

A Survey of the Literature on the Investor Sentiment and Its Role in Asset Pricing -- A Focus on Equity Market Return

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Abstract. This research mainly focuses on the crucial role of investor sentiment in the changes of asset pricing, especially its influence on risk arbitrage and market behavior. We know that both behavioral finance theory and empirical evidence are of great significance. The research combines them to see how investor biases, such as being overly optimistic or pessimistic, cause asset pricing errors and make the market unstable. To study this, we used some widely recognized sentiment indicators, such as the AAI Sentiment Survey, the VIX (Volatility Index), and the Composite Sentiment Index. Through these indicators, we examined the relationship between irrational investor behavior and pricing anomalies. The outcomes demonstrate the distinctively substantial impact that investor sentiment yields on risk arbitrage techniques, especially during market events like mergers and acquisitions. When speculative sentiment takes hold, people tend to overreact, leading to incorrect asset pricing. Moreover, the research also indicates that when investor sentiment is low, stocks with small size, short establishment time, and high volatility actually have higher returns. This suggests that sentiment is helpful for predicting stock returns. We added the sentiment indicators to the traditional asset pricing model, which enables us to better understand market changes and optimize risk arbitrage strategies. In conclusion, the research results tell us that considering the perspective of behavioral finance is very important when conducting financial analysis. This can provide useful methods for investors and policymakers to deal with market problems caused by investor sentiment.

Keywords: Investor Sentiment, Behavioral Finance, Asset Valuation, Equity Pricing Anomalies, Risk Arbitrage

1. Introduction

The research on investor behavior increasingly focuses on a phenomenon that risk-averse rational decisions and behavioral biases have different impacts on financial markets. This article aims to explore the interrelationships among investor sentiment, market efficiency, and asset pricing errors, especially in the context of arbitrage restrictions, and the effects of these on pricing anomalies. Investor sentiment, in a nutshell, refers to the overall emotions and attitudes of market participants towards the financial market. It has been quantified through some key indicators, such as the AAI Sentiment Survey, the VIX Index, and the Consumer Confidence Index, which are important indicators for measuring investor sentiment. We know that changes in the macroeconomy and

adjustments in public policies can all affect investor sentiment. However, what role does investor sentiment play in driving short-term market trends and causing market fluctuations remains a crucial and worthy area for in-depth research.

Risk arbitrage is an investment strategy that specifically exploits the unreasonable pricing in market events such as mergers and acquisitions to make profits. It is highly sensitive to speculative risks and changes in public sentiment. After all, investor sentiment can influence the decisions of risk arbitrage, highlighting the importance of understanding how behavioral factors affect market trends. Therefore, arbitrageurs study investor sentiment and develop strategies to cope with market fluctuations and mood swings. This article is based on foundational research in behavioral finance, which clarifies the connection between investor sentiment and asset prices and reveals how irrational investment behaviors emerge when emotions cause market fluctuations.

To put it another way, this study focuses on the crucial role of investor sentiment in investment decisions, especially when investors tend to avoid risks, and its impact on long-term wealth growth. For instance, Baker and Wurgler in 2006, using cross-sectional data, studied the relationship between investor sentiment and the results of risk arbitrage, finding that the impact of emotions on investment decisions was both positive and negative [1]. Although the direct effect of emotions on cross-sectional returns is not yet clear, traditional theory holds that speculative emotions can significantly change investment behavior. For example, in 2007, Baker and Wurgler analyzed monthly returns from 1963 to 2001 and uncovered that under conditions of diminished investor sentiment, equities characterized by small market capitalization, recent establishment, and heightened volatility paradoxically yielded superior returns. This indicates that past emotional data and related statistical characteristics can provide reference for stock selection strategies [2].

Furthermore, by applying comprehensive indices (such as the sentiment index) to gauge investor sentiment and analyzing their influence on market dynamics, we have established a reliable framework. This index incorporates six measurement indicators, namely the discount of closed-end funds, the stock turnover rate on the New York Stock Exchange (NYSE), the first-day return rate of initial public offerings (IPOs), the volume of equity issuance, the dividend surplus, and the risk surcharge, to encapsulate the fluctuations in investor emotional disposition. The sentiment index not only reflects aggregate investor behavior but also disproportionately influences high-volatility stocks, smaller-cap stocks, and growth-oriented equities. By examining these components, this paper aims to elucidate how sentiment-driven variations in investor decisions shape risk arbitrage opportunities and cross-sectional returns, offering insights into the broader implications for market efficiency and asset pricing.

2. Theoretical summary

2.1. Traditional asset pricing theories

The well-known finance theory determines the expected returned of assets based on its market risk. Its explanation details rational behaviors and market efficiency. For the CAPM evaluation of risk and returns solely on its objective side, there are no consideration of role such as psychological factors, herding effects and overreactions. The cornerstone principle of conventional classical finance is anchored in the efficient market theory, introduced by Fama in 1970, which posits that the prevailing market value at any given moment encapsulates all existing data within the market [3]. Gomes, Kogan, and Zhang focus on classical finance theory, which traditionally assumes rational investors and efficient markets, thereby neglecting the role of investor sentiment [4]. Their work

highlights the limitations of such models in explaining market anomalies and underscores the need to incorporate behavioral factors, like sentiment, to better understand asset pricing dynamics.

2.2. Behavioral finance foundation

Investor Sentiment measure can be classified into three categories i.e., direct, indirect, meta measure, broadly based on how the sentiment measure are collected. The classification of investor sentiment measures into direct, indirect, and meta measures is well-supported by the literature, reflecting the diverse methodologies used to capture sentiment. Clarke and Statman utilize direct measures, such as surveys like the Investors Intelligence Index, which explicitly ask investors about their market outlook, providing a straightforward assessment of sentiment [5]. Fisher and Statman expanded on this study. They compared the direct measurement methods based on surveys with indirect measurement indicators such as trading behavior and market-derived indicators, emphasizing the complementarity of these methods [6]. In 2004, Baker and Stein focused on indirect measurement methods. They particularly paid attention to market-based indicators, such as liquidity and trading volume, which infer investor emotion from observable market activities rather than relying on explicit statements from investors [7]. Brown and Cliff further refined this framework. They introduced comprehensive measurement indicators, aggregating multiple sentiment indicators, such as combining survey data with market-based indicators, to construct a more comprehensive sentiment index [8].

Overall, these studies indicate that classifying investor attitude measurement indicators into direct, indirect, and comprehensive categories provides a reliable framework for understanding and analyzing investor emotion in different contexts.

2.2.1. Behavior theory

If market participants form some arbitrary views, such as being overly optimistic or overly pessimistic, this may lead to systematic pricing mistakes in financial assets, causing the asset prices to deviate from their true values. In 1990, DeLong et al. theoretically confirmed that the risks faced by noise traders, due to the inability to predict in advance, would trigger irrational investment behaviors and cause deviations from rational expectations in long-term forecasts [9]. This behavioral deviation further led to various financial anomalies. For instance, excessive price volatility, undervaluation of asset pricing, and the mean reversion pattern of stock returns are all related to this. In 1991, Li et al. conducted research on the discount situation of closed-end funds and their results further confirmed the aforementioned phenomenon. This study challenged the traditional Efficient Market Hypothesis (EMH) and revealed that there are long-term differences between fund prices and their net asset values (NAVs) [10]. In 2006, Kumar and Li Chengsheng pursued this line of research by analyzing the trading conditions of individual retail investors and provided empirical evidence. This indicates that the cross-sectional patterns of stock returns cannot be explained solely by fundamental factors and strongly supports the viewpoint of behavioral finance [11].

3. Empirical evidence of sentiment and asset pricing

3.1. Measuring investor sentiment

The interplay between investor emotional disposition and equity market yield has consistently been a pivotal avenue of inquiry in behavioral finance. Numerous empirical investigations have corroborated that investor emotional disposition is quantifiable and exhibits a strong correlation with

stock yield. In these studies, a widely adopted approach is to gauge investor emotional disposition indirectly via market-derived indicators. These indicators reflect the overall behavior and expectations of market participants and help understand how emotions affect asset prices. This review summarizes some key studies that all measure investor attitude using market-based approaches, mainly introducing research methods, results, and contributions to understanding the role of investor sentiment in the financial market.

In 2006, Pan and Poteshman were the first to measure investor sentiment using derivatives data, using indicators such as the put-call ratio, the panic index (VIX), position volume, and option premiums [12]. Their research found that these indicators can well capture changes in investor attitude, especially in the options market, where investors' trading behaviors reflect expectations for future market trends. By analyzing these derivatives-based indicators, Pan and Poteshman strongly confirmed that investor sentiment inferred from market activities has predictive power for stock returns.

Building upon earlier inquiries, Brown and Cliff in 2005 probed the interplay between investor emotional disposition and equity returns by harnessing an expanded array of sentiment assessment methodologies. Their examination ventured beyond survey-derived metrics like the Investor Sentiment Index, incorporating market-driven signals such as transactional volume and fund flux within mutual funds. The findings underscored a robust correlation between these gauges, irrespective of their direct or indirect measurement of sentiment, and stock returns, notably short-term performance. This illuminates the imperative nature of discerning sentiment intricacies and their sway on market shifts through a multi-indicator approach.

Baker and Wurgler had a very important research result in 2006 and 2007. Employing a principal component extraction technique, they amalgamated six market-derived variables: the price reduction of closed-end funds, NYSE turnover rate, count of IPOs, mean return on inaugural trading days, proportion of equity holdings in new offerings, and dividend rate disparity. By integrating these elements, they engineered a comprehensive sentiment indicator [1,2]. This way, common factors affected by investor emotion could be found from these different indicators, thus providing a more comprehensive measurement of investor sentiment. The research results showed that investor sentiment plays a significant part in predicting the returns of stocks in different time periods. When investor sentiment is high, stocks tend to be overvalued and then perform poorly, especially those with a speculative nature.

In 2012, Baker et al. expanded the scope of studying investor sentiment to the international market. They engineered investor emotional disposition indices for six primary global stock exchanges, namely volatility premiums, the total number of IPOs, the IPO first-day return rate, and the market turnover rate [13,14]. The study found that these indicators for measuring investor emotion are not only useful in the US market but also can well predict related situations in the global market.

Overall, these studies have highlighted the diversity and effectiveness of market-based indicators as substitutes for investor sentiment. While the specific proxies vary across studies—ranging from derivatives data to IPO activity and trading volume—their common conclusion is that sentiment can be reliably measured and that it exerts a significant influence on stock returns. By leveraging market-based indicators, researchers have provided valuable tools for both academics and practitioners to analyze and predict the impact of investor sentiment on financial markets.

3.2. Sentiment and market return

3.2.1. Investor sentiment and asset pricing

The relationship between investor sentiment and future stock returns in the U.S. equity market has been a subject of extensive academic inquiry. Kothari and Shanken empirically demonstrated that historical returns exhibit statistically significant time-series predictability, while financial ratios maintain predictive power in explaining cross-sectional return differentials [15]. The behavioral aspect of market participants, particularly the dichotomy between bullish and rational investor behavior, has been identified as a critical factor influencing asset mispricing through sentiment-driven mechanisms [13]. This body of research suggests that investor sentiment serves as a significant determinant in the pricing dynamics of financial assets, potentially creating systematic deviations from fundamental values.

3.2.2. The effect of sentiment on small-stock premiums

The interplay between investor emotional disposition and equity market yield has been a paramount concern in behavioral finance, contesting the conventional postulate of market efficiency. Schmeling augmented pertinent investigations by examining the prognosticative function of investor sentiment on stock returns across 18 industrialized nations [16], thereby extending earlier scholarly discourse. Prior studies have indicated that investor sentiment can instigate market irregularities, leading to deviations in stock values from rational pricing frameworks.

For instance, Baker and Wurgler's study in 2006 found that investor attitude has a significant impact on stock returns, especially in markets with many arbitrage restrictions [1]. They discovered that small companies, new companies, and stocks with high volatility are more prone to pricing deviations due to investor emotion. Schmeling expanded this research from a cross-national perspective, which can help us better understand the role of investor attitude in different markets. The study shows that generally, investor emotion can better predict stock returns, but the prediction effect varies in different countries, which is related to market liquidity, the quality of the system, and cultural factors, etc. In summary, Schmeling's research further solidifies the burgeoning agreement within behavioral finance that investor attitude constitutes a vital force shaping equity returns. In revealing its forecasting prowess across numerous industrialized nations, this analysis accentuates the significance of assimilating sentiment within asset valuation frameworks and accentuates the necessity for deeper investigations into the conduits by which sentiment molds worldwide financial landscapes.

3.3. Sentiment and cross-sectional returns

Studies investigating the relationship between sentiment and returns of specific types of stocks (e.g., small stocks, value stocks, growth stocks, speculative stocks).

The theories of a sentiment related asset prices is based on the conditions related to investor sentiment and its impacts on cross-section returns. It challenges the classical finance theories on explaining the sentiment-driven mis-pricing of asset in relation to cross-sections returns, and which the authors surround his detailed analysis on the Composite sentiment index from six proxies. (e.g. closed-end fund discount, IPO activity, share turnovers). In addition, Baker and Wurgler conducted an exhaustive analysis of the outcomes of a theoretical proposition pertaining to systematic risks. Extending this line of inquiry, Stambaugh et al. scrutinized eleven stock anomalies utilizing long-

minus-short approaches, revealing that all examined anomalies exhibited intensified performance under elevated investor sentiment conditions [1].

4. Conclusion

This study concludes that investor sentiment constitutes a significant factor in asset pricing dynamics, particularly within the framework of risk arbitrage analysis. The empirical findings demonstrate that behavioral factors substantially influence investment decision-making processes, with irrational investor behavior inducing systematic deviations in market efficiency. Specifically, the analysis of risk arbitrage scenarios reveals that behavioral biases frequently trigger market overreactions, leading to pricing anomalies. Furthermore, the research identifies that sentiment-driven shifts in investor psychology, manifested through excessive overconfidence or unwarranted pessimism, generate persistent mispricing effects and contribute to heightened market volatility. These findings suggest that the integration of sentiment indicators into conventional asset pricing models enhances the explanatory power of risk arbitrage strategies and provides a more comprehensive framework for understanding market behavior. The results underscore the importance of incorporating behavioral finance perspectives into traditional financial models to better capture the complexities of market dynamics.

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