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Investors Sentiment and Stock Return; Evidence from Pakistan Stock Exchange (PSX)

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Abstract: The attitude of investors prevailing as to expected price development in a market is known as investors' sentiment. A strong correlation exists between individual investor sentiment and their attitudes, so investor behavior can influence the stock market and cause the reason for to fluctuate the stock prices. The purpose of the study was to examine market actions of investor sentiment and provide market-based evidence regarding the growth of the stock market and the individual investor beliefs. Variables used as proxies were Consumer Confidence Index (CCI) and trading volume. This study was conducted on Pakistan Stock Market for 2 years. Monthly return and trading volume data of KSE-100 stocks were used in the study for the period from November 2017 to November 2019. De-listed, suspended and default counter stocks were excluded. An ordinary linear regression was run to find investor sentiment effects on returns and trading volume. The results proved positive relation between changes in CCI, trading volume, and stock returns.

Keywords: Investors sentiment, Stock return, Pakistan Stock Exchange (PSX)

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INTRODUCTION

The decisions of investors are mainly affected by their beliefs and expectations. Investor sentiment brings about investor confidence or lack of confidence, therefore, plays the role of proxy for an aggregate attitude of investors and affects the market performance (Sehgal, Sood, & Rajput, 2009). It is a hot subject in the area of behavioral finance. More studies are emerging theoretically as well as experimentally to judge and find the effects of investors' expectations on the financial market. The investor sentiment may have various internal and external drivers. Modern research investigates those drivers of investor sentiment, trading activities, and their implications for market performance. Even so, the majority of the evidence remains controversial, especially debate about drivers of investor sentiment and its impact on asset prices is continuing (Dominguez, 2008). In the capital market, prevailing sentiments of investors have critical importance because it has a driving role in the direction of the capital market and economy. Investor Sentiments influences the business cycle and financial fluctuation as it reflects the expectation, beliefs, and mindset of the investors toward the financial market. Investors' sentiment reflects the confidence or lack of confidence toward the economy, largely based on available information. Although investor sentiments have economic importance there is no mutually accepted definition. Fisher and Statman (2000) and Wurgler (2006) have also acknowledged that beliefs and expectations may act as the key factor in the stock market to discover the pricing role of action. However, behavioral finance states that irrational investors' sentiments of optimism and pessimism about risk factors and future cash flow persist for a significant time and as result fluctuates stock prices. Uygur and Tas (2012) claim that asset price valuation is also based on rumors and expectations of irrational or noisy traders and considers a deviation from fundamental value as well. Investor sentiments are also associated with beliefs and emotions, so investors' optimism and pessimism are recognized as investors' fear or risk aversion. Investor sentiments in terms of expectations and beliefs may define as "the representation of market players' beliefs about future cash flow represents the fundamental value of the stock". Investor sentiments

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comprise not only fundamentals but also includes irrelevant noisy signals (Gul, Ali, & Saeed, 2021). Like other researchers, Brown and Cliff (2005) also state in their study that the investor sentiment could make a continuing effect so demand impacts produced by irrational traders, could be correlated developing into strong and continuous mispricing over time. Baker and Wurgler (2006) derived a similar finding that sentiments represent investors' expectations and beliefs regarding future cash flow and risks, not justified fundamentally.

The arbitrage limitation prevents rational traders, from eliminating the influences in stock price made by an irrational investor through overly optimism or pessimism since it is unclear how much time require for the elimination of buying and selling pressure (Shliefer & Vishny, 1997; Farid et al., 2021).

This study investigates the sentiments impacting stock values and prices on the Pakistan stock market. The study, examined the current relation between alteration of investor sentiment, return of the stock market, and changes in liquidity during the specific period of optimism and pessimism.

Research Objectives

The main objectives of the study are:

i. To determine how investor sentiment affects stock return, and

ii. To determine the effect of investor sentiment on trading volume in the Pakistan stock exchange.

LITERATURE REVIEW

Investor sentiments have no universally agreed definition. In the literature on behavior finance, there is a variety of definitions due to relatively psychological concepts. Investor sentiment's term is classified broadly in different scopes and different academic researchers and financial analysts used it in very different contexts.

Moreover, some researchers and authors described that investor sentiment reacts more towards noisy signals rather than information. While some researchers used the sentiment term the meaning of investors' optimism or pessimism. More definitions would explain and show that emotions have a strong connection with sentiment; it's called the aversion to investor's risk, (Brad & Terrance, 2013; Khan et al., 2021). All the above perceptions have no dependability and may consider easily some important words: psychology, risk averting, and future return. In another context, some studies presumed that the expectations of participants in the market don't follow the required or suitable information for the future returns on their investment (Naoui & Khalid, 2010; Ullah et al., 2021). As stated earlier, beliefs may coincide with specious feelings that investors think about in comparison to outcomes acquired by evaluating fundamental values. This attitude is described as the sum of returns anticipations in the future, considering the risk aspects. Resultantly, there is developed alternatives for which specious thinking happen in which investor may use naturally baseless information. In other words, baseless noisy signals trigger the irrational investors to develop their beliefs and expectations, without considering fundamental values and thus deviate from the principles of financial theory (Suman & Warne 2012). Similarly Liu (2015) states that when investor expectations increase, means investors' stance is the bullish stock market which may result in irrational noisy trading (DeLong, Shleifer, Summers, & Waldman, 1990; Khan et al., 2022; Renault, 2017). As a result, one can describe the sentiment as predication of determining factors in future returns; which denies basic conception and belief by a mixture of behavioral biases.

While according to the classical financial theory which efficiently evaluates the market and describes that all investors have sound information relating market. Thus security price is a reflection of all appropriate information existing in the market, so the investor sentiment may not affect the securities prices easily. However, with the advancement of the financial market, numerous 'anomalies' remain unexplained. Many researchers started to hesitate about market efficiency theory, which caused the emergence of behavioral finance. It disapproves of the hypothesis which believes in having sound reasons and assumes that own sentiments affect investors, at a time of decision making.

As result, beliefs and expectations themselves can be an organized risk component and can affect stock returns. A large body of literature has given practical evidence, indicating investor belief and securities price relation. Research studies that concentrated on the time series anticipate that current sentiments will call for low stock returns in near future. Fisher and Statman (2003) also analyzed that CCI is a reliable proxy in the prediction of returns and individual traders' sentiment. They find the result that high consumer confidence is in general followed by low future S&P 500, NASDAQ, and returns in low-price stocks. Similarly, Charoenrook (2005) in his study

uses the University of Michigan Consumer Sentiment Index and observes its helpfulness in finding informative ability for calculating returns. He comes to know that alterations in consumer belief are positively connected to the contemporary extra returns while negative relation to extra future returns at one-month and one-year horizons. A similar result is found by Bathia and Bredin (2013), which state that sentiment has an inverse relation with future returns.

Similarly, Kumar and Lee (2003) also get a result that is similar to former studies that when investor sentiment is high(low), future returns are low(high). Brown and Cliff (2004), using many proxies, observed that the sentiment changes and sentiment levels have a positive and strong correlation with the contemporaneous return of the stock market. Later he also observes that return itself is a better indicator in the short run for the prediction of the individual as well institutional investor. Canbaş and Kandir (2009) examine that past stock return predicts the future sentiment level for Turkish stock market investors.

Having no specific indicators constructed to study the sentiment, most experimental tests use the CCI as a proxy. Schmeling (2009) explains the contrary role of sentiments for future return in the stock market across countries and proves that whenever there exists excessive sentiment, there are to be low returns expectations shortly while the time of low sentiment tends to have resulted in high returns. For instance, Opera and Brad (2014) established the direct relation between alteration in consumer confidence and securities returns, showing that stock prices are influenced by changes in the emotions of individual investors. However, the power of individual investor emotions appears to be balanced speedily by arbitrage power (Ain, Kaur, & Waheed, 2016; Nadeem, Saeed, & Gul, 2020). The price adjustment takes place in less than a month. Furthermore, investor sentiment does not affect significantly the value of most liquid companies. According to Dergiades (2012), there is no similarity in the results of the different studies considering the relation between investor feelings and returns. So according to the objective of observations, it can be significant to know the investor emotions in several ways relying on different traders' categories. All investors do not belong to the same category or type and exist three kinds of investors which are small individual investors, the medium writers of investment newsletters, and the large Wall Street strategists (Burki, Khan, & Saeed, 2020; Fischer & Statman, 2000). Their study shows that irrelevant relation exists between individual beliefs and the Wall Street strategist. Some studies show the interdependence of equity price changes and consumer sentiment (Khan, Kaewsaeng-on, & Saeed, 2019; Otoo, 1999). In a period of high sentiment, equity returns will fall subsequently which shows equity tends to be overvalued during a period of optimism. While equity become undervalued during a period of pessimism and come back to fundamentally justified value (Chen et al., 2013).

Different from early studies by Brown and Clif (2004), which state that extreme confidence is accompanied by low returns in the long run cumulatively (Brown & Cliff, 2005) which point out overvaluation in the market during excessive optimism. Through principal component analysis method study carried out by (Baker & Wurgler, 2006; Khan et al., 2022), found the difference in reaction of stocks towards investor sentiment and come to know that investor sentiment affects arbitration hard stocks more than other stocks.

Behavioral finance is a research field that applies psychological concepts to finance models to address anomalies (Shiler, 2003; Ali, Ahmad, & Saeed, 2018). Prospect theory is supported by the expected utility theory with the probability replaced by weights (Kahnman & Tvrsky, 1979). Another theory known as the disposition effect shows investors' or traders' intention for holding assets for a long time in case when assets have lost value (loser) and sell the asset too early in case price or value has gained (Shefrin & Statman, 1985; Zada et al., 2022). Overconfidence theory relates to the ability of traders or investors in which they become more confident by overestimating their qualities, abilities, and knowledge, not reflecting the objective accuracy of the decision (Fischoff, Slovic, & Lichtenstin, 1977, Michalova, Maciulis, & Tvaronavicene, 2017). Hence, behavior finance investigates investors' mode of action to find the main causes which result to change in the market trend. Since ethics and emotions affect the performance of the financial market (Coumo, 2018; Sanni et al., 2013; Zia, Saeed, & Khan, 2018) and behavioral functions are used to examine financial markets (Khan, Sharong, & Ullah, 2017). Behavioral finance studies decision-making aspects keeping in mind the psychological prospects of investors and believe that investors' sentiment or state of mind can influence their investment decision (BlajerGolebiwska, Wach, & Kos,2018; Lucy & Dowling, 2005; Khan et al., 2022).

Supporters using proxies argue that specific financial data provide a reliable basis to judge investor sentiment which is an indirect way in sentiment determination as compared to a direct method like an investor's survey. Most of the market-based proxies are derived from empirical puzzles like closed-end fund discounts and Initial

Public Offering under pricing. There is no single clear indicator for sentiment approximation, each flawed proxy is probably comprised of sentiment factors, as well as idiosyncratic, non-sentiment-related factors (Baker & Wurgler, 2006; Ling, 2010; Saeed et al., 2022).

The above evidence unveils three particular relationships which exist between the sentiments of traders or investors and the return of the market. First of all, direct positive relation between variation in sentiments and market returns indicates that the price of securities becomes overvalued when the market is in a bullish trend. Similarly, prices come down in a negative market, particularly when inordinate optimism or depression of investors is fundamentally unjustified and it's difficult to arbitrage. Secondly, current investor sentiment and the future stock return have a negative relationship which illustrates the comeback of stock prices at their fundamentally justified rates as the result of continuous corrections. Finally, the relation between sentiments and returns is not distinct as some researcher thinks that sentiments of investor cause stock return according to the noise trade approach while some studies claim that return itself is the main cause of investor sentiment (Browen & Cliff, 2004; Wang, Kswani, & Taylor, 2006; Canbaşs & Kandir, 2009; Saeed et al., 2022). According to Baker and Wurgler (2006), those securities prices are more probable to be affected by modification in investor sentiments whose valuations are highly affected by emotions, expectations, and hard to arbitrage. Lee, Shleifer, and Thaler (1991) state that individual investors mostly owned small stocks and traded mainly on noise and rumors as opposed to institutional investors. When the sentiments of noise traders changes, the price of a small stock affects more than the price of the high-worth stock. Kumar and Lee (2006) observe that individual investors buy or sell stocks in concert and that trades are systematically correlated. Frazzini and Lamont (2005) carried study using fund flow, as a proxy for the individual sentiment. They came to know that substantial inflow into funds that hold a particular stock, that stock performances become relatively weak consecutively.

Many researchers recommend trading volume or liquidity as a proxy, which may be used in sentiment approximation of investors. The trading volume shows the turnover of shares (the number of shares traded, divided by the number of outstanding shares. Shares turnover removes the high relation between trading volume and firm size (Fatima, Majeed, & Saeed, 2017; Watkins, 2002). Trading volume was also used by Hou (2009) and cited evidence that active trading includes investors' attention in which they fundamentally analyze their stocks or portfolios. When an investor's attention is less on a stock, trading in that stock less; when investors' attention increase to a particular stock, overconfidence or low confidence can bring about different thoughts among investors about that stock and can lead to more trading in the shares (Khan et al., 2022, Odeon, 1998; Schinkman & Xiong, 2003). Baker and Wurgler (2004) show that shares turnover (market liquidity) may help as a proxy for investor sentiment because in a market with short-sale constraints, irrational noisy traders take part in trading only when they are confident. Hence liquidity will probably increase when investor confidence is high. High liquidity can be considered as a clear indicator of overvaluation that shows a violation of the fundamental value of stock due to sentiments. It must be noted that trading volume is linked with liquidity and essentially describes the ease of trade. Ultimately liquidity (shares turnover), increases during periods of investor overconfidence. It shows that high liquidity results in the overvaluation of the stock prices. The fundamental value of the stock becomes irrelevant during the overconfidence of investors. The volume shows the increased liquidity in the market, but it helps as well to measure important inside news and investor attention (Watkins 2002; Zada et al., 2022).

Baker and Wurgler (2006) developed a sentiment index in which six common proxies are taken into consideration i.e., trading volumes based on New York Exchange turnover, the dividend premium, the closed-end fund discount, the number, and first-day returns on IPOs, and the equity shares in new issues. The sentiment index formulated by Baker and Wurgler (2006), is used as a principal component analysis for investigating investor sentiment. Each proxy was regressed based on macroeconomic variables (industrial production, real growth in durable, non-durable, and services consumption, employment growth, and National Bureau of Economic Research recession indicator) to avoid fundamental effects on the economy. Then the principal component analysis is used to extract the typical aspects into an averaged index. Baker (2009) makes use of this method to formulate local and global sentiment indices across the six leading international stock markets. Similarly, Ling (2010) also used this model to make an indirect measure of sentiments for the general stock market. They used principal component analysis to make a quarterly sentiment index, derived from the common variation in six fundamental proxies of investor sentiment in the stock market.

The Closed-End Fund Discount, share turnover, the number of Initial Public Offerings, the average first-day returns on Initial Public Offerings, the share of equity issues in total equity and debt issues, and the dividend premium.

Baker and Wurgler (2000) investigate that whenever the value of shares reached a high level, the expectation of market return will become low in the future. The study also confirmed that overvaluation in stock is due to aggressive investor sentiment. Hence, managers who try to cash benefits, mostly prefer a time when the market is having high sentiment and acquire capital through equity issuance rather than debt instruments and vice versa.

Research is based on two hypotheses according to the literature developed:

Hypothesis

H1: Investor sentiment has a direct effect on stock return.

H2: Investor sentiment has a direct effect on trading volume.

METHODOLOGY

To test our hypothesis, required data was collected for the period November 2017 to November 2019. For sentiment measurement, the proxies that took into consideration were the (CCI) and KSE-100 index Monthly trading volume. CCI data was taken from the State Bank of Pakistan (SBP) website while data for the Kse-100 index volume was taken from multiple websites of the Pakistan Stock Exchange and different brokerage houses. CCI data used in the study, was for November 2017 to November 2019 because the methodology used for the computation of CCI, was changed in November 2017 by the State Bank of Pakistan.

The data related to the stock return and index trading volume was taken from the PSX and different brokerage houses' websites. The stock data were taken from the listed non-financial sectors while listed financial sectors were excluded. In the non-financial sectors, those companies were also excluded that were either on the suspended counter, suspended, or de-listed. Only those stocks were included in the study in which a complete set of data for the period could be ascertained. Data for share prices and index trading volume were also from November 2017 to November 2019 because the CCI data used was according to the new methodology.

To find a second proxy of the monthly trading volume of the index, the KSE-100 index trading volume was taken into consideration. KSE-100 index is a stock index acting as a benchmark to compare prices on the PSX over a period and determine representative companies with the highest market capitalization. About 80% of market capitalization is consisting of KSE-100 index companies.

As data for CCI usually appears at the end of every second month because the CCI survey is being conducted by the State Bank of Pakistan with the frequency of every two months. CCI data was taken same for the every two months. For reliable and comparable data, I took monthly average closing prices for the stocks and the monthly total volume of the KSE-100 index at the end of each month.

RESULTS AND DISCUSSION

Discussion of Findings and Results

The important purpose of the research is to find whether the prices of stocks listed on the Pakistan Stock Exchange are affected by individual investor sentiment, considering consumer confidence as a proxy. While second hypothesis (H2) is to find the effects of the investor sentiment on market liquidity, using trading volume as another proxy.

Table 1: Descriptive Statistics of Stock Return and Consumer Confidence

	Mean	Std. Deviation	*N*
Stock Return(Monthly)	-.0159553	.12232982	5100
Consumer Confidence Index	47.4400	4.14893	5100
Firm Capitalization	30256456832.5579	91985927566.02050	5100

Table 1 represents the descriptive statistics for the data where investor sentiment was measured using CCI, firm size was taken as a control variable and stock returns were taken as a dependent variable. The table shows that the mean value for stock return is 0.15 while for consumer confidence index is 47.44.

It further shows that the total number of observations for the study is 5100.

The table also shows the standard deviation of the data which is for stock return equal to 0.12232982, while for consumer confidence index 4.14893.

Table 2: Model Summary of Stock Return and Consumer Confidence

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	*F* Change	df1	df2	Sig. *F* Change
1	.161a	.026	.025	.12076233	.026	67.614	2	5097	.000

a. Predictors: (Constant), Firm Capitalization, Consumer Confidence Index

Table 2 consists of a model summary for the data on which the regression was estimated. In this the Adjusted *R* square, value is .026, meaning that 26 percent of the variation in the dependent variable is explained by the explanatory variables. Because only two explanatory variables were used this is a considerable number. For the same *R* square, the *F* statistics value is 67.614 for which the sig value is .000 showing that the model fit is significant.

Table 3: Coefficients of Stock Return and Consumer Confidence

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
		B	Std. Error	Beta		
1	(Constant)	.029	.019		1.497	.134
	Consumer Confidence Index	-.001	.000	-.037	-2.655	.008
	Firm Capitalization	2.089E-013	.000	.157	11.362	.000

a. Dependent Variable: Stock Return (Monthly)

Table 3 shows the results of our hypothesis testing. We hypothesized that investor sentiment affects stock returns. It was measured by CCI while firm capitalization was taken as a control variable. The beta for the consumer confidence index is -.037 while for firm capitalization Beta is .157. This shows an inverse relationship between the CCI and Stock returns and a direct relationship between the firm capitalization and stock returns. *t* value for the consumer confidence index is -2.655 while for firm capitalization *t* value is 11.362. Both coefficients are significant at a 95% confidence interval.

Table 4: Descriptive Statistics of Stock Return and Total Volume

	Mean	Std. Deviation	*N*
Stock Return (Monthly)	-.0159553	.12232982	5100
Total Volume	2113305214.7200	560010628.58594	5100
Firm Capitalization	30256456832.5579	91985927566.02050	5100

Table 4 represents the descriptive statistics for the data where investor sentiment was measured using total trading volume, firm size was taken as a control variable and stock returns were taken as a dependent variable.

The table shows that the mean value for stock return is 0.15 while for total volume is 2113305214.7200. It further shows that the total number of observations for the study is 5100.

The table also shows the standard deviation of the data which is for stock return equal to 0.12232982, while for total volume is 560010628.58594.

Table 5: Model Summary for Stock Return and Total Volume

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	*F* Change	df1	df2	Sig. *F* Change
1	.161a	.026	.026	.12075836	.026	67.787	2	5097	.000

a. Predictors: (Constant), Firm Capitalization, Total Volume

Table 5 consists of a model summary for the data on which the regression was estimated. In this the Adjusted *R* square, value is .026, meaning that 26 percent of the variation in the dependent variable is explained by the explanatory variables. Because only two explanatory variables were used this is a considerable number. For the same *R* square, the *F* statistics value is 67.787 for which the sig value is .000 showing that the model fit is significant.

Table 6: Source of Questionnaire

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.005	.007		-.742	.458
	Total Volume	-8.206E-012	.000	-.038	-2.717	.007
	Firm Capitalization	2.083E-013	.000	.157	11.328	.000

a. Dependent Variable: Stock Return (Monthly)

Table 6 shows the results of our hypothesis testing, we hypothesized that investor sentiment affects the total trading volume. Investor sentiment was measured by total volume while fir capitalization was taken as a control variable. Beta for consumer total volume is -.038 while for firm capitalization Beta is .157. This shows an inverse relationship between the total volume and Stock returns and a direct relationship between the firm capitalization and total volume.

t value for the total volume is -2.717 while for firm capitalization *t* value is 11.328. Both coefficients are significant at a 95% confidence interval.

DISCUSSION

The important purpose of the research is to find whether the prices of stocks listed on the Pakistan Stock Exchange are affected by individual investor sentiment, considering consumer confidence as a proxy. While second hypothesis (H2) is to find the effects of the investor sentiment on market liquidity, using trading volume as another proxy. We hypothesized that investor sentiment affects stock returns. It was measured by CCI while firm capitalization was taken as a control variable. The beta for the consumer confidence index is -.037 while for firm capitalization Beta is .157. This shows an inverse relationship between the CCI and Stock returns and a direct relationship between the firm capitalization and stock returns.

CONCLUSION

The important purpose of the study was to give evidence about the relation between stock prices, turnover ratio (trading volume), and investor sentiment. For the Pakistan market, no particular proxy is existing to measure the sentiments. In this study, I used the consumer confidence index and market volume as a proxy.

The result demonstrated that both the stock prices and market volume seems to be affected by investor sentiment. When investor sentiment increase, trading volume will also increase, and ultimately share will show upward movement. The investor will invest more and will tend to find the new price for the shares. The investor will try to gain more return and as a result trading volume will increase with time.

LIMITATIONS

The limitation of our study is that I used two proxies for the measure of sentiments. Different studies used various sentiment measures to obtain the required outcome. Further research should be done to give evidence, using some others variables as a proxy to find the ability of investor beliefs. Also, the effect of investor sentiment should be analyzed simultaneously with the power of fundamental factors like macroeconomic variables.

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