Religious Beliefs and Local Government Financing, Investment and Cash Holding Decisions

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Religious Beliefs and Local Government Financing, Investment, and Cash Holding Decisions

ABSTRACT

This paper is the first to examine the association between the degree of religiosity and the local government financing, investment and cash holding decisions. Using an aggregate sample of 12,154 county-year observations for census years between 1992 and 2007 we show that the degree of religiosity is negatively correlated with local government debt and capital expenditure and positively correlated with the level of cash holdings. Our results indicate that local governments in counties with a higher degree of religiosity are more conservatively managed, i.e. they borrow less and spend less while holding significantly more cash than local governments with a lower degree of religiosity. We conduct a range of robustness tests and our findings hold.

I. INTRODUCTION

A growing body of literature examines the impact of local religious beliefs on economic attitudes (Guiso et al. 2003), corporate decisions (Hilary and Hui 2009), portfolio choices and employee stock option based compensation (Kumar et al. 2011; Spalt 2013), earnings management (Grullon et al. 2010), mutual fund risk-taking (Shu et al. 2012), and corporate information disclosure (Callen and Fang 2013; McGuire et al. 2012). Culture is an important influence on decision making not only in corporate organizations but also in governmental organizations. One often-used proxy for culture is religiosity (La Porta et al. 1999; Stulz and Williamson 2003). Using religion as a proxy for culture, La Porta et al. (1999) find that governments in countries with Catholic or Muslim majorities demonstrate inferior performance. Stulz and Williamson (2003), document that religion is an important predictor of how countries enforce investor and creditor rights. Kelley and Woidtke (2006), show that U.S. multinational companies invest more in emerging markets where Christianity is the predominant religion. Prior research shows that religiosity influences a population's view of risk and return preferences (Renneboog and Spaenjers 2012; Noussair et al. 2013); religious beliefs also influence individual attributes that in turn impact economic growth (Barro and McCleary 2003; Gruber 2005). Greater religious participation is associated with higher levels of income and lower levels of welfare receipts (Gruber 2005) and lower tax avoidance (Boone et al. 2013).

Building on this literature, we are the first to investigate the association between the degree of religiosity and local government financing, investment, and cash holding decisions.[1] Unlike the corporate sector, which has been studied extensively by the current literature, no studies have examined the impact of religiosity on such decisions

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[1] We define degree of religiosity as the number of religious adherents divided by the total population of

in a public sector environment. The U.S. public sector provides an interesting empirical setting for the following four reasons: (i) a persistent increase in local government debt as a proportion of own-sourced revenue (176% on average);[2] (ii) an increase in Chapter 9 bankruptcies among U.S. local governments (Moringiello 2013); (iii) the increasing importance of local government economies within the national economy;[3,4,5] and (iv) wide variation of liquidity reserves by local governments.[6]

Using a sample of 12,154 county-year observations for census years 1992, 1997, 2002 and 2007, we demonstrate that the degree of religiosity is significantly negatively correlated with local government debt financing and investment decisions. We also find that local governments with a higher degree of religiosity have significantly greater cash holdings. We conduct an extensive range of robustness tests using alternative scaling variables and control for omitted variables and reverse causality to confirm our findings.

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the county. Religious adherents are defined as "All full members, their children, and others who regularly attend services or participate in the congregation" (source: Association of Religion Data Archives, ARDA). This also implies that the religiosity data we use exclude individuals who nominally proclaim religiosity but do not regularly attend religious services.

[2] Local government debt as a proportion of local government tax revenue is below 100% in only two states: New Hampshire and Wyoming (Maguire 2011).

[3] The revenues of local governments accounted for 40% of the U.S. federal government revenues (usgovernmentrevenue.com) and their spending amounted to 10.6% of the U.S. gross domestic product (GDP) in 2007 (U.S. Census Bureau and The World Bank). In particular, capital expenditures represent approximately 17% of the total state and local government expenditures (Barnett 2011).

[4] One potential financial strain on state and local government finances stems from the underperformance of state-sponsored pension fund investments, resulting in unfunded pension obligations. In many states, these pension obligations have a statutory high priority in the debt structure of municipal governments (Novy-Marx and Rauh 2011; Malanga 2012). The estimated municipal government unfunded pensions stand at up to $500 billion (Novy-Marx and Rauh 2011; Healey et al. 2012).

[5] There is also substantial variation in local government spending across counties. For example, capital expenditure as a proportion of revenue is lowest at 0.2% in Charlotte (Virginia) and 0.3% in Bedford (Virginia). Capital expenditure as a proportion of revenue is highest in Hyde (North Carolina) at 52.3% and in Dallas (Missouri) at 54.8%.

[6] Cash holdings as a proportion of revenue vary considerably between counties, ranging from 0.15% in Salem (Virginia) and 1.8% in Essex (Virginia) to 273% in Billings (North Dakota), 300% in North Slope (Alaska), and 315% in Rio Arriba (New Mexico) (U.S. Census Bureau 2007).

The rest of the paper is structured as follows. In the next section we present an overview of the relevant literature and develop the testable hypotheses. We describe the data and methodology in Section III. Section IV presents the empirical findings and robustness checks and Section V concludes.

II. Relevant Literature and Hypotheses

Adam Smith (1776) in *Wealth of Nations* examines the interaction between religion and economic outcomes and notes that religion is congruent with competitive markets where individual participation in a religion may be viewed as a rational outcome for individuals to enhance the value of their human capital (Anderson 1988). Stark et al. (1996) concur with this view and suggest that religiosity should be viewed and studied as a rational choice. In his seminal work, Weber (1905) states that the Calvinist Protestant work ethic is at the core of the development of capitalism.[7] Calvinist Protestants across the northwest part of Europe engaged in entrepreneurship and commerce and accumulated capital, which tended to be re-invested into the productive economy outside of agriculture or real estate. Thus, it is not surprising that many of the behavioral guidelines and norms in modern societies are grounded in religion (Laurin et al. 2012).

Recent research indicates that religion influences risk attitudes; for example, Renneboog and Spaenjers (2012) find that religious households are more likely to save and are more risk-averse than non-religious households. Similarly, Noussair et al. (2013) find that religious individuals are more averse in relation to financial risk exposures. Based on prior literature that religious individuals are more risk-averse, we formulate our testable hypotheses linking religiosity with local government debt, capital

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[7] For recent discussions and evidence on the existence of the Protestant work ethic see, for example, Barro and McCleary (2006), Guiso et al. (2003), van Hoorn and Maseland (2013), Iannaccone (1998).

expenditure and cash holdings. Our focus in this paper is not to develop a theoretical relation between risk-aversion and religiosity but to establish its empirical existence. Prior research in psychology shows that the characteristics of individuals affect organizational behavior (Vroom 1966; Tom 1971; Schneider 1987). Religion shapes and influences individuals' beliefs, values and behavior and therefore influences risk preferences and investment attitudes of individuals and organizations (Iannaccone, 1998; Shu et al. 2012). The culture of an organization is generally aligned with the local environment and religious individuals. Hence, it is expected that the degree of religiosity within a county should influence the local government debt, capital expenditure and cash holdings.

While religiosity and religious beliefs are linked to risk preference (Noussair et al. 2013; Osoba 2004; Renneboog and Spaenjers 2012), risk tolerance levels vary across the major religious affiliations (Hilary and Hui 2009; Kumar et al. 2011; Shu et al. 2012). Osoba (2004) observes a positive association between risk avoidance and church attendance. He states that religiosity influences time preference of rewards, where religious individuals discount future rewards less than non-religious individuals. Thus, religious individuals would be more likely to accept reduced current benefits now (such as through public sector cost cutting) if this was to result in increased future benefits.[8] Furthermore, Hilary and Hui (2009) and Shu et al. (2012) find that religion has a significant influence on corporate decision making and risk-taking behavior. Hilary and Hui (2009) find that firms incorporated in counties with a higher level of religiosity take on less investment risk exposure, but also display lower variation in returns on equity and in returns on assets. Shu et al. (2012) find that local religious beliefs have significant effect on mutual funds risk-taking.

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[8] In a similar vein, Diaz (2000) shows that residents of Las Vegas who attend church services gamble less frequently than residents who attend church services less regularly.

Lagace (2001) argues that a religious background provides managers with a better perspective in a decision making process such as involving difficult or complex projects or when dealing with ethical issues within an organizational setting. Dyreng et al. (2012) and McGuire et al. (2012) find that companies in counties with a higher level of religious adherence are less likely to misrepresent the financial situation of the company or engage in tax-avoidance behavior; company management are also more likely to provide a truthful state of company affairs (including voluntarily disclosing negative news in a timely fashion). Boone et al. (2013) find that in counties with a higher level of religiosity not only companies but also individual tax payers are less likely to engage in tax avoidance. Callen and Fang (2013) find that companies headquartered in more religious counties are less likely to delay releasing negative information about the company, reducing the likelihood of negative news being disclosed simultaneously and thus resulting in large stock price corrections.

Barro and McCleary (2003) note that religious beliefs related to thrift, work ethic, honesty and willingness to interact with strangers improve economic performance. Renneboog and Spaenjers (2012) find that Catholics and Protestants have significantly longer planning horizons than non-religious households but also have a greater propensity for thrift and risk-averseness than non-religious households. Baxamusa and Jalal (2013) find that companies located in counties with Protestant or Catholic majorities display different attitudes towards use of leverage; for example, firms located in Protestant majority counties (and countries) prefer equity financing in contrast to greater use of debt financing by firms located in Catholic dominated counties (and countries).

We base our hypotheses on the scenario that increased religiosity should manifest as more conservative or risk-averse decision making behavior at local government level. This is based on two principles. First, existing research indicates that religiosity is related to risk-taking attitudes and that religious individuals tend to be more risk-averse (Noussair et al. 2013; Renneboog and Spaenjers 2012). Second, risk-attitudes of individuals are also apparent at the organizational level where greater religiosity results in organizations being managed in a relatively more risk-averse manner (Dyreng et al. 2012; Callen and Fang 2013; McGuire et al. 2012; Omer et al. 2010). It is then plausible to expect that religiosity affects decision making at government level as well, where increased religiosity reduces the extent of financial risk-taking by local governments. This discussion leads to our first hypothesis.

HYPOTHESIS 1: The degree of religiosity within a local government population is negatively correlated with local government debt.

Gore (2009) documents that higher levels of cash holdings allow managers to fund potentially unpopular capital expenditures without the need to consult voters, as would likely be the case if funds had to be borrowed. Local governments experiencing relatively more risky cash inflows and higher population growth tend to hold more cash reserves while simultaneously being less likely to invest in new projects (Gore 2009). McCarty and Schmidt (1997) show that state government spending has increased substantially since 1984, with the majority of the increase concentrated on welfare and other services. This trend could result in the diminished ability of governments to fund capital expenditures. Buettner and Wildasin (2006) confirm that a large proportion of the adjustment to fiscal imbalances in local governments in recent times is the result of

reducing expenditures. Mahdavi (2004) notes that higher debt levels may result in decision makers' reluctance to commit to new capital expenditures. Thus, local government borrowing and capital expenditure decisions are related. Higher religious concentration in a local population contributes to greater risk-averseness by local government' managers in relation to borrowing and investment decisions. As a consequence, local governments may set a higher required rate of return on new projects. We hypothesize that these factors are likely to result in lower capital expenditure. This discussion leads to our second hypothesis.

HYPOTHESIS 2: The degree of religiosity within a local government's population is negatively correlated with local government capital expenditure.

We identify a major gap in the current literature in relation to a potential link between religiosity and local government cash holdings. Gore (2009) examines the level of cash holdings of municipal governments across the U.S. and finds that municipal authorities with more risky cash flows (that is, those with fewer sources of revenue and more unpredictable revenues) are likely to hold higher levels of cash.[9] Baber and Gore (2008) find that in states that adopt generally accepted accounting practices (GAAP), the level of municipal debt is higher on average, while the cost of debt funding is lower, implying that GAAP adoption enables municipal governments to hold proportionally less cash.[10] Guiso et al. (2003) argue that saving for the future is consistent with religious doctrines that encourage the prudent management of

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[9] Gore's findings are consistent with Fisman and Hubbard's (2005) results who report that managers of non-profit organizations hold cash to reduce risk of volatility of future cash inflows.

[10] Governmental Accounting Standards Board (GASB) sets generally accepted accounting practices for local governments. GASB was established in 1984 to enable standardized accounting and reporting procedures specifically applicable to state and local governments (Baber and Gore 2008). By year 2000, 15 U.S. states required their municipalities to file annual financial statements using GAAP as

economic resources. They further find that Catholics are more risk-averse and more likely to save than other religious groups.

Accumulation of adequate cash reserves over the economic cycle would be considered responsible financial management by local governments; moreover, higher relative risk of cash flows forces local governments to accumulate more cash reserves as a precautionary measure (Gore 2009). Prudent and risk-averse management of cash holdings (savings) by religious adherents is evident at the household level (Renneboog and Spaenjers 2012) and the firm level (Hilary and Hui 2009). Thus, given a predominant attitude of religious populations towards thrift and prudent management of resources, we hypothesize that greater religious concentration within a local government population should influence local governments to hold relatively greater cash reserves. This discussion leads to our third hypothesis.

HYPOTHESIS 3: The degree of religiosity within a local government's population is positively correlated with local government cash holdings.

III. Data and Methodology

We obtain the data for government financing from the U.S. Census Bureau's Annual Survey of State and Local Government Finances.[11] The Census Bureau collects data on local governmental financial activities by conducting a census on all local governments quinquennially (in years ending in '2' and '7') and an annual survey on a small sample of local governments in the intervening years. This census is required by law under Title 13, United States Code, Section 161. Our analysis is performed on a

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established by the GASB (Baber and Gore 2008). GASB reporting requirements for local and state governments are frequently updated to improve transparency of local and state government finances. For example, GASB released a proposed statement in 2011 that would require more transparent reporting of unfunded pension liabilities by government authorities (Healey et al. 2012).

[11] The data are downloaded from the U.S. Census Bureau's website at http://www.census.gov/govs.

sample that aggregates government financial data items for all levels of local governments (e.g., county, city, and town) within each geographical county area.[12] The data for the sample are available only for census years 1992, 1997, 2002, and 2007. There are at least three benefits to using the county-level sample. First, the sample is comprehensive and covers all U.S. counties for the census years. Second, the sample covers data for all levels of local government entities within a county and thus offers a complete picture of local government financial activities. Third, the sample achieves the best match with our religion data, which are at the county level.

Data from the Annual Surveys of State and Local Government Finances cover (a) governmental revenue by source; (b) expenditure by character and function; (c) indebtedness by term; and (d) cash and security holdings by purpose. Our measure of local government financing is the debt ratio (DEBT), defined as the ratio of net long-term debt to total revenue. Our measure of local government investment is capital expenditure (CAPX), defined as the ratio of total capital outlay to total revenue. Our measure of cash holdings (CASH) is defined as the ratio of cash holdings to total revenue.[13] We also use two control variables from the same data: (i) Government size (SIZE) as measured by total revenue (in billions of U.S. dollars) to control for the economy of scale; and (ii) Expenses (EXP) defined as the ratio of operating expenses to total revenue to control for the financial conditions of local governments.

We obtain data on religiosity and religious composition from the Churches and Church Membership files of the Association of Religion Data Archives (ARDA).[14]

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[12] County governments are found throughout the nation except in Connecticut, Rhode Island, the District of Columbia and other states where geographical county areas lack a distinct county government. The sample aggregates financial data items of other local governments available (e.g., city and town) for these geographical county areas.

[13] We also scale local government debt, capital expenditure, and cash holdings by total expenses of the governments, and our results hold.

[14] The data are downloaded from the ARDA website at http://www.thearda.com/Archive/ChCounty.asp. Religiosity data obtained from the ARDA database have been used in several recent studies which examine the effects of religiosity (Callen and Fang 2013; Hilary and Hui, 2009; Jiang et al. 2013).

The data are published by the Glenmary Research Center and contain statistics by county for 133 Judeo-Christian church bodies as well as information on their number of churches and members. The U.S. Churches and Church Membership data on religiosity at the county level are available for four years (1971, 1980, 1990, and 2000). Osoba (2004) and Noland (2005) argue that religiosity and religious affiliation tend to change little over time. We therefore assume that religiosity and religious affiliation are constant between the religiosity data collection years (at the beginning of the decade) and the following census years within that decade. We use the 1990 data for census years 1992 and 1997 and the 2000 data for census years 2002 and 2007. Our main variable of interest is the degree of religiosity (REL), defined as the number of religious adherents in the county divided by the total population of the county.[15]

We control for several county-level demographic variables compiled from the U.S. Census Bureau data, because religiosity has a close relation with the demographic characteristics of the population which might also affect local government policies. These variables include: (i) POP, total population of the county; EDU, proportion of county population above age 25 that has completed a bachelor's degree or higher; MF, male-female ratio in the county;[16] MRAG, proportion of households in the county with a married couple; MIN, proportion of county population that is non-white; AGE, median age of the county population; and URBAN, proportion of county residents who live in urban areas.[17] Last, since political values of the county population are likely to affect the choice of local government policies, we control for political preferences (PLT)

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[15] ARDA defines religious adherents as "All full members, their children, and others who regularly attend services or participate in the congregation". Available at: http://www.thearda.com/Archive/Files/Descriptions/CMS90CNT.asp.

[16] Miller and Hoffmann (1995) argue that gender differences in risk preferences are related to religiosity as females tend to be more religious and more risk-averse.

[17] We also have data for average household income for the county. However, the variable is highly correlated with EDU (correlation=0.659), and thus, following Kumar et al. (2011), we exclude it from the analysis. In untabulated results, we include this variable and our findings remain largely the same.

in the regression, which is defined as the number of county residents who vote for the Democratic Party in the presidential election scaled by those who vote for either the Democratic Party or the Republican Party.[18]

We begin constructing our sample with 12,560 county-year observations (3,140 for each year) and lose a total of 406 county-year observations in the merging process. The final sample on which we perform our analysis consists of 12,154 county-year observations for census years 1992, 1997, 2002, and 2007. Figure 1 presents the geographic distribution of religiosity among the U.S. counties. The graph shows that the Northeast, Midwest, South, and Southwest regions exhibit relatively high religiosity, while the West and Southeast regions exhibit relatively low religiosity. Overall, the graph demonstrates wide variation of religiosity within the U.S. Furthermore, counties may be influenced by the dispersed local religiosity levels as they exhibit distinct variations in their government financial and investment policies.

[Insert Figure 1 about here]

We present summary statistics in Table 1. This table shows that, on average, counties borrow net long-term debt of 26.7% of their total annual revenue. On average, counties spend 11.6% of their total revenue on capital outlays and hold cash that is 37.3% of the total revenue. Average revenue generated by local governments is $0.26 billion and the average operating expense to revenue ratio is 0.986. Further, 56.2% of the population is religious. Average county population is 81,000, and average resident age is 36 years. On average, 9.6% of the population over the age of 25 holds a bachelor's degree or higher, and married couples (with or without children) represent 58.3% of the households. We also report that, on average, 37.6% of the population lives in urban areas, average male-to-female ratio is 97.5%, average proportion of minority

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[18] The county level election data are available since 1980 and can be downloaded from http://www2.census.gov/prod2/statcomp/usac/excel/ELE01.xls.

population (non-white) is 13.7%, and the average proportion of votes for the Democratic party is 44.7%.

[Insert Table 1 about here]

Table 2 presents the sample correlations of the variables. The table shows that governments in counties with a higher degree of religiosity borrow less, spend less via capital expenditures and hold more cash in their accounts. These findings are consistent with our hypotheses at the univariate level.

[Insert Table 2 about here]

IV. EMPIRICAL RESULTS

Main Results

In this section, we conduct multivariate regression analysis on the relation between local government financing, investment, cash holdings, and degree of religiosity. The regression specification is as follows:

$$
\begin{aligned}
DEBT\,/\,CAPX\,/\,CASH_{it} = {} & \beta_0 + \beta_1 REL_{it} + \beta_2 POP_{it} + \beta_3 AGE_{it} \\
& + \beta_4 EDU_{it} + \beta_5 MARG_{it} + \beta_6 URBAN_{it} + \beta_7 MF_{it} + \beta_8 MIN_{it} \qquad (1) \\
& + \beta_9 PLT_{it} + \beta_{10} SIZE_{it} + \beta_{11} EXP_{it} + Yr + \varepsilon_{it}
\end{aligned}
$$

where i denotes county, t denotes year, and ε is the error term. Year fixed-effects Yr are included when the regression is conducted on the pooled sample.[19] The regressions are performed by ordinary least squares (OLS). The t-statistics are computed using standard errors robust to both heteroskedasticity and clustering at the county level. Regression results are presented in Table 3.[20]

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[19] We are unable to add state fixed-effects as religiosity exhibits geographic clustering, as shown in Figure 1. If included, state fixed-effects capture the effect of the religiosity ratio in the regression.

[20] We also run annual cross-sectional regressions for each of the census years. The results (not reported here for reasons of space) are similar to those of the pooled regressions.

Column (1) of Table 3 presents the results for which local government debt ratio is regressed on the degree of religiosity. The coefficient of the religiosity ratio is negative and statistically significant at the 1% level. This finding is consistent with our first hypothesis. The magnitude of the coefficient shows that a one-standard-deviation increase in the religiosity ratio results in a decrease in local government debt by 0.013. For a typical county with local government debt equal to the sample mean (0.267), this constitutes a 4.87% decrease, indicating that the effect of religiosity on local government debt is not only statistically significant but also economically significant. With respect to the control variables, our results show that local government debt is positively associated with level of education, marriage ratio, urbanization, local government size, local government operating expenses, and proportion of votes for the Democratic Party, while it is negatively associated with median age. There is no significant association between local government debt and total population, male-to-female ratio, or minority ratio.

Column (2) presents the results for which local government capital expenditures is regressed on religiosity. This column shows that the religiosity ratio is negatively and significantly related to local government capital expenditures. This finding supports our second hypothesis. The coefficient of the religiosity ratio shows that a one-standard-deviation increase in religiosity ratio results in a decrease in local government capital expenditures by 0.004. For a typical county with local government capital expenditures equal to the sample mean (0.116), this constitutes a 3.45% decrease. Results for the control variables show that local government capital expenditures are positively associated with level of education, marriage ratio, male-to-female ratio, local government size, and local government operating expenses, while they are negatively associated with median resident age and proportion of votes

for the Democratic Party. There is no significant association between local government capital expenditures and total population, urbanization, or minority ratio.

In column (3), we report the results for which local government cash holdings is regressed on religiosity. This column shows that the coefficient of the religiosity ratio is positive and statistically significant at the 1% level, suggesting that a higher religiosity ratio is associated with higher local government cash holdings. This finding supports our third hypothesis. Our results are also economically significant. We show that a one-standard-deviation increase in the religiosity ratio results in an increase in local government cash holdings of 0.013. For a typical county with local government cash holdings equal to the sample mean (0.373), this constitutes a 3.48% increase. With respect to the control variables, we show that local government cash holdings are positively associated with median age, level of education, marriage ratio, urbanization, male-to-female ratio, and local government operating expenses, while cash holdings are negatively associated with the proportion of votes for the Democratic Party. There is no significant association with total population, minority ratio, or local government size. Taken together, the results are consistent with our conjecture that a higher proportion of religious residents in a county is correlated with less risk-taking by local governments within the county, which results in lower local government debt and capital expenditures and higher local government cash holdings.

[Insert Table 3 about here]

Decomposing Religion into Groups

Ferris, Jayaraman and Sabherwal (2013) focus on how CEO overconfidence influences global merger activity and find that overconfidence is most commonly observed in younger CEOs leading firms in Christian countries. They also document that CEO overconfidence varies across national religions. In particular, they show that

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Catholic and Protestant CEOs are more overconfident that Buddhist or Indian CEOs. Hilary and Hui (2009) find that, in a corporate setting, Protestants are more risk-averse than Catholics. Kumar et al. (2011) present similar findings in terms of the gambling attitude of investors in the stock market. Nevertheless, Renneboog and Spaenjers (2011) find that Catholic households are less likely to take risks (such as investing in stock markets) and are more likely to save than Protestant households.

Following these studies, we partition the religious population into Protestant, Catholic and other religions. Because Protestants and Catholics are the two major religious groups in the U.S., we separate them into independent groups, while other religions form the third group. We define Protestant ratio (PROT), Catholic ratio (CATH), and other religions ratio (OTH) as the number of corresponding religious adherents in a county to the total population in the county.[21] We replace the religiosity ratio with ratios of these three groups and present the results in columns (1) through (3) of Table 4. The columns show that the Protestant ratio and the Catholic ratio are negatively and significantly related to local government debt, while there is no significant relation between the other religions ratio and local government debt. We document similar findings for local government capital expenditures, and we find that all three ratios are positively and significantly associated with local government cash holdings.

To further explore this issue, we follow Kumar et al. (2011) and define the Catholic-to-Protestant ratio (CP) as the number of Catholic adherents divided by the number of Protestant adherents in a county. We include both the Catholic-to-Protestant and the religiosity ratios in the regression and present the results in columns (4) through (6) of Table 4. The results show that the coefficient of the Catholic-to-Protestant ratio is

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[21] As a robustness check, we drop counties in Utah from the analysis as Utah has a large population of Mormons, who are classified by ARDA as 'other religion'. Our main results hold.

statistically insignificant in all three regressions, while the coefficient of the religiosity ratio retains its sign and statistical significance. Overall, the results suggest that the two major types of religious groups, Protestants and Catholics, have similar effects on financing, investment and cash holding policies of local governments. Taken together, the level of overall religiosity is more important than the decomposition of religious adherents.

[Insert Table 4 about here]

Reverse Causality

One potential concern we address is causality between the degree of religiosity and government financing. The question is whether religion affects local government financing or whether the policies of local government attract people of certain faiths to live in the county. Even though the religiosity ratio in our analysis is lagged (we use the 1990 religiosity ratio for government financing in 1992 and 1997, and 2000 religiosity ratio for government financing in 2002 and 2007), the lagged variable approach may not mitigate this concern completely. Therefore, we adopt a two-stage least squares (2SLS) approach. In this approach, we regress the religiosity ratio against a set of instrumental variables in the first-stage regression and then use the predicted value of the religiosity ratio in the second-stage regression where the dependent variable is local government debt, capital expenditure, or cash holdings. The two instrumental variables we adopt are the religiosity ratio and county population, both lagged for 10 years (i.e., we use the 1980 religiosity ratio and county population as the instrument in 1990, and the 1990 religiosity ratio and county population as the instrument in 2000).

The results for the 2SLS regression are presented in Table 5. Column (1) shows that the religiosity ratio is positively and significantly associated with both lagged religiosity and lagged population. The R-squared and F-statistic (*p*-value 0.000) of the regression are very high, suggesting that the instrumental variables are valid. Columns (2) through (4) present the results for the second-stage regression, which shows that the fitted value of the religiosity ratio from the first stage is negatively associated with local government debt and capital expenditure and positively associated with local government cash holdings. Thus, the results for the 2SLS regression confirm that our findings are not driven by a reverse causality problem.

[Insert Table 5 about here]

Subsample Analyses

To reject the claim that our findings could be driven by geographic or demographic differences among different U.S. regions, we conduct subsample regressions by region. First, we partition counties into eastern and western regions by their geographic location and then into rural and urban counties by median population density.[22] Next, we partition counties by the starting letter of their state (a random geographic partition). States starting with a letter before N are classified into one group, and those with a letter on or after N are classified into the other group. The results for the subsample regressions are presented in Table 6. Our findings are largely consistent with the main results as reported in Table 3.

[Insert Table 6 about here]

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[22] Eastern counties include those in Alabama, Arkansas, Connecticut, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Vermont, Virginia, and West Virginia. Western counties include those in Alaska, Arizona, California, Colorado, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Mexico, North Dakota, Ohio, Oregon, South Dakota, Utah, Washington, Wisconsin, and Wyoming.

Omitted Variable Problem

In this subsection, we perform tests to address the concern that our results could be driven by an omitted variable problem. It is likely that the observed relation between the religiosity ratio and the three local government financing variables is driven by their correlation with variables not included in our model. Even though we include several demographic and local government financing variables as controls, we cannot exclude this possibility. Therefore, we address this problem in two ways.

We include a list of variables related to culture as additional control variables for our model. Specifically, we include a dummy variable indicating the existence of a death penalty law in the state (EDP), the number of prisoner executions in the state between 1976 and 2000 (EXDP), the percentage of the state's population that is incarcerated (PRN), the alcohol consumption rate in the state (AC), abortion rate in the state (AB), the log number of years the state has been part of the U.S. (NY), the state's business attractiveness rank (BARANK), the state's business costs rank (BCRANK), the state's labor supply rank (LSRANK), the state's regulatory environment (RERANK), the state's economic climate rank (ECRANK), the state's growth prospects rank (GPRANK), and the state's quality of life rank (QLRANK).[23] We present the results in Table 7. The religiosity ratio continues to be negatively and significantly related to local government debt and capital expenditure and positively related to local government cash holdings. Our results are consistent with the main findings as reported in Table 3.

[Insert Table 7 about here]

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[23] We obtain data for EDP and EXDP from the Death Penalty Information Centre at www.deathpenaltyinfo.org, data for PRN from the Bureau of Justice Statistics at http://bjs.ojp.usdoj.gov/index.cfm?ty=pbdetail&iid=2061, data for alcohol consumption and abortion AC and AB from the National Institute on Alcohol Abuse and Alcoholism at http://pubs.niaaa.nih.gov/publications/surveillance.htm, and the data for the state rankings from *Forbes* at http://www.forbes.com.

Next, we adopt the random-effect panel regression, which is estimated by a generalized least squares (GLS) model.[24] In general, the random-effect estimator subtracts a fraction of the time averages from the corresponding variables where the fraction depends on the variance of the fixed-effect and the error term as well as the number of time periods. The results are presented in Table 8, which shows that our main findings hold.

[Insert Table 8 about here]

V. Conclusions

This paper is the first to examine the association between religious beliefs and local government financing, investment, and cash holding decisions. Prior research shows that municipal governments experiencing relatively more risky cash inflows tend to hold more cash reserves while simultaneously being less likely to invest in new projects (Gore 2009). Using an aggregate sample of 12,154 county-year observations for census years between 1992 and 2007, we find that the degree of religiosity is negatively associated with local government debt and capital expenditure and positively associated with the level of cash holdings. Our results suggest that local governments in counties with a higher degree of religiosity are more conservatively managed, i.e., they borrow less and spend less while holding significantly more cash than local governments with a lower degree of religiosity. We perform a variety of robustness checks, such as by using additional control variables and two-stage least squares. Our main results hold.

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[24] We are unable to use a fixed-effect panel regression because we have only two years of data for the religiosity ratio. Given the persistence of religiosity over time, there is not enough variation to perform the fixed-effect test. Further, we have done a Hausman test which shows that the random-effect model has higher efficiency than fixed-effects model in our test.

Given the responsibility of local and other governments to prudently and efficiently manage public resources, the findings of this study should also be of interest to the accounting profession in light of Governmental Accounting Standards Board (GASB) reporting requirements. Our findings have major implications for local and perhaps higher-level governments, as they will help in making informed decisions in relation to financing, investments, and management of liquid assets.

References

Anderson, G. M. 1988. Mr. Smith and the Preachers: The Economics of Religion in the Wealth of Nations. *Journal of Political Economy*, 96 (5): 1066-1088.

Baber, W. R., and A. K. Gore. 2008. Consequences of GAAP Disclosure Regulation: Evidence from Municipal Debt Issues. *The Accounting Review*, 83 (3), 565-591.

Barnett, J. L. 2011. State and Local Government Finances Summary: 2009 Governments Division Brief (G09-ALFIN). United States Census Bureau.

Barro, R. J., and R. M. McCleary. 2003. Religion and Economic Growth Across Countries. *American Sociological Review* 68 (5): 760–781.

Baxamusa, M., and A. Jalal. 2013. Does religion affect capital structure? Forthcoming in *Research in International Business Finance* http://dx.doi.org/10.1016/j.ribaf.2013.09.003

Buettner, T., and D. E. Wildasin. 2006. The Dynamics of Municipal Fiscal Adjustment. *Journal of Public Economics* 90: 1115-1132.

Callen, J. L., and X. Fang. 2013. Religion and Stock Price Crash Risk. Forthcoming in *Journal of Financial and Quantitative Analysis*.

Diaz, J. D. 2000. Religion and Gambling in Sin-City: a Statistical Analysis of the Relationship Between Religion and Gambling Patterns in Las Vegas Residents. *Social Science Journal* 37: 453-458.

Dyreng, S. D., W. J. Mayew, and C. D. Williams. 2012. Religious social norms and corporate financial reporting. *Journal of Business Finance and Accounting*, 39: 845-875.

Ferris, S. P., N. Jayaraman, and S. Sabherwal. 2013. CEO Overconfidence and International Merger and Acquisition Activity. *Journal of Financial and Quantitative Analysis*, 48: 137-164.

Fisman, R., and R. Hubbard. 2005. Precautionary savings and the governance of non-profit organizations. *Journal of Public Economics* 89: 2231-2243.

Gore, A. K. 2009. Why Do Cities Hoard Cash? Determinants and Implications of Municipal Cash Holdings. *The Accounting Review* 84(1): 183-207.

Gruber, J. 2005. Religious Market Structure, Religious Participation, And Outcomes: Is Religion Good For You? Working paper 11377, National Bureau of Economic Research, http://www.nber.org/papers/w11377

Grullon, G., G. Kanatas, and J. P. Weston. 2010. *Religion and Corporate (Mis)behavior*. Working paper, Rice University.

Guiso, L., P. Sapienza, and L. Zingales. 2003. People's Opium? Religion and Economic Attitudes. *Journal of Monetary Economics* 50: 225-282.

Healey, T. J.; C. Hess; and K. Nicholson. 2012. Underfunded Public Pensions in the United States: The Size of the Problem, the Obstacles to Reform and the Path Forward. Working paper No. 2012-08, Harvard University.

Hilary, G., and K. W. Hui. 2009. Does Religion Matter in Corporate Decision Making in America? *Journal of Financial Economics* 93: 455-473.Iannaccone, L. R. 1998. Introduction to the economics of religion. *Journal of Economic Literature* 36: 1465–1496.

Kelley, E., and Woidtke, T. 2006. Investor Protection and Real Investments by U.S. Multinationals. *Journal of Financial and Quantitative Analysis*, 41: 541-572.

Kumar, A., J. K. Page, and O. G. Spalt. 2011. Religious Beliefs, Gambling Attitudes, and Financial Market Outcomes. *Journal of Financial Economics* 102: 671-708.

Lagace, M. 2001. Can Religion and Business Learn From Each Other? Q&A with: Laura Nash. Harvard Business School Working Knowledge. Available at: http://hbswk.hbs.edu/item/3511.html

Laurin, K., A. F. Shariff, J. Henrich, and A. C. Kay. 2012. Outsourcing Punishment to God: Beliefs in Divine Control Reduce Earthly Punishment. Proceedings of the Royal Society–Biological Sciences 279: 3272-81.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny. 1999. The Quality of Government. *Journal of Law, Economics and Organization* 15: 222-279.

Maguire, S. 2011. State and Local Government Debt: An Analysis. Congressional Research Service Report for Congress. 7-5700 R41735.

Mahdavi, S. 2004. Shifts in the Composition of Government Spending in Response to External Debt Burden, *World Development,* 32 (7), 1139-1157.

Malanga, S. 2012. The 'Build America' Debt Bomb. *Wall Street Journal*. Available at http://online.wsj.com/article/SB10001424052748704648604575621062239887650.html

McCarty, T. A., and S. J. Schmidt. 1997. A Vector-Autoregression Analysis of State-Government Expenditure. *American Economic Review* 87 (2): 278-282.

McGuire, S. T., T. C. Omer, and N. Y. Sharp. 2012. The Impact of Religion on Financial Reporting Irregularities. *The Accounting Review* 87 (2), 645-673.

Miller, A. S., and J. P. Hoffmann. 1995. Risk and Religion: An Explanation of Gender Differences in Religiosity. *Journal for the Scientific Study of Religion* 34(1): 63-75.

Moringiello, J. M. 2013. Goals and Governance in Municipal Bankruptcy. Forthcoming in *Washington and Lee Law Review*.

Noland, M. 2005. Religion and Economic Performance. *World Development* 33(8): 1215-1232.

Noussair, C.N., S.T. Trautmann, G. van de Kuillen, and N. Vellekoop. 2013. Risk aversion and religion. *Journal of Risk and Uncertainty* 47: 165-183.

Novy-Marx, R., and J. D. Rauh. 2011. *Fiscal Imbalances and Borrowing Costs: Evidence from State Investment Losses*. Working paper, University of Rochester and NBER.

Osoba, B. J. 2004. *Essays on the Economics of Religion, Charitable Giving, and Youth Crime*. Unpublished PhD Dissertation, West Virginia University.

Renneboog, L., and C. Spaenjers. 2012. Religion, Economic Attitudes, and Household Finance. *Oxford Economic Papers* 64: 103-127.

Sammartino, F. 2012. Federal Support for State and Local Governments through the Tax Code. Testimony to the Congressional Budget Office by the Assistant Director for Tax Analysis before the Committee on Finance, United States Senate on April 25, 2012, Congress of the United States Available at: http://www.cbo.gov/sites/default/files/cbofiles/attachments/04-25-TaxCodeTestimony.pdf

Schneider, B. 1987. The People Make the Place. *Personnel Psychology* 40 (3): 437–453.

Shu, T., J. Sulaeman, and E. P. Yeung. 2012. Local Religious Beliefs and Mutual Fund Risk-Taking Behaviors. *Management Science* 58: 1779-96.

Smith, A. 1776. An Inquiry into the Nature and Causes of the Wealth of Nations. Available at: http://www.econlib.org/library/Smith/smWN.html

Spalt, O. 2013. Probability Weighting and Employee Stock Options. forthcoming in *Journal of Financial and Quantitative Analysis*.

Stark, R., L. L. Iannaccone, and R. Finke. 1996. Religion, Science and Rationality. *American Economic Review* 86 (2): 433-7.

Stulz, R. M., and R. Williamson. 2003. Culture, Openness, and Finance. *Journal of Financial Economics* 70: 313-49.

Tom, V. R. 1971. The Role of Personality and Organizational Images in the Recruiting Process. *Organizational Behavior and Human Performance* 6: 573–592.

U.S. Census Bureau. 2007. Table 1, State and Local Government Finances by Level of Government and by State: 2006-07. Available at http://www.census.gov/govs/estimate/historical_data_2007.html

van Hoorn, A., and Maseland R. 2013. Does a Protestant work ethic exist? Evidence from the well-being effect of unemployment. *Journal of Economic Behavior & Organization* 91: 1-12.

Vroom, V. H. 1966. Organizational Choice: A Study of Pre- and Postdecision Processes. *Organizational Behavior and Human Performance* 1: 212–225.

Weber, M. 1905. The Protestant Ethic and the Spirit of Capitalism. Available at: http://xroads.virginia.edu/~HYPER/WEBER/cover.html

Appendix—Variable Definitions

Variable	Variable Definitions
AGE	The median age of county residents.
CAPX	The ratio of government capital expenditure over government revenue. Government capital expenditure is defined as F*+G*+K*. Government revenue is defined as A*+B*+C*+D*+T*+U*.
CASH	The ratio of government cash holdings over government revenue. Government cash holdings are defined as W31+W36. Government revenue is defined as A*+B*+C*+D*+T*+U*.
DEBT	The ratio of net long-term government debt over government revenue. Net long-term government debt is defined as 41*+44*-W01. Government revenue is defined as A*+B*+C*+D*+T*+U*.
EDU	The proportion of the county-level population over the age of 25 with a bachelor's degree or higher.
EXP	The ratio of government expenses over government revenue. Government expenses are defined as E*+I*. Government revenue is defined as A*+B*+C*+D*+T*+U*.
REL	The proportion of religious adherents in the county, calculated as the number of religious adherents in a county (reported by Association of Religion Data Archives - ARDA) divided by the total population in the county (reported by the U.S. Census Bureau).
MARG	The proportion of county households with a married couple.
MF	The ratio of male to female residents in a county.
MIN	The proportion of county residents who are non-white.
PLT	The number of county residents who vote for the Democratic Party in the presidential election scaled by those who vote for either the Democratic Party or the Republican Party.
POP	The total county-level population (in millions).
SIZE	Total government revenue (in billions of U.S. dollars), defined as A*+B*+C*+D*+T*+U*.
URBAN	The proportion of the county population that lives in urban areas.

Notes: This table presents the definition of variables. * refers to the sum of all the census data items beginning with the character before the sign.

FIGURE 1. COUNTY LEVEL RELIGIOSITY ACROSS THE UNITED STATES
[Year 2000]
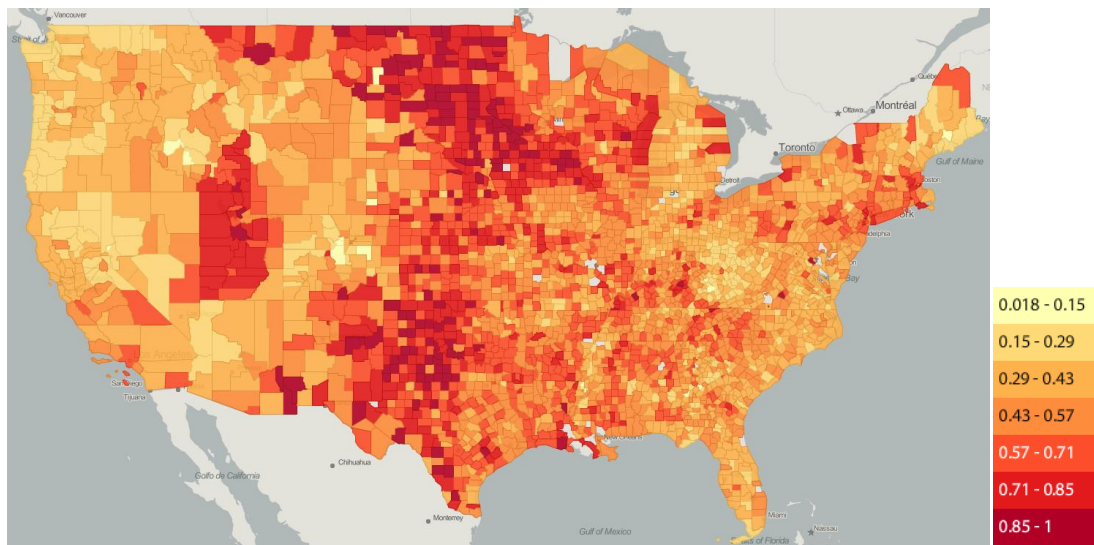
Notes: Figure 1 presents county-level religiosity across the United States. In this figure, darker shades represent more religious counties. We obtain data on religiosity and religious composition from the Churches and Church Membership files of the Association of Religion Data Archives (ARDA).The data are published by the Glenmary Research Center and contain statistics by county for 133 Judeo-Christian church bodies, providing information on their number of churches and members. The U.S. Churches and Church Membership data on religiosity at the county level are available for four years [1971, 1980, 1990, and 2000]. Figure 1 is for 2000. We upload county-level religiosity data to the spatial key website to create this map.

TABLE 1—SUMMARY STATISTICS
SAMPLE PERIOD: 1992, 1997, 2002, AND 2007 (CENSUS YEARS)

Variable	Mean	S.D.	25%	Median	75%
DEBT	0.267	0.298	0.000	0.207	0.419
CAPX	0.116	0.068	0.067	0.100	0.148
CASH	0.373	0.192	0.235	0.344	0.469
REL	0.562	0.188	0.421	0.553	0.694
POP	0.081	0.272	0.011	0.023	0.057
AGE	35.922	4.069	33.300	35.900	38.400
EDU	0.096	0.047	0.065	0.084	0.114
MARG	0.583	0.063	0.549	0.589	0.625
URBAN	0.376	0.300	0.029	0.364	0.600
MF	0.975	0.079	0.935	0.963	0.994
MIN	0.137	0.157	0.023	0.070	0.207
PLT	0.447	0.126	0.361	0.449	0.534
SIZE	0.260	0.629	0.030	0.068	0.177
EXP	0.986	0.081	0.939	0.984	1.030
Obs.			12,154		

Notes: This table presents the mean, standard deviation (S.D.), 25th-percentile (25%), median, and 75th-percentile (75%) for each variable. We obtain local government finance data from the Census of Governments conducted by the U.S. Census Bureau on all local government organizational units in 1992, 1997, 2002, and 2007 (latest data). The Census of Governments is conducted in years ending in '2' and '7'. Data are available as aggregates for counties, municipalities, towns, special districts, and school districts. We merge the local government finance data with religiosity data obtained from the Association of Religion Data Archives (ARDA). All variables are winsorized at both the upper and lower one-percentile to reduce the effect of extreme observations. Variable definitions are available in the Appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) DEBT	1.000													
(2) CAPX	0.254	1.000												
(3) CASH	0.093	0.300	1.000											
(4) REL	-0.045	-0.114	0.015	1.000										
(5) POP	0.153	0.101	0.076	-0.062	1.000									
(6) AGE	-0.167	-0.023	0.142	0.029	-0.119	1.000								
(7) EDU	0.163	0.237	0.286	-0.159	0.297	0.030	1.000							
(8) MARG	0.022	-0.038	-0.049	0.140	-0.198	0.035	-0.253	1.000						
(9) URBAN	0.204	0.135	0.118	-0.058	0.382	-0.333	0.465	-0.330	1.000					
(10) MF	-0.027	0.078	0.127	-0.207	-0.049	-0.069	0.027	0.137	-0.102	1.000				
(11) MIN	-0.027	-0.033	-0.048	0.005	0.140	-0.349	-0.055	-0.563	0.156	-0.050	1.000			
(12) PLT	0.158	-0.062	-0.258	-0.055	0.146	-0.234	-0.044	-0.331	0.133	-0.180	0.302	1.000		
(13) SIZE	0.167	0.143	0.126	-0.097	0.757	-0.139	0.451	-0.284	0.533	-0.066	0.169	0.175	1.000	
(14) EXP	0.226	0.607	0.157	-0.058	0.058	0.025	0.117	-0.115	0.075	-0.001	0.008	-0.009	0.076	1.000

Notes: This table presents the Spearman correlation matrix between the variables used in the regressions. We obtain local government finance data from the Census of Governments conducted by the U.S. Census Bureau on all local government organizational units in 1992, 1997, 2002, and 2007 (latest data). The Census of Governments is conducted in years ending in '2' and '7'. Data are available as aggregates for counties, municipalities, towns, special districts, and school districts. We merge the local government finance data with religiosity data obtained from the Association of Religion Data Archives (ARDA). All variables are winsorized at both the upper and lower one-percentile to reduce the effect of extreme observations. Variable definitions are available in the Appendix.

TABLE 3—RELIGIOSITY AND LOCAL GOVERNMENT FINANCE
SAMPLE PERIOD: 1992, 1997, 2002, AND 2007 (CENSUS YEARS)

Dependent Variable:	DEBT	CAPX	CASH
	(1)	(2)	(3)
REL	-0.071	-0.019	0.069
	(-4.656)***	(-4.993)***	(5.106)***
POP	0.021	-0.000	0.001
	(1.062)	(-0.223)	(0.141)
AGE	-0.003	-0.001	0.002
	(-3.984)***	(-2.688)***	(2.970)***
EDU	0.747	0.219	0.829
	(8.944)***	(9.610)***	(11.721)***
MARG	0.215	0.090	0.233
	(2.721)***	(5.091)***	(3.722)***
URBAN	0.105	0.004	0.029
	(7.909)***	(1.328)	(2.563)**
MF	0.006	0.041	0.205
	(0.147)	(3.472)***	(5.154)***
MIN	-0.063	0.003	0.033
	(-2.426)**	(0.476)	(1.565)
PLT	0.072	-0.018	-0.183
	(2.506)**	(-2.840)***	(-7.677)***
SIZE	0.034	0.005	0.013
	(3.390)***	(2.675)***	(1.876)*
EXP	0.576	0.490	0.131
	(18.116)***	(51.392)***	(4.924)***
Obs.	12,154	12,154	12,154
Adj. R^2	0.477	0.413	0.250

Notes: This table presents the baseline regression results of local government debt (DEBT), capital expenditure (CAPX), and cash holdings (CASH) against the degree of religiosity (REL). The results are presented in three columns. The regression is performed by ordinary least squares (OLS). The t-statistics (in parentheses) are computed using standard errors robust to both clustering at the firm level and heteroskedasticity. Constant term is included but not reported. We obtain the local government finance data from the Census of Governments conducted by the U.S. Census Bureau on all local government organizational units in 1992, 1997, 2002, and 2007 (latest data). The Census of Governments is conducted in years ending in '2' and '7'. Data are available as aggregates for counties, municipalities, towns, special districts, and school districts. We merge the local government finance data with religiosity data obtained from the Association of Religion Data Archives (ARDA). All variables are winsorized at both the upper and lower one-percentile to reduce the effect of extreme observations. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are available in the Appendix.

TABLE 4—DECOMPOSITION OF RELIGION
SAMPLE PERIOD: 1992, 1997, 2002, AND 2007 (CENSUS YEARS)

Dependent Variable	DEBT (1)	CAPX (2)	CASH (3)	DEBT (4)	CAPX (5)	CASH (6)
PROT	-0.050	-0.021	0.029			
	(-2.822)***	(-4.898)***	(1.882)*			
CATH	-0.113	-0.018	0.137			
	(-6.082)***	(-3.695)***	(7.715)***			
OTH	0.006	0.006	0.052			
	(0.148)	(0.800)	(1.726)*			
CP				-0.001	0.000	0.000
				(-1.515)	(0.791)	(0.062)
REL				-0.071	-0.019	0.067
				(-4.588)***	(-5.081)***	(4.975)***
POP	0.022	-0.000	0.000	0.021	-0.000	0.001
	(1.088)	(-0.236)	(0.004)	(1.069)	(-0.216)	(0.142)
AGE	-0.003	-0.000	0.003	-0.003	-0.001	0.002
	(-3.533)***	(-1.801)*	(3.375)***	(-3.905)***	(-2.628)***	(3.059)***
EDU	0.769	0.214	0.776	0.753	0.220	0.823
	(9.180)***	(9.433)***	(10.845)***	(9.001)***	(9.654)***	(11.623)***
MARG	0.210	0.085	0.218	0.219	0.090	0.225
	(2.647)***	(4.756)***	(3.471)***	(2.767)***	(5.058)***	(3.592)***
URBAN	0.110	0.004	0.022	0.106	0.004	0.030
	(8.344)***	(1.391)	(1.974)**	(7.963)***	(1.288)	(2.683)***
MF	0.025	0.040	0.169	0.006	0.041	0.202
	(0.583)	(3.276)***	(4.331)***	(0.149)	(3.468)***	(5.099)***
MIN	-0.074	0.004	0.056	-0.061	0.003	0.032
	(-2.826)***	(0.688)	(2.646)***	(-2.360)**	(0.497)	(1.541)
SIZE	0.099	-0.016	-0.218	0.079	-0.018	-0.184
	(3.369)***	(-2.539)**	(-8.942)***	(2.759)***	(-2.874)***	(-7.754)***
EXP	0.035	0.004	0.010	0.034	0.005	0.013
	(3.474)***	(2.422)**	(1.410)	(3.406)***	(2.644)***	(1.851)*
Obs.	12,154	12,154	12,154	12,154	12,154	12,154
Adj. R^2	0.478	0.414	0.255	0.478	0.413	0.250

Notes: This table presents the regression results of local government debt (DEBT), capital expenditure (CAPX), and cash holdings (CASH) against the degree of Protestants (PROT), Catholics (CATH), and other religions (OTH). The regression is performed by ordinary least squares (OLS). The t-statistics (in parentheses) are computed using standard errors robust to both clustering at the firm level and heteroskedasticity. Constant term is included but not reported. We obtain the local government finance data from the Census of Governments conducted by the U.S. Census Bureau on all local government organizational units in 1992, 1997, 2002, and 2007 (latest data). The Census of Governments is conducted in years ending in '2' and '7'. Data are available as aggregates for counties, municipalities, towns, special districts, and school districts. We merge the local government finance data with religiosity data obtained from the Association of Religion Data Archives (ARDA). All the variables are winsorized at both the upper and lower one-percentile to reduce the effect of extreme observations. PROT is the proportion of Protestant adherents in the county. CATH is the proportion of Catholic adherents in the county. OTH is the proportion of other religious adherents in the county. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are available in the Appendix.

TABLE 5—TWO-STAGE LEAST SQUARES
SAMPLE PERIOD: 1992, 1997, 2002, AND 2007 (CENSUS YEARS)

	First-stage	Second-stage		
Dependent Variable:	REL	DEBT	CAPX	CASH
	(1)	(2)	(3)	(4)
Lagged-REL	0.739			
	(51.119)***			
Lagged-POP	0.355			
	(4.188)***			
Fitted-REL		-0.054	-0.026	0.046
		(-2.635)***	(-5.327)***	(2.591)***
POP	-0.316	0.022	-0.000	0.001
	(-4.079)***	(1.069)	(-0.156)	(0.163)
AGE	0.002	-0.004	-0.001	0.003
	(4.685)***	(-4.022)***	(-2.396)**	(3.449)***
EDU	0.037	0.774	0.223	0.830
	(1.022)	(9.259)***	(9.926)***	(11.543)***
MARG	0.230	0.217	0.090	0.258
	(7.412)***	(2.689)***	(5.011)***	(4.086)***
URBAN	0.025	0.103	0.005	0.031
	(4.034)***	(7.653)***	(1.731)*	(2.755)***
MF	-0.201	0.015	0.037	0.192
	(-8.249)***	(0.360)	(3.107)***	(4.822)***
MIN	0.056	-0.065	0.004	0.043
	(5.897)***	(-2.439)**	(0.709)	(2.038)**
PLT	-0.078	0.079	-0.019	-0.187
	(-5.459)***	(2.733)***	(-2.976)***	(-7.773)***
SIZE	0.003	0.034	0.004	0.013
	(0.833)	(3.329)***	(2.270)**	(1.812)*
EXP	-0.005	0.584	0.490	0.131
	(-0.310)	(18.361)***	(51.168)***	(4.915)***
Obs.	12,090	12,090	12,090	12,090
Adj. R^2	0.654	0.477	0.413	0.252

Notes: This table presents the two-stage least squares regression results of local government debt (DEBT), capital expenditure (CAPX), and cash holdings (CASH) against the degree of religiosity (REL). In the first stage, we regress REL against a set of instruments, and in the second stage, we regress DEBT, CAPX, and CASH against the predicted value of REL from the first stage. Constant term is included but not reported. We obtain the local government finance data from the Census of Governments conducted by the U.S. Census Bureau on all local government organizational units in 1992, 1997, 2002, and 2007 (latest data). The Census of Governments is conducted in years ending in '2' and '7'. Data are available as aggregates for counties, municipalities, towns, special districts, and school districts. We merge the local government finance data with religiosity data obtained from the Association of Religion Data Archives (ARDA). All variables are winsorized at both the upper and lower one-percentile to reduce the effect of extreme observations. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are available in the Appendix.

TABLE 6—SUBSAMPLE REGRESSION BY REGION
SAMPLE PERIOD: 1992, 1997, 2002, AND 2007 (CENSUS YEARS)

Panel A. Counties in Eastern and Western States

Dependent	Eastern Counties			Western Counties		
Variable	DEBT	CAPX	CASH	DEBT	CAPX	CASH
	(1)	(2)	(3)	(1)	(2)	(3)
REL	-0.131	-0.042	0.060	-0.037	-0.003	0.056
	(-5.384)***	(-7.310)***	(3.359)***	(-1.926)*	(-0.672)	(3.105)***
POP	0.196	-0.014	-0.036	0.005	-0.001	-0.007
	(2.716)***	(-0.967)	(-0.898)	(0.476)	(-0.503)	(-1.513)
AGE	0.000	0.000	0.002	-0.007	-0.001	0.002
	(0.089)	(0.676)	(1.675)*	(-5.456)***	(-3.201)***	(2.348)**
EDU	0.576	0.118	0.618	0.951	0.322	0.902
	(4.882)***	(4.255)***	(6.269)***	(8.392)***	(9.238)***	(11.643)***
MARG	-0.095	0.068	0.375	0.486	0.134	0.256
	(-0.891)	(2.931)***	(4.654)***	(4.079)***	(5.171)***	(2.876)***
URBAN	0.128	0.003	0.074	0.085	0.009	-0.022
	(6.715)***	(0.699)	(4.747)***	(4.440)***	(2.104)**	(-1.479)
MF	0.037	0.031	0.062	0.101	0.033	0.203
	(0.633)	(1.881)*	(1.385)	(2.027)**	(2.362)**	(3.284)***
MIN	-0.132	0.017	0.176	-0.153	0.019	0.066
	(-4.126)***	(2.349)**	(7.215)***	(-2.689)***	(1.566)	(1.540)
PLT	-0.101	-0.057	-0.278	0.235	0.013	-0.046
	(-2.555)**	(-6.603)***	(-8.783)***	(5.754)***	(1.381)	(-1.368)
SIZE	-0.012	0.012	0.016	0.042	0.002	0.027
	(-0.505)	(2.530)**	(0.974)	(3.892)***	(1.170)	(3.821)***
EXP	0.595	0.490	0.125	0.543	0.485	0.102
	(13.546)***	(37.831)***	(3.403)***	(11.803)***	(35.012)***	(2.660)***
Obs.	6,352	6,352	6,352	5,802	5,802	5,802
Adj. R^2	0.488	0.420	0.253	0.492	0.421	0.269

Panel B. Rural and Urban Counties

Dependent	Rural Counties			Urban Counties		
Variable	DEBT	CAPX	CASH	DEBT	CAPX	CASH
	(1)	(2)	(3)	(1)	(2)	(3)
REL	-0.025	-0.009	0.078	-0.004	-0.033	0.030
	(-2.416)**	(-1.669)*	(4.164)***	(-2.164)**	(-5.859)***	(1.695)*
POP	4.474	0.283	-3.507	0.007	-0.000	-0.003
	(6.591)***	(1.305)	(-5.116)***	(0.600)	(-0.186)	(-0.309)
AGE	-0.004	-0.001	0.000	0.001	-0.000	0.001
	(-3.224)***	(-3.540)***	(0.271)	(0.725)	(-0.655)	(1.005)
EDU	0.706	0.277	1.143	0.841	0.165	0.446
	(5.580)***	(7.079)***	(12.031)***	(7.614)***	(6.607)***	(5.168)***
MARG	-0.020	0.028	0.308	0.205	0.115	0.264
	(-0.196)	(1.077)	(3.014)***	(1.885)*	(4.974)***	(3.395)***
URBAN	-0.013	-0.012	0.036	0.081	0.022	0.134
	(-0.786)	(-2.925)***	(2.282)**	(3.750)***	(4.349)***	(8.456)***
MF	0.031	0.038	0.116	0.197	0.049	0.211
	(0.799)	(2.802)***	(2.690)***	(1.907)*	(2.356)**	(3.290)***
MIN	-0.149	-0.024	0.005	0.011	0.019	0.031
	(-4.232)***	(-2.653)***	(0.176)	(0.325)	(2.339)**	(1.095)
PLT	0.176	0.008	-0.075	-0.173	-0.057	-0.191

	(4.867)***	(0.896)	(-2.275)**	(-3.872)***	(-6.178)***	(-5.710)***
SIZE	0.083	0.032	-0.055	0.042	0.004	0.012
	(1.437)	(0.792)	(-1.000)	(4.424)***	(2.411)**	(1.792)*
EXP	0.407	0.454	0.077	0.713	0.535	0.263
	(10.007)***	(33.710)***	(2.093)**	(15.070)***	(44.346)***	(7.601)***
Obs.	6,078	6,078	6,078	6,076	6,076	6,076
Adj. R^2	0.383	0.357	0.251	0.556	0.485	0.295

Panel C. Counties by State Name

Dependent Variable	Counties in States starting with a letter before N			Counties States starting with a letter on or after N		
	DEBT	CAPX	CASH	DEBT	CAPX	CASH
	(1)	(2)	(3)	(1)	(2)	(3)
REL	-0.085	-0.013	0.034	-0.070	-0.021	0.088
	(-4.025)***	(-2.383)**	(2.016)**	(-3.220)***	(-4.000)***	(4.205)***
POP	0.005	-0.003	-0.010	0.259	0.007	0.001
	(0.437)	(-1.186)	(-1.217)	(2.565)**	(0.601)	(0.034)
AGE	-0.004	-0.000	0.004	-0.003	-0.001	-0.001
	(-3.345)***	(-0.511)	(4.372)***	(-2.450)**	(-4.045)***	(-0.481)
EDU	0.799	0.279	0.867	0.698	0.164	0.742
	(6.806)***	(9.047)***	(8.901)***	(5.707)***	(5.403)***	(7.362)***
MARG	0.249	0.150	0.224	0.142	0.037	0.169
	(2.222)**	(5.413)***	(2.645)***	(1.265)	(1.669)*	(1.961)*
URBAN	0.091	0.010	0.043	0.115	-0.003	0.002
	(4.884)***	(2.287)**	(3.141)***	(5.989)***	(-0.765)	(0.129)
MF	-0.070	0.047	0.149	0.096	0.026	0.229
	(-1.863)*	(2.733)***	(3.172)***	(1.274)	(1.563)	(3.847)***
MIN	-0.118	0.018	-0.018	-0.005	-0.008	0.065
	(-3.063)***	(1.919)*	(-0.567)	(-0.137)	(-0.995)	(2.478)**
PLT	0.151	0.000	-0.002	0.003	-0.042	-0.374
	(4.188)***	(0.048)	(-0.061)	(0.060)	(-4.505)***	(-10.647)***
SIZE	0.037	0.006	0.024	-0.029	0.002	0.004
	(3.311)***	(2.723)***	(3.235)***	(-0.968)	(0.485)	(0.295)
EXP	0.498	0.471	0.155	0.641	0.505	0.125
	(11.747)***	(34.293)***	(4.374)***	(14.402)***	(39.322)***	(3.232)***
Obs.	6,446	6,446	6,446	5,708	5,708	5,708
Adj. R^2	0.507	0.408	0.284	0.456	0.428	0.256

Notes: This table presents regression results for local government debt, capital expenditure (CAPX), and cash holdings (CASH) against the degree of religiosity (REL) for subsamples by region. The regression is performed by ordinary least squares (OLS). The t-statistics (in parentheses) are computed using standard errors robust to both clustering at the firm level and heteroskedasticity. Constant term is included but not reported. We obtain the local government finance data from the Census of Governments conducted by the U.S. Census Bureau on all local government organizational units in 1992, 1997, 2002, and 2007 (latest data). The Census of Governments is conducted in years ending in '2' and '7'. Data are available as aggregates for counties, municipalities, towns, special districts, and school districts. We merge the local government finance data with religiosity data obtained from the Association of Religion Data Archives (ARDA). All variables are winsorized at both the upper and lower one-percentile to reduce the effect of extreme observations. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively. Variable definitions are available in the Appendix.

TABLE 7—ADDITIONAL CONTROL VARIABLES
SAMPLE PERIOD: 1992, 1997, 2002, AND 2007 (CENSUS YEARS)

Dependent Variable	DEBT	CAPX	CASH
	(1)	(2)	(3)
REL	-0.076	-0.021	0.054
	(-4.623)***	(-5.564)***	(3.593)***
POP	0.086	0.004	-0.010
	(1.829)*	(0.989)	(-0.462)
AGE	-0.002	-0.001	0.000
	(-2.649)***	(-4.526)***	(0.334)
EDU	0.789	0.208	0.728
	(8.349)***	(9.092)***	(10.800)***
MARG	0.153	0.066	0.206
	(1.799)*	(3.784)***	(3.645)***
URBAN	0.105	-0.001	0.006
	(7.622)***	(-0.460)	(0.559)
MF	0.051	0.011	0.021
	(1.101)	(0.997)	(0.565)
MIN	-0.047	-0.007	0.014
	(-1.417)	(-1.006)	(0.621)
PLT	0.021	-0.009	-0.096
	(0.675)	(-1.427)	(-4.049)***
SIZE	0.014	0.004	0.009
	(0.844)	(1.750)*	(0.910)
EXP	0.561	0.494	0.153
	(17.172)***	(52.239)***	(5.798)***
EDP	-0.015	0.002	0.048
	(-1.613)	(1.100)	(6.745)***
EXDP	0.000	0.000	0.001
	(0.448)	(0.945)	(8.280)***
PRN	3.951	-4.311	-4.134
	(1.391)	(-5.855)***	(-1.644)
AC	-0.005	0.001	0.010
	(-4.477)***	(3.122)***	(10.924)***
AB	-0.000	0.000	0.000
	(-0.344)	(0.487)	(0.147)
NY	0.054	-0.034	-0.141
	(2.814)***	(-9.256)***	(-11.087)***
BARANK	0.001	-0.000	-0.001
	(1.066)	(-2.216)**	(-1.894)*
BCRANK	0.000	0.000	-0.000
	(0.507)	(0.739)	(-0.599)
LSRANK	-0.000	0.000	0.001
	(-0.458)	(1.384)	(2.078)**
RERANK	0.000	-0.000	-0.000
	(0.789)	(-4.363)***	(-1.252)
ECRANK	0.000	0.001	0.001
	(0.688)	(9.574)***	(5.406)***
GPRANK	-0.002	-0.001	0.001
	(-6.030)***	(-7.108)***	(2.702)***
QLRANK	-0.002	-0.000	-0.002
	(-3.418)***	(-1.248)	(-5.419)***
Obs.	11,710	11,710	11,710
Adj. R^2	0.489	0.455	0.314

Notes: This table presents regression results of local government debt, capital expenditure (CAPX) and cash holdings (CASH) against the degree of religiosity (REL) with additional control variables. The results are presented in three columns. The regression is performed by ordinary least squares (OLS). The t-statistics (in parentheses) are computed using standard errors robust to both clustering at the firm level and heteroskedasticity. Constant term is included but not reported. We obtain the local government finance data from the Census of Governments conducted by the U.S. Census Bureau on all local government organizational units in 1992, 1997, 2002, and 2007 (latest data). The Census of Governments is conducted in years ending in '2' and '7'. Data are available as aggregates for counties, municipalities, towns, special districts, and school districts. We merge the local government finance data with religiosity data obtained from the Association of Religion Data Archives (ARDA). All variables are winsorized at both the upper and lower one-percentile to reduce the effect of extreme observations. EDP is a dummy variable indicating the existence of a death penalty law in the state. EXDP is the number of prisoner executions in the state between 1976 and 2000. PRN is the percentage of the state's population that is incarcerated. AC is the alcohol consumption rate in the state. AB is the abortion rate in the state. NY is the log number of years the state has been part of the U.S. BARANK is the state's business attractiveness rank. BCRANK is the state's business costs rank. LSRANK is the state's labor supply rank, and RERANK is the state's regulatory environment. ECRANK is the state's economic climate rank. GPRANK is the state's growth prospects rank. QLRANK is the state's quality of life rank. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are available in the Appendix.

TABLE 8—RANDOM-EFFECT PANEL REGRESSION
SAMPLE PERIOD: 1992, 1997, 2002, AND 2007 (CENSUS YEARS)

Dependent Variable	DEBT	CAPX	CASH
	(1)	(2)	(3)
REL	-0.025	-0.015	0.034
	(-2.627)***	(-3.981)***	(2.661)***
POP	0.111	-0.002	-0.010
	(1.672)*	(-0.899)	(-0.805)
AGE	-0.009	-0.000	0.007
	(-10.567)***	(-2.210)**	(11.345)***
EDU	0.738	0.224	0.901
	(8.667)***	(9.742)***	(13.040)***
MARG	0.829	0.090	-0.199
	(11.368)***	(5.809)***	(-3.676)***
URBAN	0.115	0.004	0.034
	(8.212)***	(1.185)	(3.271)***
MF	-0.084	0.029	0.210
	(-2.006)**	(2.663)***	(5.827)***
MIN	-0.110	0.006	0.083
	(-4.167)***	(0.954)	(3.868)***
PLT	0.488	-0.019	-0.451
	(21.238)***	(-3.461)***	(-24.344)***
SIZE	-0.030	0.006	0.019
	(-1.442)	(3.249)***	(2.844)***
EXP	0.850	0.506	0.339
	(23.629)***	(60.041)***	(15.712)***
Obs.	12,154	12,154	12,154
Overall R^2	0.131	0.409	0.132

Notes: This table presents the random-effect regression results of local government debt (DEBT), capital expenditure (CAPX), and cash holdings (CASH) against the degree of religiosity (REL). The regression is performed by random-effect panel regression. The t-statistics (in parentheses) are computed using standard errors robust to both clustering at the firm level and heteroskedasticity. Constant term is included but not reported. We obtain the local government finance data from the Census of Governments conducted by the U.S. Census Bureau on all local government organizational units in 1992, 1997, 2002, and 2007 (latest data). The Census of Governments is conducted in years ending in '2' and '7'. Data are available as aggregates for counties, municipalities, towns, special districts, and school districts. We merge the local government finance data with religiosity data obtained from the Association of Religion Data Archives (ARDA). All variables are winsorized at both the upper and lower one-percentile to reduce the effect of extreme observations. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are available in the Appendix.