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INVESTOR SENTIMENT EFFECT ON STOCK RETURNS IN SAUDI ARABIA STOCK MARKET

Sarah K. Hadi[1], *Shabbir Ahmed*[2]

[1,2]Effat College of Business,Effat University Qasr Khuzam Jeddah Saudi Arabia

E.mail; [1]skhadi@effatuniversity.edu.sa , [2]dr_shabbir_ahmad@yahoo.com

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ABSTRACT

Financial knowledge has been noticeably established over the last decades, and many investigators have understood that stock price fluctuations are not only rational, but are largely related to investor sentiment. This work was done to study the effect of investor sentiment on stock returns in Saudi Arabia market. For this work, the data were used is the Saudi stock market return for the study period of 2016-2018 for 20 different companies registered in the stock market. This study has only used one sentiment indicator (Consumer Confidence Index - CCI) in measuring the effect of investor sentiment on stock returns. The findings of this study have shown that investor sentiments have a significant effect on stock market returns in Saudi Arabia. Furthermore, the results have also shown that Industrial Production Index (IPI) has an insignificant positive effect while Treasury Bill Rate (TBR) and Consumer Price Index (CPI) have a positive relationship with stock market returns. The results show that sentiment is an important variable in stock prices on the Saudi market. This effect is linked to the characteristics of the stock, in particular those that are careful to make the stock more disposed to the influence of the investor's sentiment.

CCS Concepts

• Information systems→Database management system engines • Computing methodologies →Massively parallel and high-performance simulations**.**

INTRODUCTION

The sentiment of investors is considered to be one of the key factors in financial investment [1]. The term sentiment is related to attitudes, assumptions or sentiment-driven judgment made by the investor during the

investment process [2]. Investor sentiment is also defined as the general feeling, mood, belief or expectations of market performance. In general, this sentiment is related to the mental comparisons made by investors in their investment [2]. Investors can rely on both perceptive factors and experience in taking investment decisions. Therefore, sentiment is considered to be investment decisions about asset prices that are not linked to economic prices.

Earlier researchers saw sentiment as a bias of investors in asset value, a clash in financial markets and an investor outlook factor in non-defensible asset returns [3]. In addition, Mathur and Rastogi define the sentiment of investors as the prospect of investors regarding the price of one or more financial assets that are not based on fundamental information [4]. Emotional effects can be examined by combining two meanings, one entrance and the other exit [4]. The concept means that investor sentiment is made up of market-level components with the opportunity to induce the prices of many of the financial statements at the same time with the same trend [4].

Investor sentiment is declining at some point in the recession, especially as the economic downturn is followed by a monetary disaster [5]. This is due, at least in part, to a higher prevalence of hideous information for the duration of such financial intervals [6]. Chan-Lau et al. [7] stated that the market response to sentiment in information stories is concentrated in a recession. Shen et al. [8] stated that buyers should be much less likely to avoid over-feeling throughout the duration, in the sense that prices respond less to destructive volatility shocks. In addition, it also points out that changes in sentiment have an additional impact on global stock returns throughout the financial disaster [8]. In addition, Lee and Kim [9] stated that investor sentiment and stock return relationship is not consistent with standard financial theory. Typical or standard finance theories are based on the assumption of a rational investor. The behavioral method indicates that investors are not rational, but normal [9]. This fact gives rise to regular predispositions in their thoughts inducing them to trade in non-fundamental statistics called sentiment [9].

Several studies have been carried out to analyze the relationship between inventory returns and market sentiment. Ni et al. [10] analyzed the investors sentiment and its influence on stock return in Chinese stock market. The results of their study showed that investor sentiment would contribute significantly to inventory overvaluation on the Chinese stock market. Ding et al. [11] examined the influence of oil price variation on stock investors sentiments and found that oil price variations are a major cause of consumer sentiment on the stock market. Ryu et al. [12] analyzed the influence of investor sentiment and trading behavior on assest return. The results of their study showed that investor sentiment has a significant role in describing investment returns rather than shareholder buying behavior. Yang et al. [13] analyzed the importance of firm characteristics in terms of investors sentiments and found that there is a positive association between company features, investor sentiment and inventory return.

In general, investor sentiment is detrimental to the pricing of assets that generates the wrong value of financial assets due to the use of a physiological

state rather than a logical decision based on the essential information available. Irrespective of the debate between traditional financial providers and behavioral financiers, capital market effectiveness requires a deeper understanding of investment operations and customer behavior in trading. Based on the author's best knowledge, there has been minimal work done to provide supportive evidence that investor sentiment play a significant role in determining share prices and increasing capital market volatility, especially in Saudi Arabia. Thus, this work was done to analyze if there is relation between investors sentiment and stock returns in the Saudi stock market.

METHODOLOGY

The study was restricted to the use of only one sentiment indicator (Consumer Confidence Index - CCI) in measuring the effect of investor sentiment on stock returns. This study has covered the period 2016-2019 since the number of listed firms has increased from 79 firms in 2003 to 172 firms at the end of 2015. The data were used in this study is the Saudi stock market return for the study period of 2016-2018 for 20 different companies registered in the stock market. The data were attained from Tadawul website of Saudi Arabia. This study has used Stock market return (Rm) as the dependent variable of the study. The data consisted of closing yearly prices of all firms listed on the Saudi Stock Exchange (SSE) for the period 01/01/2016 to 31/12/2018. The closing prices of the SSE.All Share Index (TASI) are specifically chosen as it is likely to be representative of the entire Saudi securities market. The quarterly data of (TASI) into continuously computed returns as per equation 1

R_{mt}= Ln (P_t – P_{t-1}) / P_{t-1} (1)

where: R_{mt} represents the quarterly market return for period t, P_t and P_{t-1} demonstrate market prices for period t and period t-1 respectively and Ln demonstrates natural logarithm.

This study has employed the Consumer Confidence Index (CCI) to measure investor sentiment. The change CCI is measured based on equation 2.

$\Delta CCLt = (CCL_{-1t} - CCL_{-1t-1}) / (CCL-_{1t-1})$

where ΔCCI is the alternate of patron self-belief index in region

The hypothesis tested in this study are:

Ho1: The relationship between sentiment and expected returns is significantly positive, even after controlling for fundamental factors.

Ho2: There is no relation or connection between investor sentiment and future stock market returns.

The OLS regression technique was used to estimate the model for hypothesis one while Granger causality techniques addressed hypothesis two of the study.

RESULT AND DISCUSSION

Table 1 shows the descriptive statistics. Based on Table 1, the result of descriptive statistics showed that the mean for market return (RM) indicates that (0.0328) in log form is the average return of quoted firms in Saudi Arabia between 2016 and 2018. The mean of change in consumer confidence index is (-0.0015) which proposes that sentiment in Saudi Arabia is on the negative side. However, the mean for the variables including IPI (Industrial Production Index) and TBR (Treasury Bill Rate) are higher than the respective standard deviations, while for Rm, ΔCCL and CPI (Consumer Price Index). This proposes possible stability in the distribution of the variables. The Jarque-Bera test was held to test for the normality of the variables. Since the (P.value) of Jarque-Bera statistics is larger than 0.05, all the variables (RM, ΔCCI, IPI, TBR and CPI) of the study cannot reject the null hypothesis. Thus, it results that all the variables RM, ΔCCI, IPI, TBR and CPI are normally distributed.

Table 1.Descriptive statistics

	N	Min	Max	Mean	SD	Variance	Skewness	Kurtosis	Jarque - Bera	Probability
Rm	12	-0.07	0.18	0.0328	0.07795	0.006	0.592	-0.558	0.856	0.652
ΔCCL	11	-0.11	0.06	-0.0015	0.04836	0.002	-1.029	1.734	3.319	0.190
IPI	12	-0.40	4.30	1.8167	1.63975	2.689	-0.043	-1.114	0.624	0.732
TBR	12	2.00	3.00	2.2083	0.35086	0.123	1.535	1.178	5.404	0.067
CPI	12	-0.40	0.80	0.2417	0.43371	0.188	-0.380	-1.543	1.480	0.477

The Variance Inflation Factor (VIF) has been assumed to test for the presence of multicollinearity in the models. Table 2 shows the results of the Variance Inflation Factor (VIF) statistics. Based on Table 2, the results for all the variables are below 10. This specifies that the presence of the independent variables as employed in the model does not bring about multicollinearity in the model. Thus, the study concludes that the model is reliable for examining the effect of sentiment on returns in Saudi Arabia.

Table 2. Variance Inflation Factors for Test of Multicollinearity

Variable	VIF	Remarks
DCCI	1.879	No multicollinearity
IPI	1.279	No multicollinearity
TBR	1.426	No multicollinearity
CPI	1.807	No multicollinearity

The result in Table 3 is used to discourse objective one of the studies. The hypothesis tested is that: The relationship between sentiment and expected returns is significantly negative, even after controlling for fundamental factors. Two models are used to address this objective. The first model (1) regressed sentiment (CCI) on stock returns (Rm). While the second model (2) combined three economic variables: IPI (industrial production growth) as an indicator of economic activities,CPI as an indicator of inflationary trend and TBR as a measure of risk-free interest rate.

The result of Model 1 showed that a unit change in investor sentiment (ΔCCI) has positive effect on stock returns in Saudi Arabia (coefficient = 0.0043, t-statistics = 0.354, P.value = 0.285). The result indicates that the higher the level of sentiment, the higher the expected returns from asset trading. Therefore, the positive sentiment leads to positive returns while negative sentiment leads to a negative return. Thus, the results showed that sentiment has a significant effect on stock market returns in Saudi Arabia.

The second model (2) incorporated control variables of fundamental factors. The results also showed that unit change in investor sentiment (ΔCCI) has positive effect on stock returns in Saudi Arabia (coefficient = 0.210, t-statistics = 0.280, P.value = 0.789). This proposes that sentiment has a significant effect even when fundamental variables are used as a factor. The results showed that Industrial Production Index (IPI = 0.015) has an insignificant positive effect while Treasury bill rate as a proxy for risk-free interest rate (TBR = -0.050, significant) and consumer price index as a proxy for inflation (CPI = 0.014, significant) have a positive relationship with stock market returns.

The coefficient of determination (R-Squared) indicated that in (model 1) ΔCCI explain 12.8% while in model 2, it shows 22.6%. The F-statistics indicated that the explanatory power remains statistically significant at both Model 1 and Model 2. However, the value of R-Squared in each case is not large enough, as it could not control at least half of the factors that explain stock returns in Saudi Arabia. Thus, it can be said that sentiment is not the major factor that determines stock market returns in Saudi Arabia.

Table 3. Model estimation of the effect of sentiment on returns

Variable	Model 1		Model 2	
	Coefficient	T-Test (P Value)	Coefficient	T-Test (P Value)
ΔCCI	0.0043	0.354 (0.285)	0.210	0.280 (0.789)
IPI			0.015	0.765 (0.473)

TBR			-0.050	-0.577 (0.591)
CPI			0.014	0.176 (0.866)
C			0.126	0.533
R-Squared	0.128		0.226	
F-Test	1.293 (0.285)		0.438 (0.778)	
Durbin Watson	2.976		3.263	

Thus overall, the findings of this work have shown that investor sentiments has a significant effect on stock market returns in Saudi Arabia. In addition, the findings have also shown that IPI has an insignificant positive effect while TBR and CPI have a positive relationship with stock market returns. The outcome of this work is inline with the work of He et al. [14] where it was confirmed that in general, stock market return is significantly effected by investors sentiments. Furthermore, the findings of this work have shown that investor sentiment is not the only major factor that determines stock market returns in Saudi Arabia. It might be influenced by other factors as well. This finding is in line with the work of Zhang etal.[15] where it was stated that other than investor sentiments, the other factors that has influence on the stock return is the level of earnings of the stock, growth rate and the perceived risk of the stock.

CONCLUSION

This study has examined the effect of investor sentiment on stock market returns in Saudi Arabia. The vast majority of previous studies on sentiment-return relationship have only examined the case of the developed American and European countries as well as Asian countries. The present study has shown that investor sentiment has a positive effect on the aggregate stock market returns in Saudi Arabia. This implies that asset pricing can be influenced by changes in investor sentiment in Saudi Arabia. Even after the inclusion of market fundamentals such as the industrial production index, inflation and the risk-free interest rate, the influence of sentiment on stock returns is still maintained. The study thus concludes that there is a possible dynamic relationship between investor sentiment and stock-return behavior in Saudi Arabia, so that higher sentiment leads simultaneously to higher stock prices. In the Saudi Arabian stock market, sentiment is a source of market risk that can not be diversified and is therefore priced. However, the study states that sentiment is not a key variable to explain changes in asset prices in the Saudi Arabian stock market. Based on the findings that sentiment is significant in determining stock returns, it is suggested for future studies that some of the behavioral factors of investors should be considered in experimental asset pricing models for developing stock markets.

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Authors' background

Your Name	Title*	Research Field	Personal website
Sarah K.	**Student**	**Finance**	

Hadi			
Shabbir Ahmed	**Assistant professor**	**Economics**	**linkedin.com/in/shabbir-ahmad-b5248412**

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