



Tone at the top: CEOs' religious beliefs and earnings management

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ABSTRACT

Diverging from recent research that focuses on the effect of community religion on corporate outcomes, we study how top executives' personal religiosity affects corporate transparency. Using educational experience in church-affiliated colleges as a proxy for CEOs' religiosity, we show that firms with religious CEOs are associated with significantly less earnings management than firms with non-religious CEOs. Our results are robust to using matched samples and a difference-in-differences analysis based on voluntary CEO turnovers. The effect of CEO religiosity on earnings management is more pronounced when firms use more equity-based CEO compensation or when firms face higher operating cash flows volatility, and the effect is weaker in the post-SOX period. We also find evidence that firms with religious CEOs are less likely to engage in real earnings management. Taken together, our findings suggest an important role of CEOs' religious beliefs in shaping corporate policies.

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1. Introduction

The role of religion in economic activities is an important issue and has long been the focus of a large body of literature. The seminal work by Weber (1905) suggests that the life style arising from Protestantism plays a decisive role in the creation of modern prosperity. Recent studies show that religion influences personal behavior and economic development.¹ However, it remains largely unclear how individuals' religious beliefs impact corporate behavior. In fact, Lagace (2001) states that how individuals combine personal religious values with business life is "one of the great uncharted areas."

Our study examines how managers' religious beliefs affect corporate transparency. Anecdotal evidence suggests that executives' religiosity influences their decision making in the corporate set-

ting. Indra Nooyi, the former chairman and CEO of PepsiCo and a devout Hindu, has drawn upon her religious beliefs to foster a culture of diversity and inclusion at the soft-drink manufacturer (Rossi, 2014). John H. Tyson, the then-CEO of Tyson Foods and now the chairman of the board, is a passionate Christian who revived the company's Chaplaincy program that employs more than 100 chaplains company-wide to provide compassionate pastoral care to team members and their families. John Tyson once said, "My faith is just an ongoing evolution, trying to understand what faith in the marketplace looks like, giving people permission to live their faith seven days a week."

Despite the anecdotal evidence, there exists little research on how religious beliefs of top management influence firm behavior, perhaps due to a lack of data on individual's religious adherence.² We overcome this challenge and capture chief executive officers (CEOs)' religious beliefs using their educational experience in

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¹ For example, religiosity is linked to individual decisions regarding marital choices (e.g., Lehrer and Chiswick, 1993), fertility (e.g., Stark and Finke, 2000), women's work at home and in the labor market (e.g., Lehrer, 1995; Hartman and Hartman, 1996), and education, wages, and wealth (e.g., Lehrer, 2004). More recently, Barro and McCleary (2003) provide evidence that religious beliefs affect individual traits, which in turn influence a country's economic growth. Chen et al. (2016) document that firms in countries with stronger religiosity are able to borrow debt at more favorable terms, such as a lower loan interest spread, a larger facility amount, use of accounting-based performance pricing, and a lower upfront fee.

² There is no legal requirement to disclose personal religious beliefs, and disclosing such information is a matter of personal choice. While Title VII of the Civil Rights Act of 1964 provides federal protection from religious-based workplace discrimination, the law leaves plenty of room for interpretation of the rights and responsibilities of employees and employers. Employers must also balance the rights of employees to hold the practice of their beliefs against the rights of other employees to be free of religious harassment. As a result, American workplace has become secular, whereby people keep their religious beliefs to themselves and do not discuss their faith (Beatty and Kirby, 2006). Not surprisingly, data on executives' religious beliefs are scarce as executives often choose not to disclose their religious beliefs.

church-affiliated colleges. Specifically, we examine whether firms managed by CEOs who attended church-affiliated colleges exhibit less earnings management.

The upper echelons theory suggests that managers' life experience is associated with their unique personal values and traits, which in turn affect their management styles and lead to different organizational outcomes (Hambrick and Mason, 1984). Consistent with this view, individuals' educational experience has been shown to shape their moral standards and personal behavior. Pascarella and Terenzini (1991) document strong evidence of moral development during a person's college years and find that moral reasoning differs significantly across institution types, with students from church-affiliated liberal arts colleges scoring the highest. A degree from a church-affiliated college may also capture pre-college religiosity as individuals with religious adherence or those from religious families are more likely to attend colleges with religious affiliations. For example, 70% of undergraduate students are Catholic at Boston College, a Roman Catholic university. At Brigham Young University, owned and operated by The Church of Jesus Christ of Latter-day Saints (LDS Church), over 98 percent of the students are active members of the LDS Church.

Prior studies show that religiosity is positively associated with risk aversion (Miller and Hoffman, 1995; Barsky et al., 1997; Diaz, 2000; Miller, 2000; Osoba, 2003). If managers with religious beliefs are more risk averse, we expect firms managed by religious CEOs are associated with less earnings management as these managers would want to avoid troubles such as class action lawsuits, enforcement actions toward firms and executives, and restatements that typically have adverse effects on their careers. In addition, prior work suggests that religious individuals hold more traditional views on moral issues and have more conservative moral standards than non-religious individuals (Terpstra et al., 1993; Barnett et al., 1996; Mazar et al., 2008). Longenecker et al. (2004) survey about 1200 business managers and professionals in the U.S. and conclude that executives' religious commitment is significantly related to business ethics. If more conservative moral standards suggest honest reporting of financial performance, we expect that religious executives are more likely to refrain from managing earnings. To the extent that educational experience in church-affiliated colleges shapes or reflects personal traits and that managers' personal characteristics influence corporate decisions, we hypothesize that CEOs who attended church-affiliated colleges (religious CEOs hereafter) engage in less earnings management.³

We collect information on undergraduate college education from BoardEx for executives of S&P 1500 firms. We further collect data on each college's religious affiliation from the U.S. Department of Education and CompusCorner.com. Following prior studies, we use the absolute value of discretionary accruals adjusted for performance to capture earnings management. We find that the magnitude of the absolute value of discretionary accruals is significantly lower for firms managed by religious CEOs, suggesting that these firms engage in less earnings management, compared with otherwise similar firms managed by non-religious CEOs. The impact of religious CEOs is economically important as the difference in the absolute value of discretionary accruals between firms with religious CEOs and those without is 14.5% of the unconditional sample average. Our results are robust to controlling for U.S. News school rankings or school locations, suggesting that our results are

not merely driven by the difference in educational resources across schools or school locations.

Endogeneity is a potential concern in our setting. In particular, our results may be driven by omitted firm characteristics that affect both the appointments of religious CEOs and earnings management. We conduct two tests to alleviate this concern. First, we create control samples of non-religious CEOs based on propensity score matching and entropy matching. Our results are robust to using the matched samples. Second, we identify voluntary CEO turnovers that replace non-religious CEOs with religious CEOs, and examine changes in earnings management following these CEO turnovers. We focus on voluntary turnovers to mitigate the concern of reverse causality between the change in corporate policy and CEO succession. We find that firms replacing non-religious CEOs with religious CEOs experience a significant decrease in earnings management following the turnover compared to firms that experience other types of CEO changes. We note, however, that our tests cannot fully address the concern about the selection of religious CEOs into particular firms. It is plausible that firms with a conservative or integrity culture are more likely to match with CEOs with more moral integrity, and that such firms exhibit less earnings management. The lack of within-firm variations in CEO characteristics does not allow us to control for firm fixed effects, and we cannot completely rule out the possibility that our results reflect the sorting of religious CEOs into firms with a more conservative culture and a lower incidence of earnings management. We thus suggest caution in drawing causal inferences from our findings.

Our results are more pronounced when CEOs are more likely to benefit from earnings management. We find that the relation between CEO religiosity and earnings management is more negative for firms with greater equity-based incentives in CEO compensation or for firms with higher cash flows volatility, suggesting that CEO religiosity plays a more important role in limiting earnings management when the incentive or pressure to make numbers is higher. We also find that the effect of CEO religiosity on earnings management is attenuated after the passage of the Sarbanes-Oxley Act (SOX). This result is consistent with the idea that the SOX curtails financial reporting opportunism by pushing firms to tighten up internal controls (Cohen et al., 2008), thereby reducing the role of religiosity in limiting earnings management.

We next examine whether the relation between religious CEOs and earnings management differs across various religious denominations. We find that both income-increasing and income-decreasing earnings management are lower for firms managed by CEOs who attended Protestant colleges, consistent with prior findings that Protestants are relatively more risk averse than other religious groups (e.g., Barsky et al., 1997; Shu et al., 2012). CEOs who attended Catholic colleges, on the other hand, are associated with less income-increasing earnings management, but not with income-decreasing earnings management. This result cannot be explained by risk aversion because risk averse managers would refrain from both income-increasing and income-decreasing earnings management. Thus, not only risk aversion but also conservative moral standards of religious CEOs appear to drive the negative relation between religiosity and earnings management.

In addition, we find that firms managed by religious CEOs exhibit less earnings management through real activities (real earnings management, hereafter). We also find that the effect of religious CEOs on earnings management remains significant after controlling for CFO religiosity. Furthermore, the effect of CEO religiosity is present only when the CFO has no accounting expertise (i.e., not a CPA), suggesting that CFOs' accounting expertise limits religious CEOs' influence on financial reporting practice.

³ We note, however, that there are several null hypotheses concerning the association between religious CEOs and earnings management. It is possible that religious CEOs' risk aversion motivates them to engage in earnings management in order to conceal poor performance and ensure job security. Prior studies also question the link between religion and morality. Smith, Ryan, and Diggins (1972) and Michaels and Miethe (1989) find no effect of religiosity on academic integrity. Heatherington and Feldman (1964) even suggest a positive relation between religion and cheating.

Our proxy for CEO religiosity is based on the religious affiliation of the colleges that CEOs attended. Measuring a person's religiosity based on her degree from a church-affiliated college undoubtedly introduces measurement error. However, as long as the measurement error is not systematically related to the corporate outcome that we examine, the noise in the measure works against finding a statistically significant effect of CEOs' religiosity-related traits. We also note that CEOs attending religious schools may capture two related but different effects: CEOs' pre-college religious beliefs and/or their religious college education. While our empirical analysis is unable to disentangle the two effects, they both contribute to the formation of CEOs' religious beliefs in their adult life.

Our study contributes to the literature in several ways. First, we add to the literature that examines the effect of culture and religion on corporate decisions. Although the effect of religion at the individual- and country-levels has been well studied, there is little empirical research on how personal religious beliefs affect corporate decisions. We fill this void by providing the first empirical evidence on the impact of CEOs' religiosity-related traits on corporate transparency. We complement recent studies that examine the effect of community religion on corporate outcomes (e.g., Hilary and Hui, 2009; McGuire et al., 2012; Dyreng et al., 2012; Shu et al., 2012; Callen and Fang, 2015; He and Hu, 2016) by focusing on *personal* religiosity of firms' ultimate decision makers and showing that CEOs' religiosity affects their corporate decisions.

Second, we add to the growing line of research on the impact of managers' characteristics on corporate outcomes. Our study is related to prior work that examines the effect of top management quality on firm performance (e.g., Chemmanur and Paeglis, 2005; Chang et al., 2010; Chemmanur et al., 2011; Demerjian et al., 2012; Chemmanur et al., 2018). Our study is also related to recent papers that examine the role of managerial personal traits in corporate investment and financial policies (e.g., Malmendier and Tate, 2005, 2008; Bamber et al., 2010; Malmendier et al., 2011; Benmelech and Frydman, 2015). Our study contributes to this literature by documenting the role of CEOs' religiosity in corporate transparency.

Finally, we contribute to the extant literature on executives' incentives to manage earnings by identifying a previously unexplored factor, i.e., CEOs' personal religious beliefs. We provide evidence suggesting that religious CEOs act more responsibly in corporate financial reporting.

2. Sample and descriptive statistics

2.1. Sample and variable construction

We begin constructing our sample from the Compustat ExecuComp database, which provides time-series data for top executives in the S&P 1500 firms since 1992. We identify CEOs and CFOs at the firm-year level based on the CEO/CFO annual flag as well as the job title provided in ExecuComp.

For each CEO/CFO, we use the BoardEx database to collect his/her biographic information including educational background from 2000–2010. We focus on undergraduate education because prior studies show that individuals show impressive moral development in their college years (Pascarella and Trenzini, 1991) and not all executives obtain advanced degrees. We exclude CEOs and CFOs with missing undergraduate college information on BoardEx. Our final sample contains 2698 firm-year observations from 2000–2010.

For each college, we further collect its religious affiliation from the U.S. Department of Education and CampusCorner.com. A college is defined as a religious school if it has a religious affiliation, such as Baptist, Roman Catholic, United Methodist, and so on. We create an indicator variable *CEO_Relsch* that equals one if a CEO did

his undergraduate study at one of these church-affiliated schools, and zero otherwise.⁴ Similarly, we collect colleges' religious affiliation for all available CFOs in our sample.

To verify the validity of our CEO religiosity measure, we obtain data on college freshmen's religious background from HERI's annual CIRP Freshman Survey responses.⁵ Appendix A provides descriptive statistics on the percentage of college freshmen with different religious background across our sample colleges in the year that our sample CEOs entered colleges. It shows that 55% of incoming college students claim to be Protestant in universities which we classify as Protestant schools, while 79% of college freshmen identify themselves as Catholic in universities which we classify as Catholic schools. These statistics suggest that students are more likely to be Catholic in Catholic schools and are more likely Protestant in Protestant schools. According to the statistics in Appendix A, measurement errors in our CEO religiosity measure are relatively lower among CEOs who attended in Catholic schools.

Following previous literature, we use discretionary accruals as a proxy for earnings management. We use a cross-sectional version of the modified Jones model as in DeFond and Subramanyam (1998) due to its superior specification and less restrictive data requirements. The cross-sectional approach of estimating discretionary accruals helps adjust for changing economic conditions within an industry in a given year that can influence accruals independently of earnings management. Following Kothari et al. (2005), we include return on assets (*ROA*) in the prior year as a regressor in the estimation model to control for the effect of performance on discretionary accruals estimation.⁶ We examine the absolute value of discretionary accruals (*absDA*) because earnings management can involve either income-increasing or income-decreasing accruals (Klein, 2002). We also examine whether CEO religiosity affects income-increasing and income-decreasing earnings management differently.

2.2. Descriptive statistics

We report the distribution of our sample by year in Panel A of Table 1, and by Fama-French 12 industry (Fama and French, 1997) in Panel B. The number of observations increases over time as the BoardEx data is more complete in later years of our sample period. Our sample observations are concentrated in business equipment, manufacturing, and health care industries. Our regression analyses include both year and Fama-French 12 industry fixed effects to

⁴ Our CEO religiosity measure can be noisy because non-religious CEOs might have attended church-affiliated colleges, and religious CEOs might have attended secular colleges. It is also possible that CEOs with certain religious beliefs might have attended a college affiliated with a different religion. However, to the extent that measurement errors are not systematically associated with earnings management proxies, they work against finding a significant relation between CEO religiosity and earnings management. Further, attendance in church-affiliated colleges not only captures pre-college religiosity but also educational experience in such colleges.

⁵ The CIRP Freshman survey, created by Dr. Alexander "Sandy" Astin in 1966, has resided at the Higher Education Research Institute at UCLA since 1973. It provides data on incoming college students' background characteristics, high school experiences, attitudes, behaviors, and expectations for college. To date, over 15 million students at over 1,900 institutions have participated in the survey. For more information, please see <https://heri.ucla.edu/cirp-freshman-survey/>.

⁶ Specifically, we estimate the discretionary accrual model each year using all firm-year observations in the same two-digit SIC code as follows: $TA_{it} = \beta_0 ASSETS_{it-1} + \beta_1 (\Delta SALES_{it} - \Delta RECEIVABLES_{it}) + \beta_2 PPE_{it} + \beta_3 ROA_{it-1} + \varepsilon_{it}$, where TA_{it} is total accruals scaled by lagged total assets, $\Delta SALES_{it}$ is change in net sales scaled by lagged total assets, $\Delta RECEIVABLES_{it}$ is change in net receivables scaled by lagged total assets, PPE_{it} is gross property, plant and equipment scaled by lagged total assets, and ROA_{it-1} is lagged return on assets. The fitted value of the regression model is considered as the non-discretionary accruals in an industry-year with the given level of sales changes, property, plant and equipment, as well as firm performance, while the regression residual is presumed not dictated by firm and industry conditions, and is considered as the discretionary component of accruals.

Table 1
Sample distribution.

Panel A: Firm-year distribution by calendar year						
Year	# of firm-year obs.		% of firm-year obs.			
2000	113		4.19			
2001	125		4.63			
2002	156		5.78			
2003	170		6.30			
2004	222		8.23			
2005	231		8.56			
2006	237		8.78			
2007	320		11.86			
2008	351		13.01			
2009	386		14.31			
2010	387		14.34			
Total	2698		100			
Panel B: Firm-year distribution by industry						
Fama-French 12 industry	# of firm-year obs.		% of firm-year obs.			
Consumer Non-Durables	166		6.15			
Consumer Durables	108		4.00			
Manufacturing	463		17.16			
Oil, Gas, and Coal Extraction and Products	131		4.86			
Chemicals and Allied Products	186		6.89			
Business Equipment	824		30.54			
Telephone and Television Transmission	69		2.56			
Wholesale, Retail, and Some Services	254		9.41			
Healthcare, Medical Equipment, and Drugs	278		10.30			
Other	219		8.12			
Total	2698		100			
Panel C: CEO distribution by religious education, gender, and industry						
	All CEOs		CEOs attended religious universities?			
	(N = 834)		Yes (N = 149)		No (N = 685)	
	# CEOs	% CEOs	# CEOs	% CEOs	# CEOs	% CEOs
Male	807	97%	143	96%	664	97%
Hightech industry	231	28%	36	24%	195	28%
Age when became CEO	47.2		47.7		47.2	

The table reports the firm-year distribution of our sample by calendar year (Panel A) and by industry (Panel B), as well as the distribution of sample CEOs by education, gender, and industry (Panel C).

control for the time trends and potential heterogeneity across industries. Panel C presents the distribution of sample CEOs by their religious educational background, gender, and industry. It shows that 97% of CEOs in our sample are male, 28% work in the high tech industry, and on average they become the CEO at the age of 47. Between CEOs who attended religious colleges and those who did not, we find a similar distribution in their gender, industry, and age when they become CEOs.

Table 2, Panel A presents summary statistics for various executive and firm characteristics. Variable definitions are described in greater details in Appendix B. To minimize the impact of extreme outliers, we winsorize all continuous variables at the top and bottom 1%. Approximately 17% of CEOs in our sample attended church-affiliated universities for undergraduate education. Most of these CEOs went to either Catholic universities (9.4%) or Protestant universities (6.1%), with the remaining 1.7% to universities with other types of religious affiliation.⁷ Appendix C presents the list of church-affiliated colleges from which at least three CEOs obtained their undergraduate education. The top three church-affiliated colleges that produce most CEOs are University of Notre Dame (nine CEOs), Villanova University (six CEOs), and Brigham Young University (five CEOs, tied with Duke University and Georgetown University).

⁷ We classify a university as a Protestant university if it is affiliated with the following religious denominations: Baptist, Brethren, Lutheran, Methodist, Protestant, Presbyterian, Quaker, or Unitarian.

On average, CEOs are 54 years old with 7.7 years of tenure at the CEO position, and the vast majority of them (97%) are male. The absolute value of discretionary accruals (*absDA*) has a mean of 0.062 and a median of 0.040, comparable to those in prior studies (e.g., Klein, 2002; Kim et al., 2012). Our sample firms are on average 24.5 years old with \$5 billion book value of assets, an industry-adjusted ROA of 4.7%, and a market-to-book ratio (*M/B*) of 3.4. Well over 90% of the sample firms hire Big-4 audit firms. To isolate the effect of religious CEOs on earnings management from the effect of community religion, we follow Hillary and Hui (2009) and control for the degree of religiosity (*REL*) in the county where the firm's headquarters is located, as well as county-level demographic characteristics such as population, household income, education levels, etc. On average, our sample firms are located in counties with high religiosity, with an average *REL* of 69.3%.

Table 2, Panel B reports the Spearman correlation coefficients and associated *p*-values of our main variables. We find that *CEO_Relsch* has a negative and significant correlation with *absDA*, providing preliminary evidence that firms with religious CEOs engage in less earnings management.

3. Empirical results

3.1. Univariate analysis

Table 3 compares firms with religious CEOs with those with non-religious CEOs. Out of the 2698 firm-year observations, 462

Table 2
Summary statistics.

<i>Panel A: Summary statistics</i>						
	# of obs.	Mean	Median	Std Dev	25th Pctl	75th Pctl
CEO Characteristics						
CEO_Relsch	2698	0.171	0.000	0.377	0.000	0.000
CEO_Protestant	2698	0.061	0.000	0.239	0.000	0.000
CEO_Catholic	2698	0.094	0.000	0.292	0.000	0.000
CEO_Otherrelsch	2698	0.017	0.000	0.128	0.000	0.000
CEO_Age	2698	53.918	54.000	6.775	49.000	59.000
CEO_Tenure	2698	7.711	6.003	6.123	3.668	9.586
CEO_Male	2698	0.971	1.000	0.169	1.000	1.000
CEO_Incentive	2698	0.234	0.171	0.215	0.084	0.317
Firm Characteristics						
absDA	2698	0.062	0.040	0.066	0.018	0.079
Assets (\$million)	2698	5,117	1,366	11,076	496	3,984
FirmAge	2698	24.462	17.268	19.654	10.112	35.153
#Analysts	2698	10.716	9.000	7.272	5.000	15.000
Industry-adj. ROA	2698	0.047	0.037	0.127	0.000	0.089
Leverage	2698	0.167	0.150	0.152	0.006	0.272
Big4	2698	0.947	1.000	0.225	1.000	1.000
M/B	2698	3.449	2.435	3.513	1.632	3.915
Loss	2698	0.304	0.000	0.460	0.000	1.000
Ln(Op. Risk)	2698	-3.283	-3.300	0.755	-3.793	-2.769
Rural	2698	0.089	0.000	0.285	0.000	0.000
Invest	2698	0.309	0.222	0.277	0.144	0.365
NOA	2698	0.539	0.573	0.194	0.424	0.686
Hightech	2698	0.288	0.000	0.453	0.000	1.000
Characteristics of the County where the Firm's Headquarters is Located						
REL	2698	0.693	0.680	0.182	0.565	0.813
Population	2698	1,501,656	953,685	1,763,424	552,663	1,682,383
Income	2698	59,165	55,849	14,814	47,059	70,427
Education	2698	0.351	0.344	0.096	0.273	0.426
Married	2698	0.744	0.758	0.061	0.699	0.785
Age	2698	35.959	35.740	2.543	34.040	37.790
Minority	2698	0.305	0.296	0.141	0.201	0.429
Politics	2698	0.414	0.407	0.120	0.337	0.493
Male	2698	0.971	0.972	0.040	0.941	1.000
GDP	2698	0.014	0.019	0.024	0.000	0.031

(continued on next page)

Table 2
(continued)

Panel B: Correlations																
	<i>absDA</i>	<i>CEO_Relsch</i>	<i>CEO_Incentive</i>	<i>Ln (Assets)</i>	<i>Ln (FirmAge)</i>	<i>Ln (#Analysts)</i>	<i>Industry-adj. ROA</i>	<i>Leverage</i>	<i>Big4</i>	<i>M/B</i>	<i>Loss</i>	<i>Ln (Op. Risk)</i>	<i>Rural</i>	<i>Invest</i>	<i>NOA</i>	<i>High-tech</i>
<i>CEO_Relsch</i>	−0.052 [0.007]															
<i>CEO_Incentive</i>	−0.010 [0.614]	−0.084 [0.000]														
<i>Ln(Assets)</i>	−0.151 [0.000]	0.009 [0.634]	0.274 [0.000]													
<i>Ln(FirmAge)</i>	−0.088 [0.000]	0.038 [0.051]	0.008 [0.683]	0.432 [0.000]												
<i>Ln(#Analysts)</i>	−0.068 [0.000]	−0.048 [0.013]	0.430 [0.000]	0.615 [0.000]	0.102 [0.000]											
<i>Industry-adj. ROA</i>	0.042 [0.029]	−0.015 [0.424]	0.263 [0.000]	0.027 [0.155]	−0.022 [0.259]	0.219 [0.000]										
<i>Leverage</i>	−0.118 [0.000]	0.032 [0.095]	−0.121 [0.000]	0.356 [0.000]	0.158 [0.000]	−0.020 [0.310]	−0.229 [0.000]									
<i>Big4</i>	−0.063 [0.001]	−0.015 [0.448]	0.131 [0.000]	0.247 [0.000]	0.058 [0.003]	0.208 [0.000]	0.040 [0.037]	0.120 [0.000]								
<i>M/B</i>	0.024 [0.221]	−0.090 [0.000]	0.351 [0.000]	0.077 [0.000]	−0.047 [0.016]	0.282 [0.000]	0.425 [0.000]	−0.134 [0.000]	0.014 [0.470]							
<i>Loss</i>	0.091 [0.000]	−0.009 [0.637]	−0.200 [0.000]	−0.208 [0.000]	−0.150 [0.000]	−0.158 [0.000]	−0.371 [0.000]	−0.004 [0.845]	−0.073 [0.000]	−0.190 [0.000]						
<i>Ln(Op. Risk)</i>	0.172 [0.000]	0.020 [0.300]	−0.113 [0.000]	−0.427 [0.000]	−0.275 [0.000]	−0.165 [0.000]	0.066 [0.001]	−0.299 [0.000]	−0.121 [0.000]	0.084 [0.000]	0.272 [0.000]					
<i>Rural</i>	−0.034 [0.082]	0.078 [0.000]	−0.085 [0.000]	0.059 [0.002]	0.087 [0.000]	−0.029 [0.127]	0.007 [0.732]	0.071 [0.000]	0.051 [0.008]	−0.047 [0.015]	−0.026 [0.179]	−0.010 [0.609]				
<i>Invest</i>	0.100 [0.000]	−0.006 [0.765]	0.196 [0.000]	−0.235 [0.000]	−0.272 [0.000]	0.123 [0.000]	0.273 [0.000]	−0.355 [0.000]	−0.072 [0.000]	0.259 [0.000]	−0.094 [0.000]	0.235 [0.000]	−0.110 [0.000]			
<i>NOA</i>	−0.071 [0.000]	0.062 [0.001]	−0.084 [0.000]	0.095 [0.000]	0.043 [0.026]	−0.085 [0.000]	−0.101 [0.000]	0.451 [0.000]	0.052 [0.007]	−0.314 [0.000]	−0.132 [0.000]	−0.275 [0.000]	0.084 [0.000]	−0.197 [0.000]		
<i>Hightech</i>	0.069 [0.000]	−0.044 [0.024]	0.138 [0.000]	−0.155 [0.000]	−0.162 [0.000]	0.133 [0.000]	0.101 [0.000]	−0.276 [0.000]	0.013 [0.512]	0.111 [0.000]	0.139 [0.000]	0.203 [0.000]	−0.079 [0.000]	0.246 [0.000]	−0.280 [0.000]	
<i>REL</i>	0.016 [0.409]	0.042 [0.029]	−0.004 [0.832]	0.051 [0.008]	0.090 [0.000]	−0.050 [0.009]	−0.005 [0.815]	0.038 [0.047]	−0.002 [0.905]	0.005 [0.785]	−0.130 [0.000]	−0.109 [0.000]	−0.102 [0.000]	−0.093 [0.000]	0.081 [0.000]	−0.220 [0.000]

Panel A reports summary statistics for the sample. Panel B reports the Spearman correlation coefficients and associated *p*-values (in brackets) of the main variables used in our basic regressions. All variables are defined in Appendix B. All continuous variables are winsorized at the 1% and 99% levels to mitigate the influence of extreme values.

Table 3
Univariate analysis.

	Religious CEOs (1)	Non-religious CEOs (2)	Difference (1) - (2)	t-stat
<i>absDA</i>	0.054	0.064	-0.010***	-2.93
<i>Ln(CEO_Age)</i>	3.974	3.981	-0.007	-1.07
<i>CEO_Male</i>	0.959	0.973	-0.014*	-1.66
<i>Ln(CEO_Tenure)</i>	1.702	1.808	-0.106***	-2.97
<i>CEO_Incentive</i>	0.203	0.241	-0.038***	-3.48
<i>Ln(Assets)</i>	7.370	7.316	0.054	0.70
<i>Ln(FirmAge)</i>	2.955	2.855	0.099**	2.30
<i>Ln(#Analysts)</i>	2.187	2.272	-0.085**	-2.49
<i>Industry-adj. ROA</i>	0.045	0.048	-0.003	-0.50
<i>Leverage</i>	0.177	0.164	0.013*	1.65
<i>Big4</i>	0.939	0.948	-0.009	-0.76
<i>M/B</i>	3.047	3.532	-0.485***	-2.70
<i>Loss</i>	0.294	0.305	-0.011	-0.47
<i>Ln(Op. Risk)</i>	-3.243	-3.291	0.048	1.24
<i>Rural</i>	0.139	0.079	0.059***	4.08
<i>Invest</i>	0.312	0.309	0.003	0.20
<i>NOA</i>	0.563	0.534	0.029***	2.94
<i>Hightech</i>	0.245	0.297	-0.052**	2.26
<i>REL</i>	0.706	0.690	0.017*	1.78

The table compares the sample averages of the main variables used in our basic regressions between the subsample of firms with religious CEOs ($N=462$) and those with non-religious CEOs ($N=2236$). All variables are defined in Appendix B. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

(17.1%) are associated with religious CEOs. The mean absolute value of discretionary accruals is 0.054 for firms with religious CEOs and 0.064 for firms with non-religious CEOs, and the difference is significant at the 1% level, suggesting that firms with religious CEOs engage in less earnings management.

Relative to non-religious CEOs, religious CEOs on average have shorter tenure and smaller equity-based incentive. The fraction of females is slightly higher among religious CEOs. Firms with religious CEOs also tend to be older, have fewer analysts following and lower M/B, are less likely to be in the high tech industry, and are more likely to be located in rural areas with higher religiosity.

3.2. CEO religiosity and earnings management

In this section, we examine the relation between CEO religiosity and earnings management in a multivariate setting by controlling for a set of firm and executive characteristics. The dependent variable is the absolute value of discretionary accruals (*absDA*) of each firm-year, and the variable of interest is the CEO religiosity indicator, *CEO_Relsch*, which equals one if the firm-year has a CEO who had attended a college with religious affiliation, and zero otherwise. We include Fama-French 12 industry and year fixed effects in all regressions to control for variations in economic operations of our sample firms across industries and years. We report test statistics and significance levels based on standard errors adjusted by a two-dimensional cluster at the firm and year levels (Petersen, 2009).

Table 4 presents our OLS regression results. In column (1), we control for firm characteristics such as size (*Ln(Assets)*), firm age (*Ln(FirmAge)*), the number of analyst following (*Ln(#Analysts)*), industry-adjusted return on assets (*Industry-adj. ROA*), leverage (*Leverage*), Big-4 auditor indicator (*Big4*), market-to-book ratio (*M/B*), and loss incidence (*Loss*). Following McGuire et al. (2012), we also control for a firm's operating risk (*Ln(Op. Risk)*) as Hilary and Hui (2009) suggest that religiosity influences managers' decisions in a risky environment. Including operating risk in the model also helps control for the effect of religion on risky investment. We further include a firm's location in a rural area (*Rural*) because Urcan (2007) shows that firms located in rural areas have higher earnings quality. In addition, we control for firms' overall level of investment (*Invest*) because Hilary and Hui (2009) find that religiosity is associated with investment levels. We include

the level of net operating assets (*NOA*) to control for firms' ability to manage earnings via accruals (McGuire et al., 2012). Finally, we include an indicator variable that equals one if a firm operates in the high tech industry (*Hightech*). Following Loughran and Ritter (2004), we define high tech industry as internet and technology industries.

Column (1) shows that the coefficient of *CEO_Relsch* is negative and statistically significant at the 1% level. The coefficients of the control variables are largely consistent with those in prior studies. We find that firms engage in more earnings management if they report negative incomes at least once in the past three years and have greater operating risk, consistent with McGuire et al. (2012) and Dyreng et al. (2012). Absolute discretionary accruals are also higher for firms with higher market-to-book ratio, higher net operating assets, and lower leverage.

In column (2), we further control for a set of demographic information of a CEO, such as age (*Ln(CEO_Age)*), gender (*CEO_Male*), tenure (*Ln(CEO_Tenure)*), and equity-based incentives (*CEO_Incentive*). We also control for county-level religiosity (*REL*), calculated as the number of religious adherences as a percentage of total population in the county where the firm's headquarters is located, as well as the county's population (*Ln(Population)*), median household income (*Ln(Income)*), education level (*Education*), proportion of married households (*Married*), median age (*Age*), racial composition (*Minority*), political affiliation (*Politics*), proportion of males (*Male*), and changes in GDP (ΔGDP). Similar to McGuire et al. (2012), we find that the absolute value of discretionary accruals are lower for firms whose headquarters located in counties with higher income, lower levels of education, and less minorities. We also find that CEOs with greater equity-based incentives are on average associated with higher levels of absolute discretionary accruals. More importantly, we continue to find a negative and significant coefficient on *CEO_Relsch*, even after controlling for community religion, suggesting that CEO religiosity has an incremental impact on firm's earnings management behavior beyond the community religious environment.⁸ Considering

⁸ Unlike in McGuire et al. (2012), the coefficient of *REL* is insignificant in Table 4. A few differences in research design may drive this discrepancy. While McGuire et al. (2012) use a community religion measure derived from a Gallup survey, we use ARDA county religious adherence data, following Hilary and Hui (2009). In addition, we examine a longer sample period than McGuire et al. (2012), but our sample is limited to S&P 1500 firms. This may also be due to the fact that our sample consists

Table 4
Discretionary accruals and CEO religiosity.

Dep. var. = <i>absDA</i>	(1)	(2)	(3)	(4)
Sample =	ALL	ALL	DA>0	DA<0
<i>CEO_Relsch</i>	-0.008*** (0.005)	-0.009*** (0.003)	-0.009*** (0.004)	-0.009 (0.141)
<i>Ln(CEO_Age)</i>		0.006 (0.573)	0.006 (0.668)	-0.002 (0.926)
<i>CEO_Male</i>		-0.005 (0.201)	0.006 (0.355)	-0.017 (0.148)
<i>Ln(CEO_Tenure)</i>		-0.002 (0.417)	-0.000 (0.906)	-0.000 (0.918)
<i>CEO_Incentive</i>		0.009 (0.103)	0.003 (0.795)	0.008 (0.425)
<i>Ln(Assets)</i>	0.000 (0.955)	-0.000 (0.784)	-0.002 (0.282)	0.001 (0.548)
<i>Ln(FirmAge)</i>	-0.001 (0.594)	-0.001 (0.719)	-0.001 (0.455)	0.002 (0.503)
<i>Ln(#Analysts)</i>	-0.003 (0.203)	-0.004 (0.141)	-0.006* (0.065)	-0.003 (0.460)
<i>Industry-adj. ROA</i>	-0.013 (0.594)	-0.013 (0.590)	0.021 (0.340)	-0.032 (0.342)
<i>Leverage</i>	-0.042*** (0.001)	-0.040*** (0.003)	-0.018** (0.023)	-0.058** (0.018)
<i>Big4</i>	-0.001 (0.816)	-0.002 (0.781)	0.005 (0.147)	-0.018 (0.180)
<i>M/B</i>	0.001** (0.033)	0.001 (0.106)	0.001* (0.080)	0.001 (0.334)
<i>Loss</i>	0.010** (0.034)	0.009** (0.031)	0.007*** (0.003)	0.012 (0.121)
<i>Ln(Op. Risk)</i>	0.014*** (0.000)	0.014*** (0.000)	0.011*** (0.000)	0.015*** (0.000)
<i>Rural</i>	0.002 (0.565)	0.005 (0.217)	0.001 (0.798)	0.009 (0.198)
<i>Invest</i>	0.009 (0.131)	0.008 (0.187)	0.002 (0.790)	0.013 (0.159)
<i>NOA</i>	0.020** (0.044)	0.020** (0.041)	-0.005 (0.550)	0.040** (0.014)
<i>Hightech</i>	-0.009 (0.221)	-0.008 (0.313)	-0.005 (0.439)	-0.011 (0.434)
<i>REL</i>		-0.001 (0.890)	0.006 (0.639)	-0.018 (0.157)
<i>Ln(Population)</i>		0.002 (0.315)	-0.001 (0.780)	0.004 (0.312)
<i>Ln(Income)</i>		-0.026*** (0.006)	0.003 (0.809)	-0.056*** (0.002)
<i>Education</i>		0.062*** (0.001)	-0.002 (0.936)	0.135*** (0.000)
<i>Married</i>		0.073 (0.328)	-0.017 (0.840)	0.088 (0.352)
<i>Age</i>		0.001 (0.355)	0.000 (0.804)	0.002 (0.204)
<i>Minority</i>		0.039* (0.063)	0.013 (0.575)	0.052 (0.131)
<i>Politics</i>		0.026 (0.162)	0.021 (0.245)	0.049 (0.147)
<i>Male</i>		-0.018 (0.813)	0.004 (0.948)	-0.009 (0.932)
Δ GDP		0.186 (0.228)	0.099 (0.645)	0.260 (0.128)
Constant	0.112*** (0.000)	0.244** (0.025)	0.085 (0.538)	0.455** (0.048)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	2698	2698	1447	1251
Adjusted R-squared	0.119	0.119	0.159	0.128

The table presents results from the regressions of absolute value of discretionary accruals (*absDA*) on CEO religiosity (*CEO_Relsch*), and a set of CEO, firm, and county characteristics. Columns (1) and (2) report the regression results with the full sample. Columns (3) and (4) report the results with subsamples of the income-increasing discretionary accruals and income-decreasing discretionary accruals, respectively. All variables are defined in Appendix B. All regressions include year and Fama-French 12 industry fixed effects. The *p*-values, presented in parentheses below the coefficients, are computed using standard errors clustered at the firm and year levels. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

that the average discretionary accruals for the sample is 0.062, the coefficient of -0.009 translates into a 14.5% decrease in the absolute discretionary accruals, which is economically significant.

In columns (3) and (4), we partition the sample into two groups: firm-years with income-increasing discretionary accruals (DA>0) and those with income-decreasing discretionary accruals (DA<0). Because the dependent variable is still the absolute value of discretionary accruals, the negative coefficient on *CEO_Relsch* in columns (3) and (4) suggests that both income-increasing and income-decreasing earnings management are lower for firms managed by religious CEOs than for other firms. While the coefficient on *CEO_Relsch* is negative in both columns, it is statistically significant only in column (3). We discuss this asymmetry in more details when we analyze religious denominations in Section 4.

3.3. Controlling for school rankings and locations

Our sample colleges may differ in many dimensions other than their religious-affiliation. For example, many church-affiliated schools are not normally considered as elite colleges by popular college rankings (e.g., US News & World Report ranking). To mitigate the concern that the effect of religious schools on earnings management is driven by variations in educational resources or reputation across different schools, we add to our baseline regression in Table 4 column (2) an indicator variable, *USNews50*, which equals one if a CEO graduated from a school that is ranked the top 50 national universities based on the U.S. News rankings.⁹ Panel A of Table 5 presents the results of this analysis. In columns (1) to (3), we use the first available ranking for a school since 1983. In columns (4) to (6), we use the average ranking between 1983 and 2018. We find a significantly negative coefficient on *CEO_Relsch* in the overall sample as well as in the subsample of positive discretionary accruals (DA>0), suggesting that the effect of CEO religiosity on earnings management, especially income-increasing earnings management, is robust to controlling for school rankings.¹⁰

Another confounding factor that may drive our results is the school location. It is possible, for example, that church-affiliated schools happen to be located in conservative regions. To mitigate the potential effect of school location on earnings management, we create two indicators: *Bible belt school*, which equals one if the school which the CEO attended is in the states of OK, TX, AR, LA, MS, KY, TN, AL, GA, SC, or NC, and zero otherwise; *Red state school*, which equals one if the school is in the states other than WA, OR, CA, NV, NM, IL, DC, VT, MA, RI, NJ, DE, MD, CT, NY, and zero otherwise. We add the two indicators sequentially to the regression in Table 4 column (2). As shown in Panel B of Table 5, we continue to find a significantly negative coefficient on *CEO_Relsch* in the overall sample as well as in the subsample of positive discretionary

of large firms with more analyst following than firms in the sample of McGuire et al. (2012). Prior research suggests that there is some substitution between external monitors and religion. Thus, it is difficult to directly compare the results of the two studies. In untabulated analysis, we confirm the results in McGuire et al. (2012) using a larger sample from Compustat that includes firm-year observations without requiring CEO religiosity information.

⁹ The untabulated results are similar if we replace *USNews50* with an indicator variable for top 20 or 30 schools based on 2018 US News & World Report rankings.

¹⁰ We also examine the interaction effect of CEO religiosity and school rankings. When we include the interaction of *USNews50* and *CEO_Relsch* in the regression, untabulated results show a significantly positive coefficient on the interaction term, *CEO_Relsch*USNews50*, suggesting that the positive relation between CEO religiosity and earnings management is less pronounced for CEOs who attended religious schools that are ranked highly by U.S. News. In our sample, there are four schools in this category – Boston College, Duke University, Georgetown University, and University of Notre Dame. Pepperdine University is also in the top50 list when we use the first available rankings, but not when we use average rankings. More importantly, we continue to find a negative and significant coefficient on *CEO_Relsch*. Our results are also robust to using a subsample that excludes CEOs who graduated from any top 50 national universities based on the U.S. News rankings.

Table 5
Discretionary Accruals and CEO religiosity – Controlling for School Rankings and Locations.

Dep. var. = <i>absDA</i>	First available ranking since 1983			Average ranking (1983–2018)		
	(1)	(2)	(3)	(4)	(5)	(6)
Sample=	ALL	DA>0	DA<0	ALL	DA>0	DA<0
<i>Panel A: Controlling for USNews school rankings</i>						
<i>CEO_Relsch</i>	–0.009*** (0.003)	–0.008*** (0.006)	–0.009 (0.141)	–0.009*** (0.004)	–0.008*** (0.007)	–0.009 (0.143)
<i>USNews50</i>	0.002 (0.357)	0.004 (0.117)	–0.000 (0.937)	0.002 (0.348)	0.005* (0.074)	–0.000 (0.907)
CEO-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
County-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2698	1447	1251	2698	1447	1251
Adjusted R-squared	0.119	0.160	0.127	0.119	0.160	0.127
<i>Panel B: Controlling for school locations</i>						
Dep. var. = <i>absDA</i>	(1)	(2)	(3)	(4)	(5)	(6)
Sample=	ALL	DA>0	DA<0	ALL	DA>0	DA<0
<i>CEO_Relsch</i>	–0.009*** (0.003)	–0.009*** (0.002)	–0.009 (0.140)	–0.009*** (0.002)	–0.009*** (0.002)	–0.009 (0.149)
<i>Bible belt school</i>	0.006* (0.080)	0.010** (0.033)	0.002 (0.745)			
<i>Red state school</i>				0.003* (0.092)	0.005* (0.070)	0.002 (0.605)
CEO-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
County-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2698	1447	1251	2698	1447	1251
Adjusted R-squared	0.120	0.162	0.128	0.120	0.160	0.128

The table presents results from the regressions of absolute value of discretionary accruals (*absDA*) on CEO religiosity (*CEO_Relsch*), school rankings, school locations, and a set of CEO, firm, and county characteristics. In Panel A, *USNews50* is an indicator variable that equals one if the university which CEO attended was ranked among the top 50 national universities based on U.S. News rankings. In columns (1) to (3), we use the first available ranking for the school since 1983. In columns (4) to (6), we use the average rankings between 1983 and 2018. In Panel B, *Bible belt school* is an indicator variable that equals one if the university which CEO attended is in the state of OK, TX, AR, LA, MS, KY, TN, AL, GA, SC, or NC, and zero otherwise. *Red state school* is an indicator variable that equals one if the university which CEO attended is in the state other than WA, OR, CA, NV, NM, IL, DC, VT, MA, RI, NJ, DE, MD, CT, NY, and zero otherwise. All other variables are defined in Appendix B. All regressions include year and Fama-French 12 industry fixed effects. The *p*-values, presented in parentheses below the coefficients, are computed using standard errors clustered at the firm and year levels. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

accruals ($DA > 0$). Thus, Table 5 provides evidence mitigating the concern that our results are merely driven by variations in educational resources and reputation across schools or school locations rather than CEO religiosity.

3.4. Endogeneity

Our results suggest that firms managed by religious CEOs engage in less earnings management. One concern is that hiring CEOs who attended church-affiliated colleges might not be random, therefore our results could be driven by omitted firm characteristics that affect both CEO religiosity and earnings management. For example, certain firms are inherently more conservative and they are also more likely to hire religious CEOs who share the same conservative philosophy. In this section, we adopt a matched sample approach as well as a difference-in-differences analysis with CEO turnovers to mitigate the endogeneity concern.

3.4.1. Evidence from matched samples

Our first attempt to address the potential omitted variables problem is to construct a control sample ($CEO_relsch=0$) that are similar to firms in the treatment group ($CEO_relsch=1$). We identify control firms using propensity score matching (PSM) and entropy matching (EM) techniques. For each firm in the treatment group, we find similar firms with respect to the CEO, the firm, and the

community characteristics. Specifically, for propensity score matching, we first estimate the propensity score using a Logit model that regresses the CEO religiosity indicator on the set of CEO characteristics, including CEO age ($\ln(CEO_Age)$), gender (CEO_Male), tenure ($\ln(CEO_Tenure)$), and equity-based incentives ($CEO_Incentive$), as well as all the firm-level variables in column 1 of Table 4 except *CEO_Relsch*. We then match one religious CEO to three closest non-religious CEOs without replacement.¹¹ Panel A of Table 6 compares firms with religious CEOs and those with non-religious CEOs in our main sample and the PSM sample. We find that after the propensity score matching, firms with religious CEOs are similar to firms with non-religious CEOs in all but one covariate, *M/B*, a significant improvement compared to the main sample without the matching. In the PSM sample, we continue to find that the absolute value of discretionary accruals is higher for firms with non-religious CEOs than for firms with religious CEOs. We also construct another control group using entropy matching, which can further improve the overall covariate balance between the control group and the treatment group without a loss of observations (Hainmueller, 2012). We choose the entropy weights to match the means in the reweighted

¹¹ We select three closest matches to obtain a reasonable degree of test power because selecting only one closest match leaves too few observations. Our results are robust to using two closest matches.

Table 6
Discretionary Accruals and CEO religiosity – Matched Samples.

Panel A: Comparing main sample with propensity score matched (PSM) sample							
	Main Sample			PSM Sample			
	Religious CEOs (1)	Non-religious CEOs (2)	Difference (1) - (2)	Religious CEOs (3)	Non-religious CEOs (4)	Difference (3) - (4)	
<i>Ln(CEO_Age)</i>	3.974	3.981	-0.007	3.974	3.976	-0.002	
<i>CEO_Male</i>	0.959	0.973	-0.014*	0.959	0.961	-0.002	
<i>Ln(CEO_Tenure)</i>	1.702	1.808	-0.106***	1.702	1.733	-0.032	
<i>CEO_Incentive</i>	0.203	0.241	-0.038***	0.203	0.220	-0.017	
<i>Ln(Assets)</i>	7.370	7.316	0.054	7.370	7.358	0.012	
<i>Ln(FirmAge)</i>	2.955	2.855	0.099**	2.955	2.932	0.023	
<i>Ln(#Analysts)</i>	2.187	2.272	-0.085**	2.187	2.233	-0.046	
<i>Industry-adj. ROA</i>	0.045	0.048	-0.003	0.045	0.048	-0.003	
<i>Leverage</i>	0.177	0.164	0.013*	0.177	0.175	0.002	
<i>Big4</i>	0.939	0.948	-0.009	0.939	0.943	-0.004	
<i>M/B</i>	3.047	3.532	-0.485***	3.047	3.378	-0.331*	
<i>Loss</i>	0.294	0.305	-0.011	0.294	0.295	-0.001	
<i>Ln(Op. Risk)</i>	-3.243	-3.291	0.048	-3.243	-3.272	0.029	
<i>Rural</i>	0.139	0.079	0.059***	0.139	0.113	0.026	
<i>Invest</i>	0.312	0.309	0.003	0.312	0.321	-0.009	
<i>NOA</i>	0.563	0.534	0.029***	0.563	0.554	0.009	
<i>Hightech</i>	0.245	0.297	-0.052**	0.245	0.270	-0.026	
<i>absDA</i>	0.054	0.064	-0.010***	0.054	0.067	-0.012***	

Panel B: Regression results using matched sample						
Dep. var. = <i>absDA</i>	Propensity Score Matching			Entropy Matching		
	(1) ALL	(2) DA>0	(3) DA<0	(4) ALL	(5) DA>0	(6) DA<0
<i>CEO_Relsch</i>	-0.011*** (0.000)	-0.013*** (0.000)	-0.012** (0.028)	-0.010*** (0.002)	-0.009*** (0.002)	-0.010* (0.077)
<i>Ln(CEO_Age)</i>	-0.004 (0.784)	-0.010 (0.563)	-0.005 (0.772)	0.007 (0.620)	0.000 (0.986)	0.011 (0.637)
<i>CEO_Male</i>	-0.002 (0.618)	0.011 (0.107)	-0.016 (0.332)	-0.006 (0.484)	0.008 (0.298)	-0.019 (0.138)
<i>Ln(CEO_Tenure)</i>	-0.001 (0.717)	-0.000 (0.927)	-0.001 (0.816)	-0.003 (0.224)	-0.001 (0.709)	-0.002 (0.575)
<i>CEO_Incentive</i>	0.005 (0.629)	-0.008 (0.667)	0.010 (0.559)	0.004 (0.625)	0.007 (0.475)	-0.011 (0.472)
<i>Ln(Assets)</i>	-0.001 (0.663)	-0.004** (0.022)	0.003 (0.354)	-0.001 (0.490)	-0.003** (0.040)	0.001 (0.667)
<i>Ln(FirmAge)</i>	-0.001 (0.752)	-0.001 (0.636)	0.003 (0.497)	-0.000 (0.957)	0.001 (0.711)	0.002 (0.696)
<i>Ln(#Analysts)</i>	-0.005 (0.111)	-0.006 (0.159)	-0.007 (0.371)	-0.004 (0.193)	-0.006* (0.058)	-0.004 (0.491)
<i>Industry-adj. ROA</i>	-0.022 (0.479)	0.014 (0.489)	-0.047 (0.302)	0.011 (0.520)	0.019 (0.414)	0.007 (0.779)
<i>Leverage</i>	-0.054*** (0.002)	-0.027** (0.039)	-0.077** (0.020)	-0.044*** (0.001)	-0.010 (0.433)	-0.078*** (0.001)
<i>Big4</i>	-0.001 (0.935)	0.013** (0.014)	-0.019 (0.202)	0.002 (0.777)	0.011* (0.059)	-0.016 (0.297)
<i>M/B</i>	0.001 (0.119)	0.002** (0.026)	0.001 (0.463)	0.001* (0.071)	0.001** (0.045)	0.001 (0.157)
<i>Loss</i>	0.006 (0.215)	0.002 (0.522)	0.011 (0.308)	0.013*** (0.003)	0.010** (0.013)	0.020** (0.011)
<i>Ln(Op. Risk)</i>	0.013*** (0.000)	0.010*** (0.000)	0.016*** (0.000)	0.013*** (0.000)	0.008*** (0.004)	0.016*** (0.000)
<i>Rural</i>	0.010 (0.159)	0.005 (0.397)	0.015* (0.052)	0.004 (0.534)	0.002 (0.673)	0.004 (0.764)
<i>Invest</i>	0.002 (0.730)	-0.003 (0.743)	0.006 (0.693)	0.011 (0.119)	0.009 (0.276)	0.013 (0.245)
<i>NOA</i>	0.027** (0.049)	0.006 (0.632)	0.058*** (0.008)	0.030*** (0.004)	-0.007 (0.506)	0.071*** (0.000)
<i>Hightech</i>	-0.007 (0.286)	-0.006 (0.374)	-0.007 (0.565)	-0.011* (0.078)	-0.008 (0.203)	-0.011 (0.341)
<i>REL</i>	-0.007 (0.585)	0.006 (0.657)	-0.027*** (0.005)	0.009 (0.395)	0.015 (0.140)	-0.010 (0.608)
<i>Ln(Population)</i>	0.004 (0.131)	-0.001 (0.576)	0.009* (0.053)	0.000 (0.971)	-0.002 (0.251)	0.002 (0.700)
<i>Ln(Income)</i>	-0.044*** (0.003)	0.002 (0.912)	-0.087*** (0.002)	-0.037 (0.110)	-0.000 (0.995)	-0.070* (0.096)
<i>Education</i>	0.099*** (0.006)	-0.022 (0.548)	0.250*** (0.000)	0.074** (0.040)	-0.036 (0.255)	0.188*** (0.006)
<i>Married</i>	0.077 (0.490)	-0.006 (0.945)	0.044 (0.818)	0.100 (0.272)	-0.036 (0.661)	0.215 (0.202)

(continued on next page)

Table 6
(continued)

Panel B: Regression results using matched sample						
Dep. var. = <i>absDA</i> Sample =	Propensity Score Matching			Entropy Matching		
	(1) ALL	(2) DA>0	(3) DA<0	(4) ALL	(5) DA>0	(6) DA<0
Age	0.001 (0.369)	−0.001 (0.258)	0.005* (0.064)	0.001 (0.251)	−0.000 (0.991)	0.003 (0.131)
Minority	0.030 (0.273)	0.001 (0.969)	0.054 (0.293)	0.047* (0.081)	0.002 (0.927)	0.099** (0.043)
Politics	0.021 (0.437)	−0.004 (0.842)	0.083 (0.144)	0.026 (0.250)	−0.003 (0.900)	0.072* (0.063)
Male	0.019 (0.856)	0.014 (0.845)	0.090 (0.663)	0.038 (0.592)	0.053 (0.443)	−0.017 (0.891)
ΔGDP	0.173 (0.396)	0.169 (0.560)	0.242 (0.226)	0.075 (0.765)	0.104 (0.740)	0.028 (0.948)
Constant	0.415** (0.031)	0.186 (0.415)	0.522 (0.185)	0.273 (0.191)	0.127 (0.511)	0.415 (0.264)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1427	776	651	2698	1447	1251
Adjusted R-squared	0.138	0.225	0.131	0.149	0.210	0.192

Panel A compares our main sample and propensity score matched sample. Panel B presents results from the regressions of absolute value of discretionary accruals (*absDA*) on CEO religiosity (*CEO_Relsch*), and a set of CEO, firm, and county characteristics for propensity score matched sample (columns (1) to (3)) and entropy matched sample (columns (4) to (6)). Columns 1 and 4 report the regression results with the full sample. Columns (2) and (5) report the results with subsamples of the income-increasing discretionary accruals, and columns (3) and (6) report the results with subsamples of income-decreasing discretionary accruals. All other variables are defined in Appendix B. All regressions include year and Fama-French 12 industry fixed effects. The *p*-values are presented in parentheses below the coefficients. In columns (1) to (3), the *p*-values are computed using standard errors clustered at the firm and year levels. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

control group and that in the treatment group. Our results are statistically similar if we match on the first two or three moments.

Panel B of Table 6 reports the regression results based on the two matched samples. In both samples we find a negative and significant coefficient on *CEO_Relsch*, suggesting that earnings management is less prevalent among firms managed by religious CEOs. This is the case for both firm-years with income-increasing discretionary accruals and those with income-decreasing discretionary accruals. In sum, our results are robust to using control samples based on propensity score matching and entropy matching.¹²

3.4.2. Evidence from voluntary CEO turnovers

Using the matched sample design mitigates the omitted variables concern when omitted variables are observable, but not when they are unobservable. To further alleviate the omitted variables concern, we examine voluntary CEO turnovers and the associated changes in earnings management. In particular, we study changes in discretionary accruals when the incoming CEOs and the outgoing CEOs have different religiosity-related traits. This difference-in-differences analysis further alleviates the omitted variables bias, especially those due to unobservable time invariant firm characteristics.

We construct a sample of 155 voluntary CEO turnover following Parrino (1997) and Jenter and Kanaan (2015).¹³ Panel A of Table 7 reports the nature of these turnovers by year. In approximately two thirds of the turnovers, both the incoming CEOs and the outgoing CEOs are non-religious. In 28 turnovers, or roughly 18% of the turnover sample, firms appoint a non-religious CEO to

replace a religious CEO. In 19 turnovers (12% of the turnover sample), firms replace a non-religious CEO with a religious CEO. In only seven turnovers (less than 5% of the turnover sample), both the incoming CEO and the outgoing CEO are religious. These turnover events provide us an opportunity to study the within-firm changes of CEO religiosity and its impact on earnings management.

We compare the absolute value of discretionary accruals under the incoming CEOs and the outgoing CEOs for turnovers that involve a change in CEO religiosity and for all other turnovers. Specifically, we create two indicator variables to flag turnovers involving changes in CEO religiosity: *Nrel2rel*, which equals one if the outgoing CEO is non-religious and the incoming CEO is religious, and zero otherwise; and *Rel2nrel*, which equals one if the outgoing CEO is religious and the incoming CEO is non-religious, and zero otherwise. We calculate the changes in the absolute value of discretionary accruals (*absDA*) as the difference between the average *absDA* two years after the turnover and the average *absDA* two years prior to the turnover.¹⁴ Panel B of Table 7 presents the results from multivariate regressions based on the voluntary turnover sample.¹⁵

In column (1) of Panel B, we examine turnovers in which a firm replaces a non-religious CEO with a religious CEO. Under our hypothesis, we would expect such turnovers to be associated with a decrease in *absDA*. This is indeed what we find. In turnovers where a religious CEO replaces a non-religious CEO, firms on average experience a reduction in *absDA* around the turnover year relative to all other turnovers, suggesting that firms manage earnings less under the leadership of the new religious CEOs. In column (2), we observe a small increase in *absDA* when firms switch from

¹² The untabulated results are similar if we add to the matched sample analysis two control variables to proxy for equity risk: equity beta and idiosyncratic risk. Our results are also robust to including location-specific variables (i.e., county-level variables) in the Logit model.

¹³ More specifically, all departures for which the press reports that the CEO is fired, forced out, or retires or resigns due to policy differences or pressure are classified as forced. All other departures for CEOs above and including age 60 are classified as voluntary. Departures for CEOs below age 60 are reviewed further and classified as forced if either the press does not report the reason as death, poor health, or the acceptance of another position, or the press reports that the CEO is retiring, but does not announce the retirement at least six months before the succession.

¹⁴ We calculate changes in discretionary accruals based on two-year average *absDA* in the pre- and post-turnover periods to mitigate the influence of big-bath behavior by incoming CEOs documented in prior studies (Pourciau, 1993; Murphy and Zimmerman, 1993).

¹⁵ In the voluntary CEO turnover analysis, we adjust the standard errors by two-way clustering at the industry and year levels. Because the same firm rarely appears multiple times in the turnover sample, the residual correlation within a firm over time is not a concern. However, the regression residuals might still be correlated within an industry or a year.

Table 7
Evidence from Voluntary CEO Turnovers.

Panel A: Number of voluntary turnovers by calendar year					
Year	All Turnovers	Religious CEOs to Non-religious CEOs	Non-religious CEOs to Religious CEOs	Religious CEOs to Religious CEOs	Non-religious CEOs to Non-religious CEOs
2000	18	2	1	2	13
2001	7	1	1	0	5
2002	15	2	2	1	10
2003	12	1	2	0	9
2004	12	2	0	0	10
2005	21	3	4	2	12
2006	10	1	4	0	5
2007	13	5	0	1	7
2008	20	3	1	0	16
2009	22	6	4	1	11
2010	5	2	0	0	3
Total	155	28	19	7	101

Panel B: Changes in discretionary accruals around voluntary CEO turnovers			
Dep. var.=Avg($absDA_{t+1}$, $absDA_{t+2}$) – Avg($absDA_{t-1}$, $absDA_{t-2}$)	(1)	(2)	(3)
<i>Nrel2rel</i>	–0.024** (0.047)		–0.024* (0.100)
<i>Rel2nrel</i>		0.002 (0.898)	–0.002 (0.899)
<i>Ln(Assets)</i>	–0.008** (0.019)	–0.007** (0.038)	–0.008** (0.019)
<i>Ln(FirmAge)</i>	–0.000 (0.988)	–0.001 (0.910)	0.000 (0.995)
<i>M/B</i>	0.003** (0.049)	0.002** (0.016)	0.003* (0.055)
<i>Leverage</i>	0.020 (0.344)	0.014 (0.557)	0.020 (0.310)
<i>Industry-adj. ROA</i>	0.044 (0.413)	0.054 (0.366)	0.044 (0.412)
<i>Ln(Op. Risk)</i>	–0.015*** (0.002)	–0.013*** (0.005)	–0.015*** (0.001)
<i>Big4</i>	–0.022** (0.011)	–0.021** (0.024)	–0.022** (0.012)
<i>Hightech</i>	–0.004 (0.627)	–0.004 (0.656)	–0.004 (0.627)
<i>Changes in Ln(Assets)</i>	0.017 (0.297)	0.014 (0.496)	0.017 (0.308)
<i>Changes in M/B</i>	0.003 (0.359)	0.002 (0.436)	0.003 (0.362)
<i>Changes in Leverage</i>	–0.039 (0.471)	–0.042 (0.427)	–0.039 (0.475)
<i>Changes in Industry-adj. ROA</i>	–0.265*** (0.000)	–0.268*** (0.001)	–0.265*** (0.000)
<i>Changes in Ln(Op. Risk)</i>	–0.017 (0.192)	–0.016 (0.198)	–0.017 (0.210)
<i>Constant</i>	–0.008 (0.883)	0.000 (0.996)	–0.008 (0.883)
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Observations	155	155	155
Adjusted R-squared	0.222	0.198	0.216

Panel A reports statistics for the voluntary CEO turnover sample over the period of 2000–2010. We identify 155 voluntary CEO turnovers following Parrino (1997) and Jenter and Kanaan (2015). Panel B presents results from an analysis using the 155 voluntary CEO turnovers. The dependent variable is changes in absolute value of discretionary accruals ($absDA$), calculated as the average of $absDA$ in years $t+1$ and $t+2$ minus the average of $absDA$ in years $t-1$ and $t-2$, where year t is the fiscal year during which the firm changes its CEO. *Nrel2rel*, an indicator variable derived from *CEO_RelSch*, equals one if the departure CEO is not religious and the incoming CEO is religious, and zero otherwise. *Rel2nrel*, an indicator variable derived from *CEO_RelSch*, equals one if the departure CEO is religious and the incoming CEO is not religious, and zero otherwise. The change variables are defined in a similar way to the changes in discretionary accruals over the same time window. All other variables are defined in Appendix B. All regressions include year and Fama-French 12 industry fixed effects. The p -values, presented in parentheses below the coefficients, are computed using standard errors clustered at the industry and year levels. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

religious CEOs to non-religious CEOs relative to all other turnovers, but the results are not statistically significant. When we consider both types of turnovers simultaneously, we obtain similar results in column (3).

Overall, our voluntary CEO turnover analysis suggests that firms with religious CEOs are associated with less earnings management, and this relation is unlikely to be driven by time invariant omitted firm characteristics or endogeneity in CEO turnovers.

3.5. When does CEO religiosity matter more?

To better understand the role that CEO religiosity plays in limiting earnings management, we next explore the circumstances in which the incentive to manage earnings is stronger and examine whether religious CEOs are better able to resist such temptation. More specifically, we examine whether CEO equity-based incentives and firm operating risk affect the relation between CEO

Table 8
When Does CEO Religiosity Matter More?

Panel A: Sample distribution for each partition based on CEOs' religiosity, CEO equity incentive, and firm operating risk										
Year	Firms with Religious CEOs				Firms with Non-Religious CEOs					
	#Total	High Incentive		High Risk		#Total	High Incentive		High Risk	
		#obs	%	#obs	%		#obs	%	#obs	%
2000	15	3	20.0%	3	20.0%	98	32	32.7%	36	36.7%
2001	19	4	21.1%	4	21.1%	106	27	25.5%	42	39.6%
2002	28	5	17.9%	9	32.1%	128	38	29.7%	43	33.6%
2003	29	3	10.3%	8	27.6%	141	30	21.3%	47	33.3%
2004	33	6	18.2%	8	24.2%	189	38	20.1%	63	33.3%
2005	37	7	18.9%	11	29.7%	194	39	20.1%	56	28.9%
2006	43	5	11.6%	12	27.9%	194	38	19.6%	49	25.3%
2007	57	19	33.3%	12	21.1%	263	77	29.3%	54	20.5%
2008	66	24	36.4%	15	22.7%	285	101	35.4%	54	18.9%
2009	69	8	11.6%	15	21.7%	317	75	23.7%	56	17.7%
2010	66	8	12.1%	17	25.8%	321	88	27.4%	61	19.0%
Total	462	92	19.9%	114	24.7%	2236	583	26.1%	561	25.1%

Panel B: The effects of CEO equity incentive and firm operating risk							
Dep. var. = <i>absDA</i>	(1)	(2)	(3)	(4)	(5)	(6)	
Sample =	ALL	DA>0	DA<0	ALL	DA>0	DA<0	
<i>CEO_Relsch</i>	-0.010**	-0.005	-0.017				
* <i>High_CEO_Incentive</i>	(0.046)	(0.394)	(0.126)				
<i>High_CEO_Incentive</i>	0.007	0.003	0.007				
	(0.196)	(0.635)	(0.252)				
<i>CEO_Relsch*High_Risk</i>				-0.014**	-0.015*	-0.015	
				(0.043)	(0.094)	(0.172)	
<i>High_Risk</i>				0.009**	0.017***	0.003	
				(0.010)	(0.001)	(0.357)	
<i>CEO_Relsch</i>	-0.007**	-0.008**	-0.005	-0.005*	-0.006**	-0.004	
	(0.012)	(0.019)	(0.269)	(0.059)	(0.020)	(0.547)	
CEO-level Controls	Yes	Yes	Yes	Yes	Yes	Yes	
Firm-level Controls	Yes	Yes	Yes	Yes	Yes	Yes	
County-level Controls	Yes	Yes	Yes	Yes	Yes	Yes	
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	
Observations	2698	1447	1251	2698	1447	1251	
Adjusted R-squared	0.120	0.158	0.128	0.121	0.165	0.128	

Panel C: The effect of SOX						
Dep. var. = <i>absDA</i>	(1)	(2)	(3)	(4)	(5)	(6)
Sample =	ALL	DA>0	DA<0	ALL	DA>0	DA<0
Sample period =	2000 - 2010			2003 - 2010		
<i>CEO_Relsch * SOX</i>	0.011	0.026***	-0.006			
	(0.215)	(0.002)	(0.692)			
<i>SOX</i>	-0.033***	-0.060***	-0.001			
	(0.000)	(0.000)	(0.963)			
<i>CEO_Relsch</i>	-0.019**	-0.032***	-0.003	-0.008**	-0.005*	-0.009
	(0.023)	(0.000)	(0.867)	(0.020)	(0.054)	(0.136)
CEO-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
County-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2698	1447	1251	2304	1203	1101
Adjusted R-squared	0.119	0.161	0.128	0.125	0.149	0.134

Panel A presents the sample distribution by year on CEO religiosity, CEO equity incentive, and firm operating risk. Panel B presents results from the regressions of absolute value of discretionary accruals (*absDA*) on CEO religiosity and a set of CEO, firm, and county characteristics, conditional on CEO equity incentive and firm operating risk. Columns (1) and (4) report the regression results with the full sample. Columns (2) and (5) report the results with subsample of the income-increasing discretionary accruals, and columns (3) and (6) report the results with the subsample of income-decreasing discretionary accruals. *High_CEO_Incentive* is an indicator variable that equals one if *CEO_Incentive*, measured by the change in the dollar value of CEO's equity holdings for a one percent change in stock price, is in the top quartile of the sample, and zero otherwise. *High_Risk* is an indicator variable that equals one if *Op. Risk* is in the top quartile of the sample, and zero otherwise. Panel C presents results from the regressions of absolute value of discretionary accruals (*absDA*) on CEO religiosity before and after the implementation of Sarbanes-Oxley Act (*SOX*), and a set of CEO, firm, and county characteristics. *SOX* is an indicator variable that equals one for fiscal years ending in and after 2002, and zero otherwise. Column (1) reports the regression results with the full sample. Columns (2) and (3) report the results with subsamples of the income-increasing discretionary accruals and income-decreasing discretionary accruals, respectively. All other variables are defined in Appendix B. All regressions include year and Fama-French 12 industry fixed effects. The p-values, presented in parentheses below the coefficients, are computed using standard errors clustered at the firm and year levels. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 9
Discretionary Accruals and CEO Religiosity – Different Religious Denominations.

Dep. var. = <i>absDA</i> Sample =	(1) ALL	(2) DA>0	(3) DA<0
<i>CEO_Protestant</i>	−0.016*** (0.000)	−0.011*** (0.009)	−0.024** (0.028)
<i>CEO_Catholic</i>	−0.004 (0.377)	−0.007** (0.018)	0.001 (0.874)
<i>CEO_Otherrelsch</i>	−0.013** (0.031)	−0.011 (0.336)	−0.012 (0.368)
CEO-level Controls	Yes	Yes	Yes
Firm-level Controls	Yes	Yes	Yes
County-level Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Observations	2698	1447	1251
Adjusted R-squared	0.120	0.158	0.130

The table presents results from the regressions of absolute value of discretionary accruals (*absDA*) on CEO religiosity across different religious denominations (*CEO_Protestant*, *CEO_Catholic*, and *CEO_Otherrelsch*), and a set of CEO, firm, and county characteristics. Column (1) reports the regression results with the full sample. Columns (2) and (3) report the results with subsamples of the income-increasing discretionary accruals and income-decreasing discretionary accruals, respectively. All variables are defined in Appendix B. All regressions include year and Fama-French 12 industry fixed effects. The *p*-values, presented in parentheses below the coefficients, are computed using standard errors clustered at the firm and year levels. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

religiosity and earnings management. We also examine whether regulatory changes affect the role of CEO religiosity in limiting earnings management.

We measure CEO equity incentive (*CEO_Incentive*) by the change in the dollar value of CEO's equity holdings for a one percent change in stock price. We use the volatility of operating cash flows to capture a firm's operating risk (*Op. Risk*). We create indicator variables to flag firm-year observations with high equity-based incentives and high levels of operating risk. Because both variables have large skewness and kurtosis, we focus on the top quartiles (Masulis et al., 2007). Specifically, we define indicator variables, *High_CEO_Incentive* to be one if *CEO_Incentive* is in the top quartile and *High_Risk* to be one if *Op. Risk* is in the top quartile. We also create an indicator variable, *SOX*, that equals one for the fiscal years ending in or after 2002 to examine the effect of SOX on the relation between CEO religiosity and earnings management. Our

variable of interest is the interaction term between *CEO_Relsch* and each of the three indicator variables.

Table 8 summarizes our results. Panel A tabulates the number of firms with high equity-based incentives and high levels of operating risk by year across subsamples with and without religious CEOs. We find that in all but two of our sample years (2007 and 2008), the percentage of observations with high CEO equity incentive is greater among firms with non-religious CEOs than the percentage among firms with religious CEOs. The percentage of observations with high operating risk, on the other hand, is greater among firms with non-religious CEOs compared to firms with religious CEOs only in the first half of the sample period (2000–2004).

In columns (1)–(3) of Panel B, we find that while firms managed by religious CEOs engage in less earnings management, the effect is more pronounced for CEOs with high equity-based incentives. In column (1), the interaction term, *CEO_Relsch*High_CEO_Incentive*, has a coefficient of −0.010, statistically significant at the 5% level. The effect is economically large as well. When CEO incentives are high, the effect of CEO religiosity on earnings management is more than twice as large (−0.017 vs. −0.007). In columns (4)–(6), we find that the negative relation between *CEO_Relsch* and earnings management is more pronounced for firms with greater operating risks. In column (4), the interaction term, *CEO_Relsch*High_Risk*, has a coefficient of −0.014, statistically significant at the 5% level. When a firm's operating risk is high, the effect of CEO religiosity on earnings management is almost four times as large (−0.019 vs. −0.005).

Panel C of Table 8 presents results of the effect of SOX. It shows a significantly negative coefficient on *SOX* in columns (1) and (2), indicating a reduction in earnings management in the post-SOX period, especially for income-increasing earnings management. The coefficient on *CEO_Relsch* is positive and significant at the 1% level in columns (1) and (2), confirming the effect of CEO religiosity in constraining earnings management previously documented in Table 4. More interestingly, the interaction term, *CEO_Relsch*SOX*, has a coefficient of 0.026 in column (2), statistically significant at the 1% level. This is consistent with the notion that the role of CEO religiosity in limiting earnings management weakens in the post-SOX period, although the effect of CEO religiosity on earnings management remain significant even in the post-SOX period as shown in columns (4) and (5). Overall, our results in Table 8 are consistent with our hypotheses that CEO religiosity limits earnings management, especially when incentives to cook the numbers are stronger.

Table 10
Real Earnings Management and CEO Religiosity.

Dep. var.=	(1) <i>REM</i>	(2) <i>REM1</i>	(3) <i>REM2</i>	(4) <i>REM</i>	(5) <i>REM1</i>	(6) <i>REM2</i>
<i>CEO_Relsch</i>	−0.050** (0.034)	−0.050** (0.019)	−0.029** (0.033)	−0.051** (0.033)	−0.049** (0.020)	−0.030** (0.028)
<i>absDA</i>				−0.060 (0.775)	0.066 (0.566)	−0.097 (0.461)
CEO-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
County-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2543	2543	2574	2543	2543	2574
Adjusted R-squared	0.259	0.254	0.261	0.259	0.254	0.261

This table presents results from regressions of real earnings management on CEO religiosity (*CEO_Relsch*), and a set of CEO, firm, and county characteristics. The dependent variables are three proxies for real earnings management: *REM* (abnormal production costs minus the sum of abnormal cash flows from operations and abnormal discretionary expenses), *REM1* (abnormal production costs minus abnormal discretionary expenses), and *REM2* (the sum of abnormal cash flows from operations and abnormal discretionary expenses, multiplied by −1). All other variables are defined in Appendix B. All regressions include year and Fama-French 12 industry fixed effects. The *p*-values, presented in parentheses below the coefficients, are computed using standard errors clustered at the firm and year levels. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 11
Discretionary Accruals and CEO Religiosity – Controlling for CFO Characteristics.

Panel A: Discretionary accruals and CEO religiosity – Controlling for CFO religiosity						
Dep. var. = <i>absDA</i>	(1)	(2)	(3)	(4)	(5)	(6)
Sample =	ALL	DA > 0	DA < 0	ALL	DA > 0	DA < 0
<i>CEO_Relsch</i>	–0.009*** (0.003)	–0.009*** (0.005)	–0.009 (0.122)			
<i>CEO_Protestant</i>				–0.015*** (0.000)	–0.011*** (0.003)	–0.023** (0.027)
<i>CEO_Catholic</i>				–0.003 (0.454)	–0.007** (0.033)	0.001 (0.897)
<i>CEO_Otherrelsch</i>				–0.017*** (0.007)	–0.011 (0.357)	–0.017 (0.154)
<i>CFO_Relsch</i>	0.001 (0.789)	0.003 (0.488)	0.002 (0.766)			
<i>CFO_Protestant</i>				0.009 (0.187)	0.005 (0.254)	0.020 (0.206)
<i>CFO_Catholic</i>				–0.004 (0.395)	–0.000 (0.945)	–0.005 (0.229)
<i>CFO_Otherrelsch</i>				0.005 (0.620)	0.016 (0.191)	–0.004 (0.792)
<i>Ln(CEO_Age)</i>	0.007 (0.582)	0.005 (0.763)	–0.000 (0.981)	0.006 (0.579)	0.005 (0.750)	0.001 (0.953)
<i>CEO_Male</i>	–0.006 (0.176)	0.006 (0.342)	–0.018 (0.150)	–0.006 (0.126)	0.006 (0.370)	–0.020 (0.114)
<i>Ln(CEO_Tenure)</i>	–0.002 (0.514)	–0.000 (0.960)	–0.000 (0.978)	–0.002 (0.493)	–0.000 (0.924)	0.000 (0.994)
<i>CEO_Incentive</i>	0.001 (0.846)	–0.002 (0.883)	0.001 (0.965)	0.002 (0.765)	–0.001 (0.915)	0.001 (0.924)
<i>Ln(CFO_Age)</i>	–0.003 (0.818)	0.001 (0.935)	0.002 (0.916)	–0.002 (0.857)	0.002 (0.876)	0.002 (0.925)
<i>CFO_Male</i>	0.002 (0.736)	–0.001 (0.905)	0.001 (0.930)	0.002 (0.722)	–0.001 (0.924)	–0.000 (0.978)
<i>CFO_Incentive</i>	0.035* (0.062)	0.018 (0.123)	0.034 (0.272)	0.035* (0.050)	0.018 (0.136)	0.030 (0.272)
Firm-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
County-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2698	1447	1251	2698	1447	1251
Adjusted R-squared	0.121	0.158	0.128	0.122	0.158	0.132
Panel B: Discretionary accruals and CEO religiosity – The effect of CFO accounting expertise						
Dep. var. = <i>absDA</i>	(1)		(2)			
Sample =	CFO is a CPA		CFO is not a CPA			
<i>CEO_Relsch</i>	–0.006 (0.239)		–0.012*** (0.001)			
<i>CFO_Relsch</i>	–0.005 (0.297)		0.007 (0.154)			
<i>Ln(CEO_Age)</i>	0.048*** (0.004)		–0.029** (0.049)			
<i>CEO_Male</i>	–0.006 (0.275)		–0.000 (0.990)			
<i>Ln(CEO_Tenure)</i>	–0.004 (0.163)		0.001 (0.870)			
<i>CEO_Incentive</i>	0.012 (0.347)		–0.008 (0.432)			
<i>Ln(CFO_Age)</i>	–0.037*** (0.000)		0.026 (0.226)			
<i>CFO_Male</i>	–0.002 (0.443)		0.006 (0.571)			
<i>CFO_Incentive</i>	0.004 (0.856)		0.041** (0.042)			
Firm-level Controls	Yes		Yes			
County-level Controls	Yes		Yes			
Year FE	Yes		Yes			
Industry FE	Yes		Yes			
Observations	1207		1491			
Adjusted R-squared	0.110		0.146			

In Panel A, we present results from regressions of absolute value of discretionary accruals (*absDA*) on CEO religiosity, CFO religiosity, and a set of CEO, CFO, firm, and county characteristics. Columns (1) and (4) report the regression results with the full sample. Columns (2) and (5) report the results with subsample of the income-increasing discretionary accruals, and columns (3) and (6) report the results with the subsample of income-decreasing discretionary accruals. In Panel B, we present regression results for a subsample of firms whose CFOs are a certified public accountants (CPAs) and those without such CFOs. CFO characteristics are calculated similarly as CEO characteristics. All other variables are defined in [Appendix B](#). All regressions include year and Fama-French 12 industry fixed effects. The *p*-values, presented in parentheses below the coefficients, are computed using standard errors clustered at the firm and year levels. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

4. Additional analyses

4.1. Religious denominations

As discussed earlier, CEOs' religious beliefs may affect earnings management through two channels – risk aversion and conservative moral standards. Barsky et al. (1997) show that risk tolerance varies by religion. In particular, they find that Jewish is the most risk tolerant, followed by Catholic, and Protestant is the least risk tolerant. Thus, to the extent that religiosity affects earnings management through risk aversion, the impact of CEO religiosity on earnings management may differ across religious denominations.

We classify the religious affiliation of colleges that each CEO attended into Protestant, Catholic, and other religions, and present the regression results in Table 9. We find that Protestant CEOs are associated with less earnings management and this relation is statistically significant in both income-increasing and income-decreasing earnings management subsamples. Catholic CEOs appear to limit income-increasing earnings management but not income-decreasing earnings management. Other religion-affiliated CEOs are associated with lower absolute value of discretionary accruals but the relation is statistically significant only in the full sample. Considering that risk averse CEOs would avoid both income-increasing and income-decreasing earnings management and less risky projects lead accruals to expected levels, the results for Protestant CEOs may reflect higher risk aversion of this group of CEOs. The asymmetric results for Catholic CEOs, however, suggest that both risk aversion and conservative moral standards explain the relation between religious CEOs and earnings management.

4.2. Real earnings management and CEO religiosity

To further explore the role of CEO religiosity, we examine real earnings management, which is defined as management actions that deviate from normal business practices undertaken for the purposes of meeting or beating certain earnings targets (Roychowdhury, 2006). Following prior studies (e.g., Cohen et al., 2008), we construct three proxies for real earnings management: (1) *REM*, measured as abnormal production costs minus the sum of abnormal cash flows from operations and abnormal discretionary expenses, (2) *REM1*, measured as abnormal production costs minus abnormal discretionary expenses, and (3) *REM2*, measured as the sum of abnormal cash flows from operations and abnormal discretionary expenses, multiplied by -1 . The abnormal levels of product costs, cash flows from operations, and discretionary expenses are estimated as residuals from the respective regression models in the same two-digit SIC industry every year (Roychowdhury, 2006; Cohen et al., 2008).¹⁶ The magnitudes of three real earnings management proxies increase as firms engage in more aggressive earnings management through real activities. Table 10 reports results of this analysis. We include the same set of control variables as in Table 4 column (2). As firms may alternatively use real activi-

ties management and accrual management as substitutes to manage earnings, we further control for the magnitude of accrual-based earnings management (*absDA*) in columns (4)–(6). Controlling for the raw value of discretionary accruals instead of the absolute value does not change the tenor of this result. Across all measures of real earnings management, we find that the coefficient on *CEO_Relsch* is negative and significant at the 5% level in all six columns. This result supports the notion that firms with religious CEOs manage their earnings through real activities less compared to other firms, consistent with our results of accrual-based management.

4.3. Controlling for CFO characteristics

Jiang et al. (2010) argue that CFOs have a greater influence on earnings management than CEOs. Feng et al. (2011), however, suggest that CFOs are involved in material accounting manipulations because they succumb to pressure from CEOs. We examine whether CFO religiosity also influences earnings management. In Table 11, Panel A, we include in the regressions the religious affiliations of both CEOs and CFOs' undergraduate colleges and their demographic characteristics. Interestingly, CFO religiosity does not show up significantly, while the relation between CEO religiosity and earnings management remains significantly negative even after controlling for CFO religiosity and other CFO characteristics. The magnitude of the coefficient on CEO religiosity is similar to that in Table 4. The results are also similar to those in Table 8 when we classify the religious denominations into Protestants, Catholic, and other as shown in columns (4)–(6). To further explore the role of CFOs, we partition the sample based on whether the CFO has any accounting expertise (i.e., holds a CPA license) and examine the effect of CEO religiosity on earnings management in the two subsamples. Panel B of Table 11 presents results of this analysis. We find a significant effect of CEO religiosity only in the subsample where the CFO is not a CPA. Thus, CEO religiosity matters only when CFOs are non-accounting experts, suggesting that CFO's accounting expertise limit religious CEOs' influence on financial reporting practice.

5. Conclusion

In this study, we examine the association between CEOs' religiosity and earnings management. We measure CEOs' religiosity by their educational experience in church-affiliated colleges. We find that firms managed by religious CEOs engage in less earnings management. CEO's personal religiosity has an incremental impact on earnings management beyond the effect of community religious environment documented in earlier studies (Dyreng et al., 2012; McGuire et al., 2012). Our results are robust to matched samples based on propensity score matching and entropy matching. A difference-in-differences test based on voluntary CEO turnovers suggests that firms experience a statistically significant decrease in earnings management when a non-religious CEO is replaced by a religious CEO. In addition, our results are more pronounced when firms include more equity-based incentives in CEO compensation and face higher operating cash flows volatility. The effect of CEO religiosity on earnings management is less pronounced in the post-SOX period. We also find evidence that religious CEOs are less likely to engage in real earnings management.

Hilary and Hui (2009) suggest that firms located in counties with higher levels of religiosity display lower variances in equity returns and returns on assets. To the extent that religious CEOs are more risk averse and exhibit more uncertainty avoidance, our results might be driven by CEOs' desire to smooth income or reduce cash flow volatility. We believe, however, that this is unlikely for several reasons. First, our results are largely driven by

¹⁶ Specifically, we estimate abnormal cash flow from operations each year in the same two-digit SIC industry as residuals from the following model: $CFO_{it}/A_{it-1} = \alpha_0 + \beta_0 1/A_{it-1} + \beta_1 SALES_{it}/A_{it-1} + \beta_2 \Delta SALES_{it}/A_{it-1} + \varepsilon_{it}$, where CFO_{it} is cash flow from operations, A_{it-1} is lagged total assets, $SALES_{it}$ is net sales, and $\Delta SALES_{it}$ is change in net sales. We estimate abnormal production costs each year in the same two-digit SIC industry as residuals from the following model: $PROD_{it}/A_{it-1} = \alpha_0 + \beta_0 1/A_{it-1} + \beta_1 SALES_{it}/A_{it-1} + \beta_2 \Delta SALES_{it}/A_{it-1} + \beta_3 \Delta SALES_{it-1}/A_{it-1} + \varepsilon_{it}$, where $PROD_{it}$ is the sum of cost of goods sold and change in inventory, $\Delta SALES_{it-1}$ is change in net sales in the previous year. We estimate abnormal discretionary expenses each year in the same two-digit SIC industry as residuals from the following model: $DISEXP_{it}/A_{it-1} = \alpha_0 + \beta_0 1/A_{it-1} + \beta_1 SALES_{it-1}/A_{it-1} + \varepsilon_{it}$, where $DISEXP_{it}$ is the sum of R&D, advertising, and SG&A expenses, $SALES_{it-1}$ is net sales in the previous year.

income-increasing earnings management, especially in the group of CEOs who attended Catholic colleges. Second, our results are more pronounced for CEOs with greater equity incentives. Third, we find that CEO religiosity is related not only to accruals-based earnings management but also to real earnings management, suggesting that our results are likely driven by financial reporting opportunism rather than income-smoothing incentives.

Collectively, our results suggest that firms managed by religious CEOs exhibit less earnings management. Despite our efforts in addressing the endogeneity concern through various approaches including the analyses of matched samples and voluntary CEO turnovers, however, we cannot completely rule out the effect of endogeneity. We thus urge readers to be cautious about drawing causal inferences from our results. Our study contributes to the burgeoning literature that explores the influence of culture on firm behavior. Our study also adds to the literature that examines manager-specific effect on corporate decisions by showing that religiosity is an important personal trait that influences corporate policies.

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Appendix A. Percentages of Incoming Freshmen with Different Religious Beliefs at the Universities attended by sample CEOs

Universities' Religious affiliation	% Incoming freshmen is			
	Protestant	Catholic	Other religions	Non-religious
Protestant	55%	13%	8%	11%
Catholic	8%	79%	4%	7%
Other religions	52%	8%	31%	7%
Non-religious	37%	26%	9%	15%
All	36%	30%	9%	14%

The table reports percentages of incoming college freshmen with various religious beliefs across the universities that our sample CEOs attended in the year when sample CEOs entered college. We obtain data from the incoming freshmen students survey conducted by Higher Education Research Institute (HERI).

Appendix B. Variable Definitions

CEO Characteristics

<i>CEO_Relsch</i>	An indicator variable that equals one if a CEO attends a university with religious affiliations, and zero otherwise
<i>CEO_Protestant</i>	An indicator variable that equals one if a CEO attends a university with Protestant affiliations, and zero otherwise
<i>CEO_Catholic</i>	An indicator variable that equals one if a CEO attends a university with Catholic affiliations, and zero otherwise
<i>CEO_Otherrelsch</i>	An indicator variable that equals one if a CEO attends a non-Protestant non-Catholic religious university, and zero otherwise
<i>CEO_Age</i>	CEO age
<i>CEO_Male</i>	An indicator variable that equals one for male CEOs, and zero for female CEOs
<i>CEO_Tenure</i>	Number of years since the CEO's appointment date
<i>CEO_Incentive</i>	CEO equity-based incentives, calculated as the dollar change in the value of a CEO's stock and options holdings that would come from a one percentage point increase in the company stock price, and normalized by the CEO's total compensation, following Bergstresser and Philippon (2006) .

Firm Characteristics

<i>absDA</i>	The absolute value of discretionary accruals (DA), where discretionary accruals are computed based on the cross-sectional performance-adjusted modified Jones model estimated using all firms in the same two-digit SIC industry.
<i>Assets</i>	Total assets (million \$)
<i>FirmAge</i>	# of years since a firm first appeared in CRSP
<i>#Analysts</i>	# of analysts following the firm
<i>Industry-adj. ROA</i>	Return-on-Assets (ROA) in excess of industry median ROA, whereas ROA is defined as income before extraordinary items over total assets
<i>Leverage</i>	Long-term debt over total assets
<i>Big4</i>	An indicator variable that equals one if a firm's auditor is Deloitte, PWC, Ernst & Young, or KPMG, and zero otherwise
<i>M/B</i>	Market value of equity over book value of equity
<i>Loss</i>	An indicator variable that equals one if a firm reported negative incomes in any of the most recent three years, including the current year, and zero otherwise
<i>Op. Risk</i>	Standard deviation of the ratio of operating cash flows to total assets over the most recent five years, including the current year
<i>Rural</i>	An indicator variable that equals one if a firm's headquarters is located outside one of the top ten largest US metropolitan areas identified in the 2000 Census, and zero otherwise
<i>Invest</i>	Capital expenditure over lagged Net Property, Plant, and Equipment
<i>NOA</i>	Net operating assets over total assets, whereas net operating assets is defined as the sum of common equity, long-term debt, and debt in current liabilities less cash and short-term investments
<i>Hightech</i>	An indicator variable that equals one if a firm operates in internet and technology industries, which we define following Loughran and Ritter (2004)

Characteristics of the County where the Firm's Headquarters is Located

<i>REL</i>	Number of religious adherents in the county (as reported by ARDA) to the total population of the county (from U.S. Census)
<i>Population</i>	Total population in the county
<i>Income</i>	Median household income (\$)
<i>Education</i>	% Person 25 years and over with bachelor degree or higher
<i>Married</i>	% Married households
<i>Age</i>	Median age
<i>Minority</i>	% Minorities (non-white) in the county
<i>Politics</i>	% Republicans
<i>Male</i>	Number of male per 100 female
<i>ΔGDP</i>	Changes in GDP

Appendix C. Church-affiliated Colleges Attended by At Least Three Unique CEOs

School Name	Religious Affiliation	# of CEOs
University of Notre Dame	Roman Catholic	9
Villanova University	Roman Catholic	6
Brigham Young University	Church Of Jesus Christ Of Latter Day Saints Mormon Church	5
Duke University	United Methodist	5
Georgetown University	Roman Catholic	5
Marquette University	Roman Catholic	4
Southern Methodist University	United Methodist	4
Union College	United Methodist	4
American University	United Methodist	3
Boston College	Roman Catholic	3
DePaul University	Roman Catholic	3
Fordham University	Roman Catholic	3
Manhattan College	Roman Catholic	3
St John's University	Roman Catholic	3
University of Dayton	Roman Catholic	3
Wesleyan University	Methodist Episcopal Church	3
Westminster College	Presbyterian	3

The table presents the list of church-affiliated colleges from which at least three unique CEOs obtained their undergraduate education.

References

- Bamber, L., Jiang, J., Wang, I., 2010. What's my style? The influence of top managers on voluntary corporate financial disclosure. *Account. Rev.* 85 (4), 1131–1162.
- Barnett, T., Bass, K., Brown, G., 1996. Religiosity, ethical ideology and intentions to report a peer's wrongdoing. *J. Bus. Ethics* 15 (11), 1161–1175.
- Barro, R., McCleary, R., 2003. Religion and economic growth. *Am. Sociol. Rev.* 68, 760–781.
- Barsky, R., Juster, F., Kimball, M., Shapiro, M., 1997. Preference parameters and behavioral heterogeneity: an experimental approach in the health and retirement study. *Quart. J. Econ.* 112, 1937–1996.
- Beatty, J.E., Kirby, L., 2006. Beyond the legal environment: how stigma influences invisible identity groups in the workplace. *Empl. Responsib. Rights J.* 18 (1), 29–44.
- Benmelech, E., Frydman, C., 2015. Military CEOs. *J. Financ. Econ.* 117 (1), 43–59.
- Bergstresser, D., Philippon, T., 2006. CEO incentives and earnings management. *J. Financ. Econ.* 80 (3), 511–529.
- Callen, J., Fang, X., 2015. Religion and stock price crash risk. *J. Finan. Quant. Anal.* 50 (1/2), 169–196.
- Chang, Y.Y., Dasgupta, S., Hilary, G., 2010. CEO Ability, Pay, and firm performance. *Manag. Sci.* 56, 1633–1652.
- Chemmanur, T.J., Kong, L., Krishnan, K., Yu, Q., 2018. Human capital, top management quality, and firm performance. Working paper.
- Chemmanur, T.J., Paeglis, I., 2005. Management quality, certification and initial public offerings. *J. Financ. Econ.* 76, 331–368.
- Chemmanur, T.J., Paeglis, I., Simonyan, K., 2011. Management quality and anti-takeover provisions. *J. Law Econ.* 54, 651–692.
- Chen, H., Huang, H., Lobo, G., Wang, C., 2016. Religiosity and the cost of debt. *J. Bank Financ.* 70, 70–85.
- Cohen, D., Dey, A., Lys, T., 2008. Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley periods. *Account. Rev.* 83, 757–787.
- DeFond, M., Subramanyam, K.R., 1998. Auditor changes and discretionary accruals. *J. Account. Econ.* 25 (1), 35–67.
- Demerjian, P., Lev, B., McVay, S., 2012. Quantifying managerial ability: a new measure and validity tests. *Manag. Sci.* 58 (7), 1229–1248.
- Diaz, J., 2000. Religion and gambling in Sin-city: a statistical analysis of the relationship between religion and gambling patterns in Las Vegas residents. *Soc. Sci. J.* 37, 453–458.
- Dyreng, S.D., Mayew, W., Williams, W., 2012. Religious social norms and corporate financial reporting. *J. Bus. Financ. Account.* 39 (7–8), 845–875.
- Fama, E.F., French, K., 1997. Industry costs of equity. *J. Financ. Econ.* 43, 153–193.
- Feng, M., Ge, W., Luo, S., Shevlin, T., 2011. Why do CFOs become involved in material accounting manipulations? *J. Account. Econ.* 51 (1–2), 21–36.
- Hainmueller, J., 2012. Reweighting method to produce balanced samples in observational studies. *Polit. Anal.* (10) 25–46.
- Hambrick, D.C., Mason, P., 1984. Upper echelons: the organization as a reflection of its top managers. *Acad. Manag. Rev.* 9 (2), 193–206.
- Hartman, H., Hartman, M., 1996. More Jewish, less Jewish: implications for education and labor force characteristics. *Sociol. Relig.* 57 (2), 175–193.
- Heatherington, E.M., Feldman, S., 1964. College cheating as a function of subject and situational variables. *J. Educ. Psychol.* 55 (4), 212–218.
- Hilary, G., Hui, K.W., 2009. Does religion matter in corporate decision making in America? *J. Financ. Econ.* 93, 455–473.
- He, W., Hu, M., 2016. Religion and bank loan terms. *J. Bank Financ.* 64, 205–215.
- Jenter, D., Kanaan, F., 2015. CEO turnover and relative performance evaluation. *J. Financ.* 70, 2155–2184.
- Jiang, J., Petroni, K., Wang, I., 2010. CFOs and CEOs, who has the most influence on earnings management. *J. Financ. Econ.* 96 (3), 513–526.
- Kim, Y., Park, M., Wier, B., 2012. Is earnings quality associated with corporate social responsibility? *Account. Rev.* 87 (3), 761–796.
- Klein, A., 2002. Audit committee, board of director characteristics, and earnings management. *J. Account. Econ.* 33 (3), 375–400.
- Kothari, S.P., Leone, A., Wasley, C., 2005. Performance matched discretionary accrual measures. *J. Account. Econ.* 39 (1), 163–197.
- Lagace, M., 2001. Can Religion and Business Learn from Each other?. Harvard Business School Working Knowledge.
- Loughran, T., Ritter, J., 2004. Why has IPO underpricing changed over time? *Financ. Manag.* 33 (3), 5–37.
- Lehrer, E.L., 1995. The effects of religion on the labor supply of married women. *Soc. Sci. Res.* 24 (3), 281–301.
- Lehrer, E.L., 2004. Religion as a determinant of economic and demographic behavior in the United States. *Popul. Dev. Rev.* 30 (4), 707–726.
- Lehrer, E., Chiswick, C., 1993. Religion as a determinant of marital stability. *Demography* 30, 385–404.
- Longenecker, J.G., McKinney, J., Moore, C., 2004. Religious intensity, evangelical Christianity, and business ethics: an empirical study. *J. Bus. Ethics* 55 (4), 373–386.
- McGuire, S., Omer, T., Sharp, N., 2012. The impact of religion on financial reporting irregularities. *Account. Rev.* 87, 645–673.
- Malmendier, U., Tate, G., 2005. CEO overconfidence and corporate investment. *J. Finance* 60 (6), 2661–2700.
- Malmendier, U., Tate, G., 2008. Who makes acquisitions? CEO overconfidence and the market's reaction. *J. Financ. Econ.* 89, 20–43.
- Malmendier, U., Tate, G., Yan, J., 2011. Overconfidence and early-life experiences: the effect of managerial traits on corporate financial policies. *J. Finance* 66, 1687–1733.
- Masulis, R.W., Wang, C., Xie, F., 2007. Corporate governance and acquirer returns. *J. Finance* 62, 1851–1889.
- Mazar, N., Amir, O., Ariely, D., 2008. The dishonesty of honest people: a theory of self-concept maintenance. *J. Market. Res.* 45, 633–644.
- Michaels, J.W., Miethe, T., 1989. Applying theories of deviance to academic cheating. *Soc. Sci. Q.* 70, 870–885.
- Miller, A.S., 2000. Going to hell in Asia: the relationship between risk and religion in a cross-cultural setting. *Rev. Relig. Res.* 40, 5–18.
- Miller, A.S., Hoffman, J., 1995. Risk and religion: an explanation of gender differences in religiosity. *J. Sci. Study Relig.* 34, 63–75.
- Murphy, K.J., Zimmerman, J., 1993. Financial performance surrounding CEO turnover. *J. Account. Econ.* 16, 273–315.
- Osoba, B., 2003. Risk preferences and the practice of religion, evidence from panel data. Unpublished Working Paper, West Virginia University.
- Parrino, R., 1997. CEO turnover and outside succession: a cross-sectional analysis. *J. Financ. Econ.* 46, 165–197.
- Pascarella, E.T., Terenzini, P., 1991. How College Affects Students, Findings and Insights from Twenty Years of Research. Jossey-Bass, San Francisco, CA.
- Petersen, M., 2009. Estimating standard errors in finance panel data sets, comparing approaches. *Rev. Financ. Stud.* 22 (2), 435–480.
- Pourciau, S., 1993. Earnings management and nonroutine executive changes. *J. Account. Econ.* 16, 317–336.

- Roychowdhury, S., 2006. Earnings management through real activities manipulation. *J. Account. Econ.* 42 (3), 335–370.
- Rossi, H., 2014. 7 CEOs with notably devout religious beliefs. *Fortune* 2014/11/11.
- Shu, T., Sulaeman, J., Yeung, P., 2012. Local religious beliefs and mutual fund risk taking behaviors. *Manag. Sci.* 58 (10), 1779–1796.
- Smith, C.P., Ryan, E., Diggins, D., 1972. Moral decision making: cheating on examinations. *J. Pers.* 40, 640–660.
- Stark, R., Finke, R., 2000. *Acts of faith: Explaining the Human Side of Religion*. University of California Press.
- Terpstra, D.E., Rozell, E., Robinson, R., 1993. The influence of personality and demographic variables on ethical decisions related to insider trading. *J. Psychol.* 127 (4), 375–389.
- Urcan, O., 2007. Geographical location and corporate disclosures. Working paper, London Business School.
- Weber, M., 1905. *The Protestant Ethic and the Spirit of Capitalism*. Allen & Unwin, London.