



Religion and bank loan terms[☆]



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ABSTRACT

We examine whether religion affects the terms of bank loans. We hypothesize that lenders value the traits of religious adherents, such as risk aversion, ethical behavior and honesty, and thus offer favorable loan terms to religious borrowers. Consistent with this hypothesis, we find that corporate borrowers located in counties with a high level of religiosity are charged lower interest rates, have larger loan amounts and fewer loan covenants. These results suggest that the corporate culture of borrowers influences the availability and cost of bank loans.

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1. Introduction

Departing from the traditional view that firms' decisions are made after careful economic calculations, a growing literature in social finance shows that corporate behavior is also shaped by the social norms surrounding the firms, such as prevailing religious beliefs around firms' headquarters. For example, firms headquartered in more religious counties tend to take less risk and maintain higher profitability (Hilary and Hui, 2009), have more transparent financial reporting and less accruals manipulations (Dyreg et al., 2012; McGuire et al., 2012), and are less likely to engage in unethical behavior, such as backdating stock options and granting excessive compensation to managers (Grullon et al., 2010). Arguing that managers and employees are likely to be bounded by local religious norms, these studies suggest that firms located in more religious areas tend to exhibit more conservative and ethical behavior.

Our study aims to extend this stream of research by investigating whether the market understands and values corporate behavior that is driven by religions. In particular, we study if one important group of stakeholders, namely bank lenders, appreciates

and rewards the conservative and ethical behavior of firms located in more religious areas. This study is important for two reasons. First, rational economic agents would expect good corporate behavior to be rewarded by the market, which provides incentives for them to behave ethically.² Finding evidence that the markets reward good corporate behavior related to religious social norms would provide economic support to prior studies in social finance and religions. Second, bank loans have become the predominant source of external financing for U.S. companies. In 2007, for example, large U.S. corporations raised a record \$2,282 billion new capital from the syndicated loan market, compared with \$168 billion from the equity market.³ Levine and Zervos (1998) find that bank loans are strongly and positively related to economic growth across countries. It is thus important to understand how banks make lending decisions and whether non-financial information, such as religious social norms, affects the terms of loan contracts.

We argue that banks are more likely to give better prices and lower loan spreads to corporate borrowers located in more religious areas for two reasons. First, firms in more religious areas exhibit observable characteristics that are associated with lower

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² Although fulfilling religious social norms by itself would bring positive utility for religious adherents, economic rewards would provide consistent incentives for individuals to behave ethically. In other words, if economic incentives conflict with social norms, it is unclear whether one can still uphold moral standards to refrain from unethical behavior.

³ The loan data is from Dealscan and is aggregated by Ivashina and Scharfstein (2010). The data on equity issuance is from Federal Reserve System.

risk. As documented in Hilary and Hui (2009), more religious firms tend to be more risk averse, have lower leverage, take less risky projects and report higher profitability. These characteristics suggest that more religious firms are less likely to default, thus warranting a lower loan spread.⁴ Furthermore, more religious firms have more transparent financial reporting and therefore present less information risk for banks (Dyreng et al., 2012; McGuire et al., 2012). Finally, to the extent that religious social norms constraint agency problems (Grullon et al., 2010), including the conflicts between shareholders and creditors, banks may face a lower risk of being expropriated and disadvantaged by insiders and shareholders when dealing with more religious firms.

Second, religiosity may serve as a signal of unobservable characteristics that banks can use as soft information to adjust their pricing of loans. For example, religious social norms usually require adherents to be honest (Weaver and Agle, 2002). Dealing with honest borrowers will allow banks to reduce the cost associated with validating information and monitoring firms' performance. As another example, religiosity fosters trust (Guiso et al., 2003), and trust is critical in lending. In the words of J. P. Morgan, "A man I do not trust could not get money from me on all the bonds in Christendom." Duarte et al. (2012) find that people who just appear more trustworthy are more likely to obtain loans. Therefore, if religiosity signals that a borrower is trustable, banks may give more favorable considerations to a religious borrower.

To test the effect of religion on bank loan pricing, we collect data for a sample of 8355 loans taken out by 1500 U.S. companies located in 302 counties (45 states). Following Hilary and Hui (2009), we measure the religiosity of a firm by the ratio of religious adherents to the population of the county where the firm is headquartered. This ratio captures the strength of religious social norms in communities surrounding the firm's headquarters and provides a plausible measure of employees' religiosity for two reasons. First, employees working at the headquarters are likely to come from local communities and thus firms located in religious regions are likely to have a larger proportion of religious employees. Second, according to social norm theory, individuals tend to conform to the dominant values and the behavior of people around them (Cialdini and Trost, 1998). As a result, people in religious areas, including those who may not subscribe to a religious belief, are likely to behave in a way consistent with the norms of the religious adherents with whom they interact inside or outside work.

The results show a strong negative association between loan spread and the level of religiosity in the county where a firm is headquartered. The result holds after we control for a number of firm characteristics and loan characteristics, as well as fixed effects for industry, year, loan purpose, and loan type. More importantly, the negative association between loan spread and religiosity remains significant after we control for observable risk measures, such as leverage, profitability and Altman's Z-score, suggesting that religiosity may serve as a signal of unobservable factors, such as honesty and trustworthiness. The effect of religion on loan spread is also economically significant. For example, if we divide the sample of loans into two groups based on the median level of religiosity, moving from low religiosity counties to high religiosity counties would lead to a reduction of about 8.9 basis points in loan spread. The relation between religiosity and bank loan spread survives after we address potential endogeneity issues. The relation is stronger for firms with only one geographic location, suggesting that religiosity of headquarters has a weaker impact on bank loan cost for geographically dispersed firms. The relation is also stronger for firms with weak corporate governance, measured by

G-score constructed by Gompers et al. (2003), implying that religious social norms play a more important role for firms with inherent governance problems.

We also find evidence that religiosity is related to non-pricing loan terms. More specifically, we show that bank loans to corporate borrowers located in more religious areas have fewer covenant constraints, particularly those covenants that are based on financial information. More religious corporate borrowers get larger loans from banks, after controlling for firm and loan characteristics. Collectively, our evidence suggests that religiosity of corporate borrowers is an important determinant of both pricing and non-pricing terms of bank loans.

In a recent study, Giannetti and Yafeh (2012) examine whether culture differences between foreign lenders and local borrowers affect loan terms in the international syndicate loan market. Measuring culture differences at country level, they show that more culturally distant lead banks offer borrowers smaller loans at higher interest rates, suggesting that differences in national culture impact the process and outcomes of loan negotiations. To the extent that companies and banks located in the same county share the same religion and culture, our results are consistent with their findings that culture similarity facilitates loan negotiation. However, our study differs from Giannetti and Yafeh (2012) in two important ways. First, we examine religion, a relatively well-defined aspect of culture, while the measure of culture in Giannetti and Yafeh (2012) captures how much people value traditions and self-expression. Second, we focus on the U.S. market where financial development and competition among banks are relatively homogenous across counties. This helps avoid compounding effects of institutional factors that could be correlated with culture difference in cross-country studies.

Our study contributes to the literature in a number of ways. First, we show that qualitative characteristics, such as corporate culture and religion, could have a significant impact on the contracting outcomes of bank loans. This important finding complements prior literature that focuses on default risk and information asymmetry (see, for example, Sufi, 2007; Roberts and Sufi, 2009; Bharath et al., 2011). Together with Giannetti and Yafeh (2012), we provide large sample evidence on the effect of culture on the outcomes of bank loan negotiation.

Second, this study extends a growing literature on the role of religion in the economic development and financial markets. One stream of research examines the relation between religion and macroeconomic activities. Weber (1905) and Barro and McCleary (2003) relate religion to economic growth. Stulz and Williamson (2003) show that a country's principal religion predicts the cross-country variations in creditor rights. Guiso et al. (2003) find that, across countries, religious beliefs are associated with economic attitudes that are conducive to higher per capita income and growth. Guiso et al. (2009) document that sharing the same religious belief facilitates foreign direct investments between two countries. Our contribution to this stream of literature is to show that, at firm level, religion is associated with lower cost of external financing, which allows firms the financial flexibility to take up more growth opportunities. This evidence provides a potential explanation to how religion facilitates economic growth in a country.

Another stream of research shows that firms located in more religious counties in the U.S. have lower risk exposures (Hilary and Hui, 2009), less optimistically biased financial reporting (Dyreng et al., 2012; McGuire et al., 2012), and fewer unethical misconducts (Grullon et al., 2010). Our results indicate that these religion-induced behaviors may have favorable consequences in loan contracting with banks and other lenders. Therefore, we add to the growing literature on social finance that studies how social norms, moral attitudes, religions and ideologies affect financial behaviors (Hirshleifer, 2014).

⁴ Baele et al. (2014) examines the default rate of Islamic loans using data from Pakistan over the period from 2006 to 2008. They find that Islamic loans are less likely to default than the conventional loans, particularly during Ramadan.

The remainder of this paper is structured as follows. Section 2 reviews the related literature and develops the hypotheses. Section 3 specifies our empirical models for hypothesis testing and discusses sample selection. Section 4 presents empirical results from univariate tests and multivariate regressions. Section 5 summarizes the findings and concludes.

2. Prior studies and hypothesis development

2.1. Religion and corporate behavior

More recently, some researchers investigate whether religion, as part of corporate culture, has an impact on firm behavior.⁵ This stream of research commonly uses the religiosity of the population surrounding a company's headquarters as a proxy for religious social norms within the company. The interest in the religiosity of residents around a firm's headquarters arises from the fact that a large portion of a company's workforce likely comes from local communities, and thus the dominant local culture and social norms should influence the corporate culture and corporate behavior. Theories in personal psychology and social norms suggest that characteristics of individuals are likely to affect organizational behavior. For example, [Schneider \(1987\)](#) suggests that "attraction to an organization, selection by it and attrition from it yield particular kinds of persons in an organization. These people determine organizational behavior". Social norm theory also indicates that people tend to conform to the dominant values, norms and behavior of their groups ([Cialdini and Trost, 1998](#)). This theory suggests that not only religious adherents are subject to the religious social norms and teaching, but also non-adherents will likely follow such norms if they frequently interact with the religious adherents who dominate in the local population. Therefore, the firm's corporate culture and firm behavior will be aligned with the local environment, and in areas of high religiosity firms are likely to exhibit characteristics of those religious adherents.

Researchers have linked some traits of religious adherents to firm behaviors. For example, one notable trait of religious adherents is risk aversion, and, relative to non-adherents, adherents have stronger distaste for risk.⁶ The trait of risk aversion implies that firms in areas of high religiosity should make decisions to minimize firm risk. Consistent with this view, [Hilary and Hui \(2009\)](#) document that firms located in counties with higher levels of religiosity display a lower degree of risk exposure, as measured by variances in equity returns or return on assets and research and development intensity. [Grullon et al. \(2010\)](#) and [McGuire et al. \(2012\)](#) show that firms located in highly religious counties are less likely to be the target of lawsuits, consistent with these firms taking actions to minimize litigation risk.

Another trait of religious adherents is honesty. Although there is mixed evidence on whether religious individuals are more honest than the non-religious ones ([Weaver and Agle, 2002](#)), literature suggests that all individuals, both religious and non-religious, hold honesty as an internalized moral norm in order to maintain positive self-concept ([Mazar et al., 2008](#)). Religion can play a role in reminding people to pay attention to internalized moral norms. In experiments, [Mazar et al. \(2008\)](#) show that, in situations where subjects have incentives to misreport for monetary gain, a simple

religious "moral code reminder" of reciting the Ten Commandments is effective in curbing dishonest reporting. Linking the honesty trait to corporate financial reporting, [Dyreng et al. \(2012\)](#) find that firms headquartered in highly religious counties are less likely to overstate their earnings, revenues and assets. These firms are also less likely to engage in tax avoidance and tax sheltering, and are more forthcoming with releasing bad news. In another study, [Grullon et al. \(2010\)](#) show that firms in more religious areas are less likely to backdate option grants which would give managers unfair monetary gains.

Fairness is also an essential part of the moral code of most religions. Behaving fairly requires individuals not to abuse their position to take advantage of other people. In corporations, religious social norms would discourage managers from expropriating other stakeholders using their control of companies' resources. The evidence from [Grullon et al. \(2010\)](#) shows that firms located in highly religious counties are less likely to engage in unethical behaviors and grant excessive compensation packages to their managers. This evidence suggests that religious social norms might be an effective corporate governance mechanism that prevents some agency conflicts.

2.2. Religion and loan contracting

In the loan market, banks and lenders are concerned with various risks, including default risk, information risk and risks associated with agency conflicts. We argue that these risks, to some extent, can be mitigated by the common traits of the religious adherents and moral teaching in churches. As a result, firms subjected to religious social norms might be able to enjoy favorable loan terms from banks.

Default risk is a major concern for banks and a key determinant of loan terms. Higher default risk implies that banks have higher likelihood of not receiving interest payments on time and recovering the principal in the future. As a result, banks usually are unwilling to grant loans to companies with high default risk; and if banks do provide loans, they charge higher interest rates or give only small loans to these companies. A company's default risk, and its risk exposure in general, is likely to be affected by the company's risk attitude. More risk averse companies and managers are unlikely to undertake projects that will significantly increase their risk. Nor will they build up excessive debt and liabilities in their balance sheet that cannot be adequately supported by their earnings and cash flows. If firms located in religious areas are more risk averse, as documented by [Hilary and Hui \(2009\)](#), we expect that these firms would have lower default risk and enjoy more favorable loan terms from banks and lenders.

Information risk arises because banks usually use financial information from the company to make a loan decision and to monitor loan performance. Accounting information provided by companies could be manipulated and misleading, particularly if companies are going to raise external capital ([Teoh et al., 1998a, b; Caton et al., 2011](#)). Such misleading accounting information is unlikely to provide banks with a reliable assessment of a firm's performance and financial risk. It also increases the costs and difficulties associated with monitoring the loan performance in the future. Therefore, poor accounting quality and high information risk are related to higher cost of debt in terms of higher interest rate, smaller loan amount and more restrictive covenants ([Bharath et al., 2008](#)). If the honesty trait of religious adherents encourages firms to provide more truthful and reliable financial information, as documented by [Dyreng et al. \(2012\)](#), [McGuire et al. \(2012\)](#) and [Grullon et al. \(2010\)](#), we would expect that companies located in religious counties have smaller information risk and enjoy more favorable loan terms.

⁵ A number of recent studies examine the effect of religion on investors' behavior. For example, [Kumar et al. \(2011\)](#) investigate the relation between religious beliefs and investors' preference for risky investments. [Pantazis and Ucar \(2014\)](#) show that investors with Christian belief are likely to be distracted by Easter holidays in the week before the Easter.

⁶ One possible explanation for higher risk aversion of religious adherents is that anxiety mediates the relation between religiosity and risk aversion. Studies of religious entities suggest that risk-averse individuals seek religion to reduce the subjective amount of anxiety about risk and uncertainty in their lives ([Miller, 2000](#)).

Banks are also concerned with two types of agency conflicts within the firm that may result in lower future cash flow or higher default risk. The first type is conflict between managers and all external stakeholders, including both shareholders and debtholders. Because of information asymmetry, self-interested managers have incentives to pursue their own interests at the expense of external stakeholders, in forms of shirking, consumption of perquisites, excessive compensation, and corporate empire building (Shleifer and Vishny, 1997). Self-interested managerial behavior decreases the expected value of future cash flow available to the firm and its external stockholders and increases the default risk of the firm (Ashbaugh-Skaife et al., 2006). The second type of agency conflict is the conflict between shareholders and debtholders. In leveraged firms, shareholders have incentives to transfer wealth from debtholders to themselves in the form of direct payouts of firm assets (e.g. dividend payments) or taking on excessively risky projects at times when the firm is in financial distress. Consequently, debtholders have to bear the risk that they will be expropriated by shareholders when they want to exercise the contractual rights to make a claim on a firm's assets in case of financial distress.

If the religious trait of fairness effectively discourages managers from exploiting other stakeholders and discourages shareholders from exploiting debtholders, we expect that firms located in more religious areas have less conflict between managers and external stakeholders, as well as between shareholders and debtholders. As a result, these firms may be assessed as having lower risk and thus enjoy better loan terms from banks.

In summary, we argue that the three traits associated with religious people may be viewed favorably by banks since these traits have been demonstrated to be related to lower corporate risk, more honest financial reporting, and less agency conflict. We therefore predict that firms located in more religious regions will obtain more favorable loan terms from bank lenders.

3. Research design

3.1. Empirical model

To test our predictions, we estimate the following regression model for firm i in year t :

$$\text{Loan Terms}_{i,t} = \beta_0 + \beta_1 \text{Religiosity}_{i,t} + \sum_k \text{Control}_{i,t}^k + \text{Fixed Effects} + \varepsilon_{i,t} \quad (1)$$

where *Loan Terms* represents one of the three loan contractual features. The first one is a price term measured by the natural log of “drawn all-in spread” (*Spread*), which is the all-inclusive cost of a drawn loan to the borrower, including the coupon spread over LIBOR rate on the drawn amount plus the annual rate. “Drawn all-in spread” (*AISD*) is quoted in basis points, as per convention. The second feature is the number of loan covenants (*Covenants*), with more covenants indicating more restrictive and more expensive loans. In general, loan covenants can be classified into two types: financial covenants that are based on financial numbers, and general covenants that restrict certain corporate decisions, such as paying dividends. In empirical tests, we also examine these two types of covenants separately. The third feature is the loan availability measured by the natural log of loan amount (*Loan Size*). *Religiosity* is the measure of religiosity in a county, as described below.

We estimate the model using ordinary least square regressions with year fixed effects to control for time-series changes in interest rates and credit conditions. Since one loan package could have several facilities, we use robust standard errors adjusted for clustering

effect at firm level. Based on our hypotheses, we expect that *Religiosity* is negatively associated with *Spread* and *Covenants*, but is positively associated with *Loan Size*.

3.2. Measures of religiosity

To measure the level of religious participation in a county, we follow prior studies and use data from the Religious Congregations Membership Study (RCMS), which is available from the website of the Association of Religion Data Archives (www.arda.com). Every ten years, the U.S. domiciled denominations listed in the Yearbook of American Churches are approached and asked to report the number of churches, members and adherents in each county. The Association of Statisticians of American Religious Bodies (ASARB) compiles the survey data and prepares the Religious Congregations Membership Study, which reports county-by-county data on the number of churches and the total number of adherents by religious affiliation.

As in Hilary and Hui (2009), we measure the level of religiosity in a county by the total number of adherents reported by all denominations divided by the total population in the county. We obtain the RCMS data from surveys in 1980, 1990, 2000, and 2010. To construct religiosity measures for the years between these survey years, we follow Hilary and Hui (2009) to linearly interpolate the data for every decade, since religious adherent rates in a county are relatively stable over time.

There are potentially two issues related to the RCMS data. The first is that only about 50% of denominations approached responded to the survey, which implies that the data may be incomplete for a number of denominations and counties.⁷ However, the survey seems to capture most large congregations, with the total reported adherents across all counties representing about 90% of the total adherents listed in the Yearbook of American Churches. The second issue is the ambiguity and inconsistency in defining a member or an adherent, with each congregation given the discretion to make their own judgment.⁸ This would introduce noise to our measure of religiosity, and we caution readers of this potential problem. In an attempt to mitigate the effect of the measurement error, we use the number of churches per capita as an alternative measure of religiosity, since the number of churches is less ambiguous and easier to verify. Consistent with results in Grullon et al. (2010), this alternative measure gives very similar results (untabulated), suggesting that noise in our religion measure should not materially affect our results.

3.3. Control variables

We include a number of borrower-specific and loan-specific control variables, selected on the basis of prior research. In particular, we control for borrowers' total assets (*Assets*, the natural log of total assets), tangible assets (*Tangibility*, the ratio of tangible assets to total assets), and market-to-book ratio (*MB*, the ratio of market value of equity to book value of equity). Prior studies show that these borrower characteristics are closely related to default risk and thus loan terms. For example, Kim et al. (2011) show that large, profitable and less leveraged borrowers have smaller loan spreads and larger loan amounts. Bharath et al. (2008) find that

⁷ Another sampling issue is that a number of African-American denominations were not asked to participate in the RCMS, resulting in undercount of total adherents and churches in some counties (Finke and Scheitle, 2005).

⁸ One could argue that congregations have incentives to overstate the number of adherents if a larger number of adherents may help get more resources and influence. Overstating adherent numbers may violate the religious norms of being honest. We would believe that the ambiguity in defining an adherent might be the key reason for the errors in counting the adherents.

Table 1

Sample selection and distribution. Panel A reports the sample selection procedure. Panel B shows the top 5 states with highest religiosity and the bottom 5 states with lowest religiosity. The final sample consists of 8355 loan facilities from 1987 to 2007.

Panel A: Sample selection procedure						
						Number of observations
Loan sample from DealScan database						38,892
After merging with Compustat firm-year sample						21,700
Only keep firm-year observations with complete religiosity info						12,357
After removing firms with missing loan characteristic info						8355
Final loan Sample						8355
Panel B: States with the lowest and highest religiosity						
States with lowest religiosity				States with highest religiosity		
	Mean Religiosity	Median Religiosity	Number of loans		Mean Religiosity	Median Religiosity
Idaho	0.315	0.281	9	Louisiana	0.665	0.662
Nevada	0.352	0.361	58	Massachusetts	0.667	0.675
Washington	0.366	0.373	137	Utah	0.707	0.698
Maine	0.368	0.368	30	Rhode Island	0.737	0.741
Oregon	0.380	0.408	114	Virginia	0.822	0.539
						209

borrowers with high market-to-book ratio and more tangible assets tend to have smaller loan spreads.

More importantly, we control for observable proxies for firms' credit risk, including profitability (*ROA*, the ratio of net income to total assets), leverage (*Leverage*, the ratio of total debt to total assets), interest coverage (*Coverage*, the ratio of operating income to interest expenses), and current ratio (*Current Ratio*, the ratio of current assets to current liabilities).⁹ We include Altman's Z-score (Z-score) in the model as an explicit control for a firm's financial distress.¹⁰ Following Bharath et al. (2008) we also control for accounting opaqueness (*Accrual*) measured by the absolute value of discretionary accruals estimated from the cross-sectional Jones (1991) model. We also control for audit quality by including an indicator variable for the clients of Big N auditors (*BigN*), as Chi et al. (2015) show that auditor choice may affect loan spread. These control variables are important because prior studies have shown that the level of religiosity of the population surrounding a firm's headquarter affects the firm's risk profile and accounting quality (Hilary and Hui, 2009; Dyreng et al., 2012; McGuire et al., 2012). Bharath et al. (2011) show that prior lending relationship is an important determinant of loan terms. Consequently, we also use an indicator variable, *Relationship*, to control for the relationship in lending.

Prior studies on bank loan contracts also find that several loan-specific features are related to both price and non-price terms of loan contracts (see, e.g., Bharath et al., 2008; Chava et al., 2009). Following these studies, we include in regressions the natural log of loan amount (*Loan Size*), the natural log of maturity period (*Loan Maturity*), and a dummy variable for secured loans (*Secured*). Bank loans in our sample have different types and include term loans, revolving lines of credit, and 364-day facilities, with the majority of loans being term loans and lines of credit. Loans also have different purposes, which may be associated with different risks and terms. Following Giannetti and Yafeh (2012), we include in regressions fixed effects for each loan type and each loan purpose. To save space, the coefficients for these fixed-effects are not reported in the tables.

3.4. Sample and data

Panel A in Table 1 outlines our sample selection procedure. Our sample begins with the loan data for the U.S. corporate borrowers

in the DealScan database for the period from 1987 to 2007. From the DealScan database, we obtain information about the borrowers and both the price and non-price terms of the loans. Some loan packages or deals consist of several facilities for the same borrower but with different types. Following prior studies, we consider each facility as a separate sample observation. The loans data are then merged with the Compustat database in order to obtain financial accounting information to compute borrower characteristics. Finally, we match borrowers' headquarter locations with the counties in the religion database to obtain measures of religiosity. After removing loan observations with missing accounting and religion data, we arrive at our final sample which consists of 8355 loans taken out by 1500 U.S. companies located in 302 counties (45 states).

Panel B presents the states with the highest and lowest adherent rates in our sample of bank loans. The top five states with the highest rates are Louisiana, Massachusetts, Utah, Rhode Island and Virginia. More than two thirds of the population in these states are religious adherents. The least religious states include Idaho, Nevada, Washington, Maine and Oregon, with the average adherent rate below 40%. This geographic distribution of religious adherents is largely consistent with that reported in prior studies.

4. Empirical results

4.1. Univariate test

We start our empirical analyses with a univariate test by comparing the loan terms in counties with above and below median level of religiosity. Table 2 presents the test result. In the counties with above median religiosity (average adherent rate = 0.631), the average "draw all-in spread" (*AISD*) is 192.791 basis points with a median of 175 basis points. By comparison, in counties with below median religiosity (average adherent rate = 0.447), the mean and median *AISD* are 209.164 and 200 basis points, respectively. Bank loans for borrowers located in high religiosity counties have a larger loan size (mean = 18.429, median = 18.644 for logarithm of loan amount) than those in low religiosity counties (mean = 18.243, median = 18.469 for logarithm of loan amount). The differences in loan spread and loan size between high and low religiosity counties are statistically significant at 1% level for both the mean and the median. Borrowers in high religiosity counties are less likely to be asked to provide collaterals and tend to have fewer loan covenants. Overall, the result from the univariate test is supportive of our hypothesis that religiosity of a firm could have a significant impact on bank loan terms.

⁹ The correlation table of key control variables is available upon request by interested readers.

¹⁰ We use original Altman's Z-score model: $Z\text{-score} = 1.2 \times (\text{net working capital}/\text{total assets}) + 1.4 \times (\text{retained earnings}/\text{total assets}) + 3.3 \times (\text{Earnings before interest and tax}/\text{total assets}) + 0.6 \times (\text{market value of equity}/\text{book value of total liabilities}) + 1.0 \times (\text{sales}/\text{total assets})$.

Table 2

Univariate test. This table presents descriptive statistics of and a univariate test on the differences in loan terms and firm characteristics between firms located in areas with high and low level of religiosity. Counties are divided into high and low religiosity groups based on the median of religiosity. Variables are defined in Appendix. The final sample consists of 8355 loan facilities in the period from 1987 to 2007. *, ** and *** indicate that the coefficient is statistically significant at 10%, 5% and 1% level, respectively.

	Low religiosity group (N = 4194)			High religiosity group (N = 4161)			Difference in mean	Difference in median
	Mean	Std	Median	Mean	Std	Median		
Loan characteristics:								
Religiosity	0.447	0.061	0.448	0.631	0.124	0.591	−0.184***	−0.143***
ASID	209.164	131.325	200.000	192.791	130.298	175.000	16.370***	25***
Log Loan Spread	5.112	0.752	5.303	4.991	0.816	5.170	0.121***	0.132***
Loan Size	18.243	1.745	18.469	18.429	1.663	18.644	−0.187***	−0.174***
Secured	0.533	0.499	1.000	0.493	0.500	0.000	0.040***	1.000
Covenants	11.358	1.256	11.000	11.312	1.227	11.000	0.045*	0.000
Financial Covenants	0.465	1.226	0.000	0.419	1.169	0.000	0.046*	0.000
General Covenants	10.893	0.309	11.000	10.893	0.385	11.000	−0.000	0.000
Loan Maturity	62.503	645.529	48.000	47.594	23.802	54.143	14.910	−6.143**
Total Assets	2.758	5.445	0.724	3.116	6.001	0.803	−0.359***	−0.080**
Leverage	0.651	0.191	0.642	0.644	0.179	0.642	0.007	0.000
MB	2.610	1.746	2.678	2.717	1.932	2.678	−0.107***	0.000
ROA	0.003	0.147	0.026	0.015	0.126	0.031	−0.012***	−0.006***
Tangibility	0.335	0.231	0.329	0.328	0.229	0.323	0.007	0.006*
Coverage	1.156	1.130	1.060	1.189	1.103	1.179	−0.033	−0.307***
Current ratio	1.764	0.678	1.813	1.751	0.673	1.813	0.013	0.000
Z-score	1.872	2.028	1.344	1.837	1.902	1.323	0.035	0.022
Accrual	6.584	6.436	6.041	6.306	6.034	5.922	0.278**	0.119
BigN	0.946	0.226	1.000	0.922	0.268	1.000	0.024***	0.000

Table 3

Relation between religiosity and loan spread. This table reports the results from regressions of loan spread on measures of religiosity. Variables are defined in Appendix. Standard errors, reported in parentheses, are adjusted for clustering effect at firm level. *, ** and *** indicate that the coefficient is statistically significant at 10%, 5% and 1% level, respectively.

Variables	(1)	(2)	(3)
Religiosity	−0.341** (0.160)	−0.282** (0.120)	−0.242** (0.111)
Total assets		−0.243*** (0.011)	−0.155*** (0.014)
MB		−0.002 (0.006)	−0.002 (0.006)
Leverage		0.242*** (0.063)	0.121** (0.058)
ROA		−0.088* (0.051)	−0.048 (0.055)
Tangibility		−0.064 (0.063)	−0.070 (0.057)
Coverage		−0.163*** (0.012)	0.134*** (0.011)
Current ratio		0.285*** (0.057)	0.218*** (0.053)
Z-score		−0.040*** (0.007)	−0.036*** (0.006)
Accrual		0.011*** (0.002)	0.009*** (0.002)
Big5		0.030 (0.046)	0.038 (0.041)
Relationship		−0.032 (0.020)	−0.012 (0.019)
Loan Size			−0.066*** (0.011)
Loan Maturity			0.051*** (0.018)
Secured			0.445*** (0.024)
Constant	5.442*** (0.094)	6.923*** (0.147)	7.179*** (0.199)
Obs	8355	7198	6936
Adj. R ²	0.175	0.500	0.571

In Table 2, we also provide descriptive statistics of firm characteristics for two sub-samples partitioned by the median adherent rate of the counties in the sample. Borrowers in high religiosity counties have relatively lower leverage and higher profitability, consistent with religious firms tending to be more risk averse

and more profitable (Hilary and Hui, 2009). They also have smaller absolute discretionary accruals, implying higher accounting quality (McGuire et al., 2012). To single out the effect of religion on loan terms, we now turn to multivariate analyses that control for some loan features and firm characteristics in the following sub-sections.

4.2. Religion and loan spread

Table 3 examines the effect of religiosity on loan spread. In Model 1, we include only *Religiosity* and fixed effects for year, industry, loan type and loan purpose. In Model 2, we add firm characteristics as control variables. In Model 3, we add as additional controls some loan features including loan amount, maturity and the status of being secured. In all three models, we find that the coefficients on *Religiosity* are negative and statistically significant, suggesting that loan spread is smaller in counties with a higher degree of religiosity. The estimated coefficients also have economic significance. For example, in Model 3, *Religiosity* has a coefficient of −0.242, suggesting that moving from the low religious areas (average *Religiosity* = 0.447) to the high religious areas (average *Religiosity* = 0.631) would lead to a reduction of 8.9 basis points in loan spread, which represents 4.6% of the mean loan spread in the high religious areas.¹¹

When we examine the control variables, the results are generally consistent with the findings in prior studies. *Spread* is negatively associated with *Total Assets*, *Coverage* and *Z-score*, indicating smaller loan spread for borrowers with more assets, higher interest coverage ratio and lower default risk. *Spread* is positively associated with *Leverage* and *Current Ratio*, implying higher spread for borrowers with higher leverage ratios. *Spread* is also positively associated with *Accrual*, consistent with the evidence in Bharath et al. (2008) that opaque accounting disclosure increases information risk and thus the loan spread. Finally, *Spread* is positive related to *Secured* and negatively associated with *Loan Size*, consistent with prior findings.

¹¹ The calculation of the reduction in the dependent variable, natural log of loan spread, is as follows: the regression coefficient 0.242 × the difference in Religiosity in the high and low religiosity areas 0.184 (=0.631 − 0.447) yields 0.045. Taking exponential gives 1.046 (=exp(0.045)), which is the ratio of loan spread of low religiosity areas to the loan spread of high religiosity areas. This suggests that loan spread of low religiosity areas is 4.6% higher than the loan spread of high religiosity areas, or about 8.9 basis points (=4.6% × 192.791 the average loan spread in high religiosity areas).

Table 4

Robustness tests. This table reports the results from robustness tests on the relation between loan spread and religiosity. Variables are defined in Appendix. Standard errors, reported in parentheses, are adjusted for clustering effect at firm level. *, ** and *** indicate that the coefficient is statistically significant at 10%, 5% and 1% level, respectively.

Variables	(1) Cluster by county	(2) Cluster by state	(3) County and state level controls	(4) State fixed effect	(5) Religiosity in 1980
<i>Religiosity</i>	−0.242*** (0.090)	−0.242** (0.110)	−0.266*** (0.066)	−0.206*** (0.078)	−0.265* (0.157)
<i>Loan Size</i>	−0.066*** (0.011)	−0.066*** (0.009)	−0.072*** (0.008)	−0.066*** (0.008)	−0.067*** (0.019)
<i>Loan Maturity</i>	0.051** (0.019)	0.051** (0.020)	0.054*** (0.012)	0.046*** (0.012)	0.105*** (0.035)
<i>Secured</i>	0.445*** (0.027)	0.445*** (0.027)	0.455*** (0.015)	0.433*** (0.015)	0.498*** (0.044)
<i>Relationship</i>	−0.012 (0.019)	−0.012 (0.024)	−0.007 (0.014)	−0.005 (0.013)	−0.046 (0.035)
<i>Total Assets</i>	−0.155*** (0.012)	−0.155*** (0.012)	−0.149*** (0.008)	−0.156*** (0.007)	−0.150*** (0.021)
<i>MB</i>	−0.002 (0.006)	−0.002 (0.006)	−0.004 (0.004)	0.001 (0.004)	0.006 (0.010)
<i>Leverage</i>	0.121** (0.052)	0.121 (0.074)	0.105*** (0.039)	0.122*** (0.039)	0.111** (0.043)
<i>ROA</i>	−0.048 (0.053)	−0.048 (0.058)	−0.044 (0.040)	−0.052 (0.040)	0.141* (0.084)
<i>Tangibility</i>	−0.070 (0.070)	−0.070 (0.068)	−0.109*** (0.031)	−0.112*** (0.031)	−0.012 (0.120)
<i>Coverage</i>	−0.134*** (0.011)	−0.134*** (0.013)	−0.137*** (0.007)	−0.131*** (0.007)	−0.145*** (0.021)
<i>Current Ratio</i>	0.218*** (0.056)	0.218*** (0.059)	0.207*** (0.035)	0.212*** (0.034)	0.287*** (0.087)
<i>Z-score</i>	−0.036*** (0.006)	−0.036*** (0.009)	−0.036*** (0.004)	−0.039*** (0.004)	−0.043*** (0.013)
<i>Accrual</i>	0.009*** (0.002)	0.009*** (0.002)	0.008*** (0.001)	0.008*** (0.001)	0.009*** (0.003)
<i>Big5</i>	0.038 (0.044)	0.038 (0.033)	0.031 (0.025)	0.026 (0.025)	
<i>Population</i>			−0.006 (0.011)		
<i>Banks</i>			0.000 (0.000)		
<i>Urban</i>			0.002 (0.017)		
<i>GDP State</i>			0.008 (0.011)		
<i>Income</i>			−0.194*** (0.071)		
<i>Education</i>			0.450* (0.254)		
<i>Unemployment</i>			0.032*** (0.006)		
<i>Republican</i>			0.197*** (0.063)		
<i>Constant</i>	7.179*** (0.208)	7.179*** (0.200)	8.993*** (0.779)	7.146*** (0.127)	6.940*** (0.327)
Obs	6,936	6,936	6,528	6,936	2,011
Adj. R^2	0.571	0.571	0.579	0.582	0.573

In Table 4, we conduct a number of robustness tests on the relation between loan spread and religiosity. In Model 1, we adjust standard errors for clustering effect at the county level, since our measure of religiosity is calculated at the county level. In Model 2, we take a more conservative approach and adjust standard errors at the state level. The results show that the coefficient on *Religiosity* remains negative and statistically significant after adjusting for clustering effect at either county level or state level.

One concern for our results in Table 3 is the possibility of omitted related variables that are associated with both religiosity and loan terms. These potential omitted variables could invalidate our conclusion and offer alternative explanations to our results. We first consider economic activities and bank competition in the county as potential omitted variables. Guiso et al. (2003) show that religious beliefs are associated with “good” economic attitudes conducive to higher per capita income and growth. In particular, Christian beliefs are more conducive to economic growth. Although these results are based on cross-country data,

they have important implications to our study because of the dominance of Christian religions in the U.S. For example, there could be more economic activities, particularly lending and borrowing, in counties with high level of religiosity. In such counties we may find a larger number of banks and higher competition among banks. This higher competition, rather than religion per se, might drive down the loan spread and the number of loan covenants. To address this issue, we add two variables to control for the level of economic activities and bank competition. The first one is the natural log of total population of the county (*Population*), as more populous areas have greater economic activity. The second variable is the number of banks in the county (*Banks*), as we expect that a larger number of banks in the county will increase competition.¹²

We also consider the banks’ cost of information acquisition associated with geographic locations. Loughran and Schultz

¹² We obtain data on the number of banks in each county from Federal Deposit Insurance Corporation Summary of Deposits available online at <http://www2.fdic.gov/sod/>.

Table 5

Effect of geographic segments. This table reports the effect of geographic segments on the relation between loan spread and religiosity. The sample firms are divided into two subsamples based on the number of geographic segments. Variables are defined in Appendix. Standard errors, reported in parentheses, are adjusted for clustering effect at firm level. *, ** and *** indicate that the coefficient is statistically significant at 10%, 5% and 1% level, respectively.

Variables	Firms with one segment (1)	Firms with multiple segments (2)
<i>Religiosity</i>	−0.290*** (0.096)	−0.194 (0.144)
<i>Total Assets</i>	−0.057*** (0.012)	−0.092*** (0.020)
<i>MB</i>	0.033* (0.018)	0.032 (0.040)
<i>Leverage</i>	0.491*** (0.025)	0.536*** (0.048)
<i>ROA</i>	−0.014 (0.019)	0.010 (0.037)
<i>Tangibility</i>	−0.164*** (0.014)	−0.078*** (0.022)
<i>Coverage</i>	−0.058*** (0.020)	−0.064** (0.029)
<i>Current Ratio</i>	0.304*** (0.038)	0.278*** (0.068)
<i>Z-score</i>	0.016 (0.092)	−0.014 (0.186)
<i>Loan Size</i>	−0.152*** (0.056)	0.060 (0.102)
<i>Loan Maturity</i>	−0.091*** (0.013)	−0.132*** (0.029)
<i>Secured</i>	0.048* (0.027)	−0.012 (0.061)
<i>Relationship</i>	−0.025*** (0.009)	0.019 (0.015)
<i>Accrual</i>	0.006* (0.004)	0.006** (0.003)
<i>Constant</i>	7.446*** (0.174)	7.576*** (0.283)
Obs	6,313	1,610
Adj. R ²	0.568	0.494

(2005) document that urban firms have better stock liquidity, relative to firms located in rural areas. Kedia and Rajgopal (2011) also find that firms located further away from Security and Exchange Commission (SEC) local offices are more likely to have low quality accounting information and to re-state their financial statements. Firms far away from SEC offices are also likely to be in rural area because SEC offices are typically located in large cities.¹³ Collectively, these pieces of evidence suggest that firms located in urban areas have higher quality accounting information and lower information acquisition cost for investors. Hollander and Verriest (2011) find that banks require more covenants for borrowers that are located farther away from banks' headquarters, suggesting that rural firms, which are usually far away from large cities where banks are usually headquartered, might have higher cost of monitoring. If the religiosity level is higher in urban areas than in rural areas, our results could be driven by the urban/rural division, rather than the religious adherent rates. To address this concern, we follow Dyreng et al. (2012) and include a dummy variable for urban firms (*Urban*). The variable takes the value of 1 for counties located in one of the 10 largest metropolitan cities, and zero otherwise.¹⁴

Finally, we control for a set of demographic and economic variables at the county or state level that might be related to both the local loan market and local religiosity levels. These demographic variables include the average education level (*Education*), the

median household income (*Income*), unemployment rates at the county level (*Unemployment*), the percentage of residents who support the Republican Party at the county level (*Republican*), and the natural log of state GDP (*GDP State*). Unreported results show that local religiosity has very low correlation with these variables (Pearson correlation coefficient < 0.05) with the exception of the average education level (Pearson correlation coefficient = 0.166).

Model 3 reports results from regressions with these additional control variables. We note that *Religiosity* remains negatively associated with *Loan Spread*, and the coefficients stay statistically significant after controlling for these potentially important variables.

To further address the concern of omitted related variables, we add state fixed effects into the regression in Model 4. The state fixed effects control for any difference between states, such as the differences in culture, regulations, business practices, etc. However, state fixed effects also significantly reduce the variation in *Religiosity* as the variation is now restricted to be among counties within a particular state. In Model 4, we find that the coefficient is smaller in magnitude but remains negative and statistically significant at the 1% level. This result suggests that our results are not entirely driven by omitted variables.

Another concern for our cross-sectional results is reverse causality. Although we interpret the results as suggesting that high level of religiosity leads to favorable loan terms, it seems only remotely possible that firms with favorable loan terms attract people of certain religion or no religion to live in the county. To address this possibility, we follow Hilary and Hui (2009) and use lagged *Religiosity* as an instrument variable and redo our analyses. Specifically, we use *Religiosity* in 1980 as an instrument because 1980 pre-dates our sample period. The results using lagged religion as the instrument are reported in Model 5. We find that *Religiosity* in 1980 has a negative and statistically significant coefficient. This evidence suggests that reverse causality is unlikely to drive our results.¹⁵

After establishing the robust relation between religion and loan spread, we test the assumption underlying our argument that the religiosity level of the population surrounding a firm's headquarter affects bank loan terms. The assumption, as discussed in detail in Hilary and Hui (2009), is that the religion of headquarters' local community influences the behavior of employees working at the headquarters. This assumption implies that the influence of local community will be stronger for firms whose employees are mainly from local area and work at or close to the headquarters. In contrast, the influence will be weaker if a firm's headquarter location is different from the location of its operating facilities and thus employees at headquarters may come from a different community than employees working at operating facilities. To test this implication, we divide the sample firms into two groups based on the number of geographic segments. One group contains firms with only one geographic location, while the other group has firms with multiple geographic locations. We expect that headquarters' local religiosity has a stronger effect on the bank loans spread for the first group with only one geographic segment.

Table 5 reports the regression results for these two groups of firms. We find that *Religiosity* has a negative and statistically significant coefficient in firms with only one geographic location (coefficient = −0.290, standard error = 0.096). In firms with multiple geographic segments, the coefficient on *Religiosity* is negative but statistically indistinguishable from zero (coefficient = −0.194, standard error = 0.144). This result is consistent with our expecta-

¹³ The SEC offices are the SEC headquarters in Washington, DC and regional offices located in New York City, Miami, Chicago, Denver, and Los Angeles.

¹⁴ The 10 largest metropolitan cities are New York, Los Angeles, Chicago, Baltimore, San Francisco, Philadelphia, Boston, Detroit, Dallas, and Houston.

¹⁵ In another robustness test, we only select a small sample of about 600 observations in the years in which ASARB conducted surveys, namely 1990 and 2000. This avoids interpolation of religious data between survey years, but severely reduces the sample size. When we re-estimate the three regression models in Table 3, the coefficients of *Religiosity* remain negative and statistically significant in Models 1 and 2, and become negative but insignificant in Model 3.

Table 6

Effect of corporate governance. This table reports the effect of corporate governance on the relation between loan spread and religiosity. The sample firms are divided into two subsamples based on the median score of G-index developed by [Gompers et al. \(2003\)](#). Variables are defined in Appendix. Standard errors, reported in parentheses, are adjusted for clustering effect at firm level. *, ** and *** indicate that the coefficient is statistically significant at 10%, 5% and 1% level, respectively.

Variables	Strong corporate governance (1)	Weak corporate governance (2)
Religiosity	−0.027 (0.479)	−1.346*** (0.459)
Total Assets	−0.122** (0.049)	−0.172*** (0.050)
MB	−0.000 (0.016)	−0.015 (0.018)
Leverage	0.042 (0.251)	−0.338 (0.324)
ROA	−0.133* (0.079)	0.194 (0.538)
Tangibility	−0.220 (0.240)	−0.257 (0.243)
Coverage	−0.182*** (0.031)	−0.261*** (0.038)
Current Ratio	−0.140 (0.152)	−0.226 (0.265)
Z-score	−0.028* (0.015)	−0.029 (0.022)
Loan Size	−0.121** (0.049)	−0.131*** (0.040)
Loan Maturity	0.088* (0.045)	0.010 (0.040)
Secured	0.435*** (0.080)	0.477*** (0.093)
Relationship	0.125** (0.063)	0.047 (0.063)
Accrual	0.015* (0.008)	0.010 (0.008)
BigN	−0.358* (0.185)	−0.511*** (0.142)
Population	0.058 (0.079)	−0.125* (0.069)
Banks	−0.000 (0.000)	0.001*** (0.000)
Urban	−0.257** (0.125)	−0.016 (0.172)
GDP State	0.087 (0.064)	0.042 (0.102)
Income	−1.079** (0.492)	−0.677 (0.492)
Education	3.310** (1.661)	1.195 (1.934)
Unemployment	0.057 (0.038)	0.022 (0.039)
Republican	0.273 (0.413)	0.122 (0.423)
Constant	16.749*** (5.218)	17.950*** (5.151)
Obs	560	494
Adj. R ²	0.580	0.640

tion that the religion of headquarter' local community has a larger impact on the bank loan spread for firms operating in only one location than for firms with geographically diversified operations.

Our results in [Tables 3 and 4](#) suggest that local religiosity has an incremental effect on the loan spread after controlling for observable firm characteristics including multiple measures of financial risk and accounting quality. [Grullon et al. \(2010\)](#) find that religious social norms could work as an alternative corporate governance mechanism that constrains unethical corporate behavior. In other words, religious norms can substitute for traditional governance mechanisms, such as anti-director and anti-manager measures.¹⁶

¹⁶ [McGuire et al. \(2012\)](#) find that the effect of religious social norms on financial reporting is stronger for firms with weak external monitoring, also suggesting a substitute relation between religion and external monitoring.

Table 7

Effect of religiosity on loan covenants and loan size. This table reports the results from regressions of loan covenants and loan size on measures of religiosity. Variables are defined in Appendix. Model 1, 2, and 3 are estimated using negative binomial models, and Model 4 is estimated using OLS regressions. Standard errors, reported in parentheses, are adjusted for clustering effect at firm level. *, ** and *** indicate that the coefficient is statistically significant at 10%, 5% and 1% level, respectively.

Variables	(1) Covenants	(2) Financial covenants	(3) General covenants	(4) Loan size
Religiosity	−0.111* (0.064)	−0.821* (0.494)	−0.037 (0.062)	0.224* (0.132)
Assets	0.075*** (0.010)	−0.053 (0.084)	0.073*** (0.010)	0.686*** (0.012)
MB	−0.012 (0.014)	−0.198 (0.123)	−0.004 (0.013)	0.012 (0.026)
Leverage	−0.122*** (0.036)	0.399 (0.245)	−0.103*** (0.030)	−0.026 (0.064)
ROA	0.556** (0.251)	1.479 (1.172)	0.507** (0.211)	0.817** (0.358)
Tangibility	−0.025 (0.034)	−0.856*** (0.287)	0.034 (0.031)	0.106 (0.073)
Coverage	0.002 (0.013)	−0.052 (0.073)	0.009 (0.010)	0.033 (0.021)
Current ratio	−0.100*** (0.025)	−0.027 (0.175)	−0.065*** (0.023)	−0.200*** (0.045)
Z-score	−0.005 (0.008)	−0.009 (0.053)	−0.008 (0.007)	−0.001 (0.013)
Relationship	0.457*** (0.020)	0.333** (0.161)	0.316*** (0.019)	0.165*** (0.033)
Loan Size	−0.028*** (0.009)	0.051 (0.082)	−0.012 (0.009)	
Loan Maturity	0.001 (0.014)	−0.309*** (0.118)	−0.044*** (0.013)	0.370*** (0.027)
Secured	0.523*** (0.027)	1.245*** (0.164)	0.370*** (0.025)	0.016 (0.039)
Accrual	−0.006** (0.003)	0.005 (0.019)	−0.004* (0.002)	−0.005 (0.004)
BigN	−0.006 (0.022)	−0.231 (0.167)	0.016 (0.021)	0.066 (0.048)
Population	0.029 (0.018)	0.005 (0.133)	0.029 (0.018)	−0.054 (0.037)
Banks	−0.000 (0.000)	0.000 (0.000)	−0.000 (0.000)	0.000 (0.000)
Urban	−0.000 (0.025)	−0.312 (0.193)	0.013 (0.025)	0.096* (0.050)
GDP State	−1.175*** (0.407)	−35.813*** (5.175)	−0.535 (0.447)	−0.284 (0.857)
Medhinc	−0.254 (0.207)	−8.784*** (2.022)	−0.126 (0.187)	−0.050 (0.373)
Republican	−0.085 (0.080)	1.011 (0.731)	−0.005 (0.083)	−0.038 (0.191)
Education	−0.843*** (0.264)	−2.066 (2.328)	−0.501* (0.287)	−0.505 (0.630)
Unemployment	−0.021** (0.008)	0.048 (0.082)	−0.009 (0.009)	−0.051*** (0.018)
Constant	1.888*** (0.310)	−0.518 (2.623)	1.171*** (0.316)	12.909*** (0.634)
Obs	6,641	6,641	6,641	6,641
Prob > Chi ²	0.000	0.000	0.000	
Adj. R ²				0.691

One implication is that the effect of local religiosity may be stronger for firms with inherent governance deficiencies. To test this implication, we collect data on the governance index (G-index) developed by [Gompers et al. \(2003\)](#) that has been widely used to measure the strength of corporate governance. We partition the loan sample into strong governance and weak governance subsamples based on the median G-index.¹⁷ We then estimate the regression of the loan spread on religiosity separately for each subsample and expect a larger (more negative coefficient) of religiosity for the weak governance subsample.

¹⁷ Since higher G-index indicates weaker corporate governance, the strong governance subsample has below median G-index.

The regression results are presented in Table 6. We find the coefficient on *Religiosity* is -1.346 and is statistically significant at the 1% level for the weak governance subsample. For the strong governance subsample, the coefficient of *Religiosity* is -0.027 and is statistically insignificant. The difference between the coefficients is also statistically significant. Therefore, the results in Table 6 suggest a stronger effect of local religiosity on the bank loan spread for firms with weak corporate governance. However, we have a small sample for this test because a large number of firms do not have G-index available. We therefore caution readers when interpreting the results from this limited sample.

4.3. Religion and non-pricing loan terms

In Table 7, we examine the relation between religiosity and non-pricing loan terms, including loan covenants and loan size. We hypothesize that borrowers located in highly religious counties will have fewer loan covenants but larger loan size. In Model 1, 2 and 3, the dependent variables are the number of total covenants, the number of financial covenants, and the number of general covenants, respectively. Since the numbers of covenants are count data, we use the negative binomial model to estimate the regressions. Model 1 reveals that *Religiosity* is negatively associated with the number of loan covenants, suggesting that borrowers in more religious counties face fewer covenant restrictions. In Model 2, we find a significantly negative coefficient for *Financial Covenants*. While the coefficient for *General Covenants* is also negative in Model 3, it is not statistically significant. The evidence suggests that the effect of religion on loan covenants is concentrated in financial covenants that are based on accounting numbers.

Model 4 uses ordinary least squares regression to estimate the model with *Loan Size* as the dependent variable. We find that loan size is positively associated with *Religiosity*, consistent with the prediction that larger loan amounts are offered to borrowers located in more religious areas. Consistent with prior findings, *Loan Size* increases with profitability, total assets, and relationship banking.

Overall, we find that religiosity is negatively associated with loan spreads and loan covenants, and is positively associated with loan amounts. The results are robust to controlling for firm characteristics and loan features, in addition to fixed effects for year, loan type and loan purpose. These results support our hypotheses that borrowers located in more religious areas are perceived to be less risky and enjoy more favorable loan terms from banks.

5. Conclusion

A number of studies find that local religious social norms have a significant impact on corporate behavior. For example, Hilary and Hui (2009) find that firms located in more religious areas tend to have more conservative financial policies and invest less in risky projects. Dyreng et al. (2012), McGuire et al. (2012) show that firms in more religious counties have more conservative financial reporting and are less likely to commit accounting fraud. Grullon et al. (2010) document that firms headquartered in more religious counties behave more ethically. In this study, we extend this literature by examining whether bank lenders understand and reward the religion-driven corporate behavior. We hypothesize that banks would value the conservative and ethical behavior and reward corporate borrowers located in more religious areas with lower borrowing costs. Our empirical results support our hypothesis. We find that companies headquartered in counties with a higher level of religiosity have a lower loan spread, smaller number of loan covenants and larger loan size. These results hold after we control for various firm characteristics, loan features, and fixed effects for year, loan type and loan purpose.

This study makes important contributions to the literature. First, our results complement prior studies on bank loans by showing that qualitative aspects, such as corporate culture, could have a significant impact on the cost of loans. The evidence documented in this study thus enriches our understanding of banks' lending decisions that are critical to the functioning of the loan markets and firms' operations and growth. Second, our study relates to the literature on religion and economic growth at macro level (e.g., Weber, 1905; Barro and McCleary, 2003; Guiso et al., 2003). Our results provide micro level evidence by showing that religion might be associated with lower cost of debt and thus offers a plausible explanation to the documented association between religion and economic growth. Finally, this study adds to the growing literature on the effect of religion on corporate behavior (Hilary and Hui, 2009; Dyreng et al., 2012; Grullon et al., 2010; McGuire et al., 2012). Our results imply that corporate behaviors that result from corporate culture affect the cost of capital and ultimately corporate investments.

Appendix

Variable definitions

Variables	Definition
Key explanatory variable	
<i>Religiosity</i>	The number of religious adherents reported by all denominations in the county, divided by the total population in the county per the U.S. Census. Data Source: ADRA
Loan contract terms	
<i>AISD</i>	All In Spread-Drawn, which is the all-inclusive cost of a drawn loan to the borrower, including the coupon spread over LIBOR on the drawn amount plus the annual fee, and is reported in basis points
<i>Log Loan Spread</i>	The natural log of "All In Spread-Drawn"
<i>Covenants</i>	The number of covenant constraints in the loan contract
<i>Financial Covenants</i>	The number of financial covenants in the loan contract
<i>General Covenants</i>	The number of general covenants in the loan contract
<i>Loan Size</i>	The natural log of loan amount

Appendix A (continued)

Variables	Definition
<i>Loan Maturity</i>	The number of months between loan initiation date and maturity date
<i>Secured</i>	An indicator variable taking value of 1 for loans that require collaterals and 0 otherwise
Key firm characteristics	
<i>Accrual</i>	Absolute value of total discretionary accruals estimated from cross-sectional Jones (1991) model
<i>BigN</i>	An indicator variable equal to 1 if the firm's auditor is one of the top 5 auditors
<i>Coverage</i>	The ratio of net income to interest expense
<i>Current Ratio</i>	The ratio of current assets to current liabilities
<i>Leverage</i>	The ratio of total debt to total assets
<i>MB</i>	The market-to book ratio
<i>ROA</i>	The ratio of net income to total assets
<i>Relationship</i>	An indicator variable taking value of 1 for firms having prior lending relationship with the lead bank, and 0 otherwise
<i>Tangibility</i>	The ratio of property, plant, and equipment (PPE) to total assets
<i>Total Assets</i>	The natural log of borrowers' total assets (in millions)
<i>Z-score</i>	Altman's Z-score, calculated as $1.2 \times (\text{current assets} - \text{current liabilities}) / \text{total assets} + 1.4 \times \text{retained earnings} / \text{total assets} + 3.3 \times \text{EBIT} / \text{total assets} + 0.6 \times \text{market value of equity} / \text{book value of total liabilities} + 1.0 \times \text{sales} / \text{total assets}$
Key demographic variables	
<i>Banks</i>	Number of banks in the county
<i>GDP State</i>	The natural log of the GDP at the state level
<i>Income</i>	The natural log of the median household income at the state level
<i>Education</i>	Percentage of population that has bachelor's degree
<i>Population</i>	The natural log of total population in a county
<i>Republican</i>	Percentage of population that support the Republic Party at the county level
<i>Unemployment</i>	The unemployment rate at the county level
<i>Urban</i>	An indicator variable equal to 1 for firms located in one of the top 10 metropolitan areas

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