

# The effect of investor sentiment on the cross-section of stock returns essay samp...



## Summary

In recent years there has been a growing debate on the possible linkages between the behavioral aspects of investors and stock prices. The financial economics have become more receptive to imperfect rational explanations and in this regard, investor psychology has emerged as a major determinant of stock prices. Under this approach, it is necessary to examine how stock prices are related not only to risks, but also to the noise. After decades of study, the sources of risk premium in purely rational dynamic models are well understood; while, dynamic psychology based asset pricing theories are still in the infancy stage. This debate surrounding asset pricing has identified two prime suspects in setting stock prices: fundamentals and investor sentiments.

Despite a substantial amount of literature regarding investor sentiments determining stock prices, there remains no coherent answer whether effects are attributable entirely to investor exuberance; or, to fully rational expectations based on risk factors, or both. It is argued a subset of investors make biased asset valuations which are persistent in nature. Sentiments are perceived as the representation of these biases, i. e., excessive optimism or pessimism. Since excessive optimism (pessimism) drive prices above (below) the intrinsic values, sentiments are treated as fully irrational exuberance on the part of investors. However, given the argument sentiments may contain some rational factors, attributing the effect (if any) of sentiments solely to sentiments induced noise trading may be misleading. This paper provides broad theoretical investigation of these issues. Some inferences are

summarized in conclusion.

## Introduction

Just like liquidity, investor sentiment is also a slippery and elusive concept. In Smidt (1968), it leads to speculative bubbles. In Zweig (1973), it comes from investors' biased expectations on asset values. In Black (1986), it is the noise in financial markets. Generally, investor sentiment refers to investors' propensity to speculate, or investors' optimism/pessimism about stocks (Baker and Wurgler 2004). Lee, Shleifer, Thaler [LST (1991) hereafter] define investor sentiment as the component of investors' expectations about asset returns that are not justified by fundamentals.

Baker and Stein (2004) define investor sentiment as investors' misvaluation on an asset. Centering in these definitions is that investor sentiment reflects the difference between what an asset price is and what an asset price should be. In a market with two groups of investors, assuming one holds rational expectations on an asset's value and the other makes biased valuations, it is equivalent to say that investor sentiment reflects the valuation difference between the two groups of investors (Zweig (1973), LST (1991), Baker and Stein (2004), and Brown and Cliff (2005)).

The role of investor sentiments as a determinant of stock returns stems from the concept of noise trading and its role in the financial markets, first given by Black (1986). Black argues noise makes trading in financial markets possible but also makes it imperfect. In the basic model of financial markets, Black contrasts noise with information and suggests people sometimes trade on noise as if it were information. The price of a stock therefore, reflects both

the information on which information traders trade on, and noise on which noise traders trade on.

Following Black (1986), DeLong, Shleifer, Summers and Waldman [DSSW (1990) henceforth] present a model in which noise traders acting as a group can influence stock prices in equilibrium. They argue arbitrage is limited in a market where informed investors have shorter horizons than noise traders. In their model the deviations in price from fundamental value created by changes in investor sentiments can introduce a systematic risk which is priced i. e., unpredictability in investor sentiments can systematically affect stock market returns. Based on DSSW (1990), Brown and Cliff (2004) explicitly describe the mechanism under which investor sentiments can affect stock market valuation and returns. The environments where investor sentiments are suggested to affect stock prices are based on three main assumptions. First, some of the investors are biased; second, these biases are persistent in nature, and third, there are limits to arbitrage.

The investors are mainly categorized under two groups: fundamentalists and speculators. The fundamentalists are thought to be the rational investors who make unbiased assessment of a stock's intrinsic value based on the sensitivity of stock prices to rational risk factors, while speculators are thought to be swayed by excessive optimism or pessimism. The second group is the noise traders who tend to overvalue (undervalue) stock prices at the time of high (low) sentiments i. e., during excessive optimism (pessimism). These two groups attach different values to the stocks and therefore under the investor psychology approach, the stock price reflects

the weighted average of the valuation of the two groups i. e., combination of rational factors and irrational sentiments.

The speculators are further classified into two types depending on the differences in their systematic misvaluations. This classification stems from Solt and Statman (1988) who discuss the contrarian nature of certain investors who believe, another group of investors is swayed by sentiments in the opposite (wrong) direction. The first group is the institutional investors who participate in the market for living, and the second group is the individual investors whose primary line of business is outside the stock market (Brown and Cliff, 2004). Since institutions and individuals respond differently to signals in the formation of sentiments as noise traders, they have different effects on stock prices. The focus of the noise trader risk model is on the irrational component of sentiments, while the sentiments of individuals and institutions may contain some information about rational risk factors as well. Specifically, when an investor is bullish or bearish on the market, then this could be a rational reflection of future periods or irrational exuberance or a combination of both. Therefore, trading based on investor sentiments may contain only noise trading, or only fundamental trading, or both.

#### Relation between Investor Sentiment and Expected Stock Returns

In a frictionless market, there should be no role for investor sentiment on asset prices. Even if investor sentiment could cause asset prices to deviate from their fundamental values, arbitrageurs would have eliminated the discrepancies immediately. In reality, there exist transaction costs and short-

sales constraints. Such frictions prevent arbitrage activities (Black 1986 and Shleifer & Vishny 1997) and investor sentiment can affect asset prices. They argue that stock prices reflect only the most optimistic opinions among investors when short-sales constraints are present. When investors become more optimistic, i. e., when investor sentiment becomes high, they drive stock prices up. It follows that there should be a contemporaneous positive relation between investor sentiment and stock returns.

Smidt (1968) depicts a distinct feature of the time-series relation between investor sentiment and expected stock returns: A corrective price movement. Zweig (1973) models two types of investors on the market: One non-professionals and the other professionals. Non-professionals use unjustified information to form their expectations and affect security price accordingly. As the security prices deviate more and more and from their intrinsic values, professionals profit from the deviations and bring the security prices back to their fundamentals. Similarly, Baker and Stein (2004) and Brown and Cliff (2005) assume the two types of investors and argue that expected stock returns will be lower if the beginning investor sentiment is higher. On the cross-sectional side, De Long, Shleifer, Summers, and Waldman (1990) model two types of investors on the market: Rational and irrational (noise) investors.

Barberis, Shleifer, and Vishny (1998) also provide a model of investor sentiment, but in their model there is only one representative investor. They focus on how investor sentiment is formed and corrected by new information but not the rational investors, are subject to the influence of sentiment. The trading of irrational investors creates extra risk, i. e., the noise trader risk, <https://assignbuster.com/the-effect-of-investor-sentiment-on-the-cross-section-of-stock-returns-essay-sample/>

and deters the arbitrage activities of rational investors. Since different stocks are subject to different extents of noise trader risk, investor sentiment affects the stocks differently in the cross section. LST (1991) investigate this prediction by examining the relation between closed-end fund discounts and small firm returns, both arguably reflect the sentiment of individual investors.

Baker and Wurgler (2004) also argue that investor sentiment affects asset prices in the cross section. Specifically, a broad sentiment wave on the market can have different effects on stocks either because sentiment-based demand shocks or arbitrage constraints differ across stocks. Therefore, the time-series relations between investor sentiment and expected stocks returns will exhibit most on stocks vulnerable to sentiment waves and/or stocks with difficulties in arbitrage. They hypothesize that those stocks are small, young, unprofitable, non-dividend-paying, distressed, or with high volatility or extreme-growth. Consistent with their predictions, they find that those stocks earn high future returns when their beginning-of-period proxies for investor sentiment are low, and the patterns attenuate or reverse when the beginning sentiment proxies are high.

Brown and Cliff (2004) find that investor sentiment does not predict short-term market returns at weekly and monthly intervals, but Brown and Cliff (2005) find that investor sentiment predicts long-term market returns at the next two to three years. They attribute these findings to limited arbitrage in the long-run but not in the short term. Nevertheless, Brown and Cliff (2004) use the Kalman filter and the principal components analysis to construct their composite sentiment measures based on survey data, IPO activities, <https://assignbuster.com/the-effect-of-investor-sentiment-on-the-cross-section-of-stock-returns-essay-sample/>

and other technical indicators. They examine the relations between the composite sentiment measures and market returns by VAR systems.

Whether their composite sentiment measures capture the underlying but unobservable investor sentiment is arguable, however. Unless investor sentiment drives the sentiment proxies at the same time or with the same time lag, their composite sentiment measures may end up noisier than a single sentiment proxy.

### Indirect Measures of Investor Sentiments and Stock Returns

LST (1991) first model the changes in closed-end funds discount with returns on small capitalization stocks and find high correlation. Since, closed-end funds are primarily held by individual investors, LST argue fluctuation in their discounts is a proxy for change in investor sentiments. LST tie their results to the behavior of individual investors and suggest sentiments are primarily driven by individual investors who hold small capitalization stocks. A direct implication of this finding is firms with high sensitivity to small investor sentiments must earn extra returns as compensation for bearing this extra risk. However, Chan, Kan and Miller [CKM (1993) hereafter] reject the claims of LST: (i) discount on closed-end funds are proxies for changes in individual investor sentiments and, (ii) such proxies affect returns of small capitalization stocks. On the contrary, CKM find returns on small capitalization stocks are not strongly related to closed-end funds in any absolute sense and the relationship is not stronger than one with large capitalization stocks.



Similarly, to findings of LST that small firms and particularly low institutional ownership firms move together with closed-end fund discounts, Swaminathan (1996) reports closed-end fund discounts can forecast future excess returns of small firms. The debate surrounding the measure of investor sentiments intensifies with the findings of Baur, Quintero and Stevens (1996); an investor sentiment index, measured by closed-end funds discount, has no significant relation with stock prices. They argue either the measure of investor sentiments is faulty or investor sentiments do not influence stock prices during their sample period. Neal and Wheatley (1998) employ three different measures of investor sentiments: discounts on closed-ended funds, ratio of odd-lot sales to purchase and net mutual fund redemptions. Consistent with LST (1991), they find fund discounts predict expected returns of small firms but not of large firms. Also they find a weak positive (negative) relationship between net redemption and small (large) firms expected returns and little evidence in support of odd-lot ratios.

Elton, Gruber and Busse (1998) explore whether discounts in closed-end funds is an important factor in the return generating process for common stocks and find no support for the contentions of LST. They suggest the frequency of changes in fund discounts entering the return generating process is similar to a chance result. They argue sentiment risks as measured by closed-end fund discounts should not be related to expected returns. Similarly, Sias, Starks and Ticnic (2001) find closed-end funds exhibit higher volatility than their underlying assets, but find no evidence of pricing. Likewise, Gemmill and Thomas (2002) find noise trader risk, as measured by closed-end funds, is not priced in the U. K. market.

Brown and Cliff (2004) examine closed-end fund discounts measures based on market performance, trading activity, derivative and IPOs and find a strong contemporaneous correlation with market returns. Similarly, Baker and Wurgler (2004) examine closed-end fund discounts, dividend premiums and IPOs related measures as proxies for investor sentiments and find all affect the cross-section of stock returns. They argue sentiments may affect stocks on the dimensions of age, size, profitability, dividend payments and growth prospects.

### Direct Measures of Investor Sentiments and Stock Returns

Solt and Statman (1988) is one of the earlier studies, using survey data to examine the usefulness of sentiments in predicting future stock prices. Using the bearish sentiments index, published by Investors Intelligence ( // ), they find no support for any such relationship. They argue the persistence of the belief in the usefulness of a sentiment index is due to cognitive errors leading investors to see patterns in data and neglect evidence running counter to investor beliefs. Similarly, Siegel (1992) uses the survey data of // and finds a strong contemporaneous relationship with stock returns.

However, his Siegel does not determine the direction of causality between stock returns and investor sentiments.

De Bondt (1993) argues if investor sentiments matter, then stock price movements would not be solely driven by news about economic fundamentals. Using survey data of American Association of Individual Investors (AAII), they show sentiments of small investors move with the market i. e., optimistic during bull market and pessimistic during a bear

market. Based on the financial forecasts of business students (proxy for financial analysts), he also finds a negative relationship between predictions and later returns. He attributes such irrationality to investors conflicting implicit theories or knowledge structure.

Clarke and Statman (1998) use the // sentiments data and find both bullish and bearish sentiments do not forecast future stock returns, while the past returns and volatility of those returns do affect sentiments. Also, they find high volatility of stock returns does not scare investors into bearishness but, reduces the effects of the stock market on sentiments. A major limitation in their study, instead of modeling time varying volatility of stock returns, they employ the standard deviation of daily returns over a four —week period as a measure of volatility and therefore do not capture the dynamics of volatility.

Fisher and Statman (2000) examine the sentiments of three groups of investors by using survey data of *AAII*, // and Merrill Lynch and suggest since investors are not alike their sentiments are also different. They suggest *AAII*, // and Merrill Lynch data represents sentiments of individual investors, semiprofessional investors and Wall Street strategists respectively. They show the sentiment of individual and semiprofessional investors are strongly correlated with each other while the sentiments of Wall Street strategists are unrelated to them. They find significant negative relationships between the future stock returns and sentiments of individual investors and Wall Street strategists. Using scatter plots they show strong relationships between future changes in stock returns and sentiments of individual investor and newsletter writers, while a weak relationship with Wall Street strategists' sentiments.

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Brown and Cliff (2004) employ these two types of sentiment indexes based on *I* and *AI* to examine the causality between the sentiments and market returns. They interpret the *I* based index as a measure of institutional sentiments and *AI* based index as a measure of individual investor sentiments. They find both the sentiment indexes are positively related to past returns of large stocks. This finding rejects the conventional argument: sentiments primarily affect individual investors and small stock returns. Also, they find weak predictive power of these sentiments for near term future stock returns. Further, consistent with Fisher and Statman (2000), they find both sentiments are contemporaneously related.

Using survey data of *I*, Lee et al. (2002) examine the impact of noise trader risk on stock returns and volatility by employing a GARCH-in mean model. They find shifts in sentiments are contemporaneously positively related to volatility and negatively related to excess returns of three stock market indexes. Moreover, they find bullish sentiments lead to higher future excess returns and volatility while bearish sentiments lead to lower future excess returns and volatility. This finding is inconsistent with the results of earlier studies, showing a negative relationship between bullish sentiments and future stock prices. They argue positive relationship indicates an increase in the risk premium associated with “hold-more” effect is relatively more important than the negative impact of the “price-pressure” effect on expected returns. An ambiguity in their study is unlike Brown and Cliff (2004) they interpret the sentiment index based on *I* as sentiments of individual investors and not as sentiments of institutional investors.

Brown and Cliff (2004) examine the long run implications of the // index and find it is strongly negatively related to future stock returns. They show these sentiments are positively related to market mispricing after controlling for other factors, which predict market returns (e. g.: past returns, dividend yield, Fama-French factors, etc). They argue the excessive optimism of noise traders leads to immediate market overvaluations and subsequent reversal in the long run as the market reverts to its intrinsic value.

## Conclusion

In summary, these studies classify investors under two groups: fundamentalist and speculators. The second group is the noise traders who tend to misvalue stock prices during excessive optimism (pessimism). These two groups attach different values to the stocks and therefore under the investor psychology approach, the stock price reflects the weighted average of the valuation of the two groups i. e., combination of rational and irrational sentiments. The speculators are further classified into two sub-groups depending on the differences in their systematic misvaluations (institutional and individual investors) who might affect stock prices by unpredictable changes in their sentiments.

Empirical studies based on indirect measure of investor sentiments provide mixed results in their agreement (disagreement) to noise trader risk theory. These studies suffer from the following limitations: first, they do not establish the role of investor rationality (irrationality) in determining stock prices.

DSSW (1990) and other models suggests bullish investor sentiments could lead to a short term mispricing and subsequent reversal in the long run.

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Such patterns are not depicted in the findings of these studies, possibly due to inappropriate measures. Second, these studies focus on identifying the effects of individual investor sentiments on small stocks and completely ignore the role of sentiments of other kind of investors. This issue is particularly important, given the findings of Brown and Cliff (2004), which suggest the existence of both individual and institutional investor sentiments. Third, whether these indirect measures are the best way to capture noise trader risk is still a matter of dispute. Given the argument of Baur et al. (1996) holding the use of an observable index of investor sentiment would provide better insight; it is important to examine a noise trader risk model with a direct measure based on survey data.

The sentiments of individual and institutional investors can be measured by the survey data of *I* and *AI* respectively. Overall, these studies provide evidence in favor of a strong contemporaneous relationship between investor sentiments, the stock market and mixed results regarding how this relationship changes during subsequent periods. However, these studies provide no coherent answer on whether the effect of investor sentiments on stock returns can be attributed entirely to investor exuberance or to fully rational expectations based on risk factors or both. A major limitation is the inability to differentiate between sentiments induced noise trading and sentiments induced fundamental trading while testing the noise trader risk model.

To summarize, the enormous number of sentiment measures reflects exactly the elusive nature of investor sentiment. There are some common features among those measures, however. First, it is usually assumed that individual  
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investors are more likely to be affected by their sentiment. Second, most of those measures target the market-wide sentiment rather than the sentiment at the individual stock level. Thus, it is important to empirically examine these areas of related research in order to better understand the ways noise traders affect market valuations in stock markets. Such analysis also contributes to the ongoing debate on whether behavioral finance matters and provides further direct evidence on whether errors made by individuals and institutions can affect stock prices.

## References

Baker, Malcolm, and Jeffrey Wurgler. 2004, ' Investor Sentiment and the Cross-Section of Stock Returns', NBER Working Paper #10449.

Baker, Malcolm, and Jeremy Stein. 2004, ' Market Liquidity as a Sentiment Indicator', *Journal of Financial Markets* 7, 271-299.

Barberis, Nicholas, Andrei Shleifer, and Robert Vishny. 1998, ' A Model of Investor Sentiment', *Journal of Financial Economics* 49, 307-343.

Baur, M., S. Quintero and E. Stevens. 1996, ' The 1986-88 stock market: Investor sentiment or fundamentals?' *Managerial and Decision Economics* .

Black, Fisher. 1986, Noise, *Journal of Finance* 41, 529-543.

Brown, Gregory W., and Michael T. Cliff. 2004, ' Investor Sentiment and the Near-Term Stock Market', *Journal of Empirical Finance* 11, 1-27.

Brown, Gregory W., and Michael T. Cliff. 2005, Investor Sentiment and Asset Valuation, *Journal of Business* 78

Chan, N., Kan, R., & Miller, M. 1993, ' Are the discounts on closed-end funds a sentiment index?' *Journal of Finance*, 48, 795-800.

Clarke, R. G., & Statman, M. 1998, ' Bullish or bearish?' *Financial Analysts Journal* , May/June, 63-72.

DeBondt, W. 1993,' Betting on trends: Intuitive forecasts of financial risk and return'. *International Journal of Forecasting* , 9, 355-371.

De Long, J. Bradford, Andrei Shleifer, Lawrence H. Summers and Robert J. Waldmann, 1990, ' Noise Trader Risk in Financial Markets', *Journal of Political Economy* 98, 4, 703-38.

Elton, Edwin J., Martin J. Gruber, and Jeffrey A. Busse. 1998, ' Do Investors Care about Sentiment?', *Journal of Business* 71, 477-500.

Gemmill, Gordon, and Dylan C. Thomas. 2002, ' Noise Trading, Costly Arbitrage, and Asset Prices: Evidence from Closed-End Funds,' *Journal of Finance* 57, 2571-2594.

Lee, Charles M. C., Andrei Shleifer, and Richard H. Thaler. 1991, ' Investor Sentiment and the Closed-End Fund Puzzle', *Journal of Finance* 46, 75-109.

Lee, W. Y., Jiang, C. X., & Indro, D. C. 2002, ' Stock market volatility, excess returns, and the role of investor sentiments'. *Journal of Banking & Finance* , 26, 2277-2299.



Neal, Robert, and Simon M. Wheatley. 1998, ' Do Measures of Investor Sentiment Predict Returns?', *Journal of Financial and Quantitative Analysis* 33, 523-547.

Sias, Richard W., Laura T. Starks, and Seha M. Tinic. 2001, *Journal of Financial Research* 24, 311-329.

Shleifer, Andrei and Robert W. Vishny. 1997, ' The Limits of Arbitrage', *Journal of Finance* 52, 35-55.

Siegel, J. 1992, ' The Equity Premium: Stock and Bond Returns Since 1802.' *Financial Analysts Journal*

Smidt, Seymour. 1968, ' A New Look at the Random Walk Hypothesis', *Journal of Financial and Quantitative Analysis* 3, 235-261.

Solt, M. E., & Statman, M. 1988, ' How useful is the sentiment Index? ' *Financial Analysts Journal* , September/October (45-55).

Swaminathan, B. 1996, ' Time-varying expected small firm returns and closed-end fund discounts' . *Review of Financial Studies* , 9, 845-887.

Zweig, Martin E. 1973, ' An Investor Expectations Stock Price Predictive Model Using Closed-End Fund Premiums', *Journal of Finance* 28, 67-78.