Does branch religiosity influence bank risk taking?

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Abstract. Using branch-level data on public and private U.S. banking institutions we investigate the importance of branch religiosity in shaping bank risk-taking behavior. Our results show robust evidence that branch religiosity is negatively related to bank risk-taking. This effect persists after controlling for several bank-level and county-level variables that might correlate with religiosity. Moreover, this result is robust to controlling for headquarter religiosity, suggesting that the effect of branch religiosity is additive and not washed out by headquarter religiosity. Overall, our findings document that headquarter religiosity does not capture the full effect of religiosity on bank behavior, as claimed by previous research, but that the religiosity of the geographic area in which the bank operates significantly influences bank behavior.

Keywords: Religion; Risk taking; Risk aversion.

Data availability: Data used in this paper are available from the public sources identified in this study.

JEL Classification : M41, G21, G32

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1. Introduction

This paper tests the importance of branch religiosity in shaping bank risk-taking. A rich literature across several disciplines provides strong and robust evidence of a strong relation between headquarter religiosity and risk-taking in non-financial (McGuire et al., 2012; Kumar et al., 2011; Dyreng et al., 2010; Hilary and Hui, 2009; Grullon et al., 2009) and financial firms (Adhikari and Agrawal, 2016; Kanagaretnam et al., 2015; 2013).

A common research design choice of prior literature is its exclusive focus on the religiosity of the geographical area of the corporate headquarters. In most cases such a choice is implicitly motivated by the location of important firm stakeholders (Hilary and Hui, 2009). Specifically, given that the corporate headquarters is the venue in which firm strategic decisions are made, it is reasonable to assume that firm senior employees reside in the vicinity of the corporate headquarters. Similarly, given that the corporate headquarters is the center of information exchange between the firm and investors, and the documented investor "home bias" (Coval and Moskowitz, 1999), it is also reasonable to assume that firm shareholders would reside in the vicinity of corporate headquarters. Given this, prior literature finds that headquarter religiosity is inversely related to bank risk taking (Adhikari and Agrawal, 2016).

In solely focusing on headquarter religiosity, prior literature assumes that all firm decisions are made at the corporate headquarters and that thus only these decisions, which are influenced by the religiosity of the headquarter geographical location, give rise to bank risk. However, this might not be the case for banks, which tend to have geographically dispersed operations with decentralized decision making. There are three reasons why we expect branch

level operations to influence bank risk-taking. First, bank customers' religiosity is likely to influence bank risk-taking. Studies in economic literature find that religious people are risk-averse (Miller, 2000; Diaz, 2000; Miller and Hoffman, 1995) and thus, banks with more religious customers are likely to have less risky borrowers. Second, building on organizational legitimacy theory, we argue that when banks operate in very religious, and thus risk averse, geographic areas the level of risk of each branch has to be adjusted to the expectations of stakeholders to avoid a misalignment between the two value systems. Finally, religious norms of the local population in which the firm operates will influence branch employees irrespective of whether they are themselves religious (Dyreng et al., 2012). This prediction is ultimately grounded in social norm theory, which posits that individuals will act in ways that conform to the behavioral norms of the groups with which they associate. Moreover, such influence is amplified by the need of the bank to maintain organizational legitimacy.

We conjecture that the effect of branch religiosity on bank risk-taking is above and beyond the previously documented effect of headquarters' religiosity on bank risk taking. Specifically, if the geographic area in which the company operates influences bank risk-taking and if we view religious individuals as more risk averse (similar to Miller, 2000; Diaz, 2000; and Miller and Hoffman, 1995) then we should expect banks operating in highly religious areas to take on lower risk. However, based on previous research whether the geographical location of bank branches influences bank risk taking is ultimately an empirical question.

To test whether branch religiosity influences risk taking, we focus our study on each branch of 1,758 public and private U.S. banking institutions over the period 2000-2010. We measure branch religiosity using data collected from the American Religion Data Archive (ARDA) and proxy for bank risk using the Z-score, the amount of charge offs, the amount of

non-performing loans and the probability of bank failure over the sample period. Further, in an attempt to minimize measurement error included in these proxies, we use principal component analysis to compute a composite measure of bank risk. In line with our expectations and the conjecture that branch religiosity influences the bank's risk profile, we find a significant negative relation between our measure of branch religiosity and bank risk taking. Importantly, our results are robust to controlling for headquarter religiosity, thus suggesting that the effect of branch religiosity is additive and not washed out by the effect of headquarter religiosity.

In further analyses, we take advantage of the large number of bank mergers and acquisitions (M&A) over the sample period to tease out the branch versus headquarter effect. Specifically, we find that branch religiosity of the target firm is significantly negatively related to the change in bank risk after the M&A deal. This result provides further evidence that branch religiosity plays a role in shaping the overall bank's risk-taking. We also test whether the incidence of Protestants, a religious denomination which prior literature has found to be particularly risk averse (Kumar et al., 2011), influences the relation between branch religiosity and bank risk taking. In line with our expectations, we find that banks with branches located in high Protestant areas are less risky. Finally, although our results are not driven by the 2007-2008 crises, the relation between religiosity and risk becomes stronger after the crisis period, as people are more aware of potential bank risk taking behavior and thus exert increased oversight on banks.

Our study contributes to extant prior literature in the following ways. First, to our knowledge, this is the first empirical study that examines the role of branch religiosity on bank risk-taking behavior. By showing that the geographic location in which bank operations are carried out influences the overall bank risk-taking, we extend prior studies, which document a

significant association between headquarter religiosity and risk-taking (Hilary and Hui, 2009; Adhikari and Agrawal, 2016). This is the main contribution of the paper. Second, this study contributes to the literature that examines the influence of religion on risk-taking. In this regard, we complement prior studies, which analyze the influence of religiosity on economic decisions in different industries (Hilary and Hui, 2009; Dyreng et al., 2010; Grullon et al., 2010; McGuire et al., 2011). Similar to Adhikari and Agrawal (2016), we focus on the banking industry. This allows us to better control for the peculiarities of the industry, which may influence the relationship between religiosity and risk-taking. Moreover, focusing our analysis on banks allows us to test our hypothesis in a challenging research setting. Indeed, banks represent one of the most regulated industries in the US and this may possibly water down the influence of religion on firm decision-making.

The structure of this study is as follows. In the next section, we provide an overview of extant prior literature and develop a testable hypothesis. Section 3 sets out details about the sample used in the study and provides an overview of the research design. The results of the main analysis and robustness tests are discussed in Section 4, while in Section 5 we provide information about additional analyses undertaken. Section 6 concludes.

2. Literature Review and Hypothesis Development

2.1 The influence of religiosity

Religiousness is an important social mechanism, which influences the behavior of individuals both in terms of economic decisions as well as in terms of social interactions (Kennedy and Lawton, 1998; North, 1991; Stulz and Williamson, 2003; Boone et al., 2012).

Economic literature has established a link between religiosity and risk aversion (Iannaccone, 1998; Lehrer, 2004; Dohmen et al, 2011; Liu, 2010; Miller and Hoffmann, 1995; Noussair, 2013), where more anxious individuals are more likely to seek comfort and support in religion (Malinowski, 1925; Gasper and Clore, 1998; Miller and Hoffman, 1995). Such an association has been observed in numerous academic studies, in fields ranging from psychology to management. Miller and Hoffmann (1995) use survey data of high school seniors and find a negative association between religiosity and self-reported attitudes toward risk and danger. Osoba (2003) finds that risk-averse individuals attend church more often than risk-seeking individuals while Diaz (2000) finds that religious people living in Las Vegas gamble less.

Legitimacy theory suggests that there is a need for firms to establish 'congruence between the social values associated with or implied by [organizational] activities and the norms of acceptable behavior in the larger social system of which they are a part' (Downling and Pfeffer 1975, p. 122). Instances where firms' actions are in conflict with stakeholder social norms are likely to result in a legitimacy gap, which may ultimately lead to a legitimacy crisis. If the firm does not adequately address such a crisis, stakeholders may withhold resources from the firm, thus hampering its operations.

This argument is reinforced by the social norm theory. This theory posits that the religious norms of the local population in which the organization is established will influence management irrespective of whether management is itself religious, since the local population is an important element of the environment in which managers live and operate (Kohlberg, 1984; Sunstein, 1996, Cialdini and Goldstein, 2004 and McGuire et al., 2011). Moreover, such influence on management is amplified by the need of organizations to maintain organizational legitimacy.

2.2 Religiosity and firm behavior

Recent studies empirically show that firms operating in different social environments exhibit different behaviors. This literature links religious adherence to lower risk taking (Adhikari and Aggrawal, 2016; Li et al., 2013; Hilary and Hui, 2009), lower incidences of financial reporting irregularities and lower earnings management (Kanagaretnam et al., 2015; Lievenbruck and Schmid, 2014; McGuire et al., 2011: Dyreng et al., 2012). However, to our knowledge all prior studies only consider the religiosity of the geographical location of the corporate headquarters neglecting the religiosity of the locations of other firm operating units.

The corporate headquarters of a firm is the venue in which the firm strategic decisions are taken, the work place of the most senior firm employees and the center of information exchange between the firm and investors (Davis and Henderson, 2008). Moreover, given the documented investor "home bias" where investors seek to hold and trade stocks of firms headquartered in nearby locations to take advantage of easier access to information about the company (Coval and Moskowitz, 1999; Grinblatt and Meloharju, 2001; Ivkovic and Weisbenner, 2005), the geographic location of the headquarters is also likely the location of most of the firm investors. Based on the previously discussed legitimacy and social norm theories, it is likely that the concentration of senior firm employees and investors, two important firm stakeholders, around the geographical location of the corporate headquarters results in headquarter religiosity subsuming any influence branch religiosity might have on firm decision making.

The above discussion is based on the premise that all firm decisions are generated at the corporate headquarters and are thus solely influenced by religiosity in the geographical location

of the headquarters. However, this might not be the case for some firms. In fact, many firms are geographically dispersed with decision making units operating in different geographical areas. McGuire et al. (2011) tests whether the negative association between headquarter religiosity and the risk of financial irregularities stands for a sample of geographically dispersed firms and find mixed results. Specifically, they conclude that "geographic dispersion influences the association between the religious social norms [of the geographical location of the headquarters] and financial reporting" (p.666).

2.3 Hypothesis development

Banks are some of the most geographically dispersed firms, comprised of a network of semiautonomous bank branches. In this regard we investigate the importance of branch religiosity in influencing bank risk appetite. Specifically, we posit that branch religiosity affects bank risk in three distinct ways. First, economic literature shows that religious people are risk-averse and thus, banks with branches in more religious areas are likely to have more religious – thus less risky - borrowers. Second, to minimize the risk of a legitimacy crisis, in their decision-making process, managers will seek to conform to the social norms of the particular geographical region in which they operate. In other words, religious customers will not only influence bank risk taking in that these customers are more risk averse, but the bank will also adapt its social values so as to establish congruence between its values and those of its customers thus reducing the risk of a legitimacy crisis. Finally, in line with the social norm theory, the religious norms of the local population in which the firm operates will influence branch employees and managers irrespective of whether they are themselves religious. We refer to the first motive as the demand effect and the latter two effects as the supply effect of branch religiosity on bank risk taking.

Summing up, if all firm decisions are generated at the corporate headquarter, we should expect that the location of the headquarters fully explains the effect of religiosity on risk taking behaviors. In contrast, if the demand and supply effects of branch religiosity discussed above play a role in bank risk taking, based on the economic, legitimacy and the social norm theories, the geographical location of bank branches should affect bank risk taking. Therefore, it is an empirical question as to whether the relation between headquarter religiosity and bank behavior documented in prior literature (Kanagaretnam et al., 2015) captures the full effect of religiosity on bank risk taking. Consequently, we posit the following hypothesis in the null form:

H1: Bank branch religiosity is not associated with bank risk taking

3. Data and Research Design

3.1 Data

We obtain data on the number and location of bank branches from the SNL Financial Institutions database and accounting variables are computed using data from the FR-9YC reports from the Federal Reserve Bank of Chicago.

We begin our sample period in 2000 because branch-level data on SNL are only available as from 1998 and thus the first American Religion Data Archive (ARDA) survey we can use is the one in 2000. We end our sample period in 2010, as this is the last year for which data on religion is available on ARDA. The drop in the number of observations in 2006 is due to the increase by the Federal Reserve in the asset-size threshold for filing the Consolidated Financial

Statements (FR-9YC)[1] from $150 million to $500 million. Our sample period covers the 2007-08 financial crisis, which we examine separately as a quasi-exogenous shock to improve our identification strategy.

3.2 Variable Measurement

3.2.1 Measure for Branch Religiosity

Our data on religiosity come from ARDA. [2] These county-level religion data are compiled every ten years, and we obtain our data from the 2000 and 2010 decennial surveys. For years in which a survey is not available, we follow previous studies (Adhikari and Agrawal, 2016; Dyreng et al., 2012; Hilary and Hui, 2009; Alesina and La Ferrara, 2000) and linearly interpolate the data to obtain the values for religiosity in the missing years. The linear interpolation increases the power of our tests, but as discussed in the following sections, the results also hold when we do not linearly interpolate the religiosity measure. To proxy for banks' branch religiosity (*Branch Religiosity*) we employ a two-step procedure. First, using ARDA data, for each county in which the bank has branches we compute the proportion of countywide population that claims affiliation with an organized religion. Specifically, we compute county religiosity as the number of adherents per 1,000 county habitants. Subsequently, we collapse the county-level religiosity measure into a bank-level religiosity metric, by weighting each county-level measure by the amount of deposits the bank has in the county. As *Branch Religiosity* is highly skewed, we use its logarithmic transformation in the analysis.

[1] In Section 4, we perform robustness tests to rule out the possibility that the drop in sample size could have an effect on our results.

[2] We acknowledge the existence of self-selection bias in ARDA data because congregations self-select to participate in the study. Nonetheless, the alternative source of data on religiosity – the Gallup survey – suffers from the same self-selection bias, which is inherent in the collected responses.

3.2.2 Measures for Bank Risk Taking

We measure bank risk taking using risk proxies that have been extensively used in previous literature (e.g. Laeven and Levine, 2009; Kanagaretnam et al. 2013).[3] The first proxy for bank risk-taking is the Z-score, a measure of bank stability that indicates the distance from insolvency. Specifically, Z-score is computed as (ROA+CAR)/σ(ROA), where ROA is earnings before taxes and loan loss provisions divided by assets, CAR is capital-asset ratio, and σ(ROA), is the standard deviation of ROA over the sample period. The Z-score is inversely related to the probability of a bank's insolvency. A bank becomes insolvent when its asset value drops below its debt and the Z-score shows the number of standard deviations that a bank's return on asset has to fall below its expected value to deplete equity and make the bank insolvent. Thus, a higher Z-score indicates that the bank is more solvent. Because the Z-score is highly skewed we use its logarithmic transformation and multiply it by negative 1, so that a higher value indicates higher risk (*LnZscore*).

The second proxy for bank risk-taking is loan charge-offs (CO), which represents the amount of loans written-off as uncollectible in a year. Charge-offs represents recognition in the bank's financial statements that loan payments will not be collected. Since there might be some discretion in recognizing charge-offs (Liu and Ryan, 2006), we use an additional proxy for credit losses: non-performing loans (NPL). NPLs are loans that have been modified in a troubled debt restructuring, are past due, or for which interest revenue is not currently being recorded. NPLs essentially represent economic losses and forgone interest revenue resulting from the poor credit quality of the borrower. Both CO and NPL are scaled by gross loans. Finally, we include as the ultimate measure of risk, an indicator variable which equals one if the bank failed during the

[3] We do not use market-based proxies for banks' riskiness because part of our sample consists of non-listed banks.

sample period and zero otherwise (*Failure*).

3.4 Research Design

To assess the effect of branch religiosity on bank risk taking we estimate the following regression model:

$$Risk = \beta_0 + \beta_1 Branch\ Religiosity + \beta_2 Headquarter\ Religiosity + \Sigma\beta_j Controls + \varepsilon \quad (1)$$

where the dependent variable, *Risk*, stands for one of the four bank risk-taking proxies discussed above, and *Branch Religiosity* is our variable of interest. Previous research suggests a link between firms' headquarter religiosity and firm behavior (e.g. Adhikari and Agrawal, 2016; Dyreng et al., 2012; Kanagaretnam et al., 2013; McGuire et al. 2011; Hilary and Hui 2009), therefore we include *Headquarter Religiosity*, computed as the logarithmic transformation of the number of adherents per 1,000 population of the county where the bank headquarters is located. *Controls* denote the vector of variables controlling for bank and county characteristics that are likely to influence bank risk-taking behavior (see Ellul and Yeramilli, 2013). To control for the effect systematic differences in the scope of banks' operations might have on bank risk taking we use the following two variables: *Non Interest* which proxies for the intensity of fee-based activities and is computed as the ratio of noninterest income to net operating income[4] and the ratio of tier 1 to risk-weighted assets (*Tier 1*) which controls for the capital strength of the bank. Consistent with prior literature, we control for differences in bank size using the logarithm of total assets (*LnAssets*). To control for growth opportunities, we include in our model the variables *Asset Growth* and *Revenue Growth*, which are computed as the percentage annual

[4] We define net operating income as noninterest income plus interest income minus interest expense.

change in total assets and interest revenue, respectively. We also control for profitability using *ROA* (earnings before taxes over total assets) and for volatility using the standard deviation of ROA (*STD ROA*) over the sample period. To control for the type of lending activity we include: *Commercial*, *Individual*, *Real Estate* and *Depository Institutions* which are the ratio of commercial, individual, real estate and depository institutions loans to total loans respectively. To control for possible moral hazard problems that can make a bank prone to risk taking, we include as a control variable *Too Big*, which is an indicator variable that takes the value of 1 if the bank accounts for more than 10% of the yearly total deposits of the sampled banks and zero otherwise. Finally, to control for the relative importance of the bank in our sample we include *Bank Market Share* computed as the market share of the bank total sample deposits.

In addition to our bank-level control variables, we include several U.S. Census Bureau county-level demographic variables that prior research suggests are determinants of religiosity (Iannaccone, 1998; Hilary and Hui, 2009). By including these variables in the regression model we make sure that *Branch Religiosity* captures the effect of religiosity per se, as opposed to simply the effect of other correlated county-level demographic characteristics. Specifically, *Diversity* is the percentage of racial minorities in a specific county; *Education* is educational attainment defined as the percentage of people (25 years and over) having a bachelor's, graduate or professional degree; *Economics* is the Federal Reserve Bank of Philadelphia's state-level coincident index of economic conditions. We control for the number of religious denominations in a county using the variable *Congregations* that is computed in the same way as *Branch Religiosity* but considering the number of congregations instead of the number of adherents. *Republicans* is the percentage of the adult population who is affiliated with the Republican Party. For consistency with the other variables included in the model, we weight the county-level

measures by the amount of deposits in each county. We include year fixed effect to control for any general time trend effects and cluster standard errors by both bank and year. All continuous variables are winsorized at the 1% in both tails to reduce the influence of outliers. Appendix A defines all the variables used in our analyses.

To overcome any concern that the high correlation between *Branch Religiosity* and *Headquarter Religiosity* may bias our results, we drop from our sample those observations for which *Branch Religiosity* and *Headquarter Religiosity* are in the same decile.[5] Table 1 describes the distribution of observations over the sample period. We use 7,831 firm-year observations for 1,758 unique banks for the period 2000 to 2010.

<<TABLE 1>>

4. Empirical Results

4.1 Descriptive Statistics

Table 2 presents descriptive statistics for the variables used in the analysis. For the average bank in our sample, *CO* and *NPL* represent 0.5% and 2.3% of gross loans, respectively. Moreover, revenue and asset growth is around 3.5% and 9.2%, respectively. Most of the loans are classified in the Real Estate category, while a non-trivial percentage of loans are Commercial loans, 16.4%.

In Table 3 we report evidence at univariate level on the effect of branch religiosity on bank risk taking. We group observations into quartiles according to the *Branch Religiosity'*s value and tabulate the values of the bank risk proxies for the top and bottom quartile. The mean

[5] After removing these observations, the correlation between branch religiosity and headquarter religiosity is 35%.

values of Z-score, charge-off, non-performing loans and Failure for the top quartile (bottom quartile) are -3.902 (-3.789), 0.004 (0.005), 0.021 (0.022) and 0.004 (0.024), respectively. These results indicate that banks with branches in more religious areas (Top 25%) appear to take fewer risks than banks with branches located in less religious areas (Low 25%). Overall, tests of differences in mean and median reported in the table show that results are statistically significant.

<<TABLE 2 AND TABLE 3>>

4.2 Main Results

We regress each of the four bank's risk taking measures on branch religiosity, headquarter religiosity, bank-level and county-level control variables, and report the results in Table 4. We expect banks to take less risk as branch religiosity increases. When we use *LnZscore* as dependent variable we do not control for *ROA* and *STD ROA* as these variables are included in the computation of the Z-Score. In addition, given that *CO* and *NPL* are sticky over time, when we use these two measures as dependent variables we also control for their lagged values. Moreover, given that in literature there is no consensus on the appropriate proxy for risk, and the four proxies capture different aspects of risk taking behavior, we use principal component analysis to compute a composite measure of risk (*Overall Risk*). This analysis alleviates concerns about random measurement error of a single risk metric and allows for better identification of bank risk-taking. We apply a principal component analysis to the four bank-risk taking proxies and retain the first factor, which has an eigenvalue of 1.85 and accounts for about 47 percent of

the total variance of the original variables. For consistency, when we use *Overall Risk* as dependent variable, we include only controls that are common to all the models.

For each of the reported specifications, we consistently find that, controlling for the effect of headquarter religiosity, higher branch religiosity translates into lower levels of bank risk taking. Indeed, consistent with our prediction the coefficients on *Branch Religiosity* are negative and statistically significant, suggesting that branch-level religiosity plays a role in influencing the bank's risk taking behavior.

Results reported in column 5 of Table 4 - which shows the results for *Overall Risk* – suggests that, consistent with previous research, headquarter religiosity is negatively and significantly associated with bank risk taking (Adhikari and Agrawal, 2016; McGuire et al. 2011; Hilary and Hui 2009).[6] More importantly, we find that branch religiosity exhibits a negative and significant relation with risk taking. This result implies that the effect of branch religiosity on risk is additive and not washed out by the effect of the headquarters. Results documented are both statistically and economically significant. Moving from the first to the second quartile of the branch religiosity distribution reduces *Overall Risk* by 0.022 which corresponds to 8.7% of the average value of *Overall Risk* in our sample.

<<TABLE 4>>

[6] To ensure the low number of clusters in our analysis does not understate the standard errors we run specifications in which we separately include year and bank clusters. The results for these specifications are shown in columns 6 and 7 of Table 4 respectively.

4.3 Further analyses

4.3.1 M&A Transactions

To better tease out the branch versus headquarter effects we take advantage of the large number of bank mergers and acquisitions (M&A) over our sample period.[7] Specifically, we claim that if our intuition holds true and branch religiosity plays a role in shaping bank's risk-taking, we should observe that, the change in risk after the deal is a function of the branch religiosity of the target bank. In other words, we expect that the religiosity of the areas in which the branches of the target bank are located affects the change in risk taking of the acquirer bank in the post-deal period.

To carry out this test, we retrieve all bank M&A deals over our sample period from the Federal Reserve Bank of Chicago database, and keep the M&A deals that satisfy the following conditions: 1) there are data to compute the total religiosity of the acquirer (both headquarter and branches); 2) there are data to compute the branch religiosity of the target; 3) there is only one M&A deal during the sample period analyzed, and 4) there are data to compute our measures of risk and all control variables. These selection criteria lead to a sample of 125 unique M&A deals. We consider the change in risk of the acquirer as a function of the difference between the acquirer's total religiosity and the target's branch religiosity and we propose the following model:

$$Change\ Risk = \beta_0 + \beta_1\, Diff\_Religiosity + \Sigma\beta_j\, Controls + \varepsilon \qquad (2)$$

In the above specification, *Change Risk* is actual change in *Overall Risk* for the acquirer bank between the three years after the deal and the three years before the deal. *Diff_Religiosity* is the

[7] We thank an anonymous reviewer for this suggestion.

difference between the target's branch religiosity and the acquirer's total religiosity (defined as the sum of *Branch Religiosity* and *Headquarter Religiosity* of the acquirer bank) measured one year before the M&A deal. Thus, the higher the target's branch religiosity compared to the acquirer's total religiosity, the higher the value of *Diff_Religiosity.* If branch religiosity is driving our results, we expect a negative and significant relation between the change in the risk of the acquirer bank and the branch religiosity of the target bank in the post M&A period.

Results for Eq. 2 are reported in Table 5. Our findings show that the branch religiosity of the target bank maps into the risk taking of the acquirer. Specifically, estimates reported in Column (1) suggest that moving from the first to the second quartile of *Diff_Religiosity* reduces *Change Risk* by 22.5%. As an additional analysis in Column (2) of Table 5, we report an alternative specification in which we include both the target's branch religiosity (*Branch Religiosity Target)* and the acquirer's total religiosity (*Total Religiosity Acquirer*). In this way the coefficient on *Branch Religiosity Target* captures the effect of target's branch religiosity while controlling for the effect of the acquirer's total religiosity. In line with previous results, the coefficient on *Branch Religiosity Target* is negative and significant, thus corroborating the intuition that branch religiosity influences bank risk taking.

<<TABLE 5>>

4.3.2 Protestants

While so far results are consistent with religiosity having an effect on bank risk taking, to assess this further, we exploit the fact that in our data we can decompose overall religious adherence by denomination. By decomposing religious adherence by denomination we can more

precisely investigate the role of religiosity on bank risk-taking. A large literature suggests Protestants are the most risk adverse denomination (Dyreng et al., 2012; Shu et al., 2012; Hilary and Hui, 2009; Benjamin et al., 2010; and Kumar et al., 2011). If risk aversion is what is driving the results, we expect the effect to be stronger the greater the bank exposure to the Protestant denomination.

In Table 6 we re-estimate Eq.1, but split the sample according to the banks' exposure to the Protestant denomination. Specifically, we follow previous studies (Hilary and Hui, 2009; Dyreng et al., 2012) and measure Protestant adherents as the ratio of Protestants divided by the county population. Subsequently, we create a bank level measure of exposure to the Protestant denomination by weighing the value of Protestant adherents in each county by county bank branch deposits. Finally, we split the sample between high and low bank exposure to Protestant denomination using the sample median. If risk aversion is important, we should observe larger negative coefficients for those banks with a higher exposure to Protestants. In line with our expectations, Table 6 shows that the magnitude of the estimated coefficient for *Branch Religiosity* for banks with higher exposure to Protestants is significantly larger (at the 1% level) than the corresponding coefficient for the low Protestant sample. Specifically, for banks with a high percentage of Protestants, moving from the first to the second quartile of *Branch Religiosity* reduces *Overall Risk* by 0.030 which corresponds to the 13.2% of the average value of *Overall Risk* in our sample. This effect is only 4% for banks with low exposure to Protestants.

<<TABLE 6 >>

4.3.3 Financial Crisis

Our research framework posits that branch level religiosity affects the bank's risk profile (also) because religious stakeholders are risk averse, hence banks have to consider these preferences in their decision making process (supply effect). Therefore, as concerns on banks' risk taking activities increase, the social pressure exerted by stakeholders on banks should increase as well and we should observe that the negative impact of branch religiosity on bank risk becomes stronger. We use the recent financial crisis as a natural experiment to test this conjecture. The cause of the 2008-2009 economic downturn was widely attributed, by media commentators and the general public, to the incompetence and greed of senior executives of major banking corporations (Hargie et al., 2010). The senior bankers involved in the collapse of major banks were pilloried in the media and portrayed as being both avaricious and incompetent figures, who earned vast salaries and bonuses while taking enormous foolhardy financial risks, at no personal cost (Hargie et al., 2010). As a consequence, as the financial crisis unfolded, stakeholders became more aware of bank risk taking and, thus, according to legitimacy theory the influence of branch religiosity on bank risk taking should stronger.

To test this conjecture, we define an indicator variable, *Crisis*, that takes the value of 1 for years after 2007, and zero otherwise. We interact this indicator variable with *Branch Religiosity* and report results in Table 7. The coefficient on *Branch Religiosity* is negative and significant, consistent with our main results. The interaction term is negative and significant, suggesting that the financial crisis had an incremental influence on the relationship between branch religiosity and bank risk taking. This finding is consistent with the conjecture that in the

aftermath of the financial crisis, stakeholders are more aware of the potential bank risk taking behaviors and thus exert increased oversight on banks.

<<TABLE 7>>

4.4 Robustness checks for the main results

4.4.1 Lead Risk Metrics

In the previous analyses, we investigate a contemporaneous relation between branch religiosity and bank risk. Nonetheless, risk measured at time (*t*) could be the result of actions undertaken a few years earlier. In other words, it could be argued that current religiosity affects bank's *future* risk taking activity, besides current risk taking behaviors. To test this conjecture, we estimate our main model by measuring risk one, two, and three years ahead, respectively and report results in Table 8. For each of the reported specifications, we find negative and significant coefficients on *Branch Religiosity* corroborating the results in our main analyses.

<<TABLE 8 >>

4.4.2 Sample Size

In November 2005 the Federal Reserve modified the requirement for filing the FR Y-9C. Specifically, the asset-size threshold for filing the FR Y-9C was raised from $150 million to $500 million. This change in regulation led to a drop of observations in our sample size. Thus, in this section we conduct additional robustness tests to rule out the possibility that this drop in firm-year observations after 2005 biases our results.

In Table 9, column 1, we introduce an indicator variable (*Post 2005*), which equals one for years after 2005, zero otherwise, and we rerun our primary test, Eq.1. In column 2, we limit the analysis to observations of banks that are in our sample throughout the whole sample period and we re-estimate our main model. Our previously discussed inferences hold under both specifications suggesting that the drop in firm year observations post 2005 is not biasing our results.

<<TABLE 9 >>

6. Conclusions

Using branch-level data on public and private U.S. banking institutions, we investigate the importance of branch religiosity in shaping bank risk-taking behavior. We argue that branch religiosity may affect bank risk-taking because: i) religious customers are per se less risky borrowers (demand effect) and ii) decisions taken by banks need to be aligned with the values of the geographic area in which the bank operates (supply effect).

We provide robust evidence that branch religiosity is negatively related to bank risk-taking. Interestingly, this result holds even after controlling for headquarter religiosity, thus indicating that the effect of branch religiosity is additive and not washed out by headquarter religiosity. Our findings document that the driver of bank's behaviors is not fully captured by headquarters' religiosity, as claimed by previous research, but that the religiosity of the geographic area in which the bank operates significantly influences bank risk taking.

This finding is subject to a number of caveats. First, we are unable to unequivocally separate the demand from the supply effect of religiosity on bank risk taking. Second, even though in our analysis we control for various demographic factors specific to the geographic area of the branches, there may be other factors correlated with branch religiosity that influences bank risk taking.

References

Adhikari, B., and A. Agrawal. (2016) Does Local Religiosity Matter for Bank Risk-Taking? *Journal of Corporate Finance*, 38, 272-293.

Alesina, A. and E. La Ferrara (2000). Participation in heterogeneous communities. *Quarterly Journal of Economics*, 115, 847–904.

Benjamin, D.J., Choi, J.J. and Fisher, G., 2010. Religious identity and economic behavior. NBER Working Paper 15925

Boone, J. P., I. K., Khurana, and K. K., Raman. (2012). Religiosity and tax avoidance. *The Journal of the American Taxation Association*, 35(1), 53-84.

Cialdini, R. B., and N. J. Goldstein. (2004). Social influence: Compliance and conformity. *Annual Review of Psychology* 55 (1), 591–621.

Coval, J., and T. Moskowitz. (1999). Home bias at home: local equity preference in domestic portfolios. *Journal of Finance* 54, 2045–2073.

Davis, J., and J. V. Henderson. (2008). The agglomeration of headquarters. *Regional Science and Urban Economics* 38 (5), 445-460

Diaz, J. (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 (3), 453–458.

Dohmen, T., A., Falk, D., Huffman, U., Sunde, J., Schupp, and G. G., Wagner. (2011). Individual risk attitudes: measurement, determinants and behavioral consequences. *Journal of the European Economic Association*, 9 (3): 522–550.

Dowling, J., and J. Pfeffer (1975). Organizational legitimacy: Social values and organizational behavior. *Pacific Sociological Review*, 122-136.

Dyreng, S. D., W. J., Mayew, and C. D. Williams. (2012). Religious social norms and corporate financial reporting. *Journal of Business Finance & Accounting*, 39 (7- 8), 845-875.

Ellul, A., and V. Yerramilli (2013). Stronger risk controls, lower risk: Evidence from US bank holding companies. *The Journal of Finance*, 68(5), 1757-1803.

Gasper, K., and G. Clore. (1998). The persistent use of negative affect by anxious individuals to estimate risk. *Journal of Personality and Social Psychology*, 74 (5), 1350–1363.

Grinblatt, M., and M. Keloharju. (2001). Distance, language, and culture bias: the role of investor sophistication. *Journal of Finance* 56, 1053–1073.

Grullon, G., G. Kanatas, and J., Weston. (2010). Religion and corporate (mis) behavior. Rice University, Working Paper.

Hargie, O., Stapleton, K., and Tourish, D. (2010). Interpretations of CEO public apologies for the banking crisis: Attributions of blame and avoidance of responsibility. Organization, 17(6), 721-742.

Hilary, G., and K.W., Hui, (2009). Does religion matter in corporate decision-making in America? *Journal of Financial Economics*, *93*(3), 455-473.

Iannaccone, L. (1998). Introduction to the economics of religion. *Journal of Economic Literature* 36 (3), 1465–1496.

Ivkovic, Z., and S. Weisbenner (2005). Local does as local is: Information content of the geography of individual investors' common stock investments. *Journal of Finance* 60, 267–306.

Kanagaretnam, K., C. Y., Lim, and G. J., Lobo (2013). Influence of national culture on accounting conservatism and risk-taking in the banking industry. *The Accounting Review*, 89 (3), 1115-1149.

Kanagaretnam, K., G.J., Lobo, and C., Wang (2015). Religiosity and earnings management: International evidence from the banking industry. *Journal of Business Ethics*, 132(2), 277-296

Kennedy, E., and L., Lawton. (1998). Religiousness and business ethics. *Journal of Business Ethics*, 17 (2),163–175.

Kohlberg, L. (1984). Essays on Moral Development Vol. 2, the Psychology of Moral Development. San Francisco, CA: Harper & Row.

Kumar, A., J. K., Page, and O. G., Spalt. (2011). Religious beliefs, gambling attitudes, and financial market outcomes. *Journal of Financial Economics*, 102 (3), 671–708.

Laeven, L., and R, Levine. (2009). Bank governance, regulation and risk taking. *Journal of Financial Economics*, 93 (2), 259–275.

Lehrer, E. L. (2004). The role of religion in union formation: An economic perspective. Population Research and Policy Review, 23(2), 161-185.

Li, K., Griffin, D., Yue, H., & Zhao, L. (2013). How does culture influence corporate risk-taking? *Journal of Corporate Finance*, 23, 1-22.

Lievenbrück, M., & Schmid, T. (2014). Why do firms (not) hedge? Novel evidence on cultural influence. *Journal of Corporate Finance*, 25, 92-106.

Liu, C. C., and S. G., Ryan (2006). Income smoothing over the business cycle: Changes in banks' coordinated management of provisions for loan losses and loan charge-offs from the pre-1990 bust to the 1990s boom. *The Accounting Review*, 81(2), 421-441.

Liu, E. Y. (2010). Are risk-taking persons less religious? Risk preference, religious affiliation, and religious participation in Taiwan. *Journal for the Scientific Study of Religion*, 49 (1), 172–178.

Malinowski, B., (1925). Magic, science and religion. In: Needham, J. (Ed.), Science, Religion and Reality. Macmillan, New York, 19–94

McGuire, S. T., T. C., Omer, and N. Y., Sharp. (2011). The impact of religion on financial reporting irregularities. *The Accounting Review*, *87* (2), 645-673.

Miller, A. S., and J. P., Hoffman. (1995). Risk and religion: an explanation of gender differences in religiosity. *Journal for the Scientific Study of Religion*, 34 (1), 63–75.

Miller, A., 2000. Going to hell in Asia: the relationship between risk and religion in a cross-cultural setting. *Review of Religious Research* 42 (1), 5–18.

North, D. 1991. Institutions. *Journal of Economic Perspectives*, 5 (1): 97–112.

Noussair, C. N., S. T., Trautmann, G., Van de Kuilen, and N., Vellekoop. (2013). Risk aversion and religion. *Journal of Risk and Uncertainty*, *47* (2), 165-183.

Osoba, B. (2003). Risk preferences and the practice of religion : Evidence from panel data. Unpublished Working Paper, West Virginia University.

Shu, T., Sulaeman, J. and Yeung, P.E. (2012). Local religious beliefs and mutual fund risk-taking behaviors. *Management Science*, 58(10), pp.1779-1796.

Stulz, R., and R. Williamson. (2003). Culture, openness, and finance. *Journal of Financial Economics*, 70 (3), 313–349.

Sunstein, C. R. (1996). Social norms and social rules. *Columbia Law Review* 96 (4), 903–968.

Appendix A

Religiosity Variables

Branch Religiosity	Logarithm of REL_BRANCH
REL_BRANCH	The number of religious adherents in the county (as reported by ARDA) to the total population of the county (as reported by US Census Bureau), weighted by the amount of deposits in the county.
Headquarter Religiosity	Logarithmic transformation of the number of adherents per 1,000 population of the county where the bank headquarters is located.

Risk Taking Variables

LnZscore	Log of (ROA+CAR)/ σ (ROA), where ROA is operating earnings divided by assets, CAR is the capital-asset ratio and σ (ROA) is the standard deviation of ROA. We multiply the score by -1, so that higher Z-score implies more risk taking.
CO	Total charge-offs divided by gross loans at the end of year *t*.
NPL	Total non-performing loans divided by gross loans at the end of year *t*.
Failure	Dummy variable equals one if the bank failed during the sample period, zero otherwise
Overall Risk	First factor of a principal component analysis of LnZscore, CO, NPL and Failure.

Bank-level Control Variables

Non Interest	Non interest income divided by operating income.
Tier 1	Tier 1 capital divided by risk-weighted-assets.
Ln Assets	Logarithm of total assets.
Assets Growth	Growth in total assets in the year *t*.
Revenue Growth	Growth in the net interest revenue in year *t*.
Commercial	Commercial and industrial loans as percentage of total loans.
Individual	Individual loans as percentage of total loans.
Real Estate	Real Estate loans as percentage of total loans.
Depository Institution	Loans towards depository institutions as percentage of total loans.
Too Big	Dummy variable equals one if the bank accounts for more than 10% of the yearly total deposits of all sample banks, 0 otherwise.
Bank Market Share	Market shares of the bank in terms of deposits.
ROA	Operating earnings divided by total assets.
STD ROA	Standard deviation of ROA.

County-level Control Variables

Diversity	Percentage of minority population in the county.
Education	Percentage of people 25 years and above who have a bachelor's, postgraduate or professional degree in the county.
Economics	Economics is the Federal Reserve Bank of Philadelphia's state- level coincident index of economic conditions
Congregations	Computed as Branch Religiosity but considering the number of congregations instead of the number of adherents.
Republicans	Percentage of the population in the county who is affiliate with Republican Party.

Table 1. Sample Distributions

Year	Freq.	%
2000	777	9.92%
2001	837	10.69%
2002	881	11.25%
2003	928	11.85%
2004	1,021	13.04%
2005	1,021	13.04%
2006	486	6.21%
2007	476	6.08%
2008	458	5.85%
2009	467	5.96%
2010	479	6.12%
Total	**7,831**	**100%**
Unique obs.	**1,578**	

Table 1 reports the distribution of observations over the sample period.

Table 2. Descriptive Statistics

	Obs	Mean	Std.Dev.	p25	Median	p75
LnZcore	7,831	-3.790	0.694	-4.251	-3.772	-3.306
CO	7,831	0.005	0.008	0.001	0.003	0.006
NPL	7,831	0.023	0.022	0.009	0.016	0.028
Failure	7,831	0.017	0.131	0.000	0.000	0.000
Overall Risk	7,831	-0.028	0.898	-0.526	-0.254	0.167
Branch Religiosity	7,831	6.197	0.288	6.095	6.252	6.364
Headquarter Religiosity	7,831	6.262	0.240	6.131	6.285	6.415
Non-Interest	7,831	0.228	0.119	0.154	0.208	0.275
Tier 1	7,831	0.125	0.044	0.099	0.116	0.140
Ln Assets	7,831	13.586	1.365	12.583	13.287	14.062
Assets Growth	7,831	0.092	0.127	0.022	0.070	0.131
Revenue Growth	7,831	0.035	0.140	-0.058	0.034	0.127
ROA	7,831	0.012	0.011	0.009	0.013	0.017
Std. ROA	7,831	0.004	0.003	0.002	0.004	0.005
Commercial	7,831	0.164	0.093	0.099	0.149	0.210
Individual	7,831	0.005	0.016	0.000	0.002	0.005
Real Estate	7,831	0.700	0.148	0.610	0.715	0.806
Depository Institutions	7,831	0.001	0.003	0.000	0.000	0.000
Too Big	7,831	0.214	0.410	0.000	0.000	0.000
Bank Share	7,831	0.303	0.568	0.045	0.090	0.211
Diversity	7,831	39.944	19.911	22.297	39.429	54.103
Education	7,831	20.126	3.373	17.911	20.476	22.410
Economics	7,831	139.201	11.654	133.343	137.811	144.892
Congregations	7,831	1.392	0.817	0.726	1.236	1.878
Republicans	7,831	49.836	16.126	40.205	51.131	62.120

Table 2 reports the descriptive statistics for the main variables used in the analysis. Variables are defined in Appendix A. All continuous variables are winsorized at the 1st and 99th percentile.

Table 3. Univariate Analysis

		LnZscore	CO	NPL	Failure
Branch Religiosity	Low 25%	-3.789	0.005	0.022	0.024
	Top 25%	-3.902	0.004	0.021	0.004
	Diff. (Top - Low)	0.113	0.001	0.001	0.020
	P-value (t-test)	0.000	0.042	0.100	0.000
	P-value (W-M-W test)	0.000	0.055	0.544	0.000

Table 3 reports univariate analysis of the influence of religiosity on risk taking.

Table 4. Religiosity and Bank Risk Taking

	(1) LnZscore	(2) CO	(3) NPL	(4) Failure	(5) Overall Risk	(6) Overall Risk	(7) Overall Risk
Branch Religiosity	**-0.0725*** **	**-0.0006*** **	**-0.0013** **	**-0.4263*** **	**-0.1408*** **	**-0.1408*** **	**-0.1408** **
	[-2.593]	**[-3.018]**	**[-2.112]**	**[-2.812]**	**[-4.106]**	**[-8.333]**	**[-2.166]**
Headquarter Religiosity	-0.017	0.000	0.000	**-0.4644*** **	**-0.0813** **	**-0.0813** **	-0.0813
	[-0.576]	[-0.070]	[-0.014]	**[-3.690]**	**[-2.359]**	**[-2.750]**	[-1.209]
Lag CO		0.5385***					
		[21.588]					
Lag NPL			0.7747***				
			[42.451]				
Non Interest	-0.1096	0.0011	-0.0001	-1.0632***	-0.224*	-0.2240	-0.2240
	[-1.569]	[1.562]	[-0.073]	[-2.751]	[-1.844]	[-1.071]	[-1.177]
Tier 1	-6.2287***	0.0074***	0.0048	-10.3615***	-4.6776***	-4.6776***	-4.6776***
	[-34.266]	[5.095]	[1.138]	[-6.084]	[-18.429]	[-4.659]	[-12.020]
Ln Assets	0.1929***	0.0003**	-0.0007**	-0.3552***	0.0131	0.0131	0.0131
	[12.977]	[2.424]	[-2.355]	[-3.842]	[0.720]	[0.411]	[0.392]
Assets Growth	0.4411***	-0.0067***	-0.0040*	0.3621	-0.2403**	-0.2403	-0.2403**
	[6.451]	[-11.140]	[-1.770]	[1.027]	[-2.333]	[-1.272]	[-2.571]
Revenue Growth	-0.1625*	-0.0001	-0.0057**	-0.1646	-1.7563***	-1.7563***	-1.7563***
	[-1.703]	[-0.117]	[-2.014]	[-0.351]	[-10.714]	[-3.484]	[-9.826]
ROA		-0.3030***	-0.4077***	-7.1253			
		[-22.120]	[-11.857]	[-1.589]			
STD ROA		0.2378***	0.5722***	111.0526***			
		[7.792]	[7.452]	[8.066]			
Commercial	0.8786***	-0.0014	-0.0070***	0.0839	-0.0238	-0.0238	-0.0238
	[7.973]	[-1.582]	[-3.267]	[0.107]	[-0.167]	[-0.166]	[-0.091]
Individual	1.1177**	0.0324***	0.0154*	-1.6807	4.8407***	4.8407***	4.8407***
	[2.432]	[6.355]	[1.819]	[-0.465]	[5.950]	[4.668]	[3.127]

(to be continued on the next page)

(continued)

	(1) LnZscore	(2) CO	(3) NPL	(4) Failure	(5) Overall Risk	(6) Overall Risk	(7) Overall Risk
Real Estate	0.9430***	-0.0030***	-0.0013	1.4123***	0.0979	0.0979	0.0979
	[12.217]	[-4.511]	[-0.883]	[2.682]	[0.967]	[0.445]	[0.519]
Depository Institutions	-8.6463***	0.0191	0.0083	29.7452***	0.6940	0.6940	0.6940
	[-3.030]	[0.964]	[0.240]	[3.006]	[0.212]	[0.202]	[0.138]
Too Big	0.0188	0.0006**	0.0015**	0.5800***	0.1891***	0.1891***	0.1891***
	[0.740]	[2.421]	[2.455]	[3.763]	[4.565]	[3.355]	[2.892]
Bank Share	-0.2948***	0.0003	0.0012**	0.5610***	-0.0276	-0.0276	-0.0276
	[-10.404]	[1.337]	[2.350]	[3.786]	[-0.719]	[-0.554]	[-0.360]
Diversity	0.0046***	0.0000***	0.0000**	-0.0006	0.006***	0.0060***	0.0060***
	[11.824]	[3.396]	[2.412]	[-0.275]	[11.929]	[5.514]	[6.720]
Education	0.0108***	0.0001***	0.0001**	0.0003	0.0077***	0.0077	0.0077
	[5.018]	[4.825]	[1.977]	[0.023]	[2.898]	[1.075]	[1.581]
Economics	0.0015**	0	-0.0000*	0.0132***	-0.0014	-0.0014	-0.0014
	[2.141]	[-1.098]	[-1.813]	[3.353]	[-1.463]	[-0.674]	[-0.823]
Congregations	0.0223**	0.0004***	0.0008***	-0.1114	0.0898***	0.0898***	0.0898***
	[2.029]	[3.698]	[3.023]	[-1.413]	[6.193]	[9.989]	[3.395]
Republicans	-0.0013**	0	0	0.0078***	-0.0010	-0.0010	-0.0010
	[-2.407]	[1.488]	[-1.457]	[2.817]	[-1.362]	[-0.754]	[-0.713]
Constant	-6.3484***	0.0049**	0.0371***	5.0928**	1.7807***	1.7807**	1.7807**
	[-21.774]	[2.182]	[5.947]	[2.505]	[4.729]	[2.469]	[2.563]
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Bank&Year	Bank&Year	Bank&Year	Bank&Year	Bank&Year	Year	Bank
Observations	7,831	7,831	7,831	7,831	7,831	7,831	7,831
R-squared	0.362	0.677	0.689	0.274	0.377	0.377	0.377

Table 4 reports the regression results explaining bank risk taking using *Branch Religiosity*. All the variables are defined in Appendix A. Standard errors are double-clustered by bank and year in Columns (1)-(5), by year in column (6) and by bank in column (7). ***, **, * indicate statistical significance at 10 percent, 5 percent and 1 percent levels, respectively, in a two-tailed test. T-statistics are reported in brackets.

Table 5. Religiosity and Bank Risk-Taking in M&A setting

	(1) Change Risk	(2) Change Risk
Diff_Religiosity	**-0.3055***	
	[-1.957]	
Branch Religiosity Target		**-0.4209****
		[-2.237]
Total Religiosity Acquirer		0.2766
		[1.623]
Non Interest	-0.5995	-0.6131
	[-0.686]	[-0.700]
Tier 1	-3.6303	-3.8050
	[-1.151]	[-1.232]
Ln Assets	0.5145***	0.5085
	[3.122]	[3.062]
Assets Growth	-0.1239	-0.1057
	[-0.268]	[-0.223]
Revenue Growth	0.0604	-0.0535
	[0.114]	[-0.097]
Commercial	-1.4862	-1.4522
	[-1.452]	[-1.436]
Individual	-5.1982	-5.2468
	[-0.993]	[-1.031]
Real Estate	0.6502	0.6149
	[0.799]	[0.754]
Depository Institutions	8.7260	7.7909
	[0.441]	[0.388]
Too Big	0.0044	0.0097
	[0.017]	[0.038]
Bank Shares	-0.7409**	-0.7294
	[-2.177]	[-2.157]
Diversity	-0.0029	-0.0020
	[-0.636]	[-0.481]
Education	0.0162	0.0156
	[0.646]	[0.629]
Economics	0.0270***	0.0273
	[3.639]	[3.621]
Congregations	-0.0589	-0.0425
	[-0.668]	[-0.444]
Republicans	-0.0023	-0.0018
	[-0.449]	[-0.365]

Constant	-11.8909***	-10.8173
	[-4.718]	[-3.598]
Observations	125	125
R-squared	0.351	0.353

In table 5 we use the M&A deals that occurred during our sample period to tease out branch versus headquarter effect. *Change Risk* is the difference of *Overall Risk* for the acquirer bank in the three years after the M&A deal and the three years before the deal; *Branch Religiosity Target* measures the branch religiosity (as previously described in the paper) of the target bank, while *Total Religiosity Acquirer* is the sum of *the Branch Religiosity* and *Headquarter Religiosity* of the acquirer bank; and *Diff_Religiosity* is the difference between *Branch Religiosity Target* and *Total Religiosity Acquirer*. All other variables are defined in Appendix A. Standard errors are robust to heteroskedasticity. ***, **, * indicate statistical significance at 10 percent, 5 percent and 1 percent levels, respectively, in a two-tailed test. T-statistics are reported in brackets.

Table 6. Protestants

	High Protestant	*Low Protestant*
	(1)	(2)
	Overall Risk	Overall Risk
Branch Religiosity	**-0.2833*** **	**-0.0862***
	[-3.308]	**[-1.882]**
Headquarter Religiosity	0.0433	**-0.1457*** **
	[0.776]	**[-2.628]**
Difference in coef. on Branch Religiosity	*p-value (<0.000)*	
Non-Interest	0.0583	-0.5652***
	[0.467]	[-4.919]
Tier 1	-4.2756***	-5.6441***
	[-12.966]	[-17.943]
Ln Assets	-0.0545**	0.0883***
	[-1.998]	[3.477]
Assets Growth	-0.2522**	-0.1184
	[-1.992]	[-0.914]
Revenue Growth	-1.7407***	-1.8501***
	[-11.497]	[-11.800]
Commercial	0.0212	0.0424
	[0.104]	[0.223]
Individual	-1.2243	6.6823***
	[-1.250]	[8.111]
Real Estate	0.2620*	0.0603
	[1.861]	[0.425]
Depository Institutions	-7.1239	3.0769
	[-1.635]	[0.743]
Too Big	0.0846**	-0.0592
	[2.450]	[-1.636]
Bank Shares	0.1687***	-0.0790*
	[2.992]	[-1.648]
Diversity	0.0054***	0.0059***
	[6.326]	[7.710]
Education	0.0036	0.0126***
	[0.757]	[2.950]
Economics	-0.0059***	-0.0007
	[-3.320]	[-0.630]

(continued)		
Congregations	0.0503**	0.0647**
	[2.380]	[2.021]
Republican	-0.0024**	-0.0006
	[-2.173]	[-0.590]
Constant	3.9322***	1.5805***
	[5.567]	[2.982]
Year FE	Yes	Yes
Observations	3,564	3,564
R-squared	0.327	0.439

Table 6 reports the regression results explaining the relation between branch religiosity and bank risk-taking using Protestants as partitioning variable. Protestants is the bank level measure of bank exposure to Protestant denomination. *High Protestant* (*Low Protestant*) equals one if the percentage of Protestants is above (below) the median sample, zero otherwise. All other variables are defined in Appendix A. Standard errors are double-clustered by bank and year. In the test for differences in coefficient standard errors are clustered by year. ***, **, * indicate statistical significance at 10 percent, 5 percent and 1 percent levels, respectively, in a two-tailed test. T-statistics are reported in brackets. We also report p-value from Wald tests assessing the statistical significance of the differences across select coefficient (two-tailed test).

Table 7. Religiosity and Bank Risk Taking around the Financial Crisis

	(1) Overall Risk
Branch Religiosity	**-0.0723****
	[-2.433]
Headquarter Religiosity	-0.0323
	[-0.998]
CRISIS	**3.6211*****
	[4.211]
CRISIS*Branch Religiosity	**-0.2843****
	[-2.166]
CRISIS* Headquarter Religiosity	**-0.1928***
	[-1.655]
Non Interest	-0.2704**
	[-2.127]
Tier 1	-4.5463***
	[-17.717]
Ln Assets	0.0513***
	[2.870]
Assets Growth	-0.4594***
	[-5.146]
Revenue Growth	-1.6529***
	[-17.099]
Commercial	0.0203
	[0.142]
Individual	4.9167***
	[5.987]
Real Estate	0.1648*
	[1.653]
Depository Institutions	-0.5408
	[-0.158]
Too Big	0.1907***
	[4.453]
Bank Shares	-0.0968**
	[-2.529]
Diversity	0.0066***
	[12.828]
Education	0.0093***
	[3.441]
Economics	-0.0033***
	[-3.318]

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(continued)	
Congregations	0.0996***
	[6.797]
Republicans	-0.0010
	[-1.334]
Constant	0.2596
	[0.810]
Year FE	Yes
Observations	7,831
R-squared	0.339

Table 7 reports the regression results investigating the effect of the financial crisis on the relation between branch religiosity and bank risk-taking. *CRISIS* is a dummy equal 1 for years after 2007, zero otherwise. All other variables are defined in Appendix A. Standard errors are double-clustered by bank and year. ***, **, * indicate statistical significance at 10 percent, 5 percent and 1 percent levels, respectively, in a two-tailed test. T-statistics are reported in brackets.

Table 8. Measuring Risk Over Time

	(1)	(2)	(3)
	Overall Risk $_{(t+1)}$	**Overall Risk $_{(t+2)}$**	**Overall Risk $_{(t+3)}$**
Branch Religiosity	**-0.1482*** **	**-0.1627*** **	**-0.1454*** **
	[-3.691]	**[-3.481]**	**[-2.729]**
Headquarter Religiosity	**-0.0933** **	**-0.0783* **	**-0.0911* **
	[-2.373]	**[-1.756]**	**[-1.804]**
Non-Interest	-0.4953***	-0.7702***	-0.6818***
	[-3.844]	[-5.971]	[-4.534]
Tier 1	-4.0167***	-3.3772***	-2.7029***
	[-16.378]	[-13.791]	[-9.447]
Ln Assets	0.0493**	0.0812***	0.0626**
	[2.389]	[3.471]	[2.345]
Assets Growth	-0.0337	0.2133*	0.3312**
	[-0.286]	[1.654]	[2.289]
Revenue Growth	-0.9510***	-0.2438	0.4403**
	[-5.521]	[-1.533]	[2.475]
Commercial	0.0414	0.1721	0.1702
	[0.261]	[0.969]	[0.878]
Individual	4.7473***	5.3700***	4.9236***
	[5.591]	[5.723]	[5.276]
Real Estate	0.1474	0.3093**	0.5043***
	[1.302]	[2.439]	[3.594]
Depository Institutions	-0.4710	-0.3886	2.2096
	[-0.138]	[-0.099]	[0.508]
Too Big	0.1486***	0.0586	0.0587
	[3.073]	[1.115]	[0.981]
Bank Shares	-0.0443	-0.0253	0.0296
	[-1.013]	[-0.519]	[0.542]
Diversity	0.0050***	0.0047***	0.0045***
	[8.490]	[7.102]	[6.158]
Education	0.0111***	0.0120***	0.0150***
	[3.578]	[3.331]	[3.549]
Economics	-0.0006	0.0018	0.0026
	[-0.530]	[1.161]	[1.435]
Congregations	0.0988***	0.1181***	0.1211***
	[5.832]	[6.042]	[5.584]
Republicans	-0.0016*	-0.0024**	-0.0032***
	[-1.956]	[-2.428]	[-2.884]

Constant	1.8548***	1.0591**	-0.4642
	[4.262]	[2.135]	[-0.849]
Year FE	Yes	Yes	Yes
Observations	6,609	5,426	4,444
R-squared	0.333	0.340	0.358

Table 8 reports the regression results explaining bank *future* risk taking using *Branch Religiosity*. All the variables are defined in Appendix A. Standard errors are double-clustered by bank and year. ***, **, * indicate statistical significance at 10 percent, 5 percent and 1 percent levels, respectively, in a two-tailed test. T-statistics are reported in brackets.

Table 9. Controlling for dropping in sample size after 2005

	(1) Overall Risk	(2) Overall Risk
Branch Religiosity	**-0.1408*** **	**-0.1122** **
	[-4.106]	**[-2.094]**
Headquarter Religiosity	**-0.0813** **	-0.0469
	[-2.359]	[-1.054]
Post 2005	**0.3530*** **	
	[6.475]	
Non Interest	-0.2240*	-0.4040***
	[-1.844]	[-2.708]
Tier 1	-4.6776***	-5.3235***
	[-18.429]	[-14.113]
Ln Assets	0.0131	-0.0542**
	[0.720]	[-2.246]
Assets Growth	-0.2403**	-0.1066
	[-2.333]	[-0.861]
Revenue Growth	-1.7563***	-1.9943***
	[-10.714]	[-9.422]
Commercial	-0.0238	0.5181***
	[-0.167]	[2.958]
Individual	4.8407***	6.1734***
	[5.950]	[6.956]
Real Estate	0.0979	0.7266***
	[0.967]	[6.181]
Depository Institutions	0.6940	6.9930*
	[0.212]	[1.884]
Too Big	0.1891***	0.2015***
	[4.565]	[4.649]
Bank Shares	-0.0276	0.0793*
	[-0.719]	[1.908]
Diversity	0.0060***	0.0066***
	[11.929]	[9.222]
Education	0.0077***	0.0124***
	[2.898]	[3.400]
Economics	-0.0014	-0.0028**
	[-1.463]	[-2.308]
Congregations	0.0898***	0.0998***
	[6.193]	[4.810]

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Republicans	-0.0010	-0.0037***
	[-1.362]	[-3.874]
Constant	1.4278***	1.7069***
	[3.949]	[3.430]
Year FE	Yes	Yes
Observations	7,831	4,880
R-squared	0.377	0.412

Table 9 reports the regression results explaining bank risk taking using *Branch Religiosity* while controlling for the drop in observations after 2005. Models (1) we report results for the overall sample, while in Model (2) we restrict our analysis to those observations that are in our sample before and after the change in requirements. *Post_2005* is a dummy variable equals to one for fiscal years after 2005, zero otherwise. All the variables are defined in Appendix A. Standard errors are double-clustered by bank and year. ***, **, * indicate statistical significance at 10 percent, 5 percent and 1 percent levels, respectively, in a two-tailed test. T-statistics are reported in brackets.