

# The Impact of Investor Sentiment on Stock Prices in The Developed and Developing Countries

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**Abstract.** The study of causal relationship of investor sentiment on stock prices has got more and more attention. This paper examines the impact of investor sentiment on investment behavior and thus on stock prices in four different countries including two developed countries (United States and United Kingdom), and two developing countries (China and India). Due to different levels of development, different countries have different measures of consumer sentiment. Therefore, the author enumerates in detail the measures of sentiment index for each studied country. By comparing representatives of investor indices, the index accuracy was analyzed as a function of market spacing. In addition, the differences between the conclusions of developing countries and developed countries are also compared. Meanwhile, the mutual influence of investor sentiment was summarized among developed countries. The empirical findings show that the study about exploring the causal relationship of the investor sentiment on the stock prices plays an important role in formulating detailed investor strategies. In other words, investors who are familiar with the impact of emotions on stock prices can be more successful in stock investing and their investment risk can be reduced than those who are not.

**Keywords:** Investor sentiment, measurement, stock price, strategic planning.

## 1. Introduction

Research on the relationship between investor sentiment and stock prices had proliferated in recent years. However, many studies summarized the impact of mood on prices through other variables, such as natural disasters, man-made disasters, sporting events, and religious festivities [1]. In general, investor sentiment played an inseparable role in the impact of the market. During the August 2007 crisis, investor confidence weakened, which led to a substantial negative sentiment spillover in global equity markets [2]. Therefore, it is necessary to discuss whether the stock markets of different countries affect each other because of the spillover of negative sentiment. As soon as it is detected that such sentiment may lead to a herding effect, policymakers need to calm market sentiment in order to restore investor confidence [3].

Different countries measure investor sentiment differently due to differences in development and culture. This paper aims to summarize the investor sentiment and conclusions on the impact of sentiment in various countries. Moreover, with a few exceptions, most research on sentiment has focused on advanced economies, particularly the United States [3]. However, investor sentiment in developing countries also needs to be taken seriously due to the mutual influence of stock markets in various countries. The main contributions of this paper are as follows. First, it details the relationship between sentiment and stock prices by distinguishing between measures of investor sentiment in the US, UK, China, and India. In addition, we compare the different conclusions and the reasons. At the same time, there is the possibility that investor sentiment among countries can influence each other. Finally, we contribute to the factors that policymakers need to consider before investing in stocks.

The rest of the paper is organized as follows: Section 2.1.1 introduces the measurement and conclusions of investor sentiment in the United States; Section 2.1.2 describes the measurement and conclusion of investor sentiment in the UK; Section 2.2.1 discusses the measurement and conclusion of investor sentiment in China; Section 2.2.2 introduces the measurement and conclusion of investor sentiment in India. Section 3 concludes.

## **2. Literature review**

### **2.1 The impact of investor sentiments on the stock prices in the developed countries**

#### **2.1.1 America**

##### **(1) A measure of investor sentiment**

The study comprehensively measures investor sentiment in two ways, indirectly in the market and directly in the survey.

As far as market-based measures were concerned, Baker and Wurgler combined several agents based on a single market into a comprehensive sentiment index. The index was composed of six market-based variables: The abbreviations for the six variables are TURN, CEFD, NIPO, RIPO, S, PDND [4]. Market-based variables tend to favor ratios because they respectively represent NYSE turnover rate, closed-end fund discount, number of initial public offerings, average first-day return of initial public offerings, new offerings of shares, and dividend premium [4].

In terms of surveys, there was also another investor-based measure. The indicators of investor sentiment could be divided into two parts, individual investors and institutional investors. Individual investor sentiment can be measured by Association of Individual Investors (AAII), Consumer Confidence Index (CCI), And the Michigan Consumer Sentiment Index (MS) [4]. Investor Intelligence fell into the latter category and was defined by professionals [4]. The remaining indicators measured up to individual investor perceptions because they were highly correlated with investor insight [4].

##### **(2) The impact of investor sentiments on the stock prices**

The author used the difference between noise defined by traders and arbitrageurs to represent sentiment in stock valuations. Market participants, who made investment decisions without using first principles, exhibited limited market range, followed trends, and tended to react to different kinds of news in an exaggerated or inadequate way. Regarding rationality, rational and irrational traders corresponded to information traders and noise traders. Besides, investor sentiment was too optimistic or pessimistic, resulting in more and more binding on share prices, and ultimately higher fees and arbitrage risks. In fact, the increased risk of the carry trade was due to the strong influence of investor sentiment on it. From this perspective, the study examined the link between optimistic heuristics and the phenomena of underreaction and overreaction associated with the bursting of the Internet bubble [4]. Based on US data, financial analysts were sensitive to good news. And there was a caution effect after the dot-com bubble burst, so overreaction to extreme information has been drastically reduced. Similarly, another study used European data to show that investor sentiment has changed from optimistic to pessimistic due to the outbreak of the pandemic, which has an obvious impact on high-tech companies [4].

Stock prices have been affected by investor sentiment. Second, they found that sentiment-driven investing was asymmetric in terms of falling and rising market sentiment. Besides, they acknowledged that there were significant asymmetries, while trying to understand their behavior in bearish and bullish markets. At the same time, Americans were culturally dependent on trading in bear markets that were tied to sentiment.

#### **2.1.2 England**

##### **(1) A measure of investor sentiment**

The study on Britain used the MSCI stock index to represent market prices. Meanwhile, the logarithmic difference of ESI can be used as a monthly change in investor sentiment [5]. The rational and irrational components of investor sentiment also belong to ESI [5]. However, this study did not classify ESI as rational and irrational, as this allowed for assessing the correlation between overall sentiment and stock valuations in the UK market.

## **(2) The impact of investor sentiments on the stock prices**

The results of the test were a significant level of 5%. In other words, there was an important positive correlation between investor sentiment and total stock prices [5]. Notably, the results included only a one-month lag period, meaning that there could be a longer negative correlation between sentiment and reward. If investor sentiment affects stock prices and valuations, it seems likely to do so for at least a month.

British stock market had a low degree of extreme independence. However, the study found that there was extreme up-and-down independence between investor sentiment and stock valuation over the same period. Both highly pessimistic investor sentiment and also a large decline in the stock price can be observed through a high degree of asymmetry in sentiment and stock prices [5]. By comparison, high levels of investor optimism were not associated with rising stock prices [5]. In conclusion, in the process of the expansion of emotions, namely optimism, the influence of emotions on stock price was weak and positive [5]. During periods of pessimism, however, the effect was negative and strong.

## **2.2 The impact of investor sentiments on the stock prices in the developing countries**

### **2.2.1 China**

#### **(1) A measure of investor sentiment**

Sentiment, attitude and investor opinion can be used as measures of investors. Baker and Wurgler followed this approach to measure market-wide investor sentiment [6]. Firstly, the market returns were regressed according to the time series [6]. Then, error can represent investor sentiment in the market in regression analysis. In order to examine the impact of fundamental conditions on the stock price of seasoned equity offerings (SEO) announcements, the expected value of market index returns was used in the analysis. Also, by relying on overnight return variables [6].

#### **(2) The impact of investor sentiments on the stock prices**

This research mainly tried to fill the gap of whether the stock price was overvalued before SEO announcement and whether the market evaluates the valuation from behavioral finance. In addition, the relationship between benefits and investor sentiment was analyzed from two aspects in this study, pre-announcement and post-announcement [6]. The results show that there was obvious positive correlation between pre-announcement returns and investor sentiment [6]. At the same time, rising share prices reflected sentiment-driven overvaluation [6]. Nevertheless, most sentiment-driven share price gained disappear immediately after the announcement.

Through the study in the Chinese stock market, the following conclusions were drawn. Investor sentiment boosted the stock price before the SEO announcement, and the decline in the stock price after the SEO announcement was due to a correction of the sentiment driven price increase.

### **2.2.2 India**

#### **(1) A measure of investor sentiment**

The Indian study filled an earlier gap. The study attempted to innovate a sentiment index to explore the causal relationship between investors' sentiment and index returns, but the results found that the index had no clear relationship with fundamental factors [7]. Crucially, the study cited an innovative measure of investor sentiment: the price-earnings ratio of shares.

The study included indices from two fundamental stock exchanges in India Bombay Stock Exchange (SENSEX), National Stock Exchange (NIFTY), and Index of General Investor Sentiment (SENT) [7]. The first two major indexes represent the overall market, while the latter represents the overall irrational sentiment component of investors.

The investor sentiment index was constructed by deriving implicit market-related sentiment proxies (MRISPs) from selected market statistics. The study adopted the typical changes of 12 mature MRISPs to consider the emotion index [7]. The ideal 12 MRISPs are described in detail in the following paragraphs.

The selected 12 MRISPs were measured as follows: First, turnover volatility ratio, TVR as an index for market liquidity measures stock market value as market turnover rate divided by the standard deviation of stock market returns [7]. The measure represented a volatile adjustment to market liquidity.

Second, share turnover velocity, the ratio of electronic order volume to market capitalization of domestic stock STV (World Federation of Exchanges) [7]. In addition, STV can further understand the relationship between liquidity and emotion [7]. STV considered the turnover rate of shares traded in electronic order books and therefore helps mitigate TVR measurement bias resulting from fewer shares traded centrally and low free float available due to high initiator holdings in the Indian stock market [7].

Third, advance decline ratio, according to Brown and Cliff, ADR was used as the ratio of the number of stock prices rises and fall [7]. The upward appreciation of ADR can represent the upward trend of the market [7]. In addition, change in margin borrowing, the CMB had the ability to represent lawmakers who invested in stocks with borrowed money. Following Kumar and Lee, buy-sell imbalance ratio, BSIR was the differences between the total buys minus total sells, and divided by total buys plus total sells [7]. Besides, put-call ratio, PCR referred to the volume of put versus call options traded [7].

Div. P (dividend premium) represented the difference between the average price-to-book ratio of dividend payer and non-payer stocks [7]. Moreover, FF (fund flow and cash to total assets in the mutual fund market) was an investment opportunity in the mutual fund market [7]. Flows in this market underlined the importance of the preferred asset class. At the same time, market participants act as economic substitutes. In addition, sentiment indicators of market optimism (low CTA) or pessimism (high CTA) can be measured by the ratio of cash held by mutual fund managers to the total assets at their disposal (CTA) [7]. The final measure, PEhld (price-to-earnings high-low difference), represented the difference between highly liquid and illiquid stocks' average price-earnings ratio (PE) [7].

## **(2) Impact of investor sentiments on the stock prices**

The measurement results of the 12 MRISPs were as follows: High STV was positively correlated with high market liquidity[7]. At the aggregate level, a change in positive (negative) sentiment was indicated when investors were net buyers, that was,  $BSI > 0$  (sellers, that was,  $BSI < 0$ ) [7]. Lower (higher) PCRS indicated bullish (bearish) sentiment in the market [7]. Baker and Wurgler argue that growth opportunities were weaker since dividend payers were usually more extensive and more profitable companies [7]. Negatively correlated with market sentiment, Div. P stood for correlated characteristic bundle.[7]. In fact, the premium increased as a result of increased caution, so investor sentiment fell. Finally, investor sentiment was determined by the difference between two variables, one for highly liquid stocks and the other for illiquid stocks. The higher the average P/E ratio for both types of stocks, the higher the investor sentiment [7].

There was a long-run relationship (cointegration) between equity market valuation indices and general investor sentiment. Causality tests indicated unidirectional causality between aggregate sentiment and aggregate market price formation [7]. Regarding the speed of adjustment of access to short-term error correction in the presence of cointegration, the results indicated that the error correction term was negative and not significant. The short-term correction adjustment speed value of the lower error correction process suggests that although there was a long-term relationship between market sentiment and price formation synthesis market [7]. The pricing impact of sentiment on future price formation was negative [7]. This was consistent with the literature verifying cross-sectional pricing of sentiment risk [7].

## **2.3 Comparison between developed and developing countries**

Overall, investor sentiment has a long-term causal relationship with stock prices, and this conclusion applies to the above four countries simultaneously. Meanwhile, Schmeling found that

investor sentiment helps predict average returns across countries [8]. Small companies were more vulnerable than large companies [9].

However, in terms of measurement methods, investor sentiment was measured differently in each country, thus leading to differences in accuracy. Taking China and the United States as examples, SEO in China took much longer from announcement to execution than US companies [10]. That's because Chinese companies had to apply for government approval before they can execute [10]. The study reported that the average interval for their US SEO sample was 27 days [10]. However, the average (median) SEO interval in China was 293 (254) days [10]. The income of a potential investor was completely independent of the price generated by the SEO execution since there had been enough time interval to exclude outside factors [10]. In other words, Chinese SEO survey announcement results were more accurate, which was also an advantage of Chinese data [10].

In addition, in developed countries, there was the possibility of mutual influence between the sentiments of various countries, such as the United States and the United Kingdom. In the context of the financial crisis of 2007, sentiments in developed countries influenced each other. In particular, the UK sentiment significantly impacted the sample market's excess returns [11]. Since the crisis, the magnitude and salience of the emotional impact had significantly increased. Contrary to conventional wisdom, American sentiment was essential in the British market, although it was not a dominant market for British sentiment [11]. Overall, differences in sentiment between the two countries had a very different impact on the volatility of other markets [11]. The spread of emotions across borders had also received research attention. And the research concluded that emotions can spread through bank credit [11].

Moreover, by analyzing the evidence of Granger causality, local sentiment, UK sentiment, and US sentiment were contagious. Communication among UK policymakers is necessary in order to develop effective policies to stabilize markets.

In particular, the impact of external emotions can not only disrupt the stability of the stock market, but also stabilize the market.

### 3. Conclusion

In this paper, the author examines the beneficial effects of investor sentiment on stock prices in developed and developing nations, including the US, the UK, China, and India. Overall, sentiment is positively correlated with stock prices. In particular, investor sentiment in all the four countries positively correlates with stock prices. On the other hand, the author compares the differences in the measurement methods of investor sentiment in four countries. At the same time, this paper analyzes small differences in conclusions due to different levels of development. Cross-country research on the impact of investor sentiment on stocks can play the following roles for investors. First, investors can reduce the adverse effects of the wrong valuation through appropriate strategic planning. In addition, for less mature stock markets, finding the right way to mitigate the impact of investor sentiment can greatly benefit the market's sustainability. Therefore, investors need to be aware of the psychological bias that comes with the sentiment. Besides, investors interested in trading foreign stock markets need to look ahead to see if stock prices in two countries are influenced by sentiment. In general, this paper provides valuable information for studying the close connection between investors and stocks in different stock markets for investors in both developed and developing countries.

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