUM	(+)	-0.606 (0.397)	3.656*** (0.659)	3.826*** (0.661)	2.789*** (0.681)
Number of observations		216,047	216,047	216,047	216,047
Left censored		5,952	118,641	119,900	121,880
Non censored		210,095	97,406	96,147	94,167
Log likelihood		-1,015,904	-564,882	-557,740	-549,146

The symbol \*\*\* represents significance at the 0.01 level.

Table 7

**Type I tobit regressions for industry effects**

Reported are the coefficient estimates for industry dummy variables based on the NTEE–CC classification system. Total liabilities is the ratio of total liabilities to total assets. Financial debt is the ratio of loans from insiders plus tax-exempt bonds plus mortgages and other notes payable to financial capital. Outside debt is the ratio of tax-exempt bonds plus mortgages and other notes payable to financial capital. Taxable debt is the ratio of loans from insiders plus mortgages and other notes payable to financial capital. Financial capital is the sum of financial debt and total net assets. Also included are dummy variables for each of the years 1999–2003. All financial statement variables are stated at their book values. All dependent variables are winsorized at the one percent level to mitigate the effects of outliers. Huber-White clustered standard errors are in parenthesis. The dummy variable for Alliances and advocacy is not included in the regressions so as to avoid perfect multicollinearity in the independent variables. Reported are the estimates for the intercept term.

Industry	Total liabilities	Financial debt	Outside debt	Taxable debt
Public charities				
Mutual benefit	−8.860* (5.060)	−10.917 (10.268)	−10.424 (10.455)	−9.822 (9.963)
Operating				
Alliances and advocacy	11.324*** (2.080)	−53.578*** (3.897)	−56.446*** (3.911)	−30.233*** (3.880)
Management and technical assistance	−0.552 (1.761)	−11.817*** (4.190)	−11.228*** (4.233)	−10.846*** (4.120)
Professional societies and associations	−2.702* (1.443)	−19.466*** (3.384)	−19.023*** (3.403)	−18.039*** (3.352)
Research institutes and public policy	0.407 (1.735)	−5.076 (3.935)	−6.364 (3.986)	−4.889 (3.853)
Support not elsewhere classified	−5.397*** (1.876)	−5.828 (4.062)	−6.006 (4.113)	−6.246 (3.991)
Arts, culture, and humanities	−11.968*** (1.213)	−7.670*** (2.816)	−8.332*** (2.836)	−7.829*** (2.778)
Education	−7.431*** (1.205)	2.346 (2.784)	2.336 (2.803)	0.266 (2.749)
Environment and animals	−16.397*** (1.279)	−9.386*** (2.982)	−9.251*** (3.002)	−9.706*** (2.948)
Health	−4.599*** (1.194)	2.307 (2.773)	2.788 (2.793)	0.996 (2.736)
Human services	−3.115*** (1.175)	9.292*** (2.748)	9.897*** (2.768)	8.307*** (2.709)
International and foreign affairs	−4.943*** (1.555)	−11.854*** (3.680)	−14.506*** (3.701)	−10.582*** (3.624)
Public and societal benefit	−0.077 (1.247)	11.859*** (2.885)	12.456*** (2.906)	11.133*** (2.844)
Public utilities	4.778 (8.595)	5.483 (16.566)	6.787 (16.496)	7.389 (16.813)
Religious	−6.533*** (1.429)	3.089 (3.106)	2.482 (3.138)	3.246 (3.061)
Other operating	−4.959 (3.278)	1.838 (5.992)	1.553 (6.019)	1.418 (5.969)
Supporting	−7.500*** (1.249)	−10.744*** (2.880)	−10.114*** (2.902)	−10.490*** (2.838)
Number of observations	216,047	216,047	216,047	216,047
Left censored	5,952	118,641	119,900	121,880
Non censored	210,095	97,406	96,147	94,167
Log likelihood	−1,015,904	−564,882	−557,740	−549,146

The symbols \*\*\* and \* represent significance at the 0.01 and 0.10 levels, respectively.