

# The effect of investor sentiment on the return and risk of financial assets: A comparative analytical study

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## Abstract:

The study deals with the impact of Investor sentiment in two markets in the Middle East, which are the Saudi Stock Exchange (Tadawul) and the Iraqi financial market. The research covered three sectors for each market (banking sector, industry sector, telecommunications sector) using financial variables (trading volume, market value, turnover rate) for the period from 2013-2018 for monthly data. The results showed that investor sentiment has a significant impact on returns and varies in intensity across the markets and according to the available information and the type of investors. As the descriptive analysis of the markets was explained and showed the dominance of the Saudi market, the trends were measured for each sector using the multiple regression equation for the three indicators, and there was a variation in the impact of investor sentiments from one market to another. As the study showed the predominance of negative sentiment in the Iraqi market and positive sentiment in the Saudi financial market. The amount of risk (beta) was shown by using the simple regression equation between sector returns and total market returns, and the results showed that there is a significant risk in the Saudi market (Tadawul). And the lowest risk Iraqi financial market.

**Keywords:** investor sentiment, mathematical models, stock market, return, risk factor (beta).

## INTRODUCTION

Behavioral finance theory four decades ago was not as popular as it is today. Market efficiency, investor rationality, and unlimited arbitrage opportunities are of importance in the components of classical financial theory. Which has been questioned a lot, as researchers and those interested in financial markets found evidence of inefficiency in financial markets, that investors do not enjoy rationality, and that arbitrage opportunities are limited. Therefore, human thought does not depend only on analyzing mathematical models only, but there must be other influences represented by emotion, human behavior, and psychological aspects that push investors to be excited with the different events in the markets, as these events reflected the human feeling or emotion of probabilistic beliefs that may be Correct or incorrect about financial market events, then investors have followed their instincts. Hence, Investor sentiment have no presence in the classical theory, but rather are associated with the behavioral theory of the dependence of behavioral theory on psychology and sociology, and new developments in finance indicate that Investor sentiment are real and have an effect on financial stocks in financial markets, so efforts have intensified in preparing studies. Expanded, which achieved whether there is a relationship effect between Investor sentiment and the returns achieved in investment operations and the ability to understand and explain the behavior of investors towards securities.

Therefore, it is imperative that we know the factors and biases that affect Investor sentiment because they are important tools in evaluating investment performance and how investor

sentiments affect the returns of financial stocks, and identify the psychological and social problems facing investors. Therefore, the emotions, movements and fluctuations in the markets did not come only from a rational environment, but at the same time human behavior and reflected personal Investors and collective reactions.

The main objective of the study is to explain the financial variables that affect the Investors of investors and then measure those trends and analyze them to indicate the expected return and the actual return and derive the amount of risk (beta) in the markets from the achieved returns, as the financial indicators are many and their data varies from one market to another according to the database of those markets And its importance and financial market activity, and among the indicators are the number of initial subscriptions of companies, the returns of the first day of those subscriptions, the trading volume, the turnover rate of shares, the market value, the trading of retail investors, the number of commercial transactions, and others. (Market value and turnover ratio of shares.)

In our study of the Iraqi and Saudi financial markets, securities were expressed in financial assets and bonds and treasury bills were excluded, and trading in real estate and precious metals such as gold, platinum, silver and others.

The study consisted of four chapters. The first chapter dealt with the methodology of the study and addressed the importance, objectives, and problem of the study. The second chapter, which is the theoretical part and consisted of two studies, the first topic dealt with investor sentiment, historical background, analysis of trends, and types of financial

indicators used in measuring sentiment, while the third chapter deals with the practical side of the study, and it was divided into several topics. Sectors in the searched markets. The second topic showed the effect of investors' sentiment on the return and risk by using the multiple regression equation for three variables: (volume (by value), market value, and turnover rate (by volume)), and the fourth and final chapter deals with the conclusions of the study.

## METHODOLOGY

### The study Problem:

As the study problem can be formulated with the following questions:

- Does investor preferences affect the returns of financial assets?
- What is the amount of risk for those sectors that is inferred from the returns in the above financial markets?

### Hypotheses

1. There is no significant impact between investors' sentiment in the variables (trading volume, market value, turnover rate) on the return and risk of financial assets with respect to sectors (banks, industry, telecommunications) in the financial markets (Iraqi & Saudi Arabia).
2. There is no significant correlation between investors' sentiment with the variables (trading volume, market value and turnover) and the return and risk of financial assets for the sectors (banks, industry and telecommunications) in the financial markets (Iraqi & Saudi Arabia).
3. There is no significant impact between the overall market index on the returns of sectors (banks, industry and telecommunications) in the financial markets (Iraqi & Saudi Arabia).

The importance of the study: The importance of the study lies in how investors' sentiment affect the return and risk of financial assets in the sectors (banks, industry and telecommunications), for the following financial markets (Iraq Stock Exchange, Tadawul,). And a comparison between sectors of those markets. The risk factor is derived from the returns and market index.

## LITERATURE REVIEW

In determining the interests of investors, it is imperative to understand the failures of classical or classical finance. Classical finance fails to understand the movements of stocks in the money markets, especially the pricing of financial assets and returns for stocks, and that money markets in general are full of severe changes in stock prices, which we call bubbles or crashes, as conventional financing reflects the present value of expected future cash flows, There are many criticisms directed at the Efficient Marketing Hypotheses (EMH), and the equilibrium models associated with the classical finance model. Rational or Classical Finance is devoid of a role for Investor sentiment, so some academics such as Barbaries at el, 1998 and Black, 1986 and De Long et al, 1990, studying the financial markets and the results of these studies concluded that investment decisions are

influenced by Investor sentiment, which consequently affect the prices of financial assets. On assets, it may be affected by Investors (Black, 1986). (De Long et al, 1990) believes that the individual investors They are not the only ones affected by behavioral biases, as they show high confidence and overconfidence and susceptibility to herding behavior and other biases. Brown and Cliff (2006) defended the Investors that they are not specific to individual investors, but rather extend to investment institutions that result in wrong financial decisions. There is still a gap between investors who behave irrationally and logically ignore their private information and analyzes and follow other investors (Bikchandani et al., 1992). Second, the cost risks of betting against noise traders (Shleifer and Vishny, 1997). As the Investors of hype traders divert prices from their fundamental and fundamental values, and thus fears of risk in arbitrage trading lead to failure to eliminate mispricing, in contrast to standard models that believe that rational arbitrators cannot always force prices to return to the core prices, which is the result. Behind the domination of irrational investors on the markets in some periods, and therefore noise traders in the financial markets continue to influence the prices of securities (De Long et al, 1990).

### Investor sentiment

Investors' Investors can be interpreted as a tendency to speculate, and Investors increase the relative demand for speculative stocks whose valuations are subjective and difficult to determine, and whose current returns are higher than possible. Specifically, (Baker & Wurgler, 2006) believes that small stocks, highly volatile stocks, emerging stocks, troubled stocks, small stocks and unprofitable stocks are the most difficult to price and therefore the most exposed to Investor sentiment. Many academics, researchers and those interested in financial markets have expressed the Investors as optimistic or pessimistic about stocks.

In general, the effect of changes in sentiment will be uniform, but the arbitrage difficulty differs between stocks, and the literature has shown that arbitrage is particularly costly and risky with certain types of stocks (small stocks, small stocks, unprofitable stocks, emerging stocks or distressed stocks). (Corredor at el, 2013) and (Baker & Wurgler, 2006) and the concept of investor sentiment had long struggled until it began to attract the attention of researchers and academics and was considered a challenge to classic finance.

Investor sentiment and arbitrage seem to affect the same type of stocks, in other words, the most speculative stocks are also the most difficult to arbitrage, and therefore these characteristics will be most affected by investor sentiment. (Lemmon and Portniaguina (2006). You find this effect particularly found in stocks that are smaller and have less institutional ownership. "Baker and Wurgler (2006,2007) found that small stocks, highly volatile stocks, unprofitable stocks, overgrowth stocks, and distressed stocks are the most affected by periods of pessimism. They are likely to suffer from price fluctuations, depending on investor preferences.

(Chiou et al. 2010) found that the legal environment affects performance and risk, and for their part, they demonstrate that cultural differences between countries may be an element of behavioral bias. Among uninformed investors or group behavior intensifies the relationship between stock returns and investor sentiment with changes in sentiment.

(Chang et al., 2012) focused on country-specific factors, giving importance to differences in information quality, legal systems or corporate governance. Therefore, these recent works seem to indicate that country-specific factors, such as the level of market integration and certain cultural factors, hold the key to explaining the impact of investor sentiment on future stock returns. Chang also found that the influence of investor sentiment is greater in developed markets than it is in countries with developing markets. (Baker, Wurgler, 2012) analyzed many aspects of (global and local) trends, noting their impact on stock returns. The results of the analysis of financial market data showed the effects on stock markets in different countries. A study (Gutierrez, et al., 2009) has shown. The returns in Asian markets are closely related to the US markets, indicating the effects of investor sentiment and place of trade. The experimental evidence revealed two supplementary lines. The first of the studies examined the effect of investor sentiment on the returns of more sensitive stocks (Baker and Wurgler, 2006, 2007, 2012). The other analyzes the effect of trends on the return on stocks in different countries, with a focus on structural differences across countries as a major source of change in the severity of the impact (Schmeling, 2009, (Chang et al., 2012).

Nofsinger indicated that human decisions in society are affected by a set of cultural beliefs and feelings, and that the general level of optimism or pessimism in society when affected, most of the financial decision-makers' Investors are affected by this when applied to the field of financial markets (Nofsinger, 2005), and the market Investors were revealed through The securities traded there. According to (Kumar and Lee, 2006), investor sentiment is a global phenomenon across financial markets (Hrnjić and Sankaraguruswamy, 2011). Therefore, it is possible to rename what they feel or direct investors to the Investors of investors. The role of Investor sentiment in financial markets has been studied by researchers or academics such as Black, 1986, De Long, 1990 and Barberis, 1998. (Baker & Wurgler (2006) reviewed the sentiment index, and based on field operations of financial markets and market data. Arbitration, such as small stocks, emerging stocks, highly volatile stocks, unprofitable stocks, non-dividend stocks, overgrowth stocks, and distressed stocks.

The study (Huang et al., 2015) confirmed that by using economic indicators to measure sentiments, it predicts returns on the stock market. The rise in investor sentiment today expects a decrease in future market returns. Predictive power is important economically and statistically.

Another major issue is the actual measurement of propensity variables. These differ from one study to another, as researchers rely on many financial indicators, and researchers

and academics have adopted two types of measures in measuring trends, the first of which is the direct scale by adopting the questionnaire, and the second is an indirect measure by adopting quantitative models to indicate the Investors of investors in the financial markets. Researchers and those interested in their studies, using many financial indicators, have reached the link between the trends and the returns of stocks and the additional effects that result from the risk or fluctuations in stocks, etc. (Kiarash et al, 2016,8) (Jansen and Nahuis, 2003) (Frazzini and Lamont, 2008).

### **The role of sentiment in financial markets**

Effective market theory makes investors rational and does not take into account the role of trends over a certain period of time, meaning that trends do not exist with EMH, and the basic assumption of traditional portfolio selection models is that investors are not influenced by trends. While recent studies rejected these assumptions, and it was found that Investors greatly affect the returns of stocks in the markets ((Brown & Cliff, 1998, (Baker & Wurgler, 2006), Barberis, & Vishny, 2007), Shleifer, (Yang & Copeland, 2014). ). Barberis et al. 1998)) A model of Investors using overconfidence as a model for investor behavior. As for (Arik, 2011), he showed in his study of the Investors of individual investors in the years 2010-2011 that 55% were optimistic in that period. Shefrin (2008) says that Investors are influenced by beliefs and priorities.

Behavioral financial theory focused on emotional traders rather than rational traders. Therefore, investor sentiment plays an important role in the markets. If investors' sentiments are ignored, they may mislead them. The role of Investors is investigated in recent behavioral financial studies. The results were divided into four groups. The first group believes that if the positive sentiments increase, the return on stocks will be enhanced, and when the negative sentiments increase, the returns on stocks will decrease. In other words, investor sentiment has a direct effect on equity returns (Yang & Copeland, 2014). The second group believes that investor sentiment plays the opposite role in the markets. Improving sentiment will lead to lower future equity returns (Baker & Wurgler, 2007). The third group shows that sentiment not only affects stock returns and fluctuations in stocks but will also be affected by it (Antonioni et al., 2013). The fourth group, unlike all studies, shows that investor sentiment does not appear to be very important to the overall equity issuance activity.

Studies of Investor sentiment in the British financial markets revealed that optimism in Investor sentiment led to surpluses in financial returns, and similarly pessimistic trends led to a reduction in surplus returns during the six months to 12 months. (Yang & Copeland, 2014. While the academic (Antonioni et al.)) al., 2013). Work was done by them to evaluate the momentum strategy, and it was found that the Investors of the investors when they are optimistic within six months or in the short term have achieved good profits, an increase of 2% of the regular monthly returns. On the

contrary, pessimism in investor sentiments generated losses estimated at 34%. From the natural monthly verification, then the momentum strategy does not achieve profits during the recession, and it has an adverse effect on the decline in prices, while the momentum during the growth periods has positive results in achieving returns.

### **Measuring the impact of investor sentiment**

#### **1. Closed-End Discount Fund (CEFD)**

Investment Funds Closed - End Fund It is defined as an investment portfolio consisting of several assets, which collects an amount of capital through Initial Public Offering IPO, then shares are offered for trading in the financial markets. This fund has a professional manager who supervises the trading operations (buying and selling of shares), and the share prices are exposed to market fluctuations as in the case of equity trading, and the closed investment fund is unique because after the IPO process, the parent company of the fund does not issue any additional shares. (Ana Filipa, 2018). According to Baker & Wurgler, 2006, the CEFD can be calculated as the average difference between the fund's net worth of NAV assets and the financial market prices. (Ahmedsahin, 2016) defined it as the trading of financial assets, which determines the price per share through supply and demand.

#### **2. Initial Public Offering (IPO)**

The word IPO means a new subscription or new subscriptions. This takes place when a company offers shares of its shares for sale, and this process is called "underwriting". The subscription process is a new event on the date of the establishment of the company as it is the first time that the owners of the company give up Part of their shareholder private ownership, where the company's ownership is classified as private before any new IPO takes place. After this subscription process, it becomes public domain. After the IPO, shares are traded freely on the open market, noting that most companies pledge to go public with the help of investment banks that operate as an insurance company.

#### **3. Return of IPO**

Of the basic indicators in the model. (Baker & Wurgler, 2006). It is the first-day return from the subscription, or it is the percentage change in the bid price to the closing price in the financial market. Shiguang Ma (2005), in his research in the Chinese money market, considers several factors affecting changes in first-day earnings.

#### **4. Divisional Premium: Dividend Premium**

It was defined by (Baker & Wurgler, 2006), as it is the difference between the ratio of book prices to market prices of paid and unpaid profits for that year. By analyzing the determinants of the profit premium, it reflects the investor's demand for profits. Investors are likely to prefer dividend distributions because they are not sure of the future economic growth of the corporation or company, and vice versa, as the dividend premium is expected to rise with the level of uncertainty.

#### **5. Market capitalization**

Market capitalization is an important market indicator of stock value and corporate value (Dias, 2013). It is an easy and fast way to estimate the value of the company by extrapolating what the market believes deserves to be publicly traded for companies. Most studies indicate that the macroeconomic environment has an important effect on the rate of capitalization in the financial markets. (Kurihara, Y., 2006). As the stock prices reflect internal and external factors related to the general performance of the economy. Capitalization can be used as an indicator of public opinion about the net worth of a company and is a limiting factor in some forms of equity valuation. (Pietro Pavone, 2019,12)

#### **6. Trading volume**

Trading volume represents the value of shares that were traded in the financial market during a certain period of time, and it gives an important hint of the strength of the financial market and gives the possibilities of rise and fall in the buying and selling operations in a certain period of time. (Anwar Al-Salmani, 2019) The trading volume of shares is an important factor on which to base speculation decisions in stocks, and the most important factors of technical analysis, and it is considered one of the important factors in the decline and rise of financial market indicators, and because it is one of the factors that investors monitor and determine the number of shares offered and required. (Yazan Rafat, 2018) .

#### **7. Turnover Stock Turnover**

It is an indicator of the strength of liquidity in the financial market. (Mehwish Aziz Khan, 2018) (Baker & Wurgler) defined it as the ratio of the number of shares traded in the market to the number of shares listed during a certain period of time.

### **Beta Coefficient**

It is one of the risk factors for any economic situation, but it does not directly measure the economic situation while it measures it in relation to something else. For example, it calculates the relationship between the value of a share in relation to a certain market movement, and whether there is any effect that one of them may have if the other changes. It represents a systematic risk associated with an investment that relates to the total risk associated with the market portfolio. If the beta for securities is 1.5, then this does not mean that the systematic risk of stocks is 1.5, but it simply means that the securities have a risk of one and a half times compared to the market as a whole. Let us assume that the beta value of certain securities is 1.2, which means that if the market return differs by 1%, then the return on the stock varies by 1.2%. These securities are considered more dangerous than the market because of the expectation that their return will fluctuate more than the market return on a percentage basis. The beta can be calculated from the Covariance ratio of the market to the variance of the market as a whole. (Shab Hundul, 2019)

If the beta is greater than one, the securities are called offensive securities, and if they are less than one, they are called defensive securities, but if the beta is equal to one, then the securities are called neutral. In general, if the beta is greater than one, the financial assets will move in one



direction with the general index and fluctuations in the securities are strong in relation to the general index, and if the beta is equal to one, the assets will move in the same direction to the index and in equal quantity with the index. If the beta is less than one, its value is less than the index and in the same direction and has less fluctuations than market fluctuations. As for the beta equal to zero, there is no correlation with the index and it is not vulnerable to fluctuations (Chris Tofallis, 2006).

The beta coefficient can be calculated from the data (historical returns) of the financial assets of the financial market indicators and the returns on the securities of companies or sectors within the markets. Time during the relationship:

$$R_i(t) = \alpha_i + \beta_i(RM(t)) + \xi_i(t) \text{-----}(1) \quad (\text{Bodie et al, 2004})$$

Where:

$R_i$ =return on security.

$RM$ = Market portfolio return.

$\beta_i$  = Measure of the security's risk or coefficient Risk.

$\xi_i$  = Error term.

$\alpha_i$ =The constant term

### Data and descriptive statistics

This topic seeks to identify the reality of the impact of Investor sentiment on the return and risk of financial assets for the monthly data during the six years from 2013-2018, and for three different sectors (banks, industry, telecommunications) for both the Iraqi stock market and the Saudi stock exchange (Tadawul). The study adopted the descriptive approach and the statistical inference in an analysis of the monthly data for the studied markets, and the monthly data was obtained from the websites of the three financial markets researched, and the descriptive statistics entry was carried out with information such as the mean, the standard deviation, the highest value and the lowest value, and the inferential statistical input to test the assumed relationships, as it will be Reliance on the arithmetic mean, which represents the most important and most famous measure of central tendency in various scales. As for the inferential statistics approach, it was used to test hypotheses. The multiple and single regression equation model was also used to demonstrate the effect of the relationships between investor sentiment and the sector return and the derivation of

the risk factor between sectors' returns and market indicators. F-Statistic was also shown to determine the relative importance of each independent variable in the analysis and its effect on the dependent variable, and t-Statistic was used to test the hypotheses at the 5% level and reject the null hypothesis if the statistical value is higher than 5% and we accept the alternative hypothesis. This was done to determine the relative sensitivity of each independent variable.

The descriptive analysis used the value of the arithmetic mean as it is the value around which all the different values of the variable are centered, and the standard deviation as it is considered one of the most important statistical dispersion measures, which measures the extent of data dispersion from its arithmetic mean, the highest value and the lowest value, and then a comparison between them. A number of indicators will be relied upon to measure Investor sentiment, as trends depend on many indicators, but the most important indicators used in the current study are:

1. Volume of trading: it represents the number of shares traded multiplied by the share price in the local currency. It will be expressed in tables as **X<sub>1</sub>**.
2. Market value: it refers to the number of listed shares multiplied by the share price in the local currency. It will be expressed in tables as **X<sub>2</sub>**.
3. Turnover indicator: it represents the number of shares traded divided by the number of shares listed on the market as a percentage. It will be expressed in tables as **X<sub>3</sub>**.
4. Rate of return: The percentage difference between the (closing and opening) price divided by the closing price of the financial shares. It will be expressed in tables as **X<sub>4</sub>**.

### Empirical results

1. The Iraqi& Saudi markets:

The following Table (1) & Table (2) results are the descriptive statistical analysis and represent the arithmetic mean, standard deviation, highest value and lowest value of the sectors (banks, industry and telecommunications) for both the Iraqi and Saudi markets. From knowing the arithmetic mean, we can distinguish the important values of the financial variables (trading volume, market value and turnover) and the rate of return.

Table (1) the arithmetic mean and the standard deviation for indicators of investor sentiment for the Iraqi market

COMPARISONS	TLECOMMUNICATIONS				industry				BANKS				VARIABLES
	MEAN	STAND. DEV.	MAXIMUM	MINIMUM	MEAN	STAND. DEV.	MAXIMUM	MINIMUM	MEAN	STAND. DEV.	MAXIMUM	MINIMUM	
Ln X <sub>1</sub>	20.17	2.05	28.09	15.41	21.85	0.79	23.58	19.48	24.13	0.95	27.26	22.10	industry
Ln X <sub>2</sub>	15.17	0.23	15.60	14.64	13.19	0.36	14.91	12.78	15.20	0.23	15.59	14.75	industry
X <sub>3</sub>	0.27	0.55	2.11	0.03	1.22	0.88	4.06	0.01	1.31	1.01	4.28	0.19	TLEC.
X <sub>1</sub>	-1.3	8.96	23.75	-29.82	0.65	7.43	30.18	-25.09	-1.54	5.05	9.51	-19.74	TLEC.

Table (2) the arithmetic mean and the standard deviation for indicators of investor sentiment for the Saudi market

COMPARISONS	TLEUMUNUICATIONS				industry				BANKS				VARIABLES
	MEAN	STAND. DEV.	MAXIMUM	MINIMUM	MEAN	STAND. DEV.	MAXIMUM	MINIMUM	MEAN	STAND. DEV.	MAXIMUM	MINIMUM	
Ln X <sub>1</sub>	20.39	23.63	0.88	22.09	22.96	24.33	0.31	23.69	22.83	24.40	0.36	23.58	industry
Ln X <sub>2</sub>	25.59	26.19	0.14	25.87	26.45	27.23	0.21	26.91	26.48	27.15	0.19	26.82	industry
X <sub>3</sub>	1.28	27.07	6.08	8.68	2.61	51.59	5.99	7.91	2.30	11.32	1.97	5.75	TLEC.
X <sub>1</sub>	-20.89	28.12	7.54	0.41	-20.96	19.69	7.23	0.31	-13.96	17.72	6.42	0.26	TLEC.

From the three variables, we derive a sentiment index For any financial sector from the Iraqi and Saudi financial market as same mechanism as Baker & wurgler,(2006). As below:

First: sentiment index for financial Iraqi market for three sector (bank, industry, telecommunications).

1.  $S_{\text{Iraq Bank}} = -1.464 - 0.063X_1 + 0.241X_2 + 0.187X_3$

2.  $S_{\text{im}} = 0.560 + 0.231X_1 - 0.274X_2 + 0.052X_3$

3.  $S_{\text{it}} = 0.011 - 0.074X_1 + 0.469X_2 + 0.091X_3$

Second: : sentiment index for financial Saudi market for three sector (bank, industry, telecommunications).

1.  $S_{\text{sb}} = -0.910 - 0.048X_1 + 0.837X_2 + 0.009X_3$

2.  $S_{\text{sm}} = -1.563 + 0.021X_1 + 0.828X_2 + 0.057X_3$

3.  $S_{\text{st}} = -1.709 + 0.219X_1 + 0.586X_2 + 0.096X_3$

The investor sentiment index was drawn from the financial indicators (trade volume, market value and turnover) through the multiple regression model for the three variables. And comparing the investor sentiment index for the Iraqi and Saudi markets with the real return for the period (2013-2018).

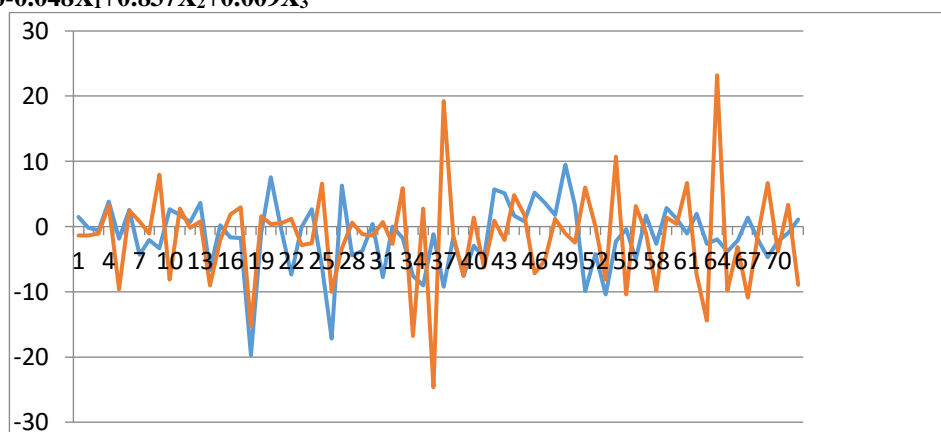


Figure (1) Investor Sentiment for Iraqi market

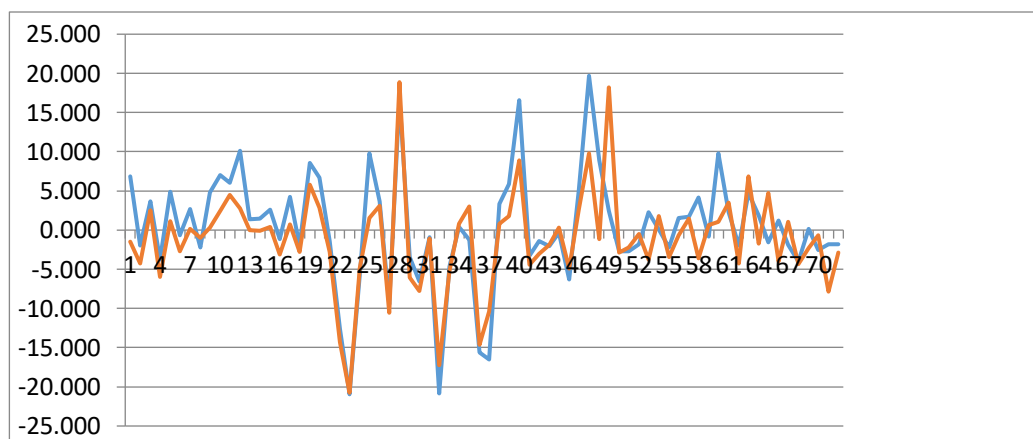


Figure (2) Investor Sentiment for Saudi market

Second: To show the impact of investor sentiment on the return of the financial markets and the correlation relationship between the sentiment of investors and the return in the financial markets, both the Iraqi financial market and the Saudi financial market.

#### Test and analyze the impact between research variables

This part of the analysis is concerned with testing the impact hypotheses identified by the research for the purpose of determining the possibility of judging them for acceptance or rejection, as the regression analysis equation will be relied upon to estimate the model parameters, and regression analysis is a statistical tool that builds a statistical model in order to estimate the relationship between two variables

(independent variable) And (dependent variable) so that it produces a statistical equation that clarifies the causal or interrelation between the variables. And when the relationship in the statistical model is between one independent variable and a dependent variable (dependent), then this model is the simplest regression model and it is called the simple line regression model, and when there are several independent variables more than one variable, the model is called multiple linear regression. (Archived Quality, 2008). Through the SPSS & EXCEL program, the effect hypotheses will be investigated according to the simple linear regression equation as follows:

$$= Y \alpha + \beta_1 X + U_i$$



As for the estimated equation for simple linear regression, it can be expressed as follows:

$$\hat{Y} = \alpha + \beta_1 X$$

whereas

$\alpha$ : represents the constant term value

$\beta_1$ : represents the marginal slope (effect) value of the independent index

$X_1$ : represents the independent index

$Y$ : represents the dependent variable

$U_i$ : The error percentage

And multiple linear regression equation

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + U_i$$

As for the estimated equation for multiple linear regression, it can be expressed as follows

$$\hat{Y} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$$

whereas

$\alpha$ : represents the constant term value.

$\beta_1$ : represents the marginal slope (impact) value of the volume index.

$\beta_2$ : represents the marginal slope (effect) of the market value index.

$\beta_3$ : represents the marginal slope (impact) value of the rotation rate indicator.

$X_1$ : represents volume index.

$X_2$ : represents the market value index.

$X_3$ : represents the rotation rate indicator.

$Y$ : represents investor sentiment.

$U_i$ : The error percentage.

As for the estimates of these values and their statistical indicators, they were calculated at the level of six years (2013-2018) by (72) months for data from three sectors (banks, industry, communications) in each of the Iraqi market, the Jordanian market, and the Saudi market. We will derive the investor sentiment index from the three variables (breakeven size, market value, and turnover ratio). For each sector in the three markets, according to the mechanism that it follows (Baker & Wurgler, 2006).

The following relationship was used in calculating the change in the current and previous value for both trading volume and market value, as well as for the total market index:

$$\Delta P_{i,t} = \ln \frac{P_{i,t}}{P_{i,t-1}} * 100 \text{-----(2)}$$

Where:  $P_{i,t}$  = Present value.

$P_{i,t-1}$  = Previous value.

Calculating the rate of return for financial market sectors from the relationship:

$$R_{i,t} = \frac{P_{1,t} - P_0}{P_0} * 100 \text{-----(3)}$$

Where;  $P_1$  = Ending Price of asset

$P_0$  = beginning Price of asset

**First: the Iraqi market**

**1- Banking sector of Iraqi Market.**

Table (3) shows the statistical indicators of the impact of Investor sentiment on the return for the banking sector, as they can be expressed in the following equation.

$$\hat{Y} = -1.464 - 0.063X_1 + 0.241X_2 + 0.187X_3$$

Where  $\hat{Y}$  = Investor sentiment.

$X_1$  = trading volume.

$X_2$  = Market Capitalization.

$X_3$  = Turn Over Ratio.

The calculated value of (F) for the estimated model was (1.478). It is smaller than the tabular value (F) of (2.74) at the level of significance (0.05), and accordingly we accept the null hypothesis, which means (there is no significant effect between investors' Investors in return and risk for the banking sector in the Iraqi market (at a significant level) 5%), i.e. a degree of confidence (95%).

The value of the multiple correlation (R) of the model reached a value of (0.285) at the level of significance (0.132) and it is greater than the level of significance (0.05) and accordingly we accept the hypothesis and this means (there is no significant relationship between investors' Investors in return and risk for the banking sector. In the Iraqi market).

Table (3) shows the changes that occurred in the banking sector for the monthly data and for three indicators during the period of time (2013-2018) in the Iraqi market

The name of the indicator	Return				Correlation coefficient (R)	Determination coefficient (R2)	The computed (F) value	Sig	Indication
	Fixed Limit Value (α)	Standard marginal slope coefficient (β)	value (t) the computed	Sig					
Volume	1.464-	0.063-	0.480-	0.632	0.285	0.081	1.939	0.132	no effect
Market value		0.241	1.993	0.050					
Turnover rate		0.187	1.468	0.147					
Value (F) Tabular = 2.74 value (t) Tabular = 2									

Source: The table was prepared by the researcher based on the electronic calculator outputs

2. Industry sector of Iraqi market.

Table (4) shows the statistical indicators of the impact of Investor sentiment on the return for the industrial sector, as they can be expressed in the following equation.

$$Y^{\wedge} = 0.560 + 0.231X_1 - 0.274X_2 + 0.052X_3$$

The (F) computed for the estimated model was (3,821). It is greater than the tabular value (F) of (2.74) at a level of significance (0.05). Accordingly, we reject the null hypothesis and accept the alternative hypothesis, which means (there is a significant effect between investors' Investors in return and risk to the industrial sector) at a level of significance (5%) Any degree of confidence (95%)

The value of the multiple correlation (R) of the model reached a value of (0.387) at the level of significance (0.000), which is less than the level of significance (0.05). Accordingly, we reject the null hypothesis and accept the alternative hypothesis, which means (there is a significant relationship between investors' Investors in return and risk for a sector. Industry).

Through the value of the coefficient of determination ( $R^2$ ) of (0.150), it becomes clear that the three indicators together of

Investor sentiment are able to explain (15%) of the changes that occur to (return).

The value of (t) calculated for the volume index reached (1.993), which is smaller than the tabular value of (t) of (2). This indicates that there is no significant effect of the volume index on the return.

The value of (t) computed for the market value index reached its value (2.350), which is greater than the tabular value of (t) of (2) as this is evident through the value of the marginal slope coefficient of (0.274) as it indicates that the market value index increased by one unit It will lead to an increase in (return) by (27%) the value of (t) computed for the turnover index reached a value of (0.448), which is smaller than the tabular value of (t) of (2). This indicates that there is no significant effect of the turnover index on the return.

Table (4) shows the changes that occurred in the industry sector for the monthly data and for three indicators during the period of time (2013-2018) in the Iraqi market

The name of the indicator	Return				Correlation coefficient (R)	Determination coefficient (R2)	The computed (F) value	Sig	Indication
	Fixed Limit Value (α)	Standard marginal slope coefficient (β)	value (t) the computed	Sig					
Volume	0.560	.2310	1.993	.0500	0.378	0.15	3.821	0.014	no effect
Market value		.2740	2.350	.0220					
Turnover rate		.0520	.4480	.6560					
Value (F) Tabular = 2.74 value (t) Tabular = 2									

Source: The table was prepared by the researcher based on the electronic calculator outputs

### 3. Industry sector of Iraqi market.

Table (5) shows the statistical indicators of the impact of investor sentiment in return for the industrial sector, as it can be expressed in the following equation

$$Y^{\wedge} = 0.011 - 0.074X_1 + 0.469X_2 + 0.091X_3$$

The (F) computed for the estimated model was (5.870). It is greater than the tabular value (F) of (2.74) at a level of significance (0.05) and accordingly we reject the null hypothesis and accept the alternative hypothesis, which means (there is a significant impact of moral significance between investors' Investors in the return and risk for the telecommunications sector in the Iraqi market (at a significant level) 5%), i.e. a degree of confidence (95%)

The value of the multiple correlation (R) of the model reached a value of (0.473) at the level of significance (0.001), which is less than the level of significance (0.05). Accordingly, we reject the null hypothesis and accept the alternative hypothesis, which means (there is a significant relationship

between investors' Investors in return and risk for a sector. Communications in the Iraqi market.

Through the value of the coefficient of determination ( $R^2$ ) of (0.224), it is clear that the three indicators together of Investor sentiment are able to explain 22% of the changes that occur to (return).

The value of (t) computed for the volume index reached (-0.643), which is smaller than the tabular value of (t) of (2). This indicates that there is no significant effect of the volume index on the return.

The value of (t) computed for the market value index reached a value of (4.132), which is greater than the tabular value of (t) of (2). This indicates that there is a significant effect of the market value index on the return as this is evident through the value of the marginal slope coefficient of (0.469) It indicates that an increase in the market value index by one unit will lead to an increase in (return) by (46%), and this indicates that the market value has an impact on investor sentiment.

Table (5) shows the changes that occurred in the telecommunications sector for the monthly data and for three indicators during the time period (2013-2018) in the Iraqi market

The name of the indicator	Return				Correlation coefficient (R)	Determination coefficient (R2)	The computed (F) value	Sig	Indication
	Fixed Limit Value ( $\alpha$ )	Standard marginal slope coefficient ( $\beta$ )	value (t) the computed	Sig					
Volume	0.011	0.074-	0.643-	0.523	0.473	0.224	5.870	0.001	no effect
Market value		0.469	4.132	0.000					
Turnover rate		0.091	0.796	0.429					
Value (F) Tabular = 2.74 value (t) Tabular = 2									

The value of (t) computed for the turnover index reached its value of (0.796), which is smaller than the tabular value of (t) of (2). This indicates that there is no significant effect of the turnover index on the return.

Source: The table was prepared by the researcher based on the electronic calculator outputs

## Second: The Saudi Sector

### 1. Banking sector of Saudi market.

Table (6) shows the statistical indicators of the impact of Investor sentiment on the return, as they can be expressed in the following formula

$$S = -0.910 - 0.048X_1 + 0.837X_2 + 0.009X_3$$

The (F) value computed for the estimated model was (47.302). It is greater than the tabular value (F) of (2.74) at the level of significance (0.05) and accordingly we reject the null hypothesis and accept the alternative hypothesis, and this means (there is a significant effect between investors' Investors in the return and risk for the banking sector in the Saudi market) at a significant level (5%), i.e. a degree of confidence (95%)

The value of the multiple correlation (R) of the model reached a value of (0.824) at the level of significance (0.000) and it is less than the level of significance (5%). Accordingly, we reject the null hypothesis and accept the alternative hypothesis, and this means (there is a significant correlation relationship between investors' Investors in The return and risk of the banking sector in the Saudi market).

Through the value of the coefficient of determination ( $R^2$ ) of (0.679), it is evident that the three indicators together of Investor sentiment are able to explain (67%) of the changes that occur to (return).

The value of (t) calculated for the volume index reached (-0.636), which is smaller than the tabular value of (t) of (2). This indicates that there is no significant effect of the volume index on the return.

The value of (t) computed for the market value index reached a value of (11.532), which is greater than the value of (t) tabular amounting to (2). This indicates that there is a significant effect of the market value index on the return as this is evident through the value of the marginal slope coefficient of (0.837). It indicates that increasing the market value index by one unit will lead to an increase in (return) by (83%).

The value of (t) computed for the turnover index reached (0.127), which is smaller than the tabular value of (t) of (2). This indicates that there is no significant effect of the turnover index on the return

Table (6) shows the changes that occurred in the banking sector for the monthly data and for three indicators during the period of time (2013-2018) in the Saudi market

The name of the indicator	Return				Correlation coefficient (R)	Determination coefficient (R <sup>2</sup> )	The computed (F) value	Sig	Indication
	Fixed Limit Value ( $\alpha$ )	Standard marginal slope coefficient ( $\beta$ )	value (t) the computed	Sig					
Volume	-0.910	-0.048	-0.636	0.527	0.824	0.679	47.302	0.000	effect
Market value		0.837	11.532	0.000					
Turnover rate		0.009	0.127	0.9					

Value (F) Tabular = 2.74  
value (t) Tabular = 2

Source: The table was prepared by the researcher based on the electronic calculator outputs

## 2. Industry sector of Saudi market.

Table (7) shows the statistical indicators of the impact of Investor sentiment on the return, as they can be expressed in the following formula

$$S = -1.5630.021 + X1 + 0.828X2 + 0.057X3$$

The value of (F) calculated for the estimated model was (54.730). It is greater than the tabular value (F) of (2.74) at the level of significance (0.05) and accordingly we reject the null hypothesis and accept the alternative hypothesis, and this means (there is a significant effect between investors' Investors in return and risk to the industrial sector in the Saudi market) at a significant level (5%), i.e. a degree of confidence (95%)

The value of the multiple correlation (R) of the model amounted to (0.843) at the level of significance (0.000), which is less than the level of significance (5%), and accordingly we reject the null hypothesis and accept the alternative hypothesis, and this means (there is a significant correlation relationship between the Investor sentiment in The return and risk to the industrial sector in the Saudi market).

Through the value of the coefficient of determination ( $R^2$ ) of (0.710), it is clear that the three indicators together of Investor sentiment are able to explain (71%) of the changes that occur to (return)

The value of (t) calculated for the volume index reached its value (0.292), which is smaller than the tabular value of (t) of (2). This indicates that there is no significant effect of the volume index on the return.

The value of (t) computed for the market value index reached a value of (12.243), which is greater than the tabular value of (t) of (2). This indicates that there is a significant effect of the market value index on the return as this is evident through the value of the marginal slope coefficient of (0.828) It indicates that increasing the market value index by one unit will lead to an increase in (return) by (82%)

The value of (t) computed for the turnover index reached its value (0.792), which is smaller than the tabular value of (t) of (2). This indicates that there is no significant effect of the turnover index on the return.

Table (7) shows the changes that occurred in the industry sector for the monthly data and for three indicators during the time period (2013-2018) in the Saudi market

The name of the indicator	Return				Correlation coefficient (R)	Determination coefficient (R <sup>2</sup> )	The computed (F) value	Sig	Indication
	Fixed Limit Value (α)	Standard marginal slope coefficient (β)	value (t) the computed	Sig					
Volume	-1.563	0.021	0.292	0.771	0.843	0.710	54.730	0.000	effect
Market value		0.828	12.243	0.000					
Turnover rate		0.057	0.792	0.431					

Value (F) Tabular = 2.74  
value (t) Tabular = 2

Source: The table was prepared by the researcher based on the electronic calculator outputs

Table (8) shows the changes that occurred in the telecommunications sector for the monthly data and for three indicators during the time period (2013-2018) in the Saudi market

The name of the indicator	Return				Correlation coefficient (R)	Determination coefficient (R <sup>2</sup> )	The computed (F) value	Sig	Indication
	Fixed Limit Value (α)	Standard marginal slope coefficient (β)	value (t) the computed	Sig					
Volume	-1.709	0.219	0.259	0.027	0.641	0.411	15.602	0.000	effect

Market value		0.586	6,235	0.000					
Turnover rate		0.096	0.988	0.327					
Value (F) Tabular = 2.74 value (t) Tabular = 2									

Source: The table was prepared by the researcher based on the electronic calculator outputs

### 3. Telecom sector of Saudi market.

Table (8) shows the statistical indicators of the impact of Investor sentiment on the return, as they can be expressed in the following formula

$$Y^* = -1.709 + 0.219X_1 + 0.586X_2 + 0.096X_3$$

The value of (F) computed for the estimated model was (15.602). It is greater than the tabular value (F) of (2.74) at a level of significance (0.05) and accordingly we reject the null hypothesis and accept the alternative hypothesis, and this means (there is a significant effect between investors' Investors in the return and risk for the telecommunications sector in the Saudi market) at a significant level (5%), i.e. a degree of confidence (95%)

The value of the multiple correlation (R) of the model reached a value of (0.641) at the level of significance (0.000) and it is less than the level of significance (5%). Accordingly, we reject the null hypothesis and accept the alternative hypothesis, and this means (there is a significant correlation relationship between the Investors of investors in The return and risk of the telecom sector in the Saudi market).

Through the value of the coefficient of determination ( $R^2$ ) of (0.411), it is clear that the three indicators together of investor sentiment are able to explain (41%) of the changes that occur to (return).

The value of (t) calculated for the volume index reached its value (2.259), which is greater than the tabular value of (t) of (2). This indicates that there is a significant effect of the volume index on the return as this is evident through the value of the marginal slope coefficient of (0.219) It indicates that an increase in the volume of trading index by one unit will lead to an increase in (return) by (21%).

The value of (t) computed for the market value index reached a value of (6.235), which is greater than the tabular value of (t) of (2). This indicates that there is a significant effect of the market value index on the return as this is evident through the value of the marginal slope coefficient of (0.586) It indicates that increasing the market value index by one unit will lead to an increase in the return by (58%)

The value of (t) computed for the turnover index reached its value of (0.988), which is smaller than the tabular value of (t) of (2). This indicates that there is no significant effect of the turnover index on the return.

### CONCLUSION

The paper using the sentiment index as a dependent variable in an a regression model, to predict the stock market returns, for the same market of the investor sentiment. Many measurements are experimented on this pattern model

indirect measures of investor sentiment like baker & Wurgler .The regression is estimated for a set of variable to both the Iraqi. and Saudi markets.

With respect to the Iraqi market, evidence show weak findings. Indeed, there is no relationship between the Investor Sentiment Indicator, and stock market returns of Iraqi sectors (banking, industry, telecom.). and strong relationship between the Investor Sentiment Indicator, and stock market returns of Saudi sectors (banking, industry, telecom.).

Finally, (1)The results showed that there is no effect of investor sentiment in the banking sector of the Iraqi financial market through financial indicators (trading volume, market value and turnover rate) and the absence of a link between Investor sentiment and the return and risk of financial assets. While the results showed an impact of Investor sentiment in the industry and communications sectors of the Iraqi financial market through financial indicators (trading volume, market value and turnover rate) with a correlation between the trends and the return and risk of financial assets for the industry and telecommunications sectors.

(2) The results showed an impact of investor sentiment on the return and risk of financial assets in the Saudi financial market for the financial sectors (banks, industry and telecommunications) through financial indicators (trading volume, market value and turnover rate). And the existence of a correlation between investor sentiment and the return and risk of financial assets. The impact of Investor sentiment through (market value and trading volume) the highest financial indicators influenced by (turnover). In the Saudi market.

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