

Corporate Strategic Radicalization and the Quality of Analysts' Forecasts: A Moderated Mediation Model

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Abstract. This paper examines the impact of corporate strategic radicalization on the quality of analysts' forecasts and the moderating effect of the effectiveness of internal control by using the data of A-share listed companies from 2008 to 2018 in Shanghai and Shenzhen. The following research results were obtained: Both the error and dispersion of analysts' forecasts are significant negative with the corporate strategic radicalization; A higher internal control quality can promote the role of strategic radicalization in improving the quality of analysts' forecasts; The mechanism analysis shows that corporate performance may be a channel by which strategic radicalization works. Further, internal control quality also moderated the mediating effect of corporate performance in the relationship between strategic radicalization and the quality of analysts' forecasts. The research results further enrich the existing literature on the impact of corporate strategy on analysts' forecasts, which is conducive to alleviating the negative impact of analysts' forecast bias.

Keywords: strategic radicalization, the quality of analysts' forecasts, internal control quality, corporate performance, a moderated mediation.

1. Introduction

As information diggers and transmitters in the capital market, analysts can predict the earnings situation of companies and play an important role in improving the quality of investors' decisions, promoting the development of the capital market and effective allocation of resources. Individual investors are predominant in China's capital market. Analyst forecasts can help investors better understand company' information and avoid stock market shocks caused by the irrational behavior of individual investors who are at an information disadvantage. However, some scholars found that the quality of analysts' forecasts is easily affected by factors such as analysts' cognitive ability and information disclosure, which in turn bring significant losses to investors and the capital market. Qingquan Xin et al. (2014) pointed out that improving the accuracy of analysts' forecasts is an important measure to improve the information environment in the capital market^[1]. Therefore, studying what factors affect analysts' forecasts and how to reduce analysts' forecast bias is of vital importance to promote the healthy development of capital markets.

Strategy refers to the global decisions made by the board of directors of a company based on the overall situation, which determines the long-term business plan and development direction of the company. Miles and Snow (1978) classified companies into defenders, analyzers, and prospectors according to the degree of strategic radicalization, from small to large, based on the operating characteristics of the company^[2]. While different strategies connote differences in their business strategies and development philosophies, which are thus manifested in the impact of strategic radicalization on the company's earnings management^[3], environmental investments^[4] and other aspects, which in turn affects the share price of listed companies and the quality of information disclosure, so strategic radicalization may have an impact on the quality of analysts' forecasts.

This paper uses the error and dispersion of analysts' forecasts to measure the quality of analyst forecasts, analyzes the impact of corporate strategic radicalization on analysts' forecasts' quality, and explores the moderating effect of internal control quality. Compared with the existing studies, the contributions of this paper are: (1) Existing studies pay less attention to the impact on analysts' forecasts. This paper enriches the research literature on strategic radicalization by analyzing the impact of strategic radicalization on analyst forecasts' quality through empirical tests. (2) Previous studies pay less attention to the role of non-financial information such as corporate strategy. This paper finds that strategic radicalization can improve the quality of analysts' forecasts, and analyzes

the role of corporate performance and the moderating effect of internal control quality according to signal theory to enrich the research on the factors influencing analysts' forecasts from the perspective of strategic radicalization. (3) The findings suggest that corporate strategy can provide a basis for decision making by analysts, investors, regulators and corporate management, and is conducive to mitigating the negative impact of analysts' forecast bias on the capital market.

2. Hypotheses development

It has been shown that most of the factors affecting the quality of analysts' forecasts are related to corporate disclosure, including financial reporting, the amount of information disclosed, and the level of ESG disclosure^[5]. According to information asymmetry theory, low quality of information disclosure increases information asymmetry between firms and investors, which in turn increases financing costs and constraints; while improving the quality of information disclosure and the level of voluntary information disclosure can alleviate financing constraints^[6]. Moreover, according to agency theory, information asymmetry generates additional monitoring costs for principals and guarantee costs for agents, so in order to alleviate financing constraints and reduce costs, firm management has an incentive to voluntarily disclose more information. And the higher the strategic radicalization of a firm, the greater its financing needs^[2], which makes management more motivated to disclose information voluntarily. In addition, some scholars have studied the direct link between strategic radicalization and information disclosure and found that prospectors have higher willingness to voluntarily disclose accounting information^[7], are more willing to disclose environmental information, and have a higher number of risk disclosures^[5]. Combined with the above analysis, this paper argues that the higher the strategic radicalization, the greater the financing needs, and in order to reduce the higher financing costs, management will be more willing to voluntarily disclose more information and improve the quality of information disclosure, which in turn improves the quality of analysts' forecasts. Based on this, this paper proposes the following hypothesis:

H1: Strategic radicalization will improve the quality of analyst forecasts.

Baiqiang Wang et al. (2018) found that prospectors have higher market value and are more profitable^[8]. The improvement in corporate performance contributes to the quality of analysts' forecasts because, on the one hand, analysts are more motivated to collect information on better performing companies, thus improving the quality of analysts' earnings forecasts. On the other hand, according to the signaling theory, the effectiveness of the signal is based on two conditions, one is optional, its release or not is non-coercive; the second is not easy to imitate, that is, the signal can only be the choice behavior of managers of high-quality companies. For voluntary disclosure reports related to corporate performance must meet the first condition; as for the second condition, because disclosure or non-disclosure is usually related to corporate performance, active disclosure by companies with poor corporate performance may lead to higher financing costs for investors to reduce, so active disclosure can often only be a managerial strategy of good-performing companies, so voluntary disclosure of information is a beneficial and effective signaling mechanism^[6]. Therefore, the management of companies with better corporate performance is more willing to voluntarily disclose more information, thus improving the quality of analysts' forecasts. Finally, when firms perform poorly, management is more motivated to manipulate earnings, thus reducing the accuracy of earnings forecasts. Based on this, this paper proposes the following hypothesis:

H2: Corporate performance is the mediating variable of the relationship between strategic radicalization and the quality of analysts' forecasts.

Prospectors voluntarily disclose information due to financing needs, thus improving the quality of analysts' forecasts, however, this process may be affected by earnings management. Internal control as an institutional arrangement can inhibit earnings management behavior^[9]. If the quality of a company's internal control is poor, it is likely that management will try to maximize its own interests and whitewash the performance through opportunistic behaviors such as earnings manipulation^[9], reducing the quality of information disclosure. In this case, analysts' forecast accuracy will be greatly

reduced, and the divergence of forecasts is increased due to the different ability of analysts to collect information. In addition, high-quality internal controls not only improve the quality of financial reporting, but also prevent the actual occurrence of corporate misconduct^[9], and according to signaling theory, management will be willing to disclose more financial or non-financial information, which in turn improves the quality of analysts' forecasts. Based on this, this paper proposes the following hypothesis:

H3: Internal controls quality can strengthen the negative relationship between strategic radicalization and the quality of analysts' forecasts.

Prospectors have more innovative inputs and greater uncertainty^[2]. Internal control can enhance the risk management of innovation inputs and promote the financial performance of firms^[10], and the role of corporate performance is enhanced. On the other hand, voluntary disclosure is an effective signaling mechanism for well-performing firms. Internal control can inhibit earnings management behavior, which in turn safeguards the quality of voluntary disclosure as a signaling by good performers. When the quality of internal control is low, the information voluntarily disclosed by good performers may be whitewashed, reducing the quality of forecasts and weakening the intermediation effect. Based on this, this paper proposes the following hypothesis:

H4: The mediating effect of corporate performance is positively moderated by the quality of internal controls. In firms with high quality of internal controls, increasing strategic radicalization is more able to reduce analysts' forecast quality through the path of corporate performance. The research model in this paper is shown in Figure 1.

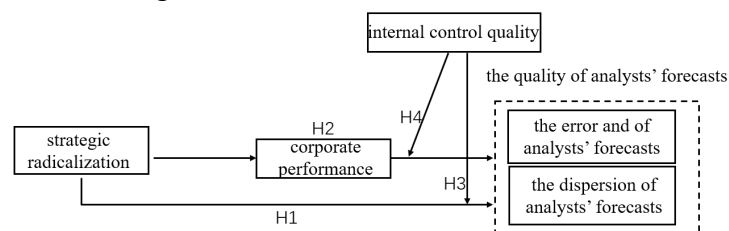


Figure 1. The research model of this paper

3. Data and research design

3.1 Sample Selection

This paper uses the data of A-share listed companies from 2008 to 2018 in Shanghai and Shenzhen as the research sample. The initial data are processed as follows: (1) exclude ST and *ST listed firms (2) exclude listed firms in the financial industry (3) exclude firms with missing data. After the above processing, our final sample consists of 11256 observations. In addition, in order to avoid the influence of extreme values, all continuous variables are winsorized at 1% and 99% levels. Among them, the data of internal control quality are obtained from Diebold China listed companies internal control index database, and all other data are obtained from CSMAR.

3.2 Variables

1. Dependent variable: the quality of analysts' forecasts

In this paper, the error and dispersion of analysts' forecasts are selected to measure the quality of analysts' forecasts. One is the error of analysts' forecasts (FERROR), which can be measured by dividing the absolute value of the difference between the average value of analysts' EPS forecasts of listed companies in the current year ($\overline{FEPS}_{i,t}$) and the actual EPS in the current year ($EPS_{i,t}$) by the absolute value of the actual EPS in the current year. The larger this indicator is, the larger the error is, i.e., the lower the accuracy is.

$$FERROR_{i,t} = \frac{|\overline{FEPS}_{i,t} - EPS_{i,t}|}{|EPS_{i,t}|} \quad (1)$$

The second is the dispersion of analysts' forecasts (FDISP), which can be measured as the ratio of the standard deviation of analysts EPS forecasts ($Std(FEPS_{i,t})$) to the absolute value of the listed company's actual EPS for the year ($EPS_{i,t}$).

$$FDISP_{i,t} = \frac{Std(FEPS_{i,t})}{|EPS_{i,t}|} \quad (2)$$

2. Independent variables: corporate strategic radicalization (STRATEGY)

In this paper, we measure the strategic radicalization by referring to Bentley et al. (2013)^[11], i.e., six indicators, including Ratio of research and development to sales, Ratio of employees to sales, Change in total revenue, Marketing to sales, Employee fluctuations and Capital intensity. All six indicators are measured based on the rolling prior five-year average. Then the "industry-year" sample is sorted by six indicators from smallest to largest and divided into five groups equally, and the first five indicators are assigned the values of 0, 1, 2, 3, 4, The last indicator was assigned the values of 4, 3, 2, 1, and 0, respectively, from the smallest to the largest; the six values of each "company-year" sample were then summed to obtain the final value of strategic radicalization for each sample, which ranged from 0 to 24, and the larger the value, the more radical the company's strategy.

3. Mediating variable: corporate performance (ROA)

Most studies use rate of return on assets and Tobin's Q to measure corporate performance, and since the dependent variable of this paper is the quality of analysts' forecasts, which is mainly related to the financial dimension of firms. Moreover, there is still a large asymmetry between corporate share prices and actual performance levels in the current capital market in China^[12], so Tobin's Q value is not used to measure corporate performance, and corporate performance is considered. Chinese scholars mainly measure corporate financial performance through indicators such as rate of return on total assets and return on net assets. Since return on total assets reflects the relative magnitude of profit creation from existing assets, this paper selects rate of return on total assets (ROA) to measure corporate performance.

4. Moderating variable: Internal Control Quality (ICQ)

This paper uses the internal control index of DIB database to measure the quality of internal control of listed companies, and the larger the value is, the higher the internal control quality of the company.

5. Control variables

By analyzing relevant literature and combining data availability, the following control variables are selected in this paper: (1) debt-to-assets ratio (LEV), i.e., total assets/total liabilities; (2) corporate size (SIZE), i.e., the natural logarithm of total corporate assets; (3) corporate age (AGE), i.e., the number of years the firm has been established; (4) nature of ownership (STATE), i.e., state-owned enterprises take the value of 1 and non-state enterprises take the value of 0. (5) Board size (BOARD), which is the natural logarithm of the total number of board members; (6) Executive shareholding ratio (SR), which is the number of management shares/paid-in capital; (7) Concentration of power (BOTH), which takes the value of 1 if the chairman and the general manager are concurrently appointed and 0 otherwise. In addition, to control for industry effects and year effects, this paper includes dummy variables of industry (Industry) and year (Year).

3.3 Research design

To test the relationship between strategic radicalization and the quality of analysts' forecasts, model (3) was constructed:

$$FERROR(FDISP) = \beta_0 + \beta_1 STRATEGY + \beta_2 Controls + \sum Industry + \sum Year + \varepsilon \quad (3)$$

Where Controls represent all control variables, $\sum Industry$ and $\sum Year$ respectively refer to fixed industry effects and year effects, and ε denotes the random disturbance term.

To test the mediating effect of corporate performance in the relationship between strategic radicalization and the quality of analysts' forecasts, models (4) and (5) were constructed

$$ROA = \beta_0 + \beta_1 STRATEGY + \beta_2 Controls + \sum Industry + \sum Year + \varepsilon \quad (4)$$

$$FERROR(FDISP) = \beta_0 + \beta_1 STRATEGY + \beta_2 ROA + \beta_3 Controls + \sum Industry + \sum Year + \varepsilon \quad (5)$$

In addition, to test the moderating effect of internal control quality on the relationship between strategic radicalization and the quality of analysts' forecasts, model (6) is constructed:

$$\text{FERROR(FDISP)} = \beta_0 + \beta_1 \text{STRATEGY} + \beta_2 \text{ICQ} + \beta_3 \text{ICQ} \times \text{STRATEGY} + \beta_4 \text{Controls} + \sum \text{Industry} + \sum \text{Year} + \varepsilon \quad (6)$$

Finally, in order to test the moderation of the mediating effect of internal control quality on corporate performance, models (7) and (8) or (9) are constructed according to the sequential test for "moderated mediating effect" proposed by Zhonglin Wen and Baojuan Ye^[13]:

$$\text{ROA} = \alpha_0 + \alpha_1 \text{STRATEGY} + \alpha_2 \text{ICQ} + \alpha_3 \text{ICQ} \times \text{STRATEGY} + \alpha_4 \text{Controls} + \sum \text{Industry} + \sum \text{Year} + \varepsilon \quad (7)$$

$$\text{FERROR(FDISP)} = \gamma_0 + \gamma_1 \text{STRATEGY} + \gamma_2 \text{ICQ} + \gamma_3 \text{ROA} + \gamma_4 \text{ICQ} \times \text{ROA} + \gamma_5 \text{Controls} + \sum \text{Industry} + \sum \text{Year} + \varepsilon \quad (8)$$

$$\text{FERROR(FDISP)} = \gamma_0 + \gamma_1 \text{STRATEGY} + \gamma_2 \text{ICQ} + \gamma_3 \text{ROA} + \gamma_4 \text{ICQ} \times \text{STRATEGY} + \gamma_5 \text{ICQ} \times \text{ROA} + \gamma_6 \text{Controls} + \sum \text{Industry} + \sum \text{Year} + \varepsilon \quad (9)$$

If β_3 in model (6) is significant, models (7) and (9) are selected for further testing, and vice versa for β_3 in model (6) is significant, models (7) and (9) are selected for further testing, and vice versa for model (7) and (8). Significance tests are conducted for α_1 , α_3 in model (7), and γ_3 , γ_4 in model (8) or model (9). And the mediating effect of corporate performance is moderated by the quality of internal control, if at least one of the three groups, α_3 and γ_3 , α_1 and γ_4 , α_3 and γ_4 , are significant.

3.4 Descriptive statistics

Table 1 presents the results of descriptive statistics for each variable. As shown in Table 1, the mean value of the error of analysts' forecasts is 2.574 and the standard deviation is 5.29 among the 11,256 selected "company-year" samples, indicating that the overall the error of analysts' forecast is small, but there are large differences among the companies. The mean value of the dispersion of analysts' forecasts is 1.74 and the standard deviation is 3.397, indicating that the dispersion of analysts' forecasts of the selected sample are small, but there are large differences between the samples. The minimum value of strategic radicalization is 0, the maximum value is 24, and the standard deviation is 4.215, indicating that the sample varies widely in terms of strategic radicalization.

Table.1. Descriptive statistics

Variable	N	Mean	Std	Min	Med	Max
FERROR	11256	2.511	5.234	0.00600	0.787	34
FDISP	11256	1.714	3.386	0.0170	0.581	21.11
STRATEGY	11256	12.02	4.190	3	12	21
ROA	11256	0.0350	0.0600	-0.292	0.0320	0.202
ICQ	11256	635.7	149.9	0	667.7	838.4
LEV	11256	0.474	0.202	0.0480	0.476	1.033
SIZE	11256	22.59	1.227	19.12	22.44	25.95
AGE	11256	2.817	0.308	1.609	2.833	3.401
STATE	11256	0.474	0.499	0	0	1
BOARD	11256	2.157	0.201	1.609	2.197	2.708
SR	11256	0.0790	0.148	0	0	0.696
BOTH	11256	0.215	0.411	0	0	1

4. Empirical results

To test the hypotheses of this paper, fixed effects regressions of model (3) to model (9) were conducted using stata16, controlling for industry effects and year effects, and the results are shown in Tables 2 and 3.

4.1 Tests of hypothesis H1

To test H1, multiple linear regression analysis of model (3) was performed with the error and dispersion of analysts' forecasts as dependent variables and strategic radicalization as independent variables. The results are shown in columns (1) and (3) of Table 2. The coefficients of strategic aggressiveness are -0.057 and -0.037, respectively, and both are significant at the 1% level, indicating that there is a significant negative correlation between strategic radicalization and the error and dispersion of analysts' forecasts, i.e., an increase in strategic radicalization can suppress the increase in the error and dispersion of analysts' forecasts, thus improving the quality of analysts' forecasts. H1 is tested.

Table.2. Tests of direct effects and mediating effects of corporate performance

Variable	FERROR		FDISP		ROA
	(1)	(2)	(3)	(4)	(5)
STRATEGY	-0.057*** (0.012)	-0.038*** (0.012)	-0.037*** (0.008)	-0.027*** (0.008)	0.001*** (0.000)
ROA		-18.260*** (0.905)		-9.241*** (0.590)	
Controls	Yes	Yes	Yes	Yes	Yes
Constant	15.142*** (1.253)	10.371*** (1.254)	8.035*** (0.811)	5.621*** (0.817)	-0.261*** (0.013)
Year/ Industry	Yes	Yes	Yes	Yes	Yes
Obs	11256.000	11256.000	11256.000	11256.000	11256.000
Adjusted R^2	0.032	0.066	0.031	0.052	0.227

Note: The t-values in parentheses,***、**、* indicate statistical significance at the 1%, 5% and 10% levels, respectively, and the same below.

4.2 Tests of hypothesis H2

First, the first condition of the mediation test is verified by the above analysis, which shows that strategic radicalization is negatively correlated significantly with the error and dispersion of analysts' forecasts. Secondly, column (5) of Table 2 shows that the coefficient of corporate strategic radicalization is 0.001 and passes the significance test at the 1% level, which means that there is a significant positive relationship between strategic radicalization and corporate performance, indicating that strategic radicalization can contribute to the improvement of corporate performance, and the second condition of the mediation test is verified. Finally, columns (2) and (4) of Table 2 show that the coefficients of corporate performance are -18.260 and -9.241, respectively, both of which are significant at the 1% level, indicating that the improvement of corporate performance can reduce the error and dispersion of analysts' forecasts. Moreover, the regression coefficients of strategic radicalization on the error and dispersion of analysts' forecasts are reduced by introducing corporate performance, both at -0.038 and -0.027, respectively, indicating a partial mediating effect of corporate performance in the relationship between firm strategic radicalization and the quality of analysts' forecasts. H2 is tested.

4.3 Tests of hypothesis H3

Before conducting the moderating effect test, the core variables were first centralized. Table 3 reports the results of the moderating effect test for internal control quality. To verify the moderating effect of internal control quality between strategic radicalization and the quality of analysts' forecasts, model (6) is constructed. The regression results are shown in columns (1) and (3) of Table 3. The regression coefficients of ICQ×STRATEGY is significantly negative, indicating that internal control quality has a positive moderating effect on the relationship between strategic radicalization and the error and dispersion of analysts' forecasts, i.e., improving the quality of internal controls can effectively improve the negative effect of strategic radicalization on the error and dispersion of analysts' forecasts. H3 is tested.

Table.2. Test of the moderating effect of internal control quality

Variable	FERROR		FDISP		ROA
	(1)	(2)	(3)	(4)	(5)
STRATEGY	-0.054*** (0.012)	-0.025** (0.012)	-0.036*** (0.008)	-0.019** (0.008)	0.001*** (0.000)
ICQ	-0.004*** (0.000)	-0.004*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	0.000*** (0.000)
ROA		-23.340*** (1.011)		-13.108*** (0.659)	
ICQ×STRATEGY	-0.000*** (0.000)	-0.000** (0.000)	-0.000*** (0.000)	-0.000** (0.000)	0.000*** (0.000)
ICQ×ROA		-0.055*** (0.003)		-0.036*** (0.002)	
Controls	Yes	Yes	Yes	Yes	Yes
Constant	14.701*** (1.247)	11.182*** (1.236)	7.862*** (0.810)	6.098*** (0.806)	-0.246*** (0.012)
Year/Industry	Yes	Yes	Yes	Yes	Yes
Obs	11256.000	11256.000	11256.000	11256.000	11256.000
Adjusted R ²	0.043	0.094	0.036	0.080	0.306

Note: Controls represent all control variables, includes LEV SIZE AGE STATE SR BOTH BOARD.

4.4 Tests of hypothesis H4

To test that internal control quality positively moderates the mediating effect of corporate performance between strategic radicalization and the quality of analysts' forecasts, we construct models (7) to (9), and since the above analysis shows that β_3 in model (6) is significant, indicating that the direct effect is moderated, model (9) needs to be chosen^[13] and columns (2), (4), and (5) of Table 3 give the results of the "moderated mediation effect" test. As shown in columns (2) and (4) of Table 3, the regression coefficients of ICQ×STRATEGY are -0.054 and -0.036, respectively, and the coefficients of corporate performance are -23.340 and -13.108, respectively, and both are significant at the 1% level; meanwhile, column (5) of Table 3 shows that the coefficient of strategic radicalization is 0.001 and passes the 1% level of significance test. The coefficient of ICQ×STRATEGY is significant but equal to 0. α_1 , γ_3 and γ_4 in models (7) and (9) are significant, indicating that internal control quality moderates the mediating effect of corporate performance between strategic radicalization and the quality of analysts' forecasts, and the mediating effect is more pronounced when the quality of internal control is higher. That is, for firms with high internal control quality, increasing the strategic aggressiveness of the firm is more likely to inhibit the error and dispersion of analysts' forecasts through improved corporate performance.

4.5 Heterogeneity Analysis

In order to deeply analyze the impact of strategic radicalization on the quality of analysts' forecasts and the moderating effect of the quality of internal control, this paper performs group regressions according to the nature of ownership and the results are shown in Table 4. The results in Table 4 show that the positive relationship between strategic radicalization and analysts' forecast quality is not significant in SOEs and remains significant in non-SOEs. A possible explanation for this is that SOEs in China have a soft budget constraint problem^[14], which reduces the incentive for SOEs to proactively improve the quality of disclosure in order to obtain exogenous financing, resulting in lower disclosure quality for SOEs than for non-SOEs at the same strategic radicalization, thereby increasing the error and dispersion of analysts' forecasts and inhibiting the effect of strategic radicalization on the improvement of the quality of analysts' forecasts. The results of adding internal control quality as a moderating variable indicate that the moderating effect of internal control quality is more pronounced in SOEs. This may be due to the fact that SOEs have better implementation of

strengthening internal control construction^[15] and are better able to inhibit management's earnings management and other behaviors that reduce the quality of information disclosure; while private enterprises have less government intervention in the construction of internal control and are unable to monitor the behavior of executives, and the role of internal control in improving the quality of information disclosure cannot be effectively played. Therefore, for SOEs, the moderating effect of internal control quality is more significant.

Table 4. Heterogeneity Analysis

Variable	FERROR				FDISP			
	SOEs	Non-SOEs	SOEs	Non-SOEs	SOEs	Non-SOEs	SOEs	Non-SOEs
STRATEGY	-0.011	-	-0.034*	-	-0.014	-	-	-
ICQ			-	-			-	-
ICQ×STRATEGY			-0.001*	-0.000			0.000*	-0.000*
Constant	5.931*	15.847*	9.787*	21.513*	2.575	9.839*	4.668*	12.587*
P-value	0.001		0.000		0.000		0.000	

Note: The "empirical p-value" indicates the significance of the difference in coefficients between groups tested by Fisher's combination test, obtained by auto-sampling 1000 times.

5. Robustness verification

1. Replacement of the measure of strategic aggressiveness

To test the robustness of the regression results, dummy variables PRO and DEFE for strategic radicalization are introduced with reference to Bentley et al. (2013)^[11]. Specifically, when the firm's strategic radicalization $STRATEGY \geq 16$ represents the prospector, PRO is 1, and 0 otherwise; when $STRATEGY \leq 9$ represents the defender, DEFE is 1, otherwise is 0. The regressions are conducted by replacing the variable STRATEGY in model (3) with PRO and DEFE. The regression results are shown in columns (1) and (2) of Table 3. The coefficient of PRO is negative but insignificant, and the coefficient of DEFE is significantly positive; the coefficients of PRO and DEFE in column (2) are both significant at -0.266 and 0.247, respectively, indicating that strategic radicalization is negatively correlated with the error and dispersion of analysts' forecasts, which still supports H1.

2. Treatment effect model

Whether a firm adopts an aggressive strategy may have the problem of self-selection bias caused by unpredictable factors. Maddala (1983) suggested that a treatment effects model can be used to mitigate the estimation bias caused by self-selection bias^[16], so this paper performs a robustness check by mitigating the possible self-selection bias through a treatment effects model. First, SR and BOTH are added as exogenous variables in the first-stage regression, because both SR and BOTH are statistically correlated with the dependent variables strategic radicalization in the first-stage regression, while they are statistically correlated with the dependent variables are not directly correlated with either of the dependent variables in the second stage regression, satisfying the requirements of exogenous variable correlation and exogeneity. Referring to the study of Liu, Hs. (2016)^[17], the first-stage regression model was constructed as follows.:

$$PRO(DEFE) = \beta_0 + \beta_1 SR + \beta_2 BOTH + \beta_3 Controls + \sum Industry + \sum Year + \varepsilon \quad (10)$$

Probit regressions were conducted with PRO and DEFE as dependent variables, respectively, and the results are shown in Table 5, where the coefficients of SR and BOTH are significant, indicating the validity of the choice of exogenous instrumental variables. After that, the two inverse Mills ratios IMR1 and IMR2 of the first-stage regression are calculated and added to regression model 3. for the second-stage regression. The results are shown in Table 5. The coefficients of the IMR pass the significance test, indicating the existence of self-selection bias; while the coefficients of strategic radicalization are all significantly negative, indicating that the results after controlling for self-selection bias still support H1.

Table 5. Robustness verification.

Variable	Replacement of		Treatment effect model			
	FERROR	FDISP	PRO	DEFE	FERRO	FDISP
STRATEGY					-0.104***	-0.071***
					(0.027)	(0.018)
PRO	-0.135	-0.266**				
	(0.083)	(0.129)				
DEFE	0.180**	0.247**				
	(0.075)	(0.115)				
IMR1					0.167	0.138*
					(0.110)	(0.071)
IMR2					-0.187*	-0.123*
					(0.112)	(0.072)
SR	-0.129	-0.294	0.966***	-1.061***		
	(0.259)	(0.401)	(0.102)	(0.117)		
BOTH	-0.002	-0.034	0.062*	-0.091***		
	(0.081)	(0.125)	(0.034)	(0.034)		
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year/ Industry	Yes	Yes	Yes	Yes	Yes	Yes
Constant	7.586***	14.467***	-1.243***	-1.280***	15.828***	8.785***
	(0.806)	(1.245)	(0.367)	(0.329)	(1.296)	(0.839)
Obs	11256	11256	11256	11256	11256	11256
Pseudo/Adjusted R ²	0.030	0.032	0.075	0.040	0.033	0.032

Note: The treatment effects model cannot use a fixed effects model, so there is no control for year and industry fixed effects. Controls include “LEV SIZE AGE STATE BOARD”.

6. Conclusion

This paper examines the impact of corporate strategic radicalization on the quality of analysts' forecasts and the moderating effect of the effectiveness of internal control. The results show that: strategic radicalization has a significant negative effect on the quality of analysts' forecasts; strategic radicalization increases the level of information disclosure by improving corporate performance, which reduces the error and dispersion of analysts' forecasts; internal control quality has a positive moderating effect on the negative relationship between strategic radicalization and the error and dispersion of analysts' forecasts; and the mediating effect of corporate performance is positively moderated by internal control quality.

Insights from the study: 1)The quality of analysts' forecasts is related to the strategic radicalization, and analysts can pay attention to the characteristics of the strategy of the company when making earnings forecasts, so that they can use more information to improve the accuracy of earnings forecasts; regulators and the government can strengthen the supervision and guidance on the disclosure of company information, including financial information and non-financial information (social responsibility reports, etc.), and thus improve the quality of analysts' forecasts; when investors make decisions based on earnings forecast reports, they can further analyze them in conjunction with information such as company's strategy to minimize the bias brought about by analysts' forecasts The negative impact of analysts' forecast bias can be minimized. 2)Higher quality of internal control is conducive to increasing corporate performance, reducing earnings management, and improving the quality of analysts' forecasts. Therefore, companies and regulators should pay attention to the construction of a company's internal control system to avoid opportunistic behavior that harms the interests of companies and investors. 3)This paper examines the mechanism of corporate performance

based on signal theory and improves the understanding of the mechanism of the role of strategic radicalization on the quality of analysts' forecasts. Management should formulate corporate strategies prudently and scientifically, increase corporate innovation and R&D investment and stimulate corporate dynamics to improve corporate performance and thus improve the quality and initiative of management to make voluntary disclosures and improve the quality of analysts' forecasts.

References

- [1] Xin Qingquan, Kong Dongmin, Hao Ying. Corporate Transparency and Stock Price Volatility [J]. *Financial Research*, 2014, (10): 193-206.
- [2] MILES R E, SNOW C C, MEYER A D, et al. Organizational Strategy, Structure, and Process [J]. *Academy of Management Review*, 1978, 3(3): 546-62.
- [3] Sun Jian, Wang Baiqiang, Cao Feng, et al. Does corporate strategy affect earnings management? [J]. *Management World*, 2016, (03): 160-9.
- [4] Yi Xiuqin, Huang Yifeng. The impact of corporate strategic radicality on environmental protection investment [J]. *Finance and Accounting Monthly*, 2021, (15): 50-7.
- [5] WEBER V, MüßIG A. The Effect of Business Strategy on Risk Disclosure [J]. *Accounting in Europe*, 2022: 1-36.
- [6] Lin Bin, Rao Jing. Why do listed companies voluntarily disclose internal control assurance reports?—An empirical study based on signaling theory [J]. *Accounting Research*, 2009, (02): 45-52+93-4.
- [7] Kuang Xuewen, Zhang Xiaomeng, Zhang Xiujun. Corporate Strategy, Financing Demand and Voluntary Disclosure of Accounting Information [J]. *Jiangxi Social Sciences*, 2019, 39(08): 208-16.
- [8] Wang Baiqiang, Hou Canran, Sun Jian. Research on the impact of corporate strategy on corporate performance [J]. *China Soft Science*, 2018, (01): 127-37.
- [9] Fang Hongxing, Jin Yuna. Can high-quality internal control restrain earnings management?—An empirical study based on voluntary internal control assurance reports [J]. *Accounting Research*, 2011, (08): 53-60 +96.
- [10] Li Lin, Tian Siyu. Internal Control, Innovation Input and Corporate Performance [J]. *Friends of Accounting*, 2021, (03): 124-8.
- [11] BENTLEY K A, OMER T C, SHARP N Y. Business Strategy, Financial Reporting Irregularities, and Audit Effort [J]. *Contemporary Accounting Research*, 2013, 30(2): 780-817.
- [12] Wan Lishuang. An empirical study on the relationship between equity incentives, agency costs and corporate performance of listed companies [J]. *Forecast*, 2021, 40(02): 76-82.
- [13] Wen Zhonglin, Ye Baojuan. Moderated mediation model test method: competition or substitute? [J]. *Acta Psychologica Sinica*, 2014, 46(05): 714-26.
- [14] Justin Yifu Lin, Mingxing Liu, Qi Zhang. Policy Burdens and Soft Budget Constraints of Firms: An Empirical Study from China [J]. *Management World*, 2004, (08): 81-9+127-56.
- [15] Zhang Youtang, Xiong Yi. Internal control, nature of property rights and selection of earnings management methods: An empirical study based on A-share non-financial listed companies from 2007 to 2015 [J]. *Audit Research*, 2017, (03) : 105-12.
- [16] MADDALA G S. Limited-dependent and qualitative variables in econometrics [M]. Cambridge
- [17] Liu Xing. Does the type of strategy of an enterprise affect earnings characteristics: An investigation from the perspective of accounting conservatism [J]. *Nankai Management Review*, 2016, 19(04): 111-21.