

# ESG Ratings, Investor Sentiment, and Stock Price Volatility

Yun Wang

School of Finance, Harbin University of Commerce, Harbin 150000, China.

---

**Abstract:** ESG represents three major factors: environment, social responsibility, and corporate governance. This paper hopes to investigate the effectiveness of ESG ratings as investment guidelines in the A-share market, and the role of investor sentiment in the middle. It is shown that ESG rating information has a negative relationship with stock price volatility, and investor sentiment plays a negative moderating role on ESG rating. Based on the findings, this paper proposes policy recommendations from the perspectives of individual investors, rating systems, and firms, respectively.

**Keywords:** ESG Rating; Investor Sentiment; Stock Price Volatility

---

## 1. Current status of domestic and international research

In terms of investor sentiment and stock price volatility, De Long et al.(1990)<sup>[4]</sup> chose the index of economic rate of return when measuring investor sentiment, and the results showed that investor sentiment volatility is mainly due to the large number of noise traders in the securities market, and their sentiment volatility will have a significant impact on the fund's return and stock price volatility. Domestically, Changsheng Hu and Yangchun Chi (2013) <sup>[1]</sup> found that the impact of rational and irrational investors on stock market volatility can vary significantly with the market value.

In terms of ESG ratings and stock price volatility, foreign Klassen & McLaughlin (1996) <sup>[3]</sup> suggested that strong environmental management has a significant proven impact on the future valuation of companies. The study of domestic scholar Yan Lidong (2019) <sup>[2]</sup> pointed out that the evaluation results of environment in ESG can effectively reflect the sustainable development ability of enterprises and help investors to identify the performance risk and development potential of enterprises.

Based on this, this paper explores the relationship between ESG ratings, investor sentiment and stock price volatility using a panel regression model with a sample of stock data from the Shanghai and Shenzhen A-share markets in China from 2013-2022.

## 2. Mechanistic analysis of the effects of ESG ratings, investor sentiment on stock price volatility

### 2.1 Investor sentiment and stock price volatility

Behavioral finance believes that investors are in a state of limited rationality. The more positive or negative the investor's state of mind becomes, the greater the difference between stock price and stock price, while the more optimistic the investor is, the greater the effect can be. Both individual and institutional investors are swayed by this sentiment when making investment decisions. This leads to hypothesis I. H1: Investor sentiment is positively related to stock price volatility.

### 2.2 ESG ratings and stock price volatility

Many ESG concepts are derived from the doctrine of sustainable development, and companies with higher ESG ratings are more competitive than their peers, which may result from more efficient use of resources, better human capital development or better innovation management. This leads to hypothesis II. H2: ESG rating is negatively related to stock price volatility.

### 2.3 ESG rating, investor sentiment and stock price volatility

H3: Other things being equal, the higher the investor sentiment, the lower the negative effect of ESG rating on stock price

volatility.

### 3. Research design and regression results

#### 3.1 Data sources and sample selection

This paper takes the listed companies in A-share market with ESG ratings from 2013 to 2022 as the sample. ESG rating data and firm-related annual data such as firm size and age are obtained from Wind and Guotaian data (CSMAR). Finally, 1730 companies were selected for a total of 10 years from 2013 to 2022, with a total sample of 17300.

#### 3.2 Variable selection

In the model, the explanatory variable is stock price volatility. In this paper, variance volatility is used as an indicator to describe the share price volatility. The explanatory variables are ESG rating and investor sentiment. The ESG rating data in this paper is obtained from the ESG rating data of China Securities in Wind database. The average of monthly individual stock turnover rate is used to represent investor sentiment.

The control variables are firm size, return on net assets, equity concentration, firm age, and firm attributes.

#### 3.3 Descriptive statistics

The descriptive analysis variables were analyzed using Stata statistics, as shown in Table 3-1 below:

Table 3-1 Descriptive analysis

| variable |  | N     | mean  | p50   | sd    | min    | max   |
|----------|--|-------|-------|-------|-------|--------|-------|
| VOLs     | Stock price volatility (variance volatility)       | 17300 | 12.11 | 10.95 | 5.45  | 4.14   | 33.65 |
| VOLr     | Stock price volatility (extremely poor volatility) | 17300 | 18.79 | 13.72 | 15.57 | 2.39   | 84.58 |
| TURNOVER | Investor sentiment (mean monthly turnover rate)    | 17300 | 0.42  | 0.33  | 0.32  | 0.04   | 1.72  |
| ESG      | China ESG rating of 1                              | 17300 | 6.63  | 6.00  | 1.14  | 4.00   | 9.00  |
| SIZE     | firm size  | 17300 | 22.42 | 22.24 | 1.33  | 19.97  | 26.36 |
| ROE      | Return on equity                                   | 17300 | 6.48  | 6.71  | 11.66 | -52.46 | 36.95 |
| TOP      | Equity concentration                               | 17300 | 0.35  | 0.33  | 0.15  | 0.09   | 0.74  |
| LNAGE    | enterprise age                                     | 17300 | 2.88  | 2.89  | 0.31  | 1.95   | 3.56  |
| SOE      | Enterprise attributes                              | 17300 | 0.44  | 0.00  | 0.50  | 0.00   | 1.00  |

From the explanatory variables, the minimum value of variance volatility of share price volatility is 4.14, the maximum value is 33.65, and the standard deviation reaches 5.45, indicating that there is a significant difference in share price volatility of the sample companies.

From the explanatory variables, the average corporate rating ESG is 6.63 with a standard deviation of 1.14, which indicates that overall the rating status of A-share listed companies is better, while the large standard deviation also shows that there is a large difference in the ratings of different companies. The minimum value of investor sentiment in the sample is 0.04 and the maximum value is 1.72.

#### 3.4 Model setting

First, this study establishes a fixed effects model with TURNOVER and ESG as explanatory variables as shown below:

(3-1)

(3-2)

(3-3)

#### 3.5 Regression results and analysis

Table 3-2 Regression results

| (1)       | (2)       | (3)       |
|-----------|-----------|-----------|
| 3-1       | 3-2       | 3-4       |
| VOLs      | VOLs      | VOLs      |
|           | -0.247*** | -0.216*** |
|           | (-4.845)  | (-3.379)  |
| 7.454***  |           | 6.261***  |
| (56.531)  |           | (9.401)   |
|           |           | 0.187*    |
|           |           | (1.803)   |
| -0.094    | -0.206**  | -0.070    |
| (-1.189)  | (-2.369)  | (-0.882)  |
| 0.019***  | 0.027***  | 0.019***  |
| (6.002)   | (7.846)   | (6.090)   |
| -1.447*** | -1.189**  | -1.401**  |
| (-2.630)  | (-1.969)  | (-2.545)  |
| 1.920***  | 0.210     | 1.904***  |
| (2.743)   | (0.274)   | (2.720)   |
| 4.654*    | 16.470*** | 5.566**   |
| (1.887)   | (6.094)   | (2.241)   |
| 17,300    | 17,300    | 17,300    |
| 0.456     | 0.345     | 0.456     |
| 1,730     | 1,730     | 1,730     |
| Yes       | Yes       | Yes       |
| Yes       | Yes       | Yes       |
| 931.1     | 585.6     | 816.0     |

Note: Values in parentheses in the table are heteroskedasticity robust standard errors. \*\*\*p<0.01, \*\*p<0.05, \*p<0.1

From (1), it can be seen that the coefficient of investor sentiment is 7.454 (p<0.01), which indicates a significant positive correlation between investor sentiment and stock price volatility, validating hypothesis I H1.

From (2), it can be seen that the coefficient of ESG rating is -0.0247 (p<0.01), which indicates that there is a significant negative relationship between ESG rating and stock price volatility, which verifies hypothesis II H2.

From (3), it can be seen that the interaction term between ESG and TURNOVER has a significant effect on the dependent variable. TURNOVER exerts a negative moderating effect on ESG. Hypothesis III H3 is verified.

## 4. Conclusion

The study results show that investor sentiment plays a negative moderating role in the relationship between ESG ratings and stock price volatility, all else being equal.

Based on the findings, this paper makes the following recommendations: first, investor education should be strengthened to control investor sentiment and guide advocate investors to make value investments in companies based on ESG ratings and other information; second, a localized ESG rating system in China should be established as well as the government should create an environment conducive to ESG disclosure and application; finally, companies should implement ESG-related initiatives to enhance corporate value and ultimately reduce stock price volatility.

## References

- [1] Hu CS, Chi YC. Investor sentiment, asset valuation and stock market volatility [J]. Financial Research, 2013(10):181-193.
- [2] Yan LD. Suggestions for the application of environmental evaluation in China's ESG evaluation system [J]. Environmental Protection, 2019, 47(07): 45-48.

[3] Klassen, R.D., & McLaughlin, C.P. The impact of environmental management on firm performance[J]. *Management science*, 1996, 42(8): 1199-1214.

[4] Shleifer A, Summers LH, Long JBD, et al. Noise Trader Risk in Financial Markets[J]. *Journal of Political Economy*, 1990, 98(4): 703-738.