

Accuracy of EPS Forecasts of Security Analysts: Taking PROYA as an Example

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Abstract: With the development of security analyst industry, its importance is becoming more prominent. However, the development of security analysts in China is relatively late, and there is still a gap between their forecasting accuracy and that of developed countries in the capital market which have accumulated much experience. Therefore, the accuracy of domestic analysts' forecasting is worth considering. At the same time, in China, cosmetics industry has become one of the few consumer industries to accelerate growth in recent years, and has become the focus of more and more investors. This paper examines the accuracy of PROYA's forecasts by calculating the accuracy of 72 analysts from 28 securities firms' forecasts from 2018 to 2021. The results suggest that investors can gain more accurate information through the latest reports of long-following analyst.

Keywords: Financial analyst, Earnings per share, Prediction error.

1. Introduction

Companies disclose information on time, but external information users do not always have professional analytical skills and occasionally make biased decisions due to subjective factors, so the need for concise and summarized information arises. Security analysts, as intermediaries of information transmission, become more prominent. By collecting various data of listed companies, they use their professional knowledge to research and analyze, and issue forecasts and investment recommendations to investors. Analysts are equivalent to "machine" that keeps digesting company's information and continuously delivers "processed products" to external users, thus reducing information asymmetry and helping investors to control more information and put them in a relatively advantageous position in trading. The domestic security analyst industry emerged relatively late, industry accumulation and experience with the developed countries still have a certain gap. For this reason, the accuracy of security analysts' forecasts has become a focus of investors' attention [1,2].

Earnings per share (EPS), i.e., the net profit of the enterprise that common shareholders are entitled to per share held, is often used as a common reference indicator for information users to reflect the operating results of the enterprise, and investors often judge whether to invest based on the EPS value. For those who receive information based on these forecasts, the information conveyed by analysts is of great importance. Therefore, verifying the accuracy of analysts' forecasts of securities institutions not only helps the industry's future development, but also provides investors with a more accurate and reliable source of reference.

For the Chinese market, the per capita consumption level of cosmetics has gradually increased, and the share of cosmetics consumption has also risen. Especially during the epidemic, the cosmetic industry has become one of the few consumer industries that have accelerated growth in recent years. As the first listed company of A-share beauty company, PROYA has experienced chairman and CEO as industry distributors. Since its listing in late 2017, the company's

revenue and net profit, etc. have been climbing. Because the company's listing time is relatively recent, taking PROYA as the case study object can reflect the immediate prediction ability of the current securities company analysts for emerging industry brands, and at the same time provide certain information reference for investors who are ready to invest in similar companies and reduce certain riskiness.

2. Literature Review

Although there is no unanimity among scholars in many studies on analysts, there is no doubt that the accuracy of forecasting is the concern of many scholars. Western scholars have done a lot of research on the forecasting ability of securities analysts, covering many aspects of analysts' forecasts, which has formed a more complete system compared with Chinese research. Brown et al. and Kross et al. found that the advantage of analyst forecasts is related to the length of time between the last financial report of a listed company and the current forecast of the securities analyst [2-4]. Venturini et al. also find that from an independent audit perspective, the higher the value of information on key audit matters the more it reduces the error rate of analysts' forecasts [5].

Chinese scholars have also done extensive empirical studies on analysts' forecast accuracy. Huang Jing, and Dong Xiuliang empirically examine the correctness of their investment ratings, the accuracy of listed company performance forecasts, and the sources of performance forecast errors by using domestic securities institutions as the subjects of their study [2]. Zhu Hongjun et al. verify whether securities analysts in China can improve the efficiency of the capital market [6]. Yue Heng, and Lin Xiaochi examined the accuracy of analysts' forecasts relative to statistical models [7]. Liu sun examined the relationship between a range of corporate governance mechanisms and forward-looking disclosure (FLD) in a low information environment (Chinese stock market) [8]. While most of these studies were conducted around popular industries, there are not many analyst forecasts involving the cosmetics industry in China, and their

accuracy is uncertain. For this reason, this paper examines the accuracy of analyst forecasts for 2018 to 2021 for PROYA, which has grown rapidly in recent years, in order to provide some reference data for cosmetics industry analysis.

3. Research Design

3.1. EPS Sample Selection

The data is obtained from Eastmoney Choice. Current-year's FEPS (i.e., forecast EPS) is selected from June 30, 2018 to December 31, 2021. The FEPS used is the data which

is updated at the nearest time to the company's quarterly, interim, quarterly and annual reports. The specific dates are: June 30, 2018, September 30, 2018, December 31, 2018, March 31, 2019, June 30, 2019, September 30, 2019, December 31, 2019, March 31, 2020, June 30, 2020, September 30, 2020, December 31, 2020 March 31, 2021, June 30, 2021, September 30, 2021, and December 31, 2021. The time selection does not include March 31, 2018 (i.e., the time of the first quarterly report) because the number of research reports before the first quarter of 2018 is only two.

Table 1. Number of research reports and EPS average error rate of securities institutions

Securities institutions	Number of research reports	Average error rate
Guosen Securities	23	3.44%
Sinolink Securities	21	2.94%
Tf Securities	16	4.60%
Guoyuan Securities	16	1.69%
China Galaxy Securities	15	1.84%
Everbright Securities	13	3.70%
Southwest Securities	12	4.16%
Orient Securities	10	2.82%
Huaxi Securities	10	1.76%
Shanxi Securities	10	2.53%
Huajin Securities	9	2.92%
Guosheng Securities	9	2.54%
Wanlian Securities	8	2.30%
Soochow Securities	8	1.18%
Caitong Securities	7	3.35%
Ping An Securities	7	3.87%
Zheshang Securities	7	4.23%
Boc International(China) Co., Ltd.	6	2.40%
Dongxing Securities	6	4.60%
Eastmoney Securities	6	4.46%
Chasing Securities	3	4.07%
Huafu Securities	3	1.74%
Minsheng Securities	2	1.29%
Cinda Securities	2	1.39%
Shanghai Securities	2	0.51%
Huaan Securities	1	1.39%
Kaiyuan Securities	1	1.39%
Dongguan Securities	1	3.38%

3.2. Calculation method

Referring to the methods of Kross et al., the relative

accuracy of security analysts' EPS forecasts is defined as the absolute value of the difference between actual EPS and forecast EPS as a percentage of actual EPS, i.e., $ABSPER =$

$|\frac{AEPS- FEPS}{AEPS}|$. Where APES means PROYA's actual earnings per share and FEPS means PROYA's forecasted earnings per share. ABSPER is used to represent the analyst forecast error rate, presented as a percentage. If the absolute value is larger, the reference of analyst research report is lower [4,9-10].

3.3. Sample of securities institutions

28 securities institutions are listed in descending order, and the research reports included in the statistics are those containing EPS forecasts, while those not included are not counted. Data from Eastmoney Choice.

Table 2. Descriptive statistics of EPS prediction error rate

Year	FEPS (Yuan)	AEPS (Yuan)	Total error rate	March 31	June 30	September 30	December 31
2018	1.34	1.44	9.28%	-	15.97%	5.95%	5.93%
2019	1.84	1.96	6.31%	10.77%	5.14%	4.60%	4.71%
2020	2.41	2.37	3.37%	6.00%	3.21%	2.62%	2.19%
2021	3.01	2.87	4.88%	6.99%	5.14%	4.16%	3.59%

In general, the average error rate decreases quarter by quarter over the same year and is lowest at the end of the year. The total error rate for each year is less than 10% across years, with a decreasing trend, although the total error rate for 2021 is greater than that for 2020; and the difference in error rates between quarters becomes smaller as the year progresses, implying that the analysts' forecasts are more accurate.

4.2. The relationship between the size of securities institutions and the accuracy of analyst research reports

A total of 28 securities firms are involved, all of which are classified into three types in this paper according to their registered capital: large, medium and small. The average forecast error rate for the large, medium and small institution is: 3.39%, 2.56% and 2.74%. From the results, the average prediction error rate of medium-sized institutions is the lowest.

4.3. The relationship between the length of tracking time and the forecast accuracy of research reports

The relationship between the accuracy of analysts' forecasts and the length of time they have been following the company is analyzed by using the number of research reports published by one analyst as the basis for determining the length of time to follow the change in PROYA's data. And the average error rate is 2.54% for reports whose number is equal and more than 20; 3.43% for reports whose number is between 10 and 20; and 2.98% for reports whose number is less than or equal to 10.

From the results, although the average error rates of the three intervals do not differ significantly, the results generally present that the analysts who publish relatively more research reports will have a relatively smaller average error rate.

4. Study Results

4.1. Changes in prediction accuracy within the same year and from year to year

The error rate of analyst forecast results are used to reflect the year-to-year changes in the business capabilities of analysts. The most recent forecast data from March 31, June 30, September 30 and December 31 (quarterly time) of each year are compared with the real data at the end of the current year to reflect the change in forecast error rate within the same year and the change in error rate from year to year.

5. Conclusions

By examining the EPS forecasting results, the following conclusions are obtained: Firstly, the total error rate of different years is less than 10%, and the closer the year is to the present, the more accurate the forecast results are; the closer to the end of the year in the same year, the more accurate the forecast results are. Secondly, the size of the institution has little influence on the forecast error rate, and the forecast results of medium-sized institutions are more accurate. Finally, the longer an analyst follows a company, the lower the forecast error rate and the more accurate it is.

Therefore, investors or other users can refer to the analysts' research reports with newer years and relatively later months, while the length of time the analyst has been tracking the company can be added as one of the reference conditions.

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