

Differences in the Impact of Media Reports and Expert Comments on Capital Markets

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Abstract: Through the web crawler, the financial news section and the financial commentary section of the "Flat Flush" trading platform are listed as news samples of media reports and expert comments. Using Python connect the API interface of Baidu Wenzhi's sentiment orientation analysis to realize automatic Determine the positive and negative levels of media tone, then counting the reported sentiment and number of articles in each trading day. The turnover rate measures the fluctuation of investor sentiment. Analysis shows that because of more subjective content, the analyst review news is over-interpreted, so the impact of review is greater; at the same time, the media commentary emotion is the mediator between the number of media reports and investor sentiment fluctuations.

1. Introduction

With the rapid development of the media, the boundaries of the news media are becoming wider and wider. Most media reports should be covered as much as possible when analyzing media sources. Secondly, expert reviews, analysts influence consumer sentiment through subjective predictions of the market, and when sentiment is high, the uncertain growth of historical development is more optimistic than the steady development of enterprises (Hribar P, 2012); the third investor sentiment is different from the rational human hypothesis of traditional finance, behavioral finance believes that investors are bounded rational Investor sentiment is an intangible belief that changes the investor's expectations and risk expectations of future markets on the market subject (Stein, 1996), which will lead to expectations.

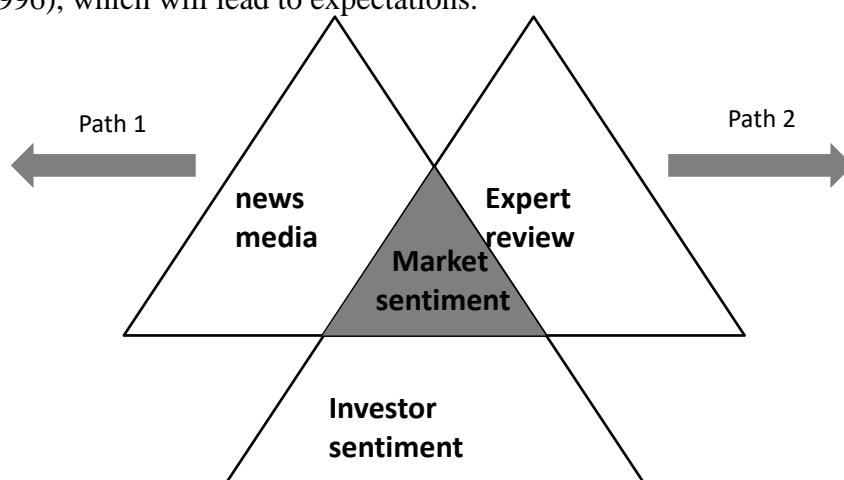


Figure 1 the influence of market sentiment and stock price changes

The influence of market sentiment and stock price changes mainly consists of two paths: one is unconsciously guiding investors' emotions, and the facts report makes the company gain the attention of investors, called media report M (media); It is a conscious guide to emotions, and the report will have obvious emotional color and personal comments. This kind of report is called expert review R (review). We made the following assumptions:

H₁: Media reports M and expert reviews R are negatively correlated with the volatility of investor sentiment.

H₁₋₁: Expert reviews R has a greater impact on investor sentiment volatility than media coverage M.

H₂: Media reports M and expert reviews R will affect asset prices.

H₂₋₁: Expert reviews R has a greater impact on asset prices than media reports M.

In order to ensure the accuracy of the conclusions, this paper independently crawls from the network in the Chinese stock market from June 2017 to January 2018, 8 months and 240 days of trading news reports, covering 100 institutions including science and technology, finance, agriculture, government, etc.

2. The impact of media reports

As the main body of the market, investors' trading behavior will be affected by external factors such as media sentiment. The turnover rate can fully reflect the investor's trading behavior and the fluctuation of investor sentiment. Therefore, we use the level of turnover as an indicator to measure investor sentiment fluctuations, T. When T is high, it means that the investor's mood is highly volatile. When T is low, it means that the investor's mood is low and stable.

About 40 news reports per transaction, after removing the missing samples, the daily media coverage sentiment was obtained by weighting the average of each media sentiment. For media reports and expert comments, M_t^P , M_t^N , R_t^P , R_t^N are used to represent positive and negative media reports; positive and negative expert reviews. Positive media for sentiment=2 in each trading day are also counted. The number of reports is counted as media_2. Use media_2 to analyze the impact of the number of positive reports on investor sentiment volatility.

$$\sum m^P = M_t^P$$

$$\sum (1 - m^P) = M_t^N \quad (M_t^N = 1 - M_t^P)$$

The impact of media reports known from previous studies is lagging, so we generate a new variable Turn_t, Turn_t equals Turn_(t+1). The table is the correlation between the variables under significant conditions of 0.05 and 0.01. As with the conjecture, positive media sentiment will lead to investor sentiment stability. Media_p and Media_n have an impact on investor sentiment on the day after Turn_t at a significant level of 0.05, and there is no correlation between investor sentiment on that day. According to the efficient market hypothesis, we can infer that China's stock market is a weak and efficient market. Because public information cannot be immediately reflected in stock prices, the impact of public information on stock prices is not instantaneous, but changes slowly over time. Therefore, media_2 also plays a stable role in the fluctuation of investor sentiment, and at the same time has a more significant impact on the trading day, showing a weaker lag.

3. The impacts of Review

Studies abroad have long shown that analysts' comments can affect the price of capital markets (Brown, 1997). Our sample expert reviews include not only financial marketers engaged in professional analysis and trading, but also economics and panelists in related fields. Compared with Media, Review has more subjective predictions and more obvious emotional tendencies. Therefore, we believe that expert reviews will have the same impact on investor sentiment volatility as media reports, and at the same time have a greater impact. Correlation analysis was also performed on the sample Review. The results are in line with the hypothesis that at a significant level of 0.01, the positive sentiment of the expert review will stabilize 30.3% of investor sentiment for each unit increase; likewise, each additional unit of negative emotion will increase investor sentiment by 30.3%.

Table 1 Correlation analysis

| | | Media_n | Media_p | Media_2 | Turn_t | Turn |
|---------|---------------------|----------|----------|---------|---------|---------|
| Media_n | Pearson correlation | 1 | -1.000** | -.252** | .190* | .148 |
| | Significant | | .000 | .001 | .014 | .056 |
| | N | 168 | 168 | 168 | 168 | 168 |
| Media_p | Pearson correlation | -1.000** | 1 | .252** | -.190* | -.148 |
| | Significant | .000 | | .001 | .014 | .056 |
| | N | 168 | 168 | 168 | 168 | 168 |
| media_2 | Pearson correlation | -.252** | .252** | 1 | -.222** | -.205** |
| | Significant | .001 | .001 | | .004 | .008 |
| | N | 168 | 168 | 168 | 168 | 168 |
| Turn_t | Pearson correlation | .190* | -.190* | -.222** | 1 | .678** |
| | Significant | .014 | .014 | .004 | | .000 |
| | N | 168 | 168 | 168 | 168 | 168 |
| Turn | Pearson correlation | .148 | -.148 | -.205** | .678** | 1 |
| | Significant | .056 | .056 | .008 | .000 | |
| | N | 168 | 168 | 168 | 168 | 168 |

** . Significantly correlated at the 0.01 level (both sides)

* . Significantly correlated at the 0.05 level (both sides)

Review has a greater impact on investor sentiment volatility. Comparing media reports and expert comments with the turnover rate, it can be concluded that: (1) Media_p is not related to Turn_t and Turn at 0.05 significant level; Review_p is at 0.01. The level of significance is related to Turn and Turn_t. (2) The absolute value of the correlation coefficient between Review and Turn is greater than that of Media; at the same time, the absolute value of the correlation coefficient between the number of positive reports and Turn is higher than that of media_2.

Bollen J, Mao H (2011) and others use two emotional (positive, negative) tracking tools to analyze the text content of daily Twitter messages, so that the public sentiment can significantly improve the daily fluctuation of the Dow Jones Industrial Average. And the accuracy of the average percentage. Nguyen T H, Shirai K (2015) and others also found that media sentiment and volume were related to the return forecast of the Standard & Poor's 500 Index. Domestically, there is also a study of the relationship between media sentiment and assets, but most of them are monthly data analysis. The time interval of monthly data is too long, and the short-term fluctuation of asset prices will be neglected, and the relationship between media sentiment and asset price cannot be truly reflected. Therefore, we use daily data, and according to the source of the media, it is divided into: objective content-based Media and subjective judgment-based Review. And use Media_p, Media_2 to represent the positive emotions reported, and the number of positive reports. To understand the relationship between media reports, expert reviews and asset prices, we establish a regression equation. (1) We select the opening index of the Shanghai Composite Index for each trading day from June 5, 2017 to February 1, 2018. The data is downloaded from the Guotaian Stock Exchange section.

$$\lnsz = \alpha_0 + \alpha_1 \text{Media}_p + \alpha_2 \text{Review}_p + \alpha_3 \text{Turn}_t \quad (1)$$

Table 2 Correlation analysis

| | | Review_p | Review_n | Review_2 | Turn_t | Turn |
|----------|---------------------|----------|----------|----------|---------|---------|
| Review_p | Pearson correlation | 1 | -1.000** | .283** | -.303** | -.263** |
| | Significant | | .000 | .000 | .000 | .001 |
| | N | 168 | 168 | 168 | 168 | 168 |
| Review_n | Pearson correlation | -1.000** | 1 | -.283** | .303** | .263** |
| | Significant | .000 | | .000 | .000 | .001 |
| | N | 168 | 168 | 168 | 168 | 168 |
| review_2 | Pearson correlation | .283** | -.283** | 1 | -.267** | -.266** |
| | Significant | .000 | .000 | | .000 | .000 |
| | N | 168 | 168 | 168 | 168 | 168 |
| Turn_t | Pearson correlation | -.303** | .303** | -.267** | 1 | .678** |
| | Significant | .000 | .000 | .000 | | .000 |
| | N | 168 | 168 | 168 | 168 | 168 |
| Turn | Pearson correlation | -.263** | .263** | -.266** | .678** | 1 |
| | Significant | .001 | .001 | .000 | .000 | |
| | N | 168 | 168 | 168 | 168 | 168 |

** . Significantly correlated at the 0.01 level (both sides)

Table 3 Regression results

| Insz | Coef | Std. Err. | t | P>t | [95% Conf. Interval] |
|----------|----------|-----------|--------|-------|----------------------|
| Media_p | .0760578 | .0382964 | 1.99 | 0.049 | .0004403 .1516752 |
| Review_p | .1198978 | .0304426 | 3.94 | 0.000 | .0597877 .1800078 |
| Turn_t | 7.195925 | 1.712051 | 4.20 | 0.000 | 3.815421 10.57643 |
| _cons | 7.964131 | .0390171 | 204.12 | 0.000 | 7.887091 8.041172 |

The P values of the regression results were all less than 0.05, so the results were significant at the 0.05 level. The coefficient of Review_p in the table is 11.99% greater than the coefficient of Media_p of 7.61%, indicating that the positive comments of each unit of the expert comment on the asset price are 4.6% more than the media reports. Therefore, we accept the hypothesis H₍₂₋₁₎, and the expert comment R has a greater impact on the asset price than the media report M. This is because the content of the media reports is more inclined to explain the facts, and the expert comments will have the writer's interpretation of the facts. At the same time, expert comments in order to attract investors' attention and attention, will be exaggerated for good or unfavorable news experts, and too much interpretation of neutral news. Compared with the straightforward financial reports, Chinese investors are more inclined to believe in expert comments with strong emotional tendencies, so the media sentiment of expert comments is more likely to affect asset prices.

We have conducted a preliminary correlation analysis and then further analyzed the links between media reports and expert reviews and investor sentiment volatility. Since media reports that Media has less influence on investor sentiment fluctuations, Turn Media is selected as a sample test media sentiment (Media_p) mediating effect between media reports and investor sentiment; select expert reviews for VAR models, we Select VAR(2).

4. Conclusion

Through the empirical analysis of the media reports and expert commentary sources on the

trading day from June 5, 2017 to February 1, 2018, we have the following conclusions: (1) Heterogeneous media reports M and expert reviews R and investors The influence of emotional fluctuation Turn is negatively correlated and the effect is lagging. This is because the higher the media sentiment, the more investors are more optimistic about the market prospects, the more stable the position, and the decision on the transaction will be hesitant. The impact of lag is evidence that China's stock market is still in a weak and effective market, and asset prices do not reflect all public information. (2) Expert commentary R has more influence on investor sentiment fluctuation than media report M. This is because the expert review is more subjective and the message is over-exaggerated and interpreted in order to gain the attention of investors. (3) Media reports M and expert comments R will positively affect asset prices, and expert commentary R has a greater impact on asset prices than media reports M. (4) The emotions of the expert commentary have the greatest impact on the positive reports of experts and the fluctuations of investor sentiment in the second period and slowly disappeared over time.

References

- [1] Barber B M, Odean T. All That Glitters: The Effect of Attention and News on the Buying Behavior of Individual and Institutional Investors[J]. *Review of Financial Studies*, 2008, 21(2):785-818.
- [2] Hribar P, Mcinnis J. Investor Sentiment and Analysts' Earnings Forecast Errors[J]. *Management Science*, 2012, 58(2):293-307.
- [3] Huberman G, Regev T. Contagious Speculation and a Cure for Cancer: A Nonevent that Made Stock Prices Soar[J]. *Journal of Finance*, 2001, 56(1):387-396.
- [4] Vega C. Stock price reaction to public and private information[J]. *Journal of Financial Economics*, 2006, 82(1): 103-133.
- [5] Yu Y, Duan W, Cao Q. The impact of social and conventional media on firm equity value: A sentiment analysis approach[J]. *Decision Support Systems*, 2013, 55(4): 919-926.
- [6] Tetlock P C. Giving Content to Investor Sentiment: The Role of Media in the Stock Market[J]. *Journal of Finance*, 2007, 62(3):1139–1168.