



# Confucian culture and analysts' earnings forecast accuracy

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## ABSTRACT

This article's findings reveal that Confucian culture enhances the precision of analysts' earnings forecasts. Tests for heterogeneity demonstrate that in private enterprises and more marketized samples, Confucian culture's governance impact is more significant. This study offers empirical support for the notion that Confucian culture serves as a vital external oversight mechanism for businesses.

## 1. introduction

As a representative of informal institutions, Confucian culture has maintained a significant impact on social stability and development, even in the face of Western cultural influences. As a primary ethical standard in Chinese history, Confucianism guides not only personal morality but also corporate governance and management (Jin et al., 2023). New institutional economics highlights the unique role of informal institutions when formal ones like policies and regulations fail. Confucian culture profoundly shapes national spirit and behavior, spreading throughout society and fostering ecological and human harmony. Understanding China's issues goes beyond formal institutions to explore historically ingrained informal ones. Confucian culture positively influences corporate governance, economic growth, employee rights protection, and decision-making efficiency, especially in information disclosure where its principles of integrity, moderation, and hierarchical order reduce opportunistic behaviors and enhance the quality of disclosures (Zhang, 2008). Despite its significant impact on capital market information disclosure, research in this area remains scarce. As China's capital market evolves, investigating the impact of Confucian culture holds substantial theoretical and practical importance.

Securities analysts play a crucial role in the financial market, acting as an information bridge between listed companies and investors. They conduct in-depth analysis of company data to make profit forecasts for investors, thereby influencing market stock prices (Han et al., 2009). Their role is especially significant in conveying key confidential information. Utilizing both public and private information, analysts' professional predictions not only guide investment decisions but are also vital for market valuation and price discovery (Salerno, 2014). As analysts' forecasts are often viewed as a benchmark for measuring company performance, their accuracy is widely regarded as more precise than random models and receives considerable attention. The values of honesty, benevolence, moderation, and hierarchical order in Confucian culture help enhance corporate governance levels, reduce agency costs, and make financial information more objective and fair. This, in turn, improves the precision of analysts' forecasts and the transparency of corporate information.

The research results of this article indicate that Confucian culture has improved analysts' earnings forecasts. Heterogeneity test results show that in non-state-owned enterprises and samples with a higher degree of marketization, the governance effect of Confucian culture is more pronounced. This suggests that culture can act as a governance mechanism, helping listed companies

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improve governance levels and optimize information disclosure behavior. In non-state-owned enterprises, areas with a higher degree of marketization and a lower degree of openness are more significant.

The contributions of this research are as follows: First, the results further highlight the role of heterogeneity factors in the governance function of Confucian culture, especially in non-state-owned enterprises and contexts with a higher degree of marketization, where the impact of Confucian culture on the precision of analysts' earnings forecasts is more evident. This finding emphasizes the shaping role of corporate background on the governance of Confucian culture as an informal institution. This helps clarify the mechanisms through which Confucian culture influences the behavior of listed companies. Second, this article verifies the impact of Confucian culture, an informal institution, on the behavior of listed companies, highlighting the important role of Confucian culture in the socio-economic development and providing empirical evidence to deepen the understanding of the relationship between culture and institutions. Third, this article discovers that Confucian culture affects the accuracy of analysts' earnings forecasts and has a governance role. Due to the imperfections of formal regulations, listed companies in China often face severe agency problems. The research results prove that Confucian culture plays a governance effect, ultimately enhancing the accuracy of corporate analysts' earnings forecasts. This research provides empirical evidence for the view that Confucian culture acts as an important external monitoring mechanism for enterprises.

## 2. Literature review

### 2.1. Confucian culture

As China's economy swiftly modernizes, Confucian culture profoundly shapes its people's mindsets and the essence of corporate culture, becoming crucial for fostering high-quality business development (Rarick, 2007). Confucian ethics like self-discipline and loyalty positively influence corporate governance, lowering costs and promoting ethical conduct. Its hierarchical system clarifies corporate roles, enhancing rule adherence and decision-making (Yan et al., 2021). Additionally, Confucian values encourage social responsibility and trust-building in markets, addressing information asymmetry and promoting financial integrity. This not only improves financial reporting but also ensures reliable information for investors, contributing to market stability and growth (Hou et al., 2023).

### 2.2. Earnings forecast accuracy

Capital market analysts serve as key intermediaries, mitigating information gaps between shareholders and managers, and driving resource allocation and market efficiency (Clarkson, 2000; Hutton and McEwen, 1997; Call et al., 2009). They analyze operational, investment, and financial data to predict key performance indicators like profits and ratings. By reviewing public records such as financial reports and economic trends, analysts help investors navigate information asymmetry. Proximity to analyzed companies and cultural factors significantly influence their access to information and forecast accuracy (Liu et al., 2023; Luo and Wu, 2022). As the quality of corporate information drops, analysts encounter more challenges and errors. Their reliance on audited financial statements and the thoroughness of their analysis are crucial for accurate earnings predictions and maintaining the integrity of their role.

## 3. Data and variables

### 3.1. Data sources

This article selects all listed companies in China's Shanghai and Shenzhen A-share capital markets from 2012 to 2020 as the initial research sample. The selection is refined through the following procedures: (1) excluding ST and PT samples from the research sample; (2) excluding financial and insurance companies; (3) excluding samples missing key variables; (4) Winsorizing all continuous variables at the 1% to 99% level. The data is sourced from the CSMAR and CNRDS databases.

### 3.2. Variables

#### 3.2.1. Earnings forecast accuracy (forecast)

The dependent variable of this article is earnings forecast accuracy, calculated based on the consensus forecast of all securities institutions for a particular listed company. This reflects the influence of the company's own characteristics on earnings forecast accuracy. Specifically, it's calculated as the consensus forecast of earnings per share by all securities institutions for company  $i$  minus the actual earnings per share for listed company  $i$ , divided by the closing price per share of company  $i$  at the end of the previous year. The result is multiplied by  $-100$  to make the index more understandable, meaning the higher the value, the higher the forecast accuracy of the listed company.

#### 3.2.2. Confucian culture (culture)

The number of imperial examination graduates within 200 km of the listed company's registered location during the Ming and Qing dynasties is used as a proxy variable for Confucian culture. The ancient imperial examination system was one of the carriers of Confucian culture. The greater the number of graduates in a region, the more it's influenced by Confucian culture. The total number of imperial examination graduates within 200 km of the company's registered location during these periods is compiled.

**Table 1**  
Descriptive statistics.

VarName	Obs	Mean	SD	Min	Median	Max
Culture	14,812	7.1256	1.5286	0	7.3582	9.3728
Forecast	14,812	−1.0372	1.5982	−9.0281	−0.6391	0
Lev	14,812	0.4832	0.1629	0.0427	0.5912	0.8831
Size	14,812	22.3283	1.537	19.291	22.253	25.315
Grow	14,812	0.3832	0.9691	−0.6819	0.1318	2.7211
Ear	14,812	0.2372	0.3614	0.0009	0.1515	1.6382
Institu_ratio	14,812	0.5193	0.2191	0	0.5824	0.8823

**Table 2**  
Baseline results.

	Forecast	
	(1)	(2)
Culture	0.0182*** (3.2292)	0.0905*** (4.1288)
Control variable	No	Yes
Year	Yes	Yes
Industry	Yes	Yes
N	14,812	14,812
R-Square	0.4516	0.4172

Note:\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively. *t*-values are displayed in parentheses.

### 3.2.3. Control variables

To enhance the explanatory power of independent variables on the dependent variable, this article selects the following control variables from the dimensions of company characteristics, corporate governance level, and operating level. These include the debt-to-assets ratio (Lev, the ratio of total liabilities to total assets), company size (Size, the natural logarithm of total corporate assets), revenue growth rate (Grow, the ratio of the increase in current year's operating income to the previous year's operating income), Earning volatility(Ear, the volatility of the earnings of listed companies, equal to the standard deviation of earnings per share over the past 3 years), and the proportion of institutional investors (Institu\_ratio, the ratio of shares held by institutional investors to the total shares of the company).

## 4. Empirical results

### 4.1. Description statistics

Table 1 reports the descriptive statistical results of the main variables in this paper. In the sample, the minimum value of Confucian culture (culture) is 0, and the maximum value is 9.3728, indicating significant differences in the influence of Confucian culture among companies in the research sample. The minimum value of analysts' earnings forecast accuracy (forecast) is −9.0281, the maximum value is 0, and the median is −0.6391, indicating a considerable variance in analysts' earnings forecast accuracy among the companies in the research sample.

### 4.2. Baseline results

This paper constructs the following econometric model:

$$\text{Forecast}_{it} = \alpha + \beta_1 \text{Culture}_{it} + \gamma \text{Controls}_{it} + \delta_I + \lambda_Y + \varepsilon_{it} \quad (1)$$

In which  $\delta_I$  and  $\lambda_Y$  represent the industry fixed effects and year fixed effects, respectively,  $\varepsilon_{it}$  is the random disturbance term,  $\text{Controls}_{it}$  represents the control variables selected in the model. If  $\beta_1$  is significantly positive, it indicates the Confucian culture can significantly enhance the accuracy of analysts' forecasts.

The empirical test results of Model (1) are shown in Table 2. Column (1) represents the test results only controlling for year fixed effects and industry fixed effects, while Column (2) includes the regression results after adding a series of control variables. Overall, the coefficient of Confucian culture and analysts' earnings forecast accuracy is significantly positive at the 1% level, indicating that Confucian culture can significantly improve the accuracy of analysts' earnings forecasts.

**Table 3**  
Heterogeneity of the marketization.

	(1) Higher level of marketization.	(2) Lower level of marketization.
Culture	0.0198*** (3.2004)	0.0101 (1.5821)
Control variable	Yes	Yes
Year	Yes	Yes
Industry	Yes	Yes
N	7382	7430
R-Square	0.3572	0.3118
P-value	0.0001***	

Note:\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively. *t*-values are displayed in parentheses.

**Table 4**  
Heterogeneity of property right.

	(1) Non-state-owned enterprises	(3) State-owned enterprise
culture	0.0211*** (3.0691)	0.0183 (1.4613)
Control variable	Yes	Yes
Year	Yes	Yes
Industry	Yes	Yes
N	7329	7483
R-Square	0.3105	0.3411
P-value	0.006***	

Note:\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively. *t*-values are displayed in parentheses.

### 4.3. Cross-sectional analysis

#### 4.3.1. Marketization

Arising from an agricultural past, Confucianism deeply impacts rural China's socio-economic and lifestyle norms. Yet, urbanization might change this influence. This study investigates Confucian culture's effect on public companies' reporting amid varying marketization. In highly marketized areas influenced by Confucian moderation, firms prefer wider, less accurate earnings forecasts, likely due to increased legal awareness and the understanding that discrepancies in financial forecasts can lead to market skepticism and regulatory issues. Accordingly, this paper categorizes research samples based on marketization levels for testing. As Table 3 shows, the positive effect of Confucian culture on the accuracy of analysts' earnings forecasts only exists in groups with a higher marketization level.

#### 4.3.2. Property right

State-owned enterprises (SOEs) inherently possess political advantages and receive government protection, with their property nature potentially dictating many differences in managerial economic decision-making. In contrast, private enterprises lack the political leverage of SOEs and thus seek safer methods for earnings forecasts, even at the cost of reduced precision. Accordingly, this paper categorizes research samples based on property right for testing. As Table 4 shows, the positive effect of Confucian culture on the accuracy of analysts' earnings forecasts only exists in non-state-owned enterprises.

## 5. Conclusion

In conclusion, the research conducted in this article provides substantial evidence that Confucian culture plays a critical role in improving the accuracy of analysts' earnings forecasts. The study delved into various corporate environments, revealing that the positive influence of Confucian values is especially pronounced in private enterprises and in regions with a higher degree of marketization. This suggests that Confucianism's ethical and moral guidelines significantly contribute to better corporate governance and accountability. Furthermore, the heterogeneity tests conducted highlight the nuanced ways in which Confucian culture acts as an external monitoring mechanism, aligning with market dynamics and corporate structures. These findings underscore the importance of cultural factors in financial analysis and corporate governance, indicating that Confucian principles can be instrumental in guiding ethical business practices and enhancing the reliability of financial forecasts. This research not only sheds light on the economic implications of cultural values but also provides a framework for understanding how traditional ethics can intersect with modern business practices to foster a more transparent and accountable market environment.

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## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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