

INVESTOR SENTIMENT, OVERREACTION AND UNDERREACTION IN STOCK MARKET

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Summary. The paper takes a theoretical approach in explaining how market sentiment affects investors' overreaction and underreaction to information events. Notwithstanding a high scholarly interest in overreaction and underreaction phenomena that are widely explored in rational framed (David, 1997, Veronesi, 1999, Docking and Koch, 2005) and behaviorally framed settings (Barberis et al., 1998, Daniel, et al., 1998, Hong and Stein, 1999), the question how market sentiment affects investors' responses to information events remains largely unexplored. Recent research focuses on asymmetric investors' reactions to good and bad news that are dependent on the economic conditions. The majority of studies explore investors' overreaction and underreaction mostly in macro news context, but empirical findings are contradicting across financial markets. A few studies explore investors' overreaction and underreaction to firm-specific news under the varying market sentiment. Therefore, the paper aims to explore the existing literature on market sentiment, investor overreaction and underreaction, theorizing sentiment effect of on investors' propensity to overreact and underreact to information events. The paper identifies limited scholarly attention to market sentiment as a source of investors' overreaction and underreaction and calls for further research that would test sentiment-driven investors' tendency to overreact and underreact to information events empirically. The paper contributes to a current body of research by proposing a relatively new research direction for testing overreaction and underreaction. It suggests that excessive market optimism (or pessimism) is transmitted through social interaction and affects investors' trading decisions reflected in stock price movements and trading volume. The paper provides some useful insights for innovation driven financial intermediaries. The deep understanding of financial market dynamics, its anomalies and the interaction of several economic quantities will ensure the fast adjustment of financial products and investment strategies to the market under varying market conditions.

Key words: Overreaction, Underreaction, Market Sentiment.

Introduction

Although research on market overreaction and underreaction is burgeoning, its interaction with market sentiment is a largely unexplored area. Most often researchers analyze either market and/or economic conditions on stock returns at aggregate level and cross-sectionally, or test overreaction and underreaction hypotheses. Behavioural literature attributes investors' overreaction and underreaction to the effect of psychological biases, but not to market sentiment. This paper assumes that market sentiment may increase investors' propensity to some behavioural biases and, subsequently, generate investors' overreaction or underreaction to news. Referring to market imperfections and irrational investors' behaviour in responses to news, it is hypothesized that prevailing market sentiment may have an influence on investors' decisions, which are reflected in stock price and trading volume changes surrounding financial disclosure dates. Therefore, the *paper aims to explore the existing literature on investor sentiment, overreaction and underreaction, theorizing sentiment effect on investors' propensity to overreact and underreact to information events.*

Overreaction and underreaction phenomena are explored in the context of market efficiency tests. Overreaction and/or underreaction hypotheses are supported in De Bondt and Thaler (1985, 1987, 1990), Chopra, et al. (1992), La Porta (1996), Amir and Ganzach (1998) and rejected in Chan (1988), Conrad and Kaul (1993), French and Roll (1986), Abarbanell and Bernard (1992), and Zarowin (1989, 1990). Investors' overreaction and underreaction to news is analyzed in rationally framed (David, 1997, Veronesi, 1999, Docking and Koch, 2005) and behaviourally framed settings (Lakonishok, Shleifer, Vishny, 1994, Barberis, Shleifer, Vishny, 1998, Daniel, Hirshleifer, Subrahmanyam, 1998, Hong and Stein, 1999). There are only few papers that relate investors' asymmetric reactions and market sentiment/economic conditions. Barberis, et al. (1998) and Veronesi (1999) provide the theoretical background for testing these relationships. Conrad, et al. (2002), Livnat and Petrovits (2009) and Mian and Sankaraguruswamy (2008, 2010) provide empirical evidence of these relationships, though they are not consistent across the markets viewed.

Traditional finance literature explains overreaction anomaly using a regime-switching model extended with the direction of shocks to the stock returns under different states of the market/economy. Overreaction to bad news (rather than to good news) in good times is explained by a high level of investors' uncertainty about the state of the market. The major limitation of regime-switching models is

that they describe the aggregate market phenomena and ignore firm-specific responses to news. However, behavioural models focus more on firm-specific responses rather than aggregate market reaction to news. Behavioural literature suggests that individual investors form their expectations based on past firm-specific information. Furthermore, it reports on high dependence of the expectation formation process on behavioural biases. Firm-specific responses to news remain unexplored in rationally framed models, whereas aggregate market reactions hardly receive an attention in behavioural models. However, literature reports some attempts to fill-in this sufficient gap by combining both rational and behavioural explanation of more pronounced market reactions to news. The paper contributes to the literature by providing a comprehensive literature review on the market overreaction and underreaction under the different states of the market. Referring to the empirical findings, the paper reports that market sentiment affects stock price reactions to news and that this effect is more pronounced in emerging stock markets.

The structure of the paper is as follows: the first section introduces overreaction and underreaction theory and an overview of the empirical findings. The second section focuses on market sentiment theory and analyzes the most important empirical studies implemented in developed and emerging markets. The third section combines rational and behavioural approaches to explain overreaction/ underreaction allowing for variation in market conditions. It relates overreaction, underreaction, and sentiment literature that provides an explanation for anomalous investor behaviour. The last section concludes.

Behavioural Character of Overreaction and Underreaction

Keynes (2008) observes that some insignificant investment-related information has an excessive impact on the financial market. Both market efficiency and market inefficiency theory explores stock price responses to information events and measure the speed of the price adjustment in order to accept either efficient market hypothesis (EMH) or overreaction/underreaction hypotheses.

Under the market efficiency theory, all available information has already reflected in the market price, whereas under market inefficiency theory the market overreacts or underreacts to new information (see in Figure 1 and Figure 2).

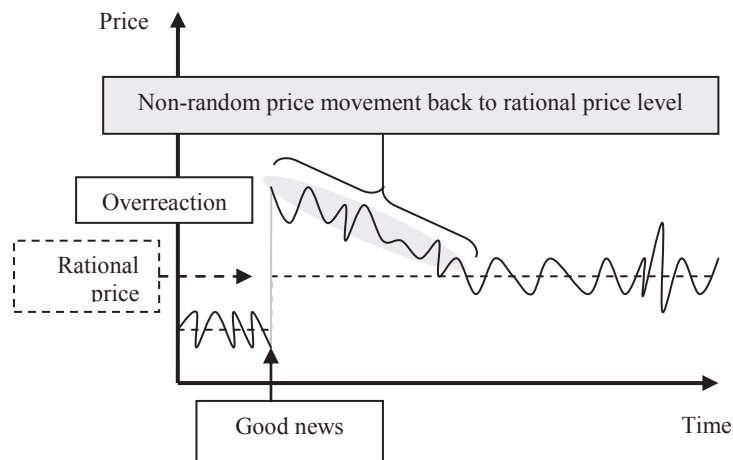


Figure 1. Overreaction to good news

Source: Author

In efficient markets the stock price adjusts to new information immediately. However, in the inefficient market the speed of stock price adjustment to news depends on the nature of information and prevailing market conditions. Investor overreaction implies an excessively optimistic investor reaction to good news in the initial period and its subsequent correction, after which stock price tends to return back to its true value over time (De Bondt and Thaler, 1985). Underreaction occurs when stock prices move less than news justifies (see Figure 2). Underreaction produces momentum in stock returns and a post earnings announcement drift that leads to profitable exploitation of these anomalies. If investors can earn on past information and public information, then efficient market hypothesis is rejected.

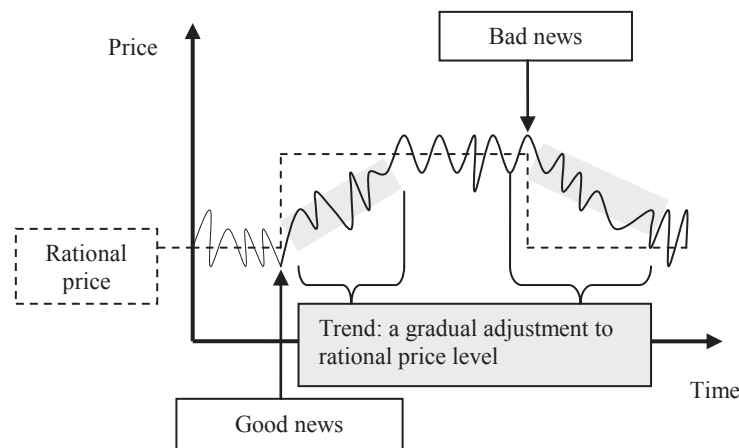


Figure 2. **Underreaction to good and bad news**

Source: Author

Overreaction and underreaction theory begins with De Bondt and Thaler (1985, 1987) studies focusing on return reversals in the long run as a result of irrational investor behaviour. However, the fundamental papers on overreaction and underreaction theory belong to Barberis, et al. (1998), Daniel, et al. (1998), Hong and Stein (1999). They propose well designed models that accommodate both overreaction and underreaction. Although the abovementioned models adopt a behavioural framework and pursue the same goal, Hong and Stein (1999) focus on the interaction between heterogeneous agents, whereas Barberis, et al. (1998) and Daniel, et al. (1998) explain how behavioural biases of investors can produce overreaction to some events and underreaction to others. However, Fama (1998) criticizes these models and finds them fault for two reasons. The first criticism lies behind the fact that underreaction is about as frequent as overreaction. Furthermore, the post-event continuation of the pre-event abnormal returns is about as frequent as post-event reversal. Shiller (2003) replies that this criticism reflects an incorrect view of the psychological underpinnings of behavioural finance, as there is no fundamental psychological principle that people tend to always overreact or always underreact. The second Fama's criticism refers to the tendency of anomalies to disappear, either as time passed or as the methodology of the studies improved. However, this argument contradicts the nature of scholarly research, as initial claims of important discoveries are often knocked down by later research. Even though anomalies sometimes disappear or switch signs with time this cannot serve as evidence that markets are fully rational. Furthermore, behavioural models do not attempt to characterize the ideal world, as theoretical models of efficient markets do, but they do characterize the real world with investors who may hold erroneous beliefs and may have biased preferences. The paper agrees with Shiller's arguments and also suggests that behavioural approach provides a thorough psychological explanation of investors' overreaction and underreaction to information events. Although traditional finance theory recognizes the existence of overreaction and underreaction, it explains these phenomena rationally (Veronesi, 1999) and characterizes the ideal world making a bit unrealistic assumptions.

Extensive research provides empirical evidence of overreaction and underreaction that have remained a highly controversial issue in financial economics. The early research of De Bondt and Thaler (1985) find that after the good (bad) news releases, the given stock increases (decreases) too far in price, but after investors realize their overreaction, the price returns to its fundamental price. In a further study, De Bondt and Thaler (1987) re-evaluate the original overreaction hypothesis to identify determinants of extreme price reversals. They test on size effect, seasonal patterns (January effect) and on changes in risk as measured by beta and provide evidence, that subsequent earnings' changes of extreme (winners and losers) prior period stock return performers show reversal patterns, which is consistent with overreaction hypothesis. De Bondt and Thaler's (1987) findings were challenged by Chan (1988) and Ball and Kothari (1989) who attribute reversals to errors in the measurement of risk. They find that after controlling for risk overreaction disappears. Zarowin (1989) fails to support overreaction hypothesis and provides strong evidence that when firms of disparate sizes with poor (or good) earnings are compared, small firms outperform large firms, and smaller winners outperform larger losers. He relates significant differences between the returns of extreme prior period performers to size effect but not to result of investors' overreaction to earnings, as in De Bondt and Thaler (1987). Zarowin (1990) replicates De Bondt and Thaler's (1985) study and provides evidence that a winner – loser effect is the manifestation of size effect

but not overreaction. In contrast to Zarowin, Chopra, et al. (1992) report economically significant overreaction effect, which could not be attributed to size effect, as after controlling for size or beta, overreaction gets reduced but still remains. Since overreaction effect reported in their study is much more pronounced for smaller firms than for large firms, they hypothesize that individuals, predominant holders of stocks of small firms, may overreact, while dominant holders of large stocks, namely institutions, do not. Albert and Henderson (1995) find distinct overreaction effect in addition to firm-size effect after controlling for the potential bias in Zarowin's methodology.

Many scholars tested overreaction hypothesis in their studies in various contexts. De Bondt and Thaler (1985, 1987, 1990), Chopra, et al. (1992), La Porta (1996), Amir and Ganzach (1998) supported overreaction hypothesis, whereas Chan (1988), Fama and French (1986), Abarbanell and Bernard (1992), and Zarowin (1989, 1990) provided evidence against it.

A great number of papers identify market price underreaction to information events. Bernard and Thomas (1990) define underreaction as the evidence that stock prices seem to respond to earnings for about a year after they are announced (Fama, 1998). Madura and Richie (2004) define underreaction as positive (negative) cumulative abnormal returns following large positive (negative) price changes. Hong, et al. (2000), and Dreman and Lufkin (2000) refer underreaction to cases in which market participants react to news slowly (week, months, even years) and/or insufficiently. Underreaction evidence shows that security prices underreact to public announcements. If the news is good, prices keep trending up after the initial positive reaction; if the news is bad, prices keep trending down after the initial negative reaction (Shefrin, 2008). Dreman and Lufkin (2000) present evidence on the investors' underreaction to news exhibiting psychological features. Hong, et al. (2000) argues that negative information diffuses gradually across investors, suggesting underreaction to bad news.

Underreaction evidence is derived both from aggregate time-series analysis and cross-section analysis of stock returns. However, cross-section analysis provides more support for underreaction hypothesis, as it focuses on information events and the predictability of returns. Cutler, et al. (1989) identify significant autocorrelations in excess returns on various indexes over different horizons. Autocorrelation evidence is consistent with underreaction hypothesis, which states that stock prices incorporate information slowly, leading to trends in returns over short-term horizons. Bernard (1992) analyzes the properties of time-series of earnings and found that they exhibit positive autocorrelation at a lag of one, two and three quarters, and found slightly negative autocorrelation at a lag of four quarters. Bernard (1992) implies that investors do not recognize the trend in earnings' changes at one-, two- and three-quarter horizons and a reversal after a year as positive autocorrelations in earnings' changes, since they believe in the earnings' random walk. In a model of investor sentiment Barberis, et al. (1998) suppose that earnings follow a random walk but investors typically assume that earnings are mean-reverting. Underreaction is generated by the investors' belief that earnings are more stationary than they really are. Barberis, et al. (1998) suggest the psychology foundation for underreaction phenomenon.

A great number of studies provide evidence on price underreaction to earnings announcements (Bernard and Thomas, 1990, Bernard, 1992, Barberis, et al. 1998, and etc.). However, there are studies that focus on the other firm-specific news, such as dividends initiations or omissions (Michaely, Thaler and Womack, 1995, Boehme and Sorescu, 2002, McCluskey, Burton, Power and Sinclair, 2006), stock splits (Ikenberry, Rankine, and Stice, 1996, Ikenberry and Ramnath 2002), stock repurchases (Ikenberry, Lakonishok and Vermaelen, 1995), spinoffs (Cusatis, Miles and Woolridge, 1993), cash flow news (Cohen, Gompers and Vuolteenaho, 2002), tenders for stocks (Lakonishok and Vermaelen, 1990), IPO and SEO (Loughran and Ritter, 1995), mergers, alliances and acquisitions (Keown, Pinkerton and Bolster, 1992, Agarwal and Singh, 2006, Rosen, 2006, Ozcan and Overby, 2008), corporate layoff (Hahn and Reyes, 2004), and other announcements.

Market Sentiment Theory

The early sentiment literature focuses mostly on market sentiment definitions generalized in Table 1.

Most of sentiment definitions come from cognitive psychology that explores how behavioural biases affect decision making process. Barberis, et al. (1998) view sentiment as common judgment errors made by a group of investors rather than a series of uncorrelated mistakes. Bergman and Roychowdhury (2008) argue that sentiment reflects investors' beliefs or future expectations about stocks and that these beliefs are not necessarily related to stock fundamentals. Investor sentiment is often described as being either only excessively bullish or bearish (Brown and Cliff, 2004), but this can result in the oversimplified

characterization of sentiment. Investor sentiment is non-uniform across equity market with heterogeneous beliefs (Shefrin, 2008). It might not be uniformly optimistic, because the prices of some stocks may feature excessive optimism, while, the other stock prices may feature excessive pessimism. Furthermore, sentiment is likely to interact with the other economic forces (Shefrin, 2008) and to be impacted by the phase of the business cycle. Different sentiment definitions stem from the direction of empirical studies and require a well-considered approach to its empirical measurement.

Table 1. Sentiment Definitions in Behavioural Finance Literature

Author	Definition
Barberis, et al (1998)	Sentiment can be defined as common judgment errors made by a group of investors (noise traders) rather than a series of uncorrelated mistakes
Brown and Cliff (2004)	Sentiment represents expectations of market participants relative to norm: a bullish (bearish) investor expects returns to be above (below) average, whatever “average” may be
Baker and Wurgler (2007)	Investor sentiment, defined broadly, is a belief about future cash flows and investment risks that are not justified by the facts at hand
Bergman and Roychowdhury (2008)	Investor sentiment is defined as a phenomenon that biases expectations of future firm performance
Rannau (2008)	Investor sentiment is correlated across investors and random, which forces prices to differ from fundamentals
Lee, et al. (2002)	Investor sentiment is significant factor to explain excess return and conditional volatility stocks
Rosen (2006)	Sentiment is a reaction of investors to factors other than the value created by the merger
Lemmon and Portniaguina (2006)	Market sentiment reflects the degree of excessive optimism or pessimism in the beliefs of investors about stocks in general that is not justified by fundamentals
Baker and Wurgler (2006)	Investor sentiment is the propensity to speculate. Under this definition, sentiment drives the relative demand for speculative investments, and so causes cross-sectional effects even if arbitrage forces are the same across stocks
Hahn and Reyes (2004)	Market sentiment is investor optimism (pessimism) during expansionary (recessionary) periods that could lead to differential expectations and responses to corporate announcements

Source: Authors

The prior literature on investor sentiment (DeLong, et al. 1990, Shleifer and Vishny, 1997) argues that under certain circumstances investor sentiment can distort the market price, that lead the scholars to further sentiment research using various sentiment proxies and developing new sentiment measures. Barberis, et al. (1998), Daniel, et al. (1998) Hong and Stein (1999) offer the well-developed sentiment models, which are widely cited in the subsequent literature. However, formal models are difficult to test directly since they typically involve sources of sentiment, which are difficult to measure. Therefore, most of research papers focus on empirical examination of the importance of sentiment rather than testing formal economic models. Sentiment literature gives special attention to sentiment measures, their validity and their predictive power. Brown and Cliff (2004), Qui and Welch (2006), Lemmon and Portniaguina (2006), and Baker and Wurgler (2007) give a comprehensive review of direct and indirect sentiment measures widely used in a current body of research. Direct or survey-based sentiment measures include Investor's Intelligence survey (Brown and Cliff, 2004, 2005, Lee et al., 2002, Solt and Statman, 1988, Clarke and Statman, 1998) and the American Association of Individual Investors survey (Bandopadhyaya and Jones, 2006, Brown and Cliff, 2004, Clark and Statman, 1998, Fisher and Statman, 2000, Baker and Stein, 2004, Baker and Wurgler, 2006). Consumer Confidence Index and Consumer Sentiment Index may also be attributed to explicit or direct sentiment measures (Qui and Welch, 2006, Fisher and Statman, 2000, Lemmon and Portniaguina, 2006, Schmeling, 2009, Brown and Cliff, 2004, 2005, Bergman and Roychowdhury, 2008). Direct sentiment measures are based directly on surveys but are often criticized for potential gap between how people respond and how they actually behave. Market sentiment needs to be explored in different contexts and in different markets, as waves of sentiment have clearly discernible, important and regular effects on firms and stock markets as a whole. Prior research use different sentiment measures that have their advantages and disadvantages. Since survey need time and discipline to fill them out, people are reluctant to do it and their answers might be biased. Although the data is

compiled on the weekly or monthly basis, the results do not capture investor sentiment at a given point-in-time, as it is a mix of recent and old opinions. Therefore, the researcher faces the problem how many periods to lead the survey-based sentiment measures. There is also a threat for the potential conflict of interest, as surveys participants are the respondents and market practitioners at the same time. However, the main drawback of direct survey-based sentiment measures is that there is a threat that people respond differently than they actually behave. This explains the popularity of indirect sentiment measures that are categorized into variables related to market performance, trading activity, derivatives, and others. The main disadvantage of the indirect measures is potential information loss. A large body of research uses indirect sentiment measures (Neal and Wheatley, 1998, Lee, et al., 1991, Chen, et al., 1993, Chopra, et al., 1992, Baker and Stein, 2004) separately or includes them into composite sentiment indices (Baker and Wurgler, 2006, 2007, Brown and Cliff, 2004, 2005, Bandopadhyaya and Jones, 2006). Since they include mostly technical indicators they are often criticized for their non-academic nature.

Recent research focuses on empirical examination of sentiment effect on stock returns (Brown & Cliff, 2004, He, Mian, & Sankaraguruswamy, 2007). Lee, Shleifer, and Thaler, (1991), Elton, Gruber, and Busse (1998), Neal and Wheatley (1998), Baker and Wurgler (2006), Lemmon and Portniaguina (2006) report a significant sentiment effect on cross-section of stock returns, but aggregate predictions remain less clear (Schmeling, 2009, Brown & Cliff, 2005, and etc.).

Theorizing sentiment effect of on investors' propensity to overreact and underreact to information events, the next section relates market sentiment, overreaction and underreaction theories.

Market Overreaction/Underreaction and Market Sentiment: Rational vs. Behavioural Approach

Since scholars recognize that investors' reaction to information events can be generated by a pervasive market sentiment, this paper combines sentiment, overreaction and underreaction theories to find out whether the market-wide sentiment affects the stock return responses to firm-specific news.

Prior literature provides some theoretical insights to address this issue. David (1997) and Veronesi (1999) gives a rational explanation of market overreaction in a regime-switching framework. David (1997) explores the effects of uncertainty on investor's portfolio composition and its implications for market-wide excess returns. Veronesi (1999) uses David's model as an underlying framework to relate the effects of uncertainty and risk aversion to stock market volatility. Veronesi (1999) develops a rational expectations equilibrium model of asset prices where the drift of fundamentals shifts between two unobserved states of the market at random times. The high level of investors' uncertainty about the state of the market affects the volatility of stock returns, and investors require the extra discount. When times are good (market sentiment is high), bad news makes investors increase the discount over expected future returns in order to bear the risk of higher uncertainty. This results in the greater price reduction due to bad news than the reduction in expected future returns. And good news in bad times (market sentiment is low) makes investors increase the expected future returns and also increase the discount in order to hold an asset. Hence, the increase in price is lower than the increase in expected future dividends. Veronesi (1999) theorizes market overreaction to bad news when market sentiment is optimistic and underreaction to good news when market sentiment is pessimistic. Furthermore, this model explains the features of stock returns (excess volatility and time-varying expected returns) after allowing the market conditions to vary comparing to conventional models.

De Long et al (1990) and Vlad (2008) explains those phenomena behaviourally. Consistently with Veronesi (1999), they indicate that good and bad news has asymmetric effect on asset pricing process with bad news creating higher volatilities than good news of the same magnitude. Literature attributes asymmetry in responses to behavioural biases such as "loss aversion" or "disposition effect" (Shefrin and Statman, 1985). However, the most of behaviourally framed research, including Vlad's study, are subject to limitations, as they focus on individual responses to news rather than to aggregate market reactions. In regime-switching models asymmetry in responses to good and bad news is attributed to uncertainty about the state of the market. Investors' expectations depend on market-wide information and individual investors' responses to news are ignored. Behavioural models focus more on individual responses rather than to aggregate market reaction to news. Behavioural literature suggests that individual investors form their expectations based on past firm-specific information, while the aggregate market conditions are ignored.

The hypothesis, that stock prices become more sensitive to bad news than to good news as the market rises, is related to both behavioural and regime-switching models. However, a current body of research takes either regime-switching or behavioural approach. Conrad, et al. (2002) contribute to both

strands of literature by combining and hypothesizing the interaction of market-wide conditions and firm-specific responses. Their findings support the hypothesis that the stock prices respond more strongly to bad news in good times. Consistently with implications of regime-switching models, they find that difference between bad and good news response coefficients rises with the market.

Recent research explores the strength and the asymmetry in market responses to bad and to good news under the effect of market sentiment at the cross-section of stock returns. Some empirical studies explore asymmetry in value and glamour firm responses to news (La Porta, 1996, La Porta, 1997, Bernard, et al., 1997, Skinner and Sloan, 2002). The cross-sectional analysis in La Porta (1996) reveals overreaction patterns in prices of glamour and value stocks. Glamour stocks earn negative returns on the days of their future earnings' announcements, and value stocks earn positive returns. Skinner and Sloan (2002) argue that glamour stocks' reaction to bad news is much stronger than value stocks' reaction. Conversely, Conrad, et al. (2002) do not find a significant differential between value and glamour stocks reaction to news. However, they report significant differences in NYSE and NASDAQ stock return responses to news. This invites for further research to answer why NASDAQ firms respond more strongly than NYSE companies. To summarize, the shortcomings of the current body of research imply the further development of more sophisticated models able to explain more precisely the strength of responses of firms with different characteristics.

Cooper, et al. (2003) argues that the state of the market generates significant deviations in stock returns. They test an overreaction theory of short-run momentum and long-run reversal in the cross section of stock returns and find evidence that the profits to momentum strategies depend critically on the state of the market.

He, et al. (2007) analyze how prevailing market-wide sentiment affects the responses of small and large investors to firm-specific news. They conclude that small investors' responses to firm-specific news vary with market sentiment and report on the puzzling buying activity of small investors on bad news that is especially pronounced during the periods of optimism in the market. They also find that small investors' responses to firm-specific news are more pronounced for hard-to-value-and-arbitrage stocks (small, young, growth, and volatile firms). He, et al. (2007) report, that market sentiment hardly sways large investors' responses to firm-specific news. This finding is in line with the proposition that large or institutional investors are rational and less prone to behavioural biases and market sentiment effects. This leads to the conclusion that market sentiment affects the more pronounced investors' responses to firm-specific news.

The asymmetry in responses depending on the state of the market and/or economy was also reported in McQueen and Roley (1993), Veronesi (1999), Conrad, et al. (2002). Thus, He, et al. (2007) contribute to the literature that documents small investors' propensity to buy on bad news. Individual investors' responses to news are also explored in Lee (1992), Hirshleifer, et al. (2008), and Battalio and Mendenhall (2005). Hirshleifer, et al. (2008) find that individuals are significant net buyers after both negative and positive extreme earnings' surprises.

Hence, this area of research is of a particular interest, as it is still little known how market sentiment affects market reaction to news in the specific financial markets. The question, whether there is asymmetry in responses to good and to bad news under the effect of certain market conditions in emerging, thinly traded and low liquidity markets remains unanswered. However, there are some studies that explore how the market reacts to macroeconomic news under different market/economy conditions in the emerging markets. Some empirical papers suggest an important role to market sentiment that affects the strength and the asymmetry in market responses to macronews in emerging Eastern European stock markets. The effects of market conditions were examined in stock markets by McQueen and Roley (1993), Veronesi (1999), Flannery and Protopapadakis (2002), Conrad, et al. (2002), Adams, McQueen and Wood (2004), Boyd, Hu and Jaganathan (2005), and Andersen, Bollerslev, Diebold & Vega (2007). They provide evidence of more pronounced relations of stock returns and fundamental macro news after allowing market conditions to vary.

Conclusions

To conclude, market sentiment becomes an important economic quantity that is explored in various contexts. Earlier studies on market sentiment provide descriptive characteristics of sentiment measures and concentrate more on their validity. The subsequent studies focus more on the prediction of the stock returns using sentiment as one of the explanatory or control variables. An overview of overreaction, underreaction and market sentiment literature reveals that the interaction of market sentiment and other economic quantities is largely unexplored. A few studies provide evidence on how market sentiment

affects investor responses to information events. Furthermore, the literature fails to report on the interaction of overreaction/underreaction and market sentiment in the emerging, thinly-traded and illiquid markets.

Nevertheless, there are some attempts to employ sentiment as an explanatory variable of market overreaction/ underreaction to information events. The issue is addressed both in rational and behavioural settings. Neoclassical finance theory suggests a rational explanation of excessive stock price reaction to information events. However, the rational expectations equilibrium model looks at aggregate market reaction to information events under varying market conditions and does not account for individual responses to news. On the other hand, behavioural models look at individual responses and ignore aggregate market reactions. However, the behavioural approach is criticized by asset pricing theorists for a psycho-mining. Furthermore, it is criticized for a wide range of conceivable irrational behaviour patterns that are virtually unrestricted and that these patterns are ad hoc used to explain market anomalies, almost losing the predictive power. But in the real world individuals may hold erroneous beliefs and may have biased preferences, which could vary significantly across investors. Therefore, the behavioural approach with its shortcomings takes more realistic assumptions about how investors make their investment decisions, but not how they should make them under certain conditions. Behavioural research contributes to the positive rather than the normative theory.

The paper identifies that both regime-switching and behavioural models are insufficient to explain precisely anomalous investors' behaviour. Therefore, they must be extended. Evolutionary finance insights might be useful in explaining investors' expectation formation process. The further research taking a combined approach would be valuable for innovative financial intermediaries that are interested in the fast adjustment of financial products for the asset market after the shocks in the market and/or economic conditions.

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INVESTUOTOJŲ SENTIMENTAI, PER STIPRIOS IR PER SILPNOS JŲ REAKCIJOS Į AKCIJŲ RINKĄ

Santrauka

Straipsnyje tiriama, kaip rinkos sentimentai lemia per stiprias ir per silpnas investuotojų reakcijas į naujienas. Nors yra didelis mokslininkų susidomėjimas per stipriomis ir per silpnomis reakcijomis ir jos tiriamos tradicinės finansų teorijos (David, 1997, Veronesi, 1999, Docking, Koch, 2005) bei investuotojų teorijos kontekstuose (Barberis ir kt., 1998, Daniel ir kt., 1998, Hong, Stein, 1999), rinkos sentimentų poveikis investuotojų reakcijoms į naujienas yra mažai tyrinėtas. Pastarųjų metų studijos tiria asimetrines investuotojų reakcijas į geras ir į blogas naujienas, kurias lemia verslo ir ekonominės sąlygos. Daugelis studijų, kurios tiria per stiprias ir per silpnas reakcijas į makroekonominės naujienas, įvairiose finansų rinkose pateikia prieštaringas išvadas. Tik keletas studijų tiria per stiprias ir per silpnas reakcijas į specifines įmonių naujienas kintant rinkos sentimentams. Todėl šio straipsnio tikslas yra ištirti egzistuojančią per stiprių ir per silpnų reakcijų literatūrą pateikiant teorines sentimentų poveikio reakcijoms į naujienas prielaidas. Straipsnyje identifikuojama, kad mokslininkai skiria nepakankamai dėmesio per stiprioms ir per silpnoms investuotojų reakcijoms. Tolesni tyrimai turėtų būti orientuoti į empirinius sentimentų poveikio per stiprioms ir per silpnoms reakcijoms į naujienas tyrimus. Straipsnio indėlis yra tas, kad siūloma santykinai nauja per stiprių ir per silpnų reakcijų į naujienas tyrimo kryptis. Manoma, kad per didelės

optimizmas (pesimizmas), perduodamas socialiai sąveikaujant, veikia investuotojų sprendimus, kurie atspindi akcijų bei prekybos apimčių svyravimuose. Straipsnis pateikia naudingų įžvalgų inovatyvioms finansų institucijoms. Gilus finansų rinkos dinamikos, finansų rinkos anomalijų ir įvairių ekonominių dydžių tarpusavio sąveikos suvokimas padės finansų institucijoms greitai prisitaikyti prie besikeičiančios aplinkos, siūlyti naujus finansinius produktus ir investavimo strategijas keičiantis rinkos sentimentams.

Pagrindiniai žodžiai: per stiprios ir per silpnos reakcijos, rinkos sentimentai.

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