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Earnings Preannouncement Quality and Analyst Forecasting Behavior: A Two-Dimensional Examination of Accuracy and Precision

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Abstract. Earnings preannouncements are important forward-looking information that listed companies use to convey their expected operating performance to the market before the formal release of periodic reports. They also serve as a key anchoring basis for analysts when forming earnings forecasts. High-quality performance forecast can reduce information asymmetry in the capital market and help external investors and analysts reasonably judge the operating conditions of enterprises. However, earnings preannouncement quality differs greatly across firms, and its influence on analyst forecasting behavior deserves further examination. Using a sample of non-financial A-share listed companies from 2017 to 2024, this paper examines how earnings preannouncement quality affects analyst forecasts. The results show that the accuracy error of earnings preannouncements significantly affects both analyst forecast bias and forecast dispersion. In contrast, the precision error increases forecast dispersion at the 5% level, while its effect on forecast bias is not significant. Further tests indicate that the degree of earnings management weakens the above transmission paths, providing empirical evidence for the "noise interference" theory.

Keywords: Earnings preannouncement quality, analyst forecast bias, forecast dispersion, earnings management

1. Introduction

An earnings preannouncement is an important forward-looking information that a listed company releases to the market before its formal periodic reports [1]. Since 2002, China has gradually built an earnings preannouncement system that relies mainly on mandatory disclosure, supplemented by voluntary disclosure. Mandatory disclosure is required for cases such as expected losses, turnarounds from losses to profits, and large changes in performance. However, existing research points out that although earnings preannouncements is required under certain circumstances, regulatory constraints on specific form or content remain relatively limited. Punishment for preannouncements that stray far from realized earnings is also insufficient [2]. This allows earnings preannouncements to ease information asymmetry during the "information vacuum period" before annual reports are released. At the same time, the quality of earnings preannouncements varies widely across companies. Some companies issue announcements with narrow ranges and precise

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estimates, whereas others issue announcements with wide ranges and vague wording. Strategic disclosure behaviors also appear, such as "reporting good news but not bad news" and "sudden revisions."

With the full implementation of the registration-based IPO system and the deepening of the regulatory philosophy of "centering on information disclosure," disclosure quality has become a key factor in the efficiency of capital market resource allocation. Securities analysts are the capital market's core information intermediaries. Their forecasts are not only an important reference for investors' pricing decisions, but also a key link in guiding market expectations and improving pricing efficiency [3]. Before annual reports are formally released, earnings preannouncements often constitute the most important prior anchoring information for analysts when building earnings forecasts. Existing studies find that the more precise the preannouncement, the more analysts follow the firm, and the lower the analysts' forecast errors and dispersion [4]. However, many studies treat preannouncement quality as a single composite indicator. The different effect paths of accuracy error and precision error, as well as the boundary conditions of these effects, still need further analysis. Accordingly, this paper divides earnings preannouncement quality into accuracy error and precision error and examines their effects on analyst forecast bias and forecast dispersion separately.

The marginal contribution of this paper lies in two aspects. First, it divides the economic consequences of earnings preannouncement quality into two dimensions, "estimation bias" and "information vagueness," so that quality errors of different natures are not mixed together. Second, it brings analyst forecast bias and forecast dispersion into a unified framework and examines the transmission boundary under earnings management. This provides supplementary evidence for understanding the relationship between a firm's forward-looking disclosure and the behavior of professional information intermediaries.

2. Literature review and research hypotheses

2.1. Literature review

Research on earnings preannouncement quality: Earnings preannouncements are an important type of forward-looking disclosure through which management conveys private information to the capital market and influences investor expectations. Their accuracy and informativeness have been systematically confirmed in long-term empirical work and recent reviews [1]. Existing studies usually characterize forecast quality along two dimensions: accuracy and precision. Precision is mostly measured by the width of the forecast range, which reflects both management's uncertainty about future earnings and the specified confidence level [5]. From the perspective of internal governance, arrangements such as management characteristics, the internal audit function, and CEO information networks all affect forecast quality, but they act on different dimensions [6-8]. From the perspective of the external environment, disclosure regulations and changes in the business environment also shape forecast quality. Corporate digital transformation significantly affects forecast quality as well [9]. Therefore, the evaluation of earnings preannouncement quality should not stop at the level of "whether the firm issues a preannouncement." It should also distinguish the degree of bias from the degree of vagueness in the preannouncement.

Research on the factors that influence analyst forecasts shows that analyst forecast quality is shaped by the quality of corporate disclosure and the information environment. High-quality disclosure reduces information processing costs of analysts, improving their forecasts accuracy and lowering dispersion [10]. Beyond companies' own disclosures, the disclosure of key audit matters also improves analysts' information environment [11]. Overall, forecast quality depends not just on

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the amount of information, but on the relative weight of public versus private information. When public information is clear and consistent, analysts' expectations tend to converge. When it is vague, analysts rely more on differentiated private information, and forecast dispersion widens accordingly [12]. In addition, earnings management contaminates the accounting information base that analysts rely on, thereby reducing their forecast accuracy [13].

Research on the relationship between earnings preannouncements and analyst forecasts indicates that analysts revise their earnings forecasts based on management earnings forecasts. The disclosure form and the accompanying information affect the magnitude and speed of these revisions [14]. Furthermore, under China's conditional mandatory preannouncement regime, firms that voluntarily issue preannouncements have more accurate analyst forecasts with smaller dispersion [15]. Analysts also differ in their degree of reliance on preannouncements. Analysts with higher reputations are less likely to follow management guidance blindly. When a preannouncement is less credible, they respond weakly and rely on it less [16]. It can be seen that earnings preannouncements enter analysts' information system and affect their subsequent judgments. However, the correspondence between the different dimensions of earnings preannouncement quality and forecast outcomes still needs to be examined in detail.

2.2. Research hypotheses

Preannouncement accuracy error and analyst forecasts. The midpoint of a preannouncement range is the most direct anchoring information for analysts when constructing earnings forecasts. When the midpoint systematically deviates from actual earnings, this deviation enters the public information set. Through the anchoring effect, it is then transmitted to each analyst's forecast. Although analysts make adjustments, their adjustments are usually not enough to fully eliminate the anchoring bias. Forecast bias therefore widens. Meanwhile, analysts differ in how much they trust the bias in the preannouncement, and this difference in information weighting is an important source of forecast dispersion [12]. In addition, ex-post punishment for earnings preannouncements is limited in China. Identifying such bias is costly for the market, which amplifies the transmission effect of accuracy bias. Accordingly, this paper proposes:

H1: Ceteris paribus, the greater the accuracy error of an earnings preannouncement, the greater the analyst earnings forecast bias and the higher the forecast dispersion.

Precision error of earnings preannouncements and analyst forecasts. Unlike the "consistent bias" of accuracy error, precision error is essentially "vague noise" in public information. An excessively wide preannouncement range indicates ambiguity in public information. Then analysts are forced to rely more on their own differentiated private information to make inferences, so dispersion within the group increases. A wide range may be interpreted either as management's lack of confidence or as a deliberate reservation of ambiguity. Differences in the perceived credibility of management forecasts shape how analysts use them. Contrasting inferences about management motives further widen the divergence of opinion [17]. By contrast, although the midpoint of a wide range can serve as a forecast anchor, its marginal effect on the level of forecast bias is relatively limited and its direction is uncertain. Accordingly, this paper proposes:

H2: Ceteris paribus, the greater the precision error of an earnings preannouncement, the higher the analyst forecast dispersion; its effect on forecast bias is relatively limited.

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3. Research design

3.1. Sample selection and data sources

Paper takes Shanghai and Shenzhen A-share listed companies from 2017 to 2024 as the initial sample. This paper requires that a firm need to have issued an annual earnings preannouncement with upper and lower bounds in year t−1. Analysts must also have issued valid EPS forecasts between the preannouncement date and the annual report date. On this basis, this paper excludes financial firms, ST firms, firms listed for less than one year, and observations with missing key variables. The final sample consists of 6,135 firm-year observations covering 2,336 listed companies. All data comes from the CNRDS database, and Stata 19 is used for empirical analysis. To reduce the potential influence of extreme values on the regression results, all continuous variables are winsorized at the 1st and 99th percentiles of the full sample.

3.2. Regression model and variable definitions

The dependent variables are analyst earnings forecast bias and forecast dispersion. Following Behn et al. and domestic research conventions, this study constructs the analyst earnings forecast bias measure, Ferror [18]. To capture disagreement within the analyst group, this paper follows Barron et al. and domestic research conventions to construct the forecast dispersion measure, Fdisp [12].

The core explanatory variable is earnings preannouncement quality. Following Baginski and Hassell, it is measured along two dimensions: accuracy and precision [19]. To alleviate potential reverse causality between earnings preannouncements and analyst forecasts, both core explanatory variables enter the model with a one-period lag.

The control variables include firm size (SIZE), profitability (ROA), growth capacity (GROWTH), financial leverage (LEV), a loss dummy (LOSS), lagged analyst coverage (FCOVER), and Big-4 audit (BIG4).

The following regression model is used to test the hypotheses:

$$Y_{i,t} = \alpha_i + \lambda_t + \beta_1 X_{i,t-1} + \gamma Controls_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where the dependent variable Y is alternately analyst earnings forecast bias (Ferror) and analyst forecast dispersion (Fdisp). The core explanatory variable X is alternately the preannouncement accuracy error (Accuracy) and the preannouncement precision error (Precision), both lagged by one period.

4. Model tests

4.1. Descriptive statistics

Table 1 reports the descriptive statistics of the main variables. The mean analyst forecast bias reaches 1.117, indicating that analyst forecast errors were at a relatively high level during the sample period, which leaves considerable room for improvement in forecasting behavior. The mean of the preannouncement accuracy error is 0.371, suggesting that the midpoints of A-share earnings preannouncements are generally informative. The mean precision error reaches 1.128, indicating

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that preannouncement ranges are on average fairly wide and range preannouncements remain the dominant form in the A-share market.

Table 1. Descriptive statistics of main variables

Variable	N	Mean	Std. Dev.	Median	Min	Max
Analyst forecast bias	6,135	1.117	2.171	0.376	0.002	14.869
Analyst forecast dispersion	5,385	0.473	0.916	0.180	0.000	6.285
Preannouncement accuracy error	6,135	0.371	0.528	0.188	0.001	3.158
Preannouncement precision error	6,135	1.128	1.037	0.859	0.000	5.708
Firm size	6,135	22.656	1.190	22.494	20.513	26.381
Asset-liability ratio	6,135	0.425	0.189	0.422	0.072	0.880
Return on total assets	6,135	0.035	0.073	0.037	-0.293	0.220
Revenue growth rate	6,135	0.179	0.361	0.123	-0.504	1.948
Loss dummy	6,135	0.143	0.350	0.000	0.000	1.000
Analyst coverage	6,135	2.195	1.130	2.303	0.000	4.190
Big-4 audit	6,135	0.062	0.241	0.000	0.000	1.000
Institutional ownership	6,134	38.587	22.972	38.478	0.710	92.966

* One observation of institutional ownership is missing (firm 300397 had no CNRDS ownership record in 2017). The missing rate is below 0.02% and does not affect the conclusions.

4.2. Tests of main hypotheses

Table 2 reports the baseline regression results of earnings preannouncement quality on analyst forecast bias. When the preannouncement accuracy error increases by one unit, forecast bias rises by 0.1775 on average (significant at the 5% level) and forecast dispersion rises by 0.1222 on average (significant at the 1% level). By contrast, the preannouncement precision error has a significantly positive effect only on dispersion aspect, with a coefficient of 0.0449 significant at the 5% level. These results show that the two types of quality errors work through systematically different paths. As a consistent bias in public information, the accuracy error is transmitted to each analyst's forecast through the anchoring mechanism, which expands forecast bias. Meanwhile, because analysts weigh the credibility of preannouncements differently, internal dispersion also increases. The precision error captures the degree of vagueness in public information. The width of the preannouncement range does not signal whether earnings will run high or low, so it effects on the average level of forecast bias is limited. Therefore, analysts rely more on their own private information, and the divergence of their inference bases widens dispersion within the group. Hypotheses H1 and H2 receive preliminary support.

Table 2. Baseline regression

Variable	(1) Ferror	(2) Ferror	(3) Fdisp	(4) Fdisp
Accuracy(t−1)	0.1775** (2.43)		0.1222*** (3.23)	
Precision(t−1)		0.0336 (0.85)		0.0449** (2.20)

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Table 2. (continued)

Control variables	YES	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
N	5,298	5,298	4,567	4,567
Adj-R^2	0.1049	0.1034	0.1037	0.1010

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. T-values based on firm-level clustered robust standard errors are reported in parentheses. The same applies below.

5. Heterogeneity test: The moderating role of earnings management

The transmission of earnings preannouncement quality to analyst forecasting behavior depends on the credibility of the preannouncement information itself. Theoretically, if the accounting earnings on which management bases its preannouncement contain a high degree of manipulation, the preannouncement signal will be contaminated by earnings noise and its ability to convey incremental information to analysts will be weakened. To provide empirical evidence for this "noise interference" logic, this paper uses the absolute value of discretionary accruals from the performance-matched modified Jones model to measure the degree of earnings management and conducts moderation regressions with interaction terms.

Table 3 reports the test results based on the performance-matched modified Jones model. In the accuracy channel, the coefficient of Accuracy(t−1) is 0.2084, significantly positive at the 5% level. The coefficient of the interaction term is −3.7067, significantly negative at the 5% level. This indicates that the higher the degree of earnings management, the weaker the transmission of preannouncement accuracy error to forecast bias. In the precision channel, the coefficient of the interaction term is −1.4169, significant at the 10% level. This shows that earnings management also restrains the positive effect of precision error on forecast dispersion. When discretionary accruals are high, the overall information environment is already dominated by noise, and the vagueness of the preannouncement range can no longer trigger differentiated interpretations among analysts. Using the standard modified Jones model as an alternative measure yields interaction-term coefficients with the same signs and similar significance. Therefore, the moderating effect is not driven by any particular measure of earnings management.

These results show that earnings management significantly weakens the transmission of earnings preannouncement quality to analyst forecasting behavior, and it is verified in both the accuracy and precision channel. This supports the "noise interference" theory: earnings management reduces the credibility of the preannouncement signal by contaminating the underlying accounting information. Afterwards, analysts' reliance on the anchoring value and information content of preannouncements declines, and the effects of quality errors on forecast bias and dispersion are weakened accordingly.

Table 3. Moderating effect of earnings management: performance-matched measure

Variable	(1) Accuracy channel	(2) Precision channel
Accuracy(t−1)	0.2084** (2.12)	
|DA_PM|(t−1)	0.2177 (0.28)	0.3949 (0.45)
Accuracy(t−1)×|DA_PM|(t−1)	-3.7067** (-2.15)	

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Table 3. (continued)

Precision(t−1)		0.0527 (0.85)
Precision(t−1)×|DA_PM|(t−1)		-1.4169* (-1.83)
Control variables	YES	YES
Firm fixed effects	YES	YES
Year fixed effects	YES	YES
N	4,296	4,296
Adj-R^2	0.0855	0.0835

6. Conclusion

Using a sample of non-financial A-share listed companies from 2017 to 2024, this paper empirically examines the effect of earnings preannouncement quality on analyst forecasting behavior and its boundary conditions. The findings are as follows. First, preannouncement quality significantly affects analyst forecasting behavior. The greater the accuracy error, the greater the forecast bias and dispersion. The precision error, in contrast, works mainly by increasing dispersion. The two dimensions act through systematically different paths. Second, the degree of earnings management significantly weakens the transmission of preannouncement quality to forecasting behavior, and this is verified in both the accuracy and the precision channel. This indicates that earnings management decreases the signal value of preannouncements by contaminating the underlying data, which supports the "noise interference" theory.

Based on the empirical evidence from this sample, the following insights can be drawn. First, at the regulatory level, authorities can further improve the regulation of preannouncement accuracy and the guidelines on range disclosure, which will limit management's room for strategic vague disclosure. At the same time, authorities should also take the actual operating uncertainty of firms into account and balance the compliance costs of disclosure. Second, the supervision of earnings preannouncements can be better coordinated with the supervision of earnings quality. Firms with abnormal discretionary accruals need more ex-post checks on their preannouncements. Third, when interpreting earnings preannouncements, analysts and investors should treat earnings quality as an important reference. They should remain cautious about preannouncements issued by firms with high earnings-management risk and and appropriately lower the reference weight of the preannouncement signal. As these implications come from a sample of A-share range preannouncements, their practical application still needs to account for multiple real-world conditions.

This paper still has several limitations that deserve further research. First, in terms of measurement, this paper uses the preannouncement midpoint and the range width to present accuracy and precision respectively. But this approach cannot capture the quality of qualitative information in preannouncement texts, such as text tone and causal explanations. A comprehensive multi-dimensional measurement may give a more complete depiction of earnings preannouncement quality. Second, in terms of identification, firm and year fixed effects are used to ease the omitted-variable problem. However, reverse causality between preannouncement quality and analyst forecasts may still exist. Future work can use institutional shocks, such as revisions of earnings preannouncement rules, to construct quasi-natural experiments for clearer causal identification. Third, in terms of the sample, this paper retains only range-type preannouncements and excludes

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point forecasts, thus sample selection represents an important limitation. Future research could bring point and range preannouncements into a unified framework and examine how quality errors transmit differently under different preannouncement forms. In addition, under the full registration-based system, disclosure supervision is becoming increasingly strict. The institutional impacts of preannouncement quality constraints and their dynamic evolution also represent promising directions for future policy-relevant research.

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