

Does the Region of the Firm's Headquarters Affect the Firm's Perceived Competition? Evidence-Based on Religiosity

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Religion plays a significant role as an institutional framework shaping economic attitudes and behaviors. Previous studies have examined the impact of religion on various corporate decisions, including financial reporting, managerial compensation, and social responsibilities (Longenecker et al, 2004; Dyreng et al, 2012). Prior studies also find a significant relationship between perceived competition and firm performance (Li et al, 2013). Building on this literature, I investigate the impact of the level of religiosity in the county where firms are headquartered on the perceived competition of the firm, as indicated by competition-related words in 10-K filings. I find a negative relationship between religiosity and perceived competition. While exploring the underlying reasons, I find that firms headquartered in regions with high religious adherence tend to be more optimistic compared to those in regions with low religious adherence. This association also has a negative impact on R&D expenditures. Additionally, I find that this relationship negatively affects firm performance, especially during a financial crisis. The results remain robust when using the matched sample, entropy balancing, county fixed effects to control for potentially correlated variables, and other alternative specifications. I contribute to the accounting literature by highlighting how religiosity affects a firm's competition decisions and firm performance.

Key Words: firm performance, investment decisions, optimistic firm, perceived competition, religiosity

1. Introduction

Religion, serving as a fundamental institutional framework shaping economic attitudes and behaviors, has been extensively examined in prior research exploring its impact on various corporate decisions. These decisions encompass financial reporting, managerial compensation, cost stickiness, and social re-

sponsibilities (Longenecker et al, 2004; Dyreng et al, 2012; Ma et al, 2021), as well as auditors' going concern decisions (Omer et al, 2010). Halek & Eisenhauer (2001) propose that, consistent with social identity theory (Tajfel, 1981; Hogg & Abrams, 1988), a significant portion of an individual's identity stems from their membership in social groups, including nationality, ethnicity, religion, occupation, and gender. Adherence to local re-

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ligious-based social norms fosters ethical behavior at the individual level, extending to corporate conduct (McGuire et al, 2012). Religion plays an integrative role in broader societies and among individuals within them (Huffman, 1988, p. 15). Consequently, managers of firms located in religious areas are more inclined to adhere to local social norms, regardless of their personal religious affiliations. In the field of accounting studies, religiosity emerges as a critical factor warranting comprehensive investigation.

The decision-making process of managers is significantly influenced by their perception of the competitive landscape within the firm. For instance, their views on the threat posed by substitute products and services, as well as the intensity of market competition, play a pivotal role in shaping decisions concerning product design, pricing strategies, and investment plans. It is anticipated that the perceived level of competition, particularly how top management interprets market dynamics, closely correlates with a firm's future performance (Li et al, 2013). The Securities and Exchange Commission (SEC) recommends including a discussion of the firm's competitive position in the management discussion and analysis (MD&A) section of the 10-K filing (Li et al, 2013). Annual reports, notably the 10-K filing, serve as crucial communication tools for investors who heavily rely on them for making critical investment decisions, providing comprehensive insights into firm performance (Lehavy et al, 2011). Despite this,

to the best of my knowledge, previous studies have not investigated the relationship between religiosity and annual reports, particularly within the context of competition-related literature. In this paper, I try to investigate the impact of religiosity on perceived competition, measured by competition-related words in 10-K filings.

I predict that the relationship between religiosity and perceived competition may manifest in two opposing ways. On the one hand, there may be a negative association between religiosity and perceived competition, which can be explained by several factors. Religious communities often foster a sense of trust and cooperation among their members (Sosis, 2005; Levy & Razin, 2012). Also, religiosity often promotes ethical behavior and moral values (Walker et al, 2012). Finally, religions emphasize love and kindness, promoting philanthropic activities that enhance people's quality of life (Ibrahim et al, 1991; Sherkat & Cunningham, 1998). Considering the deterrent effect of negative feelings associated with violating religion-based beliefs on undesirable behaviors (McNichols & Zimmerer, 1985; Kennedy & Lawton, 1998), firms in such religious contexts may exhibit lower competition, refraining from direct comparisons with other firms. This, in turn, could adversely affect the perceived competition of these firms.

On the other hand, religiousness encourages firms to prioritize the primary goal of maximizing shareholder interests (Kennedy & Lawton, 1998; Ma et al, 2021). Guiso et al.

(2003) find that, globally, religious beliefs are associated with “good” economic attitudes. Consistent with this, firms headquartered in more religious counties tend to exhibit a more flexible adjustment of labor resources (Bolor-Erdene et al, 2023); and lower cost stickiness (Ma et al, 2021). In such cases, firms located in highly religious regions try to minimize corporate risk (Miller & Hoffman, 1995; Diaz, 2000) and optimize shareholder interests, aiming to bolster their competitive advantage in the market. These discussions imply that firms in highly religious regions base their decisions on economic conditions and actively work to mitigate firm risk, showcasing a concerted effort for the benefit of the firm.

To address the research question, I use a sample of U.S.-listed firms and measure the religious level of the county where each firm's headquarters is located. Following methodologies from prior studies, I calculate the percentage of religious adherents in each county, utilizing this metric as a proxy for the level of firm religiosity (Alesina & La Ferrara, 2000; Hilary & Hui, 2009). I decompose the religiosity measure by investigating adherence to Protestantism and Catholicism. The religiosity measure in the county is derived from decennial survey data provided by the Association of Religion Data Archive (ARDA). My sample period ends in 2010, aligning with the year of the last survey. I measure perceived competition by calculating the ratio of competition-related words per 1,000 total words in the 10-K filings. This method captures manage-

ment's perspective on the level of competition they face through textual analysis of the firm's 10-K filing, offering an effective and novel measure of competition (Li et al, 2013). Evaluating the significance of competition-related language in financial disclosures can shed light on firms' competitive dynamics and validate the proxy's construct. While previous studies often rely on metrics like concentration ratios, such as the Herfindahl index, to gauge competition, these measures primarily assess production concentration, which determines industry competitiveness (Li et al, 2013). However, there are several limitations to the Herfindahl index. Firstly, the HHI solely relies on market share as a measure of market concentration, neglecting other factors like product differentiation, barriers to entry, or the presence of potential competitors. Secondly, the HHI may fail to detect minor shifts in market concentration, especially in industries with a large number of firms (Rhoades, 1995). Thirdly, it does not account for changes in market dynamics over time, such as technological advancements, shifts in consumer preferences, or alterations in industry structure. In markets with differentiated products, where consumers may perceive disparities in quality or features, the HHI may not accurately represent the level of competition. Lastly, the Herfindahl index primarily assesses market concentration rather than managers' perceptions of competition. The 10-K document serves as a crucial communication tool for conveying corporate information comprehensively, pro-

viding detailed insights into firm performance and other pertinent factors (Kang et al, 2018). Consequently, stakeholders often consider the corporate annual report as one of the most informative channels for decision-making, influencing their perception of the company (Kloptchenko et al, 2004; Magnusson et al, 2005). Hence, analyzing the significance of competition-related language in disclosures can offer valuable insights into firms' competitive landscape and validate the proxy's accuracy. Managers' perceptions of market competition, such as the number of competitors or the competitiveness of products and services, shape their investment decisions in response to market opportunities. Therefore, the top management's perception of competition is expected to significantly correlate with a firm's future performance (Li et al, 2013; Bolor-Erdene et al, 2023).

I find a negative relationship between religiosity and perceived competition. In exploring the underlying reasons, I discover that firms headquartered in high-religious regions tend to express higher optimism, as measured by the tone level of their annual reports, compared to low-religious firms. Additionally, the negative relationship between perceived competition and religiosity has a negative effect on R&D expenditures. I also find that this relationship negatively affects firm performance, particularly during the financial crisis of 2008. These results remain robust when employing a matched sample, entropy balancing, incorporating county fixed effects

to control for potentially correlated variables, and considering other alternative specifications.

This study contributes significantly to the existing literature by investigating the impact of religiosity on corporate decision-making, particularly concerning perceived competition. Prior research has primarily focused on how religion influences firms' investment and financial reporting decisions, and SG&A stickiness (e.g., Hilary & Hui, 2009; Grullon et al, 2010; McGuire et al, 2012; Ma et al, 2021). I extend the research by providing evidence of the influence of religion on a firm's status-related competition, measured through the presence of competition-related words in their annual reports.

Secondly, I find that the negative association between religiosity and perceived competition results in a decline in a firm's expenditure on research and development. R&D investments are known to have a significant impact on accounting profits, as highlighted by Lai et al. (2020). This is consistent with the findings of Porter (1992), who observed that a firm's competitive success increasingly relies on investments in intangible assets such as R&D capabilities.

Lastly, I believe that this paper also contributes to Korean research because the data used in this study are not specific to Korea. Exploring the relationship between religiosity and perceived competition in the Korean context holds potential for future research. This could involve considering how cultural, economic, and institutional differences between

Korea and the US may influence the relationship between religiosity and firm competition. This discussion would enhance the relevance of the study's findings for policymakers, business leaders, and researchers in Korea, providing insights into the unique dynamics of religiosity and firm behavior in the Korean business environment.

The subsequent sections of the paper are structured as follows. Section 2 reviews the literature and develops the hypothesis. Sections 3 and 4 describe the research design and data, respectively. Sections 5 to 7 present the empirical results. Section 8 concludes.

II. Literature Review and Hypothesis Development

2.1 Religiosity

Religion serves as a critical informal institution that shapes human beliefs and social values (Kennedy & Lawton, 1998; Casson et al, 2010). It is believed that religion alters individual behavior patterns, subsequently influencing organizations (Sunstein, 1996; Weaver & Agle, 2002). In communities where religion plays a prominent role, the likelihood that social norms include components of religious beliefs is higher than in communities where religion plays a smaller role. Kennedy & Lawton (1998) find that in communities where religion plays a greater role, the like-

lihood that religion affects corporate managers' choices is higher. In other words, the religiosity of a community affects corporate managers, regardless of the managers' personal religious beliefs, as the religious environment is a vital part of the culture where managers live and work.

Recent studies have delved into the relationship between religiosity and various aspects of corporate decision-making. For instance, Dyreng et al. (2012) examined the correlation between religiosity and financial reporting, concluding that leading to fewer restatements and lower fraud risks. Similarly, McGuire et al. (2012) discovered that higher local religiosity correlates with fewer instances of financial reporting irregularities. Religious attitudes also play a role in corporate investing decisions (Hilary & Hui, 2009) and auditors' going concern decisions (Omer et al, 2010). Previous literature has also revealed that firms located in religiously inclined areas demonstrate better workplace safety records, make fewer inefficient labor investments, and exhibit lower cost stickiness (Amin et al, 2021; Khedmati et al, 2021; Ma et al, 2021; Zhao et al, 2021; Xu & Ma, 2022). Managers with higher levels of religiosity tend to avoid aggressive investments due to their risk-averse nature, resulting in reduced engagement in investments (Hilary & Hui, 2009) and tax avoidance (Boone et al, 2013). Collectively, these findings underscore the significant influence of religiosity levels within regions and communities on corporate decision-making processes.

2.2 The implications of religiosity on perceived competitions

I predict that the relationship between religiosity and perceived competition may manifest in two opposing ways. On the one hand, there may be a negative association between religiosity and perceived competition, which can be explained by several factors.

Firstly, religiosity often emphasizes values such as humility, contentment, and acceptance of one's circumstances (Schwartz & Huismans, 1995). In contrast, a highly competitive business environment may promote values like ambition, materialism, and self-interest (Schwartz, 2007; Vera & Rodriguez-Lopez, 2004). Individuals or firms with heightened religiosity may prioritize spiritual or communal objectives (Schwartz & Huismans, 1995; Emmons, 2005) above competitive achievements, resulting in a diminished perception of competitiveness.

Secondly, religious communities often foster a sense of trust and cooperation among their members (Sosis, 2005; Levy & Razin, 2012). In such settings, firms may rely more on collaboration and mutual support rather than intense competition. Traditionally, religious environments foster trust and transparency (Ketelaar, 2015; Thunström et al, 2021), connecting individuals through shared values and beliefs (Parboteeah et al, 2008). As a result, firms operating within highly religious communities might perceive less competition due to the prevalence of cooperative interactions.

Thirdly, religiosity often promotes ethical behavior and moral values (Walker et al, 2012). Managers with higher religiosity tend to avoid legal troubles (Lerner & Yahya, 2007; Grullon et al, 2010) because religious affiliation is associated with a higher ethical perception of individuals (Weaver & Agle, 2002; Longenecker et al, 2004; Mazar et al, 2008). McGuire et al. (2012) found that higher local religiosity is associated with lower incidences of financial reporting irregularities. This is because religion is significantly associated with an individual's ethical perception, with religious individuals showcasing heightened ethical judgment (Conroy & Emerson, 2004; Longenecker et al, 2004). Consequently, firms guided by religious principles may prioritize ethical business practices over aggressive competition, leading to a perception of lower competition levels.

Additionally, religious individuals or organizations may have different goals or measures of success compared to their non-religious counterparts. While secular firms may emphasize market dominance or profit maximization, religiously motivated entities may prioritize social responsibility (Xu & Ma, 2022), community service (Garland et al, 2008), or spiritual fulfillment (McNally et al, 2015). Consequently, their perception of competition may differ from the conventional notion, as their focus extends beyond mere rivalry to include contributing positively to society and upholding religious principles.

Finally, religions emphasize love and kind-

ness, promoting philanthropic activities that enhance people's quality of life (Ibrahim et al, 1991; Sherkat & Cunningham, 1998). Taking into account the discouraging impact of negative emotions linked to contravening religious beliefs on undesirable behaviors (McNichols & Zimmerer, 1985; Kennedy & Lawton, 1998), firms in such religious contexts may exhibit lower competition, refraining from direct comparisons with other firms. This, in turn, could adversely affect the perceived competition of these firms.

On the other hand, religiousness encourages firms to prioritize the primary goal of maximizing shareholder interests (Kennedy & Lawton, 1998; Ma et al, 2021). Guiso et al. (2003) find that, globally, religious beliefs are associated with "good" economic attitudes, defined as conducive to higher per capita income and growth. Consistent with this, firms headquartered in more religious counties tend to exhibit a more flexible adjustment of labor resources (Bolor-Erdene et al, 2023), and lower cost stickiness (Ma et al, 2021). In such cases, firms located in highly religious regions try to minimize corporate risk (Miller & Hoffman, 1995; Diaz, 2000) and optimize shareholder interests, aiming to bolster their competitive advantage in the market. These discussions imply that firms in highly religious regions base their decisions on economic conditions and actively work to mitigate firm risk, showcasing a concerted effort for the benefit of the firm.

Based on the discussions above, I propose

my hypothesis in a null form as follows:

H: The perceived level of competition for firms in highly religious areas does not significantly differ from that of firms in less religious areas.

III. Research Design

To test my hypothesis, I estimate the following model:

$$\begin{aligned} PCT_COMP = & \beta_0 + \beta_1 RELIGIOUS \\ & + \beta_2 SIZE + \beta_3 ROA + \beta_4 LOSS \\ & + \beta_5 CFO + \beta_6 LEVERAGE \\ & + \beta_7 HHL + \beta_8 MAN_AB \\ & + \beta_9 CEO_COMP + Year\ FE \\ & + Ind\ FE + \varepsilon \end{aligned} \quad (1)$$

where the dependent variable, denoted as *PCT_COMP*, represents the frequency of competition-related words per 1,000 total words in the 10-K filing. This method captures management's perspective on the level of competition they face through textual analysis of the firm's 10-K filing, offering an effective and novel measure of competition (Li et al, 2013). Evaluating the significance of competition-related language in disclosures can shed light on firms' competitive dynamics and validate the proxy's construct. The key independent variable, *RELIGIOUS*, represents the ratio of religious adherents to the total

population in the county where a firm is located. I decompose the religiosity measure by analyzing adherence to Protestantism and Catholicism (Hilary & Hui, 2009; Boone et al, 2013). The coefficient (β_1) in the regression model presents the association between religiosity and the perceived competition.

Building on prior studies (e.g., Li et al, 2013; Ali et al, 2014; Jha & Chen, 2015; Hu, 2023), I control for firm and manager-related characteristics that may influence the extent of perceived competition and its relationship with religiosity. Control variables include firm-related characteristics such as firm size (*SIZE*), profitability (*ROA*, *LOSS*), cash flow ratio (*CFO*), leverage (*LEVERAGE*), and product market competition (*HHL*). I also control for manager-related characteristics, including managerial ability (*MAB_AB*) and CEO compensation (*CEO_COMP*). Industry and year-fixed effects are included, and standard errors are clustered at the firm level. Detailed variable definitions are available in the Appendix.

IV. Data and Sample Description

I collect financial data from Compustat and CEO-related information from ExecuComp. County-level religiosity data for three survey years (1990, 2000, and 2010) is sourced from the American Religion Data Archive (ARDA). To fill in the gaps for the intervening years (1991-1999 and 2001-2009), linear interpolation is applied, consistent with previous studies (e.g., Alesina & La Ferrara, 2000; Hilary & Hui, 2009; Ma et al, 2021). Perceived competition data are obtained following the methodology outlined by Li et al. (2013). Managerial ability is measured using the managerial ability score developed by Demerjian et al. (2012), available on Demerjian's website.

〈Table 1〉 tabulates my sample selection procedure. I restrict my sample to non-financial industries excluding firms with SIC codes ranging from 6000 to 6999. Moreover, observations with missing variables are excluded. The final sample consists of 25,750 firm-year observations. To address outliers, all continuous variables are

〈Table 1〉 Sample selection

Compustat database	220,132
Less:	
Observations in the financial industry	(54,553)
Observations missing religious data	(75,512)
Observations missing competition data	(62,784)
Observations missing necessary control variables	(1,533)
Final sample	25,750

Notes: 〈Table 1〉 summarizes the sample selection procedure for firm - year observations.

winsorized at the 1st and 99th percentiles.

In Panel A of <Table 2>, I present summary statistics for the variables used in my analysis. The mean value of competition (*PCT_COMP*) is 0.569, suggesting that the mean of the competition-related words is 0.569 words per thousand words in the 10-K. The mean value of religiosity (*RELIGIOUS*) is 0.583, aligning with findings from prior studies (Hilary & Hui, 2009; Ma et al, 2021). The mean value

of the loss dummy variable (*LOSS*) is 0.307, showing that approximately 30.7 percent of observations in my sample report a loss during the period. The descriptive statistics for the other variables are consistent with those reported in prior studies.

In Panel B of <Table 2>, I compare the subsample of firms located in a highly religious county with those in a less religious county. The firms located in highly religious counties

<Table 2> Summary statistics

Panel A. Descriptive statistics

Variable	N	Mean	Std.	Min	Q1	Med	Q3	Max
<i>PCT_COMP</i>	25,750	0.569	0.464	0.043	0.233	0.427	0.771	2.310
<i>RELIGIOUS</i>	25,750	0.583	0.120	0.316	0.472	0.590	0.671	0.836
<i>SIZE</i>	25,750	5.844	1.854	2.254	4.455	5.720	7.071	10.582
<i>ROA</i>	25,750	0.019	0.130	-0.511	-0.017	0.039	0.087	0.313
<i>LOSS</i>	25,750	0.307	0.461	0	0	0	1	1
<i>CFO</i>	25,750	0.084	0.115	-0.290	0.027	0.087	0.148	0.399
<i>LEVERAGE</i>	25,750	0.552	0.330	0.065	0.317	0.515	0.709	1.934
<i>HHI</i>	25,750	0.064	0.053	0.021	0.033	0.044	0.074	0.308
<i>MAN_AB</i>	25,750	-0.005	0.110	-0.209	-0.07	-0.022	0.033	0.463
<i>CEO_COMP</i>	25,750	1.472	3.178	0	0	0	0	9.975

Panel B. High and low religiosity sample

Variables	<i>HIGH_REL=0</i>			<i>HIGH_REL =1</i>			Difference	
	N	Mean	Std	N	Mean	Std	Diff.	t-value
<i>PCT_COMP</i>	12,949	0.576	0.004	12,801	0.562	0.004	-0.014**	2.38
<i>SIZE</i>	12,949	5.838	0.016	12,801	5.849	0.017	0.011	-0.49
<i>ROA</i>	12,949	0.013	0.001	12,801	0.024	0.001	0.011***	-6.81
<i>LOSS</i>	12,949	0.324	0.004	12,801	0.290	0.004	-0.034***	5.87
<i>CFO</i>	12,949	0.083	0.001	12,801	0.086	0.001	0.003**	-2.33
<i>LEVERAGE</i>	12,949	0.548	0.003	12,801	0.556	0.003	0.008*	-1.96
<i>HHI</i>	12,949	0.063	0.000	12,801	0.065	0.000	-0.002**	-2.01
<i>MAN_AB</i>	12,949	-0.004	0.001	12,801	-0.007	0.001	-0.003**	2.25
<i>CEO_COMP</i>	12,949	1.464	0.028	12,801	1.481	0.028	0.017	-0.43

〈Table 2〉 Summary statistics (continue)

Panel C. Correlations

Variables	(1)	(2)	(3)	(4)	(5)
(1) <i>PCT_COMP</i>	1.000				
(2) <i>RELIGIOUS</i>	-0.012*	1.000			
(3) <i>SIZE</i>	-0.270***	0.005	1.000		
(4) <i>ROA</i>	-0.053***	0.049***	0.187***	1.000	
(5) <i>LOSS</i>	0.061***	-0.048***	-0.202***	-0.713***	1.000
(6) <i>CFO</i>	-0.082***	0.035***	0.215***	0.585***	-0.444***
(7) <i>LEVERAGE</i>	-0.107***	0.028***	0.298***	-0.009	-0.023***
(8) <i>HHL</i>	-0.111***	0.025***	0.059***	0.061***	-0.060***
(9) <i>MAN_AB</i>	0.078***	-0.022***	0.058***	0.179***	-0.136***
(10) <i>CEO_COMP</i>	-0.111***	0.009	0.545***	0.143***	-0.155***
Variables	(6)	(7)	(8)	(9)	(10)
(6) <i>CFO</i>	1.000				
(7) <i>LEVERAGE</i>	0.002	1.000			
(8) <i>HHL</i>	0.052***	0.085***	1.000		
(9) <i>MAN_AB</i>	0.158***	-0.057***	-0.106***	1.000	
(10) <i>CEO_COMP</i>	0.147***	0.076***	0.005	0.142***	1.000

Notes: Panel A of 〈Table 2〉 reports the descriptive statistics of the variables used in my main model Eq. (1). The summary statistics include the number of observations, mean, median, standard deviation, minimum, maximum, and percentiles (25% and 75%) distribution of the variables. All variables are winsorized at the 1st and 99th percentiles. Panel B of 〈Table 2〉 compares summary statistics of the variables across the firms located in high religious regions and the firms located in low religious regions subsamples. Panel C of 〈Table 2〉 reports the correlation matrix. *, **, *** denote significance levels of 10 percent, 5 percent, and 1 percent, respectively.

exhibit lower perceived competition (*PCT_COMP*), higher Return on Assets (*ROA*), lower incidence of losses (*LOSS*), greater cash flow from operations (*CFO*), higher leverage (*LEVERAGE*), a higher market concentration (*HHL*), and also have lower ability managers (*MAN_AB*). The differences between the two subsamples are statistically significant.

The correlation matrix in Panel C of 〈Table 2〉 presents a negative and significant correlation between perceived competition (*PCT_COMP*) and religiosity (*RELIGIOUS*).

V. Main Results

5.1 Religiosity and perceived competition

〈Table 3〉 presents the results of estimating Eq. (1). The coefficient on *RELIGIOUS* is negative and significant at the 5 percent level (coefficient = -0.077, *t*-stat = -1.98). This result suggests that firms located in highly religious regions tend to have lower perceived competition than those in low religious regions.

〈Table 3〉 The effect of religiosity on perceived competition

	Dependent variable= <i>PCT_COMP</i> (1)
<i>RELIGIOUS</i>	-0.077** (-1.98)
<i>SIZE</i>	-0.035*** (-12.11)
<i>ROA</i>	0.023 (0.64)
<i>LOSS</i>	0.014 (1.62)
<i>CFO</i>	0.009 (0.26)
<i>LEVERAGE</i>	-0.126*** (-10.88)
<i>HHI</i>	0.464*** (3.40)
<i>MAN_AB</i>	0.220*** (6.66)
<i>CEO_COMP</i>	-0.000 (-0.31)
Intercept	0.831*** (8.91)
Observations	25,750
Year FE	Yes
Ind FE	Yes
Cluster	Firm
Adj. R-squared	0.310

Notes: 〈Table 3〉 reports the main results using Eq. (1). This table presents the relation between religiosity and perceived competition. *, **, and *** denote significance levels of 10 percent, 5 percent, and 1 percent, respectively. All specifications are estimated with robust standard errors clustered by firm. Also, I include year and industry fixed effects. All the variables are defined in the Appendix.

A one standard deviation increase in religiosity is associated with an approximately 0.92% decrease in competition-related words in 10-K filings, ceteris paribus. The negative relationship between perceived competition and religiosity can be explained by reasons

mentioned in the hypothesis section, such as the fostering of a sense of trust and cooperation among members and the ethical behavior associated with religiosity.

VI. Additional Tests

6.1 Religiosity and disclosure tone

Investors rely on various information sources, including media news, press releases, analyst reports, 10-K filings, and conference calls, to guide their investment decisions. Among these sources, annual reports, especially the 10-K filings submitted by publicly traded companies in the United States at the end of each fiscal year, play a crucial role as an information conduit for investors (Kang et al, 2018). Additionally, annual reports provide insights into a firm's situation. Therefore, in this subsection, I investigate the impact of the relationship between religiosity and the disclosure tone of annual reports, aiming to demonstrate the optimism of religiosity in firms.

To test the relationship between religiosity and disclosure tone, I estimate the following equation:

$$\begin{aligned}
 TONE = & \beta_0 + \beta_1 RELIGIOUS \\
 & + \beta_{2-9} Controls + Year FE \\
 & + Ind FE + \varepsilon
 \end{aligned}
 \quad (2)$$

The dependent variable, *TONE*, represents

the frequency difference between the numbers of positive and negative words divided by the total non-numerical words in 10-K filings. Additionally, I use *NEG_TONE* as another main dependent variable, defined as the ratio of the number of negative words to the total number of words in 10-K filings. *UNI_TONE* is the ratio of unique words to the total non-numerical words in 10-K filings. *UNC_TONE* is the ratio of uncertain words to the total

non-numerical words in 10-K filings. Lastly, *NGT_TONE* is the ratio of negation words to the total non-numerical words in 10-K filings. I obtain tone-related data from Loughran-McDonald's 10-K file summaries, retrieved from the Software Repository for Accounting and Finance at the University of Notre Dame (Loughran et al, 2009; Loughran & McDonald, 2011; Loughran & McDonald, 2014).

〈Table 4〉 presents the results of estimating

〈Table 4〉 The effect of religiosity on disclosure tone

	<i>NEG_TONE</i> (1)	<i>TONE</i> (2)	<i>UNI_TONE</i> (3)	<i>UNC_TONE</i> (4)	<i>NGT_TONE</i> (5)
<i>RELIGIOUS</i>	-0.004*** (-7.88)	0.003*** (6.35)	0.019*** (4.60)	-0.004*** (-10.27)	-0.000*** (-3.81)
<i>SIZE</i>	0.000*** (11.39)	-0.000*** (-8.07)	-0.010*** (-27.24)	0.000*** (3.63)	-0.000*** (-2.76)
<i>ROA</i>	-0.004*** (-7.92)	0.003*** (6.67)	0.021*** (4.75)	-0.001*** (-4.09)	-0.000 (-1.21)
<i>LOSS</i>	0.002*** (17.03)	-0.002*** (-16.99)	-0.008*** (-6.94)	0.000** (2.01)	0.000*** (3.32)
<i>CFO</i>	-0.002*** (-4.55)	0.001*** (3.23)	0.007* (1.73)	-0.000 (-1.43)	-0.000 (-0.32)
<i>LEVERAGE</i>	-0.001*** (-4.79)	0.000 (1.28)	-0.010*** (-6.91)	-0.001*** (-11.11)	-0.000 (-0.16)
<i>HHL</i>	-0.003* (-1.81)	0.003 (1.56)	0.069*** (3.77)	-0.001 (-0.40)	-0.000* (-1.85)
<i>MAN_AB</i>	0.002*** (4.43)	-0.002*** (-3.04)	0.004 (0.91)	0.002*** (6.05)	0.000** (2.40)
<i>CEO_COMP</i>	-0.000** (-2.27)	0.000** (2.55)	0.001*** (5.41)	-0.000*** (-3.40)	-0.000*** (-2.96)
Intercept	0.012*** (6.14)	-0.008*** (-4.40)	0.212*** (15.80)	0.009*** (9.65)	0.001*** (8.78)
Observations	24,407	24,407	24,407	24,407	24,407
Year FE	Yes	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes	Yes
Cluster	Firm	Firm	Firm	Firm	Firm
Adj. R-squared	0.189	0.169	0.278	0.168	0.024

Notes: 〈Table 4〉 reports the effect of religiosity on disclosure tone. *, **, and *** denote significance levels of 10 percent, 5 percent, and 1 percent, respectively. All specifications are estimated with robust standard errors clustered by firm. Also, I include year and industry fixed effects. All the variables are defined in the Appendix.

Equation (2). The coefficients of *RELIGIOUS* are significant in all columns (coefficient = -0.004, *t*-stat = -7.88 in column [1]; coefficient = 0.003, *t*-stat = 6.35 in column [2]; coefficient = 0.019, *t*-stat = 4.60 in column [3]; coefficient = -0.004, *t*-stat = -10.27 in column [4]; coefficient = -0.000, *t*-stat = -3.81 in column [5]). This suggests that firms located in highly religious regions are more likely to use an optimistic tone (*TONE*) and use unique words (*UNI_TONE*) while being less likely to use negative words (*NEG_TONE*), uncertain words (*UNC_TONE*), and negation words (*NGT_TONE*) in their annual reports. This suggests that more religious firms tend to be more optimistic compared to less religious firms, potentially contributing to their perception of experiencing less competition. This finding suggests that biased perceptions of competition are formed by religiosity.

6.2 The effect of religiosity on research and development (R&D) expenditure

Managerial style is shaped by managerial perception, which reflects how managers assess the environment and the organization. Consequently, managerial perception is often regarded as influencing firms' strategic decisions (Anderson & Paine, 1975; Hambrick & Mason, 1984; Park et al, 2016).

When managers perceive high threats from current and potential competitors, they are driven to seek methods to sustain or improve firms' competitive positions. R&D activities

are closely linked to competitive advantages for many firms (Cheng et al, 2023). Therefore, making strategic adjustments to R&D decisions is often their primary choice compared to other strategies (Yang & Yang 2014). In this subsection, I try to examine how the relationship between religiosity and perceived competition influences research and development (R&D) expenditure. To achieve this, I estimate the following structural equation model:

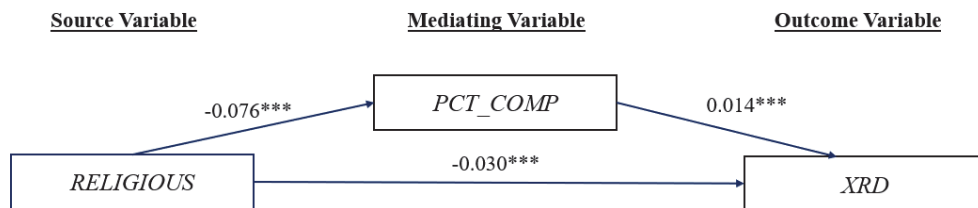
$$\begin{aligned} XRD = & \beta_0 + \beta_1 RELIGIOUS \\ & + \beta_2 PCT_COMP + Controls \\ & + Year\ FE + Ind\ FE + \varepsilon \end{aligned} \quad (3A)$$

$$\begin{aligned} PCT_COMP = & \beta_0 + \alpha_1 RELIGIOUS \\ & + Controls + Year\ FE \\ & + Ind\ FE + \varepsilon \end{aligned} \quad (3B)$$

I measure R&D expenditure using *XRD*, representing the ratio of R&D expenditure to total assets. I follow the methodology of prior studies (Lai et al, 2020; Jacob & Schütt, 2020). Control variables include firm-related characteristics such as firm size (*SIZE*), book-to-market (*BOOK_TO_MAR*), profitability (*ROA*, *LOSS*), cash flow ratio (*CFO*), and leverage (*LEVERAGE*). I also include a control for managerial ability (*MAB_AB*). Industry and year-fixed effects are included, and standard errors are clustered at the firm level. My focus is on path coefficients $\beta_2 \times \alpha_1$, which denote the effects of the mediating path from religiosity to R&D expenditure mediated through perceived competition. I present this framework in <Table 5> and <Figure 1>. In

〈Table 5〉 Path analysis of indirect effects of perceived competition on R&D expenditure

	<i>XRD</i>
Direct path	
<i>p</i> (<i>RELIGIOUS</i> , <i>XRD</i>)	-0.030*** (-11.13)
Mediated path	
I. <i>p</i> (<i>RELIGIOUS</i> , <i>PCT_COMP</i>)	-0.076*** (-3.69)
II. <i>p</i> (<i>PCT_COMP</i> , <i>XRD</i>)	0.014*** (17.76)
Indirect effect (I x II)	-0.001*** (-3.61)
Observations	25,727



Notes: Table 5 and Figure 1 present the results from the mediation test, which examines the indirect impact of perceived competition on the correlation between religious and R&D expenditure. All specifications are estimated with robust standard errors clustered by firm. Also, I include year and industry fixed effects. All the variables are defined in the Appendix.

〈Figure 1〉 Path analysis of indirect effects of perceived competition on R&D expenditure

equation (3A), the coefficient on *PCT_COMP* is positive and significant at the 1 percent level (coefficient = 0.014, *t*-stat = 17.76). This suggests that firms with high perceived competition have higher R&D expenditure compared to firms with low perceived competition. This finding aligns with the results of Cheng et al. (2023), which also found a positive relationship between managerial perception of competition and R&D investment. The indirect effect of religiosity on R&D investment, mediated through perceived competition ($\beta_2 \times$

α_1), is negative and significant at the 1 percent level (coefficient = -0.001, *t*-stat = -3.61). This result suggests that the perception of competition associated with religiosity does indeed lead to lower R&D expenditure.

6.3 The effect of religiosity on financial performance after financial crisis

Underestimating market competitiveness can lead to inadequate responses to market-related risks and opportunities. Moreover,

failure to promptly recognize and adapt to changes in competitive positions can erode market power and result in firms falling behind competitors. In regions with high religious influence, firms affected by inaccurate perceptions of their competitive standing may ignore negative market signals and fail to adequately prepare for impending risks, such as financial crises. Consequently, highly religious networks, by fostering an optimistic attitude, may exacerbate poor performance during economic downturns.

I estimate the following model to test these relationships:

$$\begin{aligned}
 FUTURE_PER = & \beta_0 + \beta_1 RELIGIOUS \\
 & + \beta_2 POST_CRISIS \\
 & + \beta_3 POST_CRISIS * RELIGIOUS \\
 & + \beta_4 SIZE + \beta_5 BOOK_TO_MAR \\
 & + \beta_6 ROA + \beta_7 LOSS + \beta_8 CFO \\
 & + \beta_9 LEVERAGE + \beta_{10} MAN_AB \\
 & + \beta_{11} VEGA + Year\ FE \\
 & + Ind\ FE + \varepsilon
 \end{aligned} \tag{4}$$

I measure the future performance of firms using two proxies: *ROA_F1*, representing the one-year-ahead Return on Assets, and *TOBINQ_F1*. Additionally, *POST_CRIS* is a dummy variable with a value of one for the fiscal years 2008 or 2009 and zero for the fiscal years 2006 or 2007.

⟨Table 6⟩ presents the results of estimating Equation (4). The significantly negative coefficients on the interaction term between *POST_CRIS* and *RELIGIOUS* (coefficient =

-0.059, *t*-stat = -2.15 in Column (1) and coefficient = -0.333, *t*-stat = -1.76 in Column (2)) indicate a negative association between religiosity and firm performance during the financial crisis. This supports the notion that firms located in regions with a strong religious influence may be less inclined to take appropriate actions in advance to prepare for an upcoming market downturn.

6.4 Propensity score matching

My results could potentially be influenced by the endogenous characteristics of religiosity, as certain types of firms may be located in highly religious regions. To address this concern, I perform a propensity score matching analysis. I first develop a model to determine the likelihood of a firm being headquartered in high religious regions using the following logit model:

$$\begin{aligned}
 Pr(HIGH_REL=1) = & \beta_0 + Var + Year\ FE \\
 & + Ind\ FE + \varepsilon
 \end{aligned} \tag{5}$$

For *Var*, I include the full set of control variables used in Eq. (1) following Shipman et al. (2017). Subsequently, I pair observations with high religiosity (*Treat group*) to those with low religiosity (*Control group*) based on propensity scores, employing a one-to-one matching without replacement.

Panel A of ⟨Table 7⟩ presents the results of estimating Eq. (5). The matching procedure results in the pairing of 12,247 observations

〈Table 6〉 The effect of religiosity on financial performance after financial crisis

	<i>ROA_F1</i> (1)	<i>TOBINQ_F1</i> (2)
<i>RELIGIOUS</i>	0.051** (2.38)	-0.122 (-0.66)
<i>POST_CRIS</i>	0.051*** (3.08)	0.160 (1.37)
<i>POST_CRIS*RELIGIOUS</i>	-0.059** (-2.15)	-0.333* (-1.76)
<i>SIZE</i>	0.001 (1.06)	-0.059*** (-4.35)
<i>BOOK_TO_MAR</i>	-0.049*** (-11.48)	-0.614*** (-13.77)
<i>ROA</i>	0.255*** (7.26)	1.364*** (4.76)
<i>LOSS</i>	-0.011 (-1.64)	0.265*** (5.40)
<i>CFO</i>	0.240*** (9.18)	2.212*** (9.15)
<i>LEVERAGE</i>	-0.028*** (-3.86)	-0.376*** (-5.83)
<i>MAN_AB</i>	-0.016 (-1.37)	0.395*** (3.12)
<i>VEGA</i>	0.000 (0.75)	0.000*** (2.58)
Intercept	0.029* (1.76)	2.378*** (14.57)
Observations	3,351	3,348
Year FE	Yes	Yes
Ind FE	Yes	Yes
Cluster	Firm	Firm
Adj. R-squared	0.364	0.389

Notes: 〈Table 6〉 reports the effect of religiosity on financial performance after financial crisis. *, **, and *** denote significance levels of 10 percent, 5 percent, and 1 percent, respectively. All specifications are estimated with robust standard errors clustered by firm. Also, I include year and industry fixed effects. All the variables are defined in the Appendix.

of firms located in high-religious regions with an equal number of observations of firms located in low-religious regions.

Panels B and C tabulate the difference-in-means of variables between the two subgroups.

Before matching, most of the means are significant differences between the treatment and control groups. However, after matching, the differences become statistically insignificant, indicating the success of the matching

〈Table 7〉 Propensity score matching

Panel A. The first stage of the propensity score matching

	Dependent variable = <i>HIGH_REL</i> (1)
<i>SIZE</i>	-0.004 (-0.19)
<i>ROA</i>	0.712*** (3.72)
<i>LOSS</i>	-0.067 (-1.32)
<i>CFO</i>	-0.179 (-0.88)
<i>LEVERAGE</i>	0.087 (1.13)
<i>HHI</i>	4.116*** (4.79)
<i>MAN_AB</i>	-0.484* (-1.88)
<i>CEO_COMP</i>	0.001 (0.11)
Intercept	-0.990 (-1.41)
Observations	25,750
Year FE	Yes
Ind FE	Yes
Cluster	Firm
Pseudo R2	0.004

Panel B. Before matching

	Before matching			
	<i>HIGH_REL</i>	<i>LOW_REL</i>	Diff.	<i>t</i> -stats
<i>SIZE</i>	5.850	5.838	0.012	0.49
<i>ROA</i>	0.024	0.013	0.011***	6.81
<i>LOSS</i>	0.290	0.324	-0.034***	-5.87
<i>CFO</i>	0.086	0.083	0.003**	2.33
<i>LEVERAGE</i>	0.556	0.548	0.008*	1.96
<i>HHI</i>	0.065	0.063	0.002	2.01
<i>MAN_AB</i>	-0.007	-0.004	-0.003**	-2.25
<i>CEO_COMP</i>	1.481	1.464	0.017	0.43

〈Table 7〉 Propensity score matching (continue)

Panel C. After matching

	After matching			
	HIGH_REL	LOW_REL	Diff.	t-stats
SIZE	5.848	5.847	0.000	0.02
ROA	0.022	0.021	0.002	1.13
LOSS	0.297	0.304	-0.006	-1.06
CFO	0.086	0.085	0.000	0.22
LEVERAGE	0.554	0.549	0.005	1.22
HHI	0.064	0.063	0.000	0.41
MAN_AB	-0.006	-0.006	0.000	0.06
CEO_COMP	1.477	1.487	-0.010	-0.24

Panel D. Results with the matched sample¹⁾

Dependent variable = PCT_COMP (1)	
HIGH_REL	-0.021** (-2.42)
SIZE	-0.035*** (-11.83)
ROA	0.028 (0.75)
LOSS	0.015* (1.65)
CFO	0.012 (0.33)
LEVERAGE	-0.129*** (-10.84)
HHI	0.483*** (3.19)
MAN_AB	0.223*** (6.43)
CEO_COMP	-0.000 (-0.21)
Intercept	0.803*** (8.60)
Observations	24,494
Year FE	Yes
Ind FE	Yes
Cluster	Firm
Adj. R-squared	0.311

Notes: 〈Table 7〉 reports the results of the propensity score matching (PSM) analysis. Panel A presents the logistic regression results for the relation between high religiosity and the control variables using Eq. (5). Panel B and C present the results for the difference-in-means of the variables between the high-religious and low-religious subsamples with the corresponding *t*-statistics before and after the matching. Panel D exhibits the religiosity on perceived competition using the propensity score matching (PSM) analysis. *, **, and *** indicate statistical significance level of the 10 percent, 5 percent, and 1 percent levels, respectively. All specifications are estimated with robust standard errors clustered by firm. Also, I include year and industry fixed effects. All the variables are defined in the Appendix.

1) In the untabulated results, I employ the entropy balancing approach. Even after conducting this analysis, the coefficient of religiosity remains negative and significant (coefficient = -0.020, *t*-stat = -2.42).

procedure.

Panel D of <Table 7> reports the results of estimating Eq. (1) using the matched sample. The coefficient on *HIGH_REL* remains negative and significant at the 5 percent level in column 1 (coefficient = -0.021, *t*-stat = -2.42), indicating that firms located in highly religious counties perceive lower competition compared to those in low religious counties, which is consistent with my main result.

VII. Robustness Checks

7.1 Region fixed-effects

In this subsection, I incorporate region-fixed effects as one method to mitigate omitted variable issues. The results of the county-fixed effect tests are presented in <Table 8>, where I address concerns of endogeneity. I recognize that the cultures, economic conditions, and macro situations of the regions may influence competition and religiosity. As shown in <Table 8>, the coefficients on *RELIGIOUS* remain negative and significant at the 10 percent level (coefficient = -0.242, *t*-stat = -1.95).

7.2 Exclude linear interpolated observations

The county-level religiosity data for three survey years (1990, 2000, and 2010) is obtained from the American Religion Data Archive

<Table 8> Region fixed-effects

	Dependent variable = <i>PCT_COMP</i> (1)
<i>RELIGIOUS</i>	-0.242* (-1.95)
<i>SIZE</i>	-0.037*** (-12.45)
<i>ROA</i>	0.044 (1.23)
<i>LOSS</i>	0.008 (0.88)
<i>CFO</i>	0.007 (0.20)
<i>LEVERAGE</i>	-0.104*** (-9.32)
<i>HHI</i>	0.503*** (3.63)
<i>MAN_AB</i>	0.163*** (4.75)
<i>CEO_COMP</i>	0.000 (0.05)
Intercept	0.942*** (6.77)
Observations	25,750
Year FE	Yes
Ind FE	Yes
County FE	Yes
Cluster	Firm
Adj. R-squared	0.344

Notes: In <Table 8>, I re-estimate equation (1) by including county fixed effects. *, **, and *** denote significance levels of 10 percent, 5 percent, and 1 percent, respectively. All specifications are estimated with robust standard errors clustered by firm. Also, I include year and industry fixed effects. All the variables are defined in the Appendix.

(ARDA). To fill in the gaps for the intervening years (1991-1999 and 2001-2009), linear interpolation is applied, following the approach of previous studies (e.g., Alesina & La Ferrara, 2000; Hilary & Hui, 2009; Ma

et al, 2021). In this subsection, I exclude linear interpolated observations and re-estimate equation 1. The results are tabulated in <Table 9>. As shown in <Table 9>, the coefficient on *RELIGIOUS* remains negative and significant at the 5 percent level (coefficient = -0.178, *t*-stat = -2.06), which is consistent with the main findings of this paper.

<Table 9> Non-linear interpolation

	Dependent variable= <i>PCT_COMP</i> (1)
<i>RELIGIOUS</i>	-0.178** (-2.06)
<i>SIZE</i>	-0.038*** (-5.06)
<i>ROA</i>	0.051 (0.46)
<i>LOSS</i>	0.037 (1.20)
<i>CFO</i>	-0.148 (-1.34)
<i>LEVERAGE</i>	-0.202*** (-5.88)
<i>HHI</i>	-8.818*** (-3.04)
<i>MAN_AB</i>	0.474*** (4.62)
<i>CEO_COMP</i>	-0.002 (-0.46)
Intercept	2.670*** (5.26)
Observations	2,282
Year FE	Yes
Ind FE	Yes
County FE	Yes
Cluster	Firm
Adj. R-squared	0.142

Notes: In <Table 9>, I re-estimate equation (1) by excluding observations obtained through linear interpolation. *, **, and *** denote significance levels of 10 percent, 5 percent, and 1 percent, respectively. All specifications are estimated with robust standard errors clustered by firm. Also, I include year and industry fixed effects. All the variables are defined in the Appendix.

7.3 The effect of market concentration

Another measurement of market competition is the Herfindahl-Hirschman Index (HHI), which is employed to assess the market competitiveness of the firm (Kang & Cho, 2017). In this subsection, I partitioned my sample into two groups based on the sample median of HHI and estimate Equation (1) separately for the high HHI group and the low HHI group. The results are presented in <Table 10>. The coefficient of *RELIGIOUS* is negative and significant in the low HHI group (coefficient = -0.125, *t*-stat = -2.38 in column [2]). At the same time, it is insignificant for the high HHI group (coefficient = -0.017, *t*-stat = -0.33

<Table 10> Market concentration

	Dep. variable= <i>PCT_COMP</i>	
	(1)	(2)
	<i>High</i>	<i>Low</i>
<i>RELIGIOUS</i>	-0.017 (-0.33)	-0.125** (-2.38)
Difference	0.108 (1.56)	
Controls	Included	Included
Observations	11,922	13,828
Year FE	Yes	Yes
Ind FE	Yes	Yes
Cluster	Firm	Firm
Adj. R-squared	0.322	0.297

Notes: <Table 10> tabulates the subsample analysis of market concentrations. *, **, and *** denote significance levels of 10 percent, 5 percent, and 1 percent, respectively. All specifications are estimated with robust standard errors clustered by firm. Also, I include year and industry fixed effects. All the variables are defined in the Appendix.

in column (1)). However, the difference between the two subsamples is insignificant (coefficient = 0.108, t -stat = 1.56). These results suggest that my findings do not depend on market concentration level.

VIII. Conclusion

In this study, I investigate the effect of the religiosity level of the county in which firms are headquartered on the firm's perceived competition, which is measured using competition-related words in 10-K filings. I find a negative relationship between religiosity and perceived competition. While exploring the underlying reasons, I find that firms headquartered in highly religious regions tend to exhibit more optimism compared to those located in regions with lower religious adherence. This also has a negative effect on R&D expenditures. I also find that this relationship negatively impacts firm performance, especially during a financial crisis. The results remain robust when using the matched sample, entropy balancing, county fixed effects to control for potentially correlated variables, and considering other alternative specifications. I contribute to the accounting literature by highlighting how religiosity affects a firm's competition decisions and firm performance. Secondly, I find that the negative association between religiosity and perceived competition results in a decline in a firm's expenditure on research and

development. R&D investments are known to have a significant impact on accounting profits, as highlighted by Lai et al. (2020). This is consistent with the findings of Porter (1992), who observed that a firm's competitive success increasingly relies on investments in intangible assets such as R&D capabilities.

I believe that this paper also contributes to Korean research because the data used in this study are not specific to Korea. Exploring the relationship between religiosity and perceived competition in the Korean context holds potential for future research. This could involve considering how cultural, economic, and institutional differences between Korea and the US may influence the relationship between religiosity and firm competition. Thus, potential avenues for future research to explore the applicability of the findings in the Korean context would contribute to the broader scholarly discourse. This discussion would enhance the relevance of the study's findings for policymakers, business leaders, and researchers in Korea, providing insights into the unique dynamics of religiosity and firm behavior in the Korean business environment.

REFERENCES

- Alesina, A., and E. La Ferrara(2000), "Participation in Heterogeneous Communities," *The Quarterly Journal of Economics*, 115(3), 847-904.
- Ali, A., S. Klasa, and E. Yeung(2014), "Industry Concentration and Corporate Disclosure Policy,"

- Journal of Accounting and Economics*, 58 (2-3), 240-264.
- Amin, M. R., I. Kim, and S. Lee(2021), "Local Religiosity, Workplace Safety, and Firm Value," *Journal of Corporate Finance*, 70, 102093.
- Anderson, C. R., and F. T. Paine(1975), "Managerial Perceptions and Strategic Behavior," *Academy of Management Journal*, 18(4), 811-823.
- Bolor-Erdene, B., K. Jung, and S. Park(2023), "Religion and Employment Stickiness," *Korean Journal of Management Accounting Research*, 23(2), 57-82.
- Bolor-Erdene, B., S. M., Jung, and S. Park(2023), "The Ties That Bind: Social Capital and Perceived Competition During Financial Crisis," *Finance Research Letters*, 53, 103667.
- Boone, J. P., I. K. Khurana, and K. K. Raman(2013), "Religiosity and Tax Avoidance," *The Journal of the American Taxation Association*, 35(1), 53-84.
- Casson, M. C., M. D. Giusta, and U. S. Kambhampati (2010), "Formal and Informal Institutions and Development," *World Development*, 38 (2), 137-141.
- Cheng, J., D. Huang, and Y. Wu(2023), "Managerial Perception on Competition and Strategic R&D Decisions," *Economic Modelling*, 123, 106281.
- Coles, J. L., N. D. Daniel, and L. Naveen(2006), "Managerial Incentives and Risk-taking," *Journal of Financial Economics*, 72(2), 431-468.
- Conroy, S. J., and T. L. Emerson(2004), "Business Ethics and Religion: Religiosity as a Predictor of Ethical Awareness Among Students," *Journal of Business Ethics*, 50(4), 383-396.
- Demerjian, P., B. Lev, and S. McVay(2012), "Quantifying Managerial Ability: A New Measure and Validity Tests," *Management Science*, 58(7), 1229-1248.
- Diaz, J. D.(2000), "Religion and Gambling in Sin-city: A Statistical Analysis of the Relationship Between Religion and Gambling Patterns in Las Vegas Residents," *The Social Science Journal*, 37(3), 453-458.
- Dyrengr, S. D., W. J. Mayew, and C. D. Williams (2012), "Religious Social Norms and Corporate Financial Reporting," *Journal of Business Finance and Accounting*, 39(7-8), 845-875.
- Emmons, R. A.(2005), "Striving for the Sacred: Personal Goals, Life Meaning, and Religion," *Journal of Social Issues*, 61(4), 731-745.
- Garland, D. R., D. M. Myers, and T. A. Wolfer (2008), "Social Work with Religious Volunteers: Activating and Sustaining Community Involvement," *Social Work*, 53(3), 255-265.
- Grullon, G., G. Kanatas, and J. Weston(2010), "Religion and Corporate (mis)behavior," Working Paper. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1472118
- Guiso, L., P. Sapienza, and L. Zingales(2003), "People's Opium? Religion and Economic Attitudes," *Journal of Monetary Economics*, 50(1), 225-282.
- Halek, M. and J. Eisenhauer(2001), "Demography of Risk Aversion," *Journal of Risk and Insurance*, 68(1), 1-24.
- Hambrick, D. C. and P. A. Mason(1984), "Upper Echelons: The Organization as a Reflection of its Top Managers," *Academy of Management Review*, 9(2), 193-206.
- Hilary, G., and K. W. Hui(2009), "Does Religion Matter in Corporate Decision Making in America?," *Journal of Financial Economics*, 93(3), 455-473.
- Hogg, M., and D. Abrams(1988), "Social Identifications:

- A Social Psychology of Intergroup Relations and Group Processes," Routledge, London.
- Hu, Y.(2023), "Local CEOs, Career Concerns and Voluntary Disclosure," *Journal of Business Finance & Accounting*, 50(3-4), 565-597.
- Huffman, T. E.(1988), "In the World but Not of the World: Religiousness, Alienation, and Philosophy of Human Nature Among Bible College and Liberal Arts College Students," dissertation, Iowa State University, Ames, Iowa
- Ibrahim, N., L. Rue., P. McDougall, and G. Greene (1991), "Characteristics and Practices of "Christian-Based" Companies," *Journal of Business Ethics*, 10(2), 123-132.
- Jacob, M., and H. H. Schütt(2020), "Firm Valuation and the Uncertainty of Future Tax Avoidance," *European Accounting Review*, 29(3), 409-435.
- Jha, A., and Y. Chen(2015), "Audit Fees and Social Capital," *The Accounting Review*, 90(2), 611-639.
- Kang, S., and S. Cho(2017), "The Effect of Accounting Quality and Competition Intensity on Labor Investment Efficiency," *Korea Business Review*, 21(1), 237-259. [printed in Korean]
- Kang, T., D. H. Park, and I. Han(2018), "Beyond the Numbers: The Effect of 10-K Tone on Firms' Performance Predictions Using Text Analytics", *Telematics and Informatics*, 35 (2), 370-381.
- Kennedy, E. J. and L. Lawton(1998), "Religiousness and Business Ethics," *Journal of Business Ethics*, 17(2), 163-175.
- Ketelaar, P. E., R. Konig., E. G. Smit, and H. Thorbjørnsen(2015), "In Ads We Trust Religiousness as a Predictor of Advertising Trustworthiness and Avoidance," *Journal of Consumer Marketing*, 32(3), 190-198.
- Khedmati, M., M. A. Sualihu, and A. Yawson(2021), "Does Religiosity Matter for Corporate Labor Investment Decisions?," *Journal of Contemporary Accounting & Economics*, 17(2), 100264.
- Kloptchenko, A., T. Eklund., B. Back., J. Karlsson, H. Vanharanta, and A. Visa(2004), "Combining Data and Text Mining Techniques for Analysing Financial Reports," *Intelligent Systems in Accounting, Finance & Management an International Journal*, 12(1), 29-41.
- Lai, S., Z. Li, and Y. G. Yang(2020), "East, West, Home's Best: Do Local CEOs Behave Less Myopically?," *The Accounting Review*, 95 (2), 227-255.
- Lehavy, R., F. Li, and K. Merkley (2011), "The Effect of Annual Report Readability on Analyst Following and the Properties of Their Earnings Forecasts," *The Accounting Review*, 86(3), 1087-1115.
- Lerner, C. S. and M. A. Yahya(2007), "Left Behind After Sarbanes-Oxley," *American Criminal Law Review*, 44, 1383.
- Levy, G. and R. Razin(2012), "Religious Beliefs, Religious Participation and Cooperation," *American Economic Journal: Microeconomics*, 4(3), 121-151.
- Li, F., R. Lundholm, and M. Minnis(2013), "A Measure of Competition Based on 10 K filings," *Journal of Accounting Research*, 51 (2), 399-436.
- Longenecker, J. G., J. A. McKinney, and C. W. Moore (2004), "Religious Intensity, Evangelical Christianity, and Business Ethics: An Empirical Study," *Journal of Business Ethics*, 55(4), 371-384.
- Loughran, T., and B. McDonald(2011), "When is a Liability Not a Liability? Textual Analysis, Dictionaries, and 10-Ks," *The Journal of Finance*, 66(1), 35-65.

- Loughran, T., and B. McDonald(2014), "Measuring Readability in Financial Disclosures," *The Journal of Finance*, 69(4), 1643-1671.
- Loughran, T., B. McDonald, and H. Yun(2009), "A Wolf in Sheep's Clothing: The Use of Ethics-related Terms in 10-K Reports," *Journal of Business Ethics*, 89, 39-49.
- Ma, L., X. Wang, and C. Zhang(2021), "Does Religion Shape Corporate Cost Behavior?," *Journal of Business Ethics*, 170(4), 835-855.
- Magnusson, C., A. Arppe., T. Eklund., B. Barbro., H. Vanharanta, and A. Visa(2005), "The Language of Quarterly Reports as an Indicator of Change in the Company's Financial Status," *Information & Management*, 42(4), 561-574.
- Mazar, N., O. Amir, and D. Ariely(2008), "The Dishonesty of Honest People: A Theory of Self-concept Maintenance," *Journal of Marketing Research*, 45(6), 633-644.
- McGuire, S. T., T. C. Omer, and N. Y. Sharp(2012), "The Impact of Religion on Financial Reporting Irregularities," *The Accounting Review*, 87(2), 645-673.
- McNally, M. D.(2015), "From Substantial Burden on Religion to Diminished Spiritual Fulfillment: The San Francisco Peaks Case and the Misunderstanding of Native American Religion," *Journal of Law and Religion*, 30(1), 36-64.
- McNichols, C., and T. Zimmerer(1985), "Situational Ethics: An Empirical Study of Differentiators of Student Attitudes," *Journal of Business Ethics*, 4(3), 175-180.
- Miller, A., and J. Hoffman (1995), "Risk and Religion: An Explanation of Gender Differences in Religiosity," *Journal of the Scientific Study of Religion*, 34(1), 63-75.
- Omer, T. C., N. Y. Sharp, and D. Wang(2010), "Do Local Religious Norms Affect Auditor's Going Concern Decisions?," Working paper. Texas A&M University
- Parboteeah, K. P., M. Hoegl, and J. B. Cullen (2008), "Ethics and Religion: An Empirical Test of a Multidimensional Model," *Journal of Business Ethics*, 80, 387-398.
- Park, S., H. Jung, and C. Ko(2016), "The Effect of Managerial Ability using DEA on Investment Efficiency," *Korea Business Review*, 20(4), 255-275. [printed in Korean]
- Porter, M. E.(1992), "Capital Disadvantage: America's Failing Capital Investment System," *Harvard Business Review*, 70(5), 65-82.
- Rhoades, S. A.(1995), "Market Share Inequality, the HHI, and other Measures of the Firm Composition of a Market," *Review of Industrial Organization*, 10, 657-674.
- Schwartz, S. H.(2007), "Cultural and Individual Value Correlates of Capitalism: a Comparative Analysis," *Psychological Inquiry*, 18(1), 52-57.
- Schwartz, S. H., and S. Huisman(1995), "Value Priorities and Religiosity in Four Western Religions," *Social Psychology Quarterly*, 58(2), 88-107.
- Sherkat, D. E., and S. A. Cunningham(1998), "Extending the Semi-involuntary Institution: Regional Differences and Social Constraints on Private Religious Consumption Among African Americans," *Journal for the Scientific Study of Religion*, 37(3), 383-396.
- Shipman, J. E., Q. T. Swanquist, and R. L. Whited (2017), "Propensity Score Matching in Accounting Research," *The Accounting Review*, 92(1), 213-244.
- Sosis, R.(2005), "Does Religion Promote Trust? The Role of Signaling, Reputation, and Punishment," *Interdisciplinary Journal of Research on Religion*, 1, 1-30.

- Sunstein, C. R(1996), "Social Norms and Social Roles," *Columbia Law Review*, 96(4), 903-968.
- Tajfel, H.(1981), "Human Groups and Social Categories," Cambridge University Press, New York.
- Thunström, L., C. J. Ritten., C. Bastian., E. Minton, and D. Zhappassova(2021), "Trust and Trustworthiness of Christians, Muslims, and Atheists/Agnostics in the United States," *Journal for the Scientific Study of Religion*, 60(1), 147-179.
- Vera, D., A. Rodriguez-Lopez(2004), "Strategic Virtues: Humility as a Source of Competitive Advantage," *Organizational Dynamics*, 33(4), 393-408.
- Walker, A. G., J. W. Smither, and J. DeBode(2012), "The Effects of Religiosity on Ethical Judgments," *Journal of Business Ethics*, 106(4), 437-452.
- Weaver, G. R., and B. R. Agle(2002), "Religiosity and Ethical Behavior in Organizations: A Symbolic Interactionist Perspective," *Academy of Management Review*, 27(1), 77-97.
- Xu, B., and L. Ma(2022), "Religious Values Motivating CSR: An Empirical Study from Corporate Leaders' Perspective," *Journal of Business Ethics*, 176(3), 487-505.
- Yang, J., and J. Yang(2014), "대기업과 중소기업의 R&D 협력에 관한 사례연구," *Korea Business Review*, 18(3), 171-193. [printed in Korean]
- Zhao, X., L. Fang, and K. Zhang(2021), "How Foreign Institutional Shareholders' Religious Beliefs Affect Corporate Social Performance?," *Journal of Business Ethics*, 178, 377-401.

〈Appendix〉 Variable definitions

<i>Variables</i>	<i>Definition</i>
Main variables	
<i>PCT_COMP</i>	The ratio of the number of occurrences of competition-related words per 1,000 total words in the 10-K (Li et al, 2013).
<i>RELIGIOUS</i>	The percentage of religious adherents in the county, measured as in Hilary & Hui (2009).
Control variables	
<i>SIZE</i>	The natural logarithm of total assets.
<i>ROA</i>	The ratio of net income to total assets.
<i>LOSS</i>	One if the net income is negative, and zero otherwise.
<i>CFO</i>	The ratio of cash flow from operations to total assets.
<i>LEVERAGE</i>	The ratio of total liabilities to total assets.
<i>HHL</i>	The Herfindahl - Hirschman Index is calculated as the sum of squares of market shares in the industry = $\sum [s/S]^2$, where s is each firm's sales and S is the sum of sales for all firms in the industry (defined by the two-digit SIC codes).
<i>MAN_AB</i>	The measurement of managerial ability was developed by Demerjian et al. (2012).
<i>CEO_COMP</i>	The natural logarithm of CEO compensations.
Other variables	
<i>XRD</i>	The ratio of research and development expense to total assets.
<i>NEG_TONE</i>	The ratio of negative words to the total non-numerical words in 10-K filings.
<i>TONE</i>	The ratio of the difference between the numbers of positive and negative words to the total non-numerical words in 10-K filings.
<i>UNI_TONE</i>	The ratio of unique words to the total non-numerical words in 10-K filings.
<i>UNC_TONE</i>	The ratio of uncertain words to the total non-numerical words in 10-K filings.
<i>NGT_TONE</i>	The ratio of negation words to the total non-numerical words in 10-K filings.
<i>ROA_F1</i>	One year ahead ROA.
<i>TOBINQ_F1</i>	One year ahead Tobin's Q ratio.
<i>POST_CRIS</i>	One if the fiscal year is 2008 or 2009, and 0 when the fiscal year is 2006 or 2007.
<i>BOOK_TO_MAR</i>	The ratio of the book value of equity to the market value of equity.
<i>VEGA</i>	The change in the dollar value of the executive's wealth for a 0.01 change in the annualized standard deviation of stock returns (Coles et al, 2006).
<i>HIGH_REL</i>	One if the firms is headquartered in a county with a higher religiosity level than the sample median, and zero otherwise.

기업본사가 위치한 지역이 기업의 인지된 경쟁에 영향을 미치는가? 종교성 중심으로

Batjargal Bolor-Erdene*

요 약

종교성은 경제적 태도를 형성함으로써 중요한 역할을 한다. 이전 연구에서는 재무보고, 경영자 보상, 사회적 책임을 포함한 다양한 기업 결정에 종교성이 미치는 영향을 조사했다(Longenecker et al, 2004; Dyreng et al, 2012). 최근 연구에서 인지된 경쟁과 기업 성과 사이의 유의한 관계가 있음을 발견하였다(Li et al, 2013). 이에 본 연구에서 기업이 위치한 지역의 종교성이 기업의 인지된 경쟁에 미치는 영향을 조사했다. 미국 상장회사를 대상으로 분석한 결과, 종교성과 인지된 경쟁 사이에 음(-)의 관계가 있는 것으로 나타났다. 또는, 종교성이 높은 지역에 본사가 위치한 기업이 종교성이 낮은 기업에 비해 더 낙관적인 경향이 있음을 발견하였다. 이와 더불어, 이는 또한 연구·개발 투자와 지출에도 부정적인 영향을 미치며 기업 성과에 특히 금융 위기 동안 기업 성과에 부정적인 영향을 미친다는 결과도 확인하였다. 마지막으로 본 연구의 결과는 성향점수 매칭표본, 엔트로피 균형분석, 지역고정효과, 그리고 여러 대체 연구모형으로 분석을 재수행하여도 강건하게 유지되었다. 본 연구는 종교성이 기업의 인지된 경쟁과 기업 성과에 미치는 영향을 조사함으로써 의의가 있다.

주제어: 기업 성과, 투자 결정, 낙관적인 기업, 인지된 경쟁, 종교성

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