Original Paper

The Impact of Religious Atmosphere on Corporate Governance:

An Empirical Study Based on the Number of Temples around

Listed Companies

Kaikai Liu[1], Xinyi Wang[1*] & Jingjing Liang[1]

[1] SILC Business School, Shanghai University, Shanghai, China

[*] Xinyi Wang, E-mail: jjgkth99@shu.edu.cn

Abstract

Religious belief can affect individual's behavior. It usually induces managers to be more risk averse, thereby mitigating the agency problem and positively influencing governance. This paper conducts an empirical study to analysis the effect of religious atmosphere on corporate governance. It could be figured out that strong religious atmosphere plays an active role in corporate governance. The stronger the influence of religious tradition on listed companies, the less likely the managers are to violate the rules. Through precepts and deeds, these religious traditions are passed on from generation to generation and have become a significant factor affecting human economic behavior.

Keywords

religious tradition, corporate governance, corporate violation

1. Introduction

With the continuous development of China's capital market, the illegal behavior of listed companies is also increasingly rampant, seriously disrupting the market order. According to CSMAR, up to 449 listed companies were punished for violation of regulations in 2018, which not only caused great losses to investors, but also troubled the market regulators. Company violations tend to be a stubborn disease that adversely affected the further development of China's capital market. Therefore, how to effectively restrain these violations has attracted the attention of regulatory authorities as well as scholars at home and abroad.

On the one hand, there is no doubt that the construction and implementation of formal systems (including laws, regulations, media, etc.) play an important role in promoting company management,

national economic and social development. Especially for emerging market countries (such as China's capital markets), a formal system within the company is indispensable as well. However, while paying attention to the importance of formal systems, it is equally necessary to note that countries that adopt similar legal systems will also have tremendous differences in social and economic development. These differences may be the limits of explanatory power that formal systems cannot surpass. And this is because various informal systems such as religion, culture, customs, and conventions accumulated in the long-term historical development of different countries promote the evolution of society in parallel. However, literature on corporate governance pays more attention to the formal system such as law and regulation, but less on the informal system. As an important part of informal system, this paper discusses the influence of religious tradition on corporate governance and presents positive evidence that religious tradition can significantly improve the quality of corporate governance, so as to provide effective recommendations for government policy-making and corporate governance targeted at avoiding violations.

2. Literature Review

2.1 Measures of Corporate Governance

Due to globalization and the rise of multinational companies, corporate internal governance is increasingly becoming a global concern. At present, abundant literature have analyzed and measured the level of corporate internal governance from different angles while more researches at the formal corporate governance mechanism than at the informal level Jiang et al. (2006) define that the formal system mainly includes the formulation and implementation of formal and written laws and regulations. Regardless of whether it is at the national level or the company level, domestic and foreign researches on formal systems and corporate governance have been abundant. Villiers et al. (2021) state that these rules, procedures or processes can formally or informally enable the board of directors to govern. In addition, they can monitor strategy, performance and risk, and encourage good corporate citizenship and organizational accountability. Specifically, Farooque et al. (2019) research the interaction of executive compensation, corporate performance and corporate governance in different systems and governance environments in emerging market economies. Gulati et al. (2020) analyze the influence of the size of the board of directors, the turnover rate of CEOs, the number of foreign directors and the level of knowledge, and political relations on the company's performance. Similarly, Crifo et al. (2019) discuss the impact of the board of directors and investor relations officers on the corporate governance environment. They conclude that the company's sustainability governance is positively correlated with internal directors, and negatively correlated with the participation of external expert directors.

As for the informal corporate governance mechanism, Wu and CF (2006) identify that ethical considerations, corporate governance and organizational performance are inextricably linked. Among them, family management is an important intermediary variable for moral considerations of corporate governance and organizational performance. Additionally, Villiers et al. (2021) also state that the

ethical culture is likely to determine how to institutionalize corporate governance practices. For example, when employees regard management as trustworthy and ethical standards, the company's performance will be stronger.

2.2 Corporate Governance and Religion

It is difficult to clarify the causal relationship between religious beliefs and corporate behavior, which leads to extremely serious endogenous problems (Hilary & Hui, 2009). However, there are some literature identifying the relationships between corporate governance and culture in specific aspects. In general perspective, Daniel et al. (2012) proof that national cultural practices will affect the institutional environment, which in turn will affect corporate governance practices. And using the Schwartz cultural value model and the data in the corporate governance system, Breuer and Salzmann (2012) analyze the impact of national culture on six aspects of corporate governance in detail. They emphasize that embeddedness, egalitarianism, and harmony are more likely to establish bank-based systems, while countries that emphasize autonomy, hierarchy, and mastery tend to establish market-based systems. In the same way, Griffin et al. (2017) prove that the two dimensions of national culture-individualism and avoidance of uncertainty-capture about 90% of the country's fixed effects, and believe that culture works through the trade-off between management expertise and control certainty. In addition, Volonté (2015) works on language (German and French) and religion (Roman Catholic and Protestant) acting as agents of culture, and uses Swiss companies to study the impact of culture on corporate governance.

Religion is an important part of national culture. In areas with a relatively strong religious atmosphere, the ethics generally accepted among community members are more or less influenced by religious ethics, and then a community ethics code based on religious ethics has been formed (Lam & Shi, 2008). In addition, the study by McGuire et al. (2012) found that the stronger the influence of religion on the location of the company's headquarters, the lower the possibility that the company's financial report violates relevant laws and regulations. Chintrakarn et al. (2017) proof that religious piety makes individuals more honest and avoids risks, thus reducing the possibility of managers exploiting shareholders, thereby reducing agency conflicts and possibly affecting governance arrangements, utilizing data from U.S. counties.

3. Data Sources and Variable Selection

This article chooses 2019 as the research year. It selects the Shenzhen A-share main board listed company as the initial observation of this article. After deleting ST, ST*, and financial insurance companies, 2315 samples are obtained. Then, after excluding individuals whose main variable values are missing, 1426 samples are finally obtained. The data comes from an official reliable database: data on corporate violations, religious environment, corporate governance, and financial indicators are all from the CSMAR database. In order to avoid extreme values that seriously affect the accuracy of the estimation results, this paper performs 1% Winsorize tailing processing for the main continuous

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variables. This paper mainly classifies the factors that affect a company's violation into religious environment, and selects the control variables from three dimensions of corporate governance, corporate operation and litigation risk with reference to Wang and He (2020). Variable meanings and statistical information are shown in Table 1.

Table 1. Variable Description

Variable		Sign	Variable meaning
Explained variable	Company violations	IsViolated	Whether the company violates the regulations in 2018 or 2019: the violation is 1 and the violation is 0
Explanatory variable	Religious environment	Add	Sum of the number of temples and Taoist temples within a radius of 250 meters
Control Variables	**Corporate governance variables:**		
	Board size	Board	Number of directors
	Proportion of independent directors	Independentboard	Number of independent directors
	Market value	Logmarketvalue	Logarithm of company's market value
	Corporate operation variables:		
	Company size	Size	Logarithm of total assets
	Return on assets	Roa	Net profit / (average value of total assets at the beginning and end of the period)
	Litigation risk variables:		
	Turnover rate	Turnover	Turnover rate of tradable shares of the company's stock in the current year

4. Empirical Analysis of Religious Environment's Influence on Company Violations

4.1 Descriptive Statistics

Descriptive statistics of the main variables are provided in Table 2 and Table 3. In the sample population, the mean value of sum of the number of temples and Taoist temples within a radius of 250 meters (Add) is 3.425, indicating that the number of religions sites around the sample company is relatively small. The maximum and minimum values are 10 and 0 respectively, showing that there is a gap between the thick religious environment and the thin religious environment. Particularly, some companies even have no religious environment.

Table 2. Data Descriptive Statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
add	1,426	3.425	2.074	0	10
logsize	1,426	9.677	0.510	8.381	12.24
board	1,426	8.236	1.634	4	16
Independentratio	1,426	0.381	0.0598	0	0.750
roa	1,426	0.0257	0.119	-1.859	0.383
ToverOsY	1,426	678.7	581.5	14.36	5110
logmarketvalue	1,426	22.48	0.931	20.72	26.73

Table 3. Dummy Variable Descriptive Statistics

IsViolated	Freq.	Percent	Cum.
0	1,172	82.19	82.19
1	254	17.81	100
Total	1,426	100	

4.2 Basic Regression Results of the Model

Drawing on the literature of the past studies on violations and financial scandals of listed companies in China, this article uses IsViolated as the explained variable. When a violation was involved in the year, IsViolated takes 1; otherwise it takes 0. The violations of listed companies cannot be directly observed, because the violations of listed companies can only be known when they are punished and announced. Therefore, this article uses listed companies that have been punished for violations as a sample of the violation research. And this paper introduces independent variable: religious environment, the company uniformly determines the sum of the number of harmonious temples and the number of harmonious Taoist temples within a radius of 250 meters (add). Control variables include three dimensions of corporate governance (board, independentratio, logmarketvalue), company operations (logsize, roa), and litigation risk (ToverOsY). Then construct a multiple regression model to test the influence of religious traditions on company violations, and the results are as follows:

$$IsViolated_i = \beta_0 + \beta_1 add_i + \beta_2 logsize_i + \beta_3 board_i + \beta_4 independentboard_i + \beta_5 roa_i$$
$$+ \beta_6 ToverOsY_i + \beta_7 logmarketvalue_i + u$$

Table 4. Basic Regression Results

	(1)
	IsViolated
add	-0.0090[*]
	(0.0048)
logsize_w	0.0316
	(0.0316)
board_w	-0.0052
	(0.0082)
independentratio_w	0.1768
	(0.2237)
roa_w	-0.7633[***]
	(0.1102)
ToverOsY _w	-0.0066
	(0.0136)
logmarketvalue_w	-0.0271
	(0.0172)
_constant	0.5515[*]
	(0.3027)
N	1426.0000
R^2	0.0892
Adj-R^2	0.0845

Standard errors in parentheses

[*] $p < 0.1$, [**] $p < 0.05$, [***] $p < 0.01$

In order to prevent the improper model design due to the limitation of economic data, resulting in a universal correlation between explanatory variables, this paper does a multicollinearity test through the variance expansion coefficient.

Table 5. Multicollinearity Test Results

Variable	VIF	1/VIF
logsize	2.55	0.391431
logmarketvalue	2.51	0.397757
board	1.68	0.596462
Independentratio	1.59	0.630285
roa	1.14	0.880931
ToverOsY	1.09	0.915078
add	1.02	0.982433
Mean VIF	**1.65**	

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From Table 5, the results show that the VIF values are all less than 5, and the VIF of add is significantly close to 1. It means that there is no obvious multicollinearity in the selected explanatory variables.

Since the dependent variable is the incidence of company violations, its probability as the estimated value of the dependent variable in the equation ranges from 0 to 1. But the value range on the right side of the equation is infinite or infinitesimal, this article introduces Logistic regression.

Table 6. Logistic Regression Results

	(1)
	IsViolated
add	-0.0633*
	(0.0354)
logsize_w	0.3788*
	(0.2271)
board_w	-0.0365
	(0.0587)
independentratio_w	1.1617
	(1.5581)
roa_w	-4.1950***
	(0.6597)
ToverOsY _w	-0.0582
	(0.0975)
logmarketvalue_w	-0.3088**
	(0.1315)
_constant	2.2155
	(2.2764)
N	1426.0000
Pseudo R^2	0.0882

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

It can be seen from Table 6 that the logistic regression coefficients are about 5 times that of OLS. After controlling for other factors, the sign of the coefficient of the religious measurement index is consistent with the expectation, which is negative. And it is significant at the 10% level. In the economic sense, when other conditions of control remain unchanged, each increase of one standard deviation in the sum of the number of harmonious temples and the number of harmonious Taoist temples within a uniformly determined radius of 250 meters will reduce the probability of violation of the company by 6.33%.

Considering that the probability of IsViolated taking 1 in the total sample is only 17.81%, this means that the strengthening of religious traditions reduces the possibility of company violations by 35.54% (6.33% /17.81%). The above results indicate that the stronger the influence of religious traditions on listed companies, the less likely it is to violate regulations. In addition, cultural customs and religious traditions are passed on from generation to generation, and through precepts and deeds, as well as ups and downs, have become an important factor affecting human economic behavior.

In terms of the reason why religious traditions could influence corporate governance, there are probably four perspectives of the reason. First, religious traditions influence the rules that believers follow. For these people, not only formal institutional arrangements such as laws may constrain their behaviors, but also various religious regulations may constrain their behaviors. Pious religious believers are usually faced with strict constraints. In this sense, religion may provide a constraint outside the legal system. For example, in a strong religious environment, the managers of the companies may hold themselves to a higher standard and abide by all kinds of laws more strictly. Consequently, the operation of these companies may be more standardized and there would be fewer violations and corruption. Second, religious traditions can reduce the self-interest of believers. Many religions emphasize mutual assistance and fraternity toward others when there is a degree of rejection of pure self-interest. Therefore, the influence of religious fraternity and altruism may reduce some self-interested behaviors of management, including violation of rules. Third, religious tradition could affect the risk attitude of believers. Religious believers tend to have a strong aversion to future uncertainty. This means executives are less likely to adopt aggressive corporate strategies in a strongly religious environment. This kind of conservatism behavior orientation is beneficial to restrain the occurrence of violation. Finally, there is a natural conflict between the social existence of a company as a legal person and its stakeholders. This contradiction in the category of economics is manifested as "agency problem", while in the context of religion, it is manifested as the inner transcendence between the present life and the afterlife. Religion mediates the internal conflict between long-term goals of a company and short-term actions of individuals through internal practices and abstinence. In general, the influence of religious environment on corporate governance is of universal significance.

4.3 Model Optimization Results

4.3.1 Square Term Analysis

In order to further study the relationship between the violations of listed companies and the influence of religion, this paper adds a regression model of the square variable of add.

Table 7. Logistic Regression Results after Adding Add^2

	(1)
	IsViolated
add	-0.1841*
	(0.0997)
Add^2	0.0158
	(0.0122)
longsize_w	0.3774*
	(0.2275)
board_w	-0.0417
	(0.0589)
independentratio_w	1.0770
	(1.5597)
roa_w	-4.2372***
	(0.6605)
ToverOsY_w	-0.0543
	(0.0977)
logmarketvalue_w	-0.3001**
	(0.1318)
_constant	2.2431
	(2.2801)
N	1426.0000
Pseudo R^2	0.0892

It can be seen from Table 7 that after deriving the equation with respect to add and making it equal to 0, the turning point of add is 5.826. When add is less than 5, the probability of listed company violation will decrease; when add is greater than or equal to 6, the probability of listed company violation will increase. Besides, the square variable of add is not significant and can be omitted from the general equation.

4.3.2 Interaction Terms Analysis

Since the covariance value of the size variable and the marketvalue variable is more significant in the previous analysis, this article combines these two into an interaction term to analyze their common influence on IsViolated. Let z=logsize*logmarketvalue, the logistic regression results are shown in Table 8.

Table 8. Logistic Regression Results after Adding Logsize*Logmarketvalue

	(1)
	IsViolated
add	-0.0603[*]
	(0.0354)
logsize_w	7.0710[**]
	(2.8166)
z	-0.2951[**]
	(0.1241)
board_w	-0.0330
	(0.0593)
independentratio_w	1.4798
	(1.5671)
roa_w	-4.1589[***]
	(0.6630)
logmarketvalue_w	2.6321[**]
	(1.2337)
turn_w	-0.0389
	(0.0982)
_cons	-64.6558[**]
	(27.9112)
N	1426.0000
Pseudo R^2	0.0938
Chi2	71.86

Standard errors in parentheses

[*] $p < 0.1$, [**] $p < 0.05$, [***] $p < 0.01$

It can be figured out from Table 8 that after deriving the equation with respect to logsize and making it equal to 0, the turning point of logmarketvalue is 23.961. When logmarketvalue is less than 23.961, the probability of listed company violation will increase; when logmarketvalue is greater than 23.961, the probability of listed company violation will decrease. Moreover, after deriving the equation with respect to logmarketvalue and making it equal to 0, the turning point of logsize is 8.9193. When logsize is less than 8.9193, the probability of listed company violation will increase; when logsize is greater than 8.9193, the probability of listed company violation will decrease. Not only has the significance of add improved, the interaction term is significant at the 5% level, so the interaction term can be placed in the general equation.

4.3.3 Heteroscedasticity Test

Through the F-statistic test, $F(7,1418) = 0.19$ and Prob>F=0.9873>0.01. Hence, the homoscedasticity hypothesis is not rejected at the 1% significance level, that is, the regression equation does not have heteroscedasticity.

Through the LM statistic test, LM=1.2834 and its P value is 0.9889>0.01. That is, the homoscedasticity hypothesis is not rejected at the 1% significance level, reaching the same conclusion as the F-statistic test. Therefore, there is no heteroscedasticity in the regression equation. The results of BP test are shown in Table 9.

Table 9. BP Test Results

BP test	(1)
	uhatsq
add	0.0081
	(0.0269)
logsize_w	-0.0891
	(0.1759)
board_w	0.0066
	(0.0455)
independentratio_w	0.6475
	(1.2465)
roa_w	0.3262
	(0.6139)
ToverOsY_w	0.0192
	(0.0760)
logmarketvalue_w	0.0375
	(0.0958)
_constant	0.5712
	(1.6869)
N	1426.0000
R^2	0.0009
Adj-R^2	-0.0040
F	0.19
Prob>F	0.9873

Standard errors in parentheses

$^{*} p < 0.1,\ ^{**} p < 0.05,\ ^{***} p < 0.01$

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Through the F-statistic test, F(2,1423)=1.9 and Prob>F=0.1493>0.01. It shows that the homoscedasticity hypothesis is not rejected at the 1% significance level, indicating that there is no heteroscedasticity in the regression equation.

Through the LM statistic test, LM=3.8502 and its P value is 0.7969>0.01, which means the homoscedasticity hypothesis is not rejected at the 1% significance level. It comes to the same conclusion as the F-statistic test that there is no heteroscedasticity in the regression equation. The results of White test are shown in Table 10.

Table 10. White Test Results

White test	(1)
	uhatsq
add	0.0081
	(0.0269)
logsize_w	-0.0891
	(0.1759)
board_w	0.0066
	(0.0455)
independentratio_w	0.6475
	(1.2465)
roa_w	0.3262
	(0.6139)
ToverOsY_w	0.0192
	(0.0760)
logmarketvalue_w	0.0375
	(0.0958)
_constant	0.5712
	(1.6869)
N	1426.0000
R^2	0.0009
Adj-R^2	0.0013
F	0.1913
Prob>F	0.1493

Standard errors in parentheses

$^* p < 0.1$, $^{**} p < 0.05$, $^{***} p < 0.01$

4.3.4 Ramsey RESET Test

Since R^2 is not large in the regression result, we check whether there is a problem with the setting of the function form. After adopting Ramsey RESET test using powers of the fitted values of IsViolated, $F_{(3, 1415)}=2.58$ and Prob> F=0.0521>0.05. It means that the model is not well-specified. Therefore, this paper adds a regression model of the square yhat.

Table 11. Logistic Regression Results after Adding Square Yhat

	(1)
	IsViolated
add	-0.0180***
	(0.0065)
Size_w	0.1105**
	(0.0498)
board_w	-0.0104
	(0.0085)
independentratio_w	0.3288
	(0.2355)
roa_w	-1.1739***
	(0.2287)
marketvaluelog_w	-0.0899**
	(0.0351)
turn_w	-0.0167
	(0.0145)
yhatsq	0.0451**
	(0.0220)
_cons	1.1572***
	(0.4230)
N	1426.0000
R^2	0.1020
Adj-R^2	0.0967

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Comparing with the basic regression results and logistic regression results, the significance of add variable becomes larger and the Adj-R^2 also increases. Therefore, there are factors that can explain IsViolated in the square terms and interaction terms of these variables.

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5. Conclusion

From the analysis of STATA results, it could be proved that the stronger the influence of religious tradition on listed companies, the less likely they are to violate the rules. This is because the more people in a society subscribe to and follow a code of conduct, the higher the incentive for individuals in the society to follow that code. As a result, managers and employees in highly religious regions are more likely to adhere to those religious-related codes of conduct, and local religious norms can have a significant social impact which are likely to influence the attitudes and culture of companies headquartered there. In a strong religious environment, the company's management may require them to comply with various laws and regulations with comparatively higher standards, as a consequence, the operation of these companies may be more standardized with less violations and corruption. In addition, religious tradition will also affect believers' attitude towards risk. That is to say, in a strong religious environment, companies may adopt less adventurous accounting policies and invest more soundly. From these perspectives, it can be concluded that the influence of religion on corporate governance has universal significance, thus playing a positive role in helping companies avoid violations.

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