

---

## Investor sentiment, stock price, and audit quality

---

Hossein Jokar\*

Department of Accounting,  
Shiraz University, Iran  
Email: hossein.jokar@shirazu.ac.ir  
Email: abas.jokar1388@gmail.com  
\*Corresponding author

Vahid Daneshi

Department of Accounting,  
University of Semnan, Iran  
Email: vahidiii007@yahoo.com

**Abstract:** Numerous studies have investigated the effect of audit quality on investors' decisions in the stock market, but the direction of most of these studies has focused solely on the rationality principle of economic factors and the documentation of the relationship between audit quality and stock price. They have rarely investigated the role of independent auditing on the emotional behaviours of investors in the stock market; hence, the main objective of this research is to investigate the moderating effect of audit quality on the relationship between investor sentiment and stock price. The results show that the auditor reports and the auditor specialisation in the industry strengthened the investors' trust in the accounting information and affected the investor sentiment in-stock pricing; however, the auditor size and the auditor tenure did not have a moderating effect and did not affect the relationship between investor sentiment and stock price.

**Keywords:** investor sentiment; stock price; audit quality; TSE.

**Reference** to this paper should be made as follows: Jokar, H. and Daneshi, V. (2020) 'Investor sentiment, stock price, and audit quality', *Int. J. Managerial and Financial Accounting*, Vol. 12, No. 1, pp.25–47.

**Biographical notes:** Hossein Jokar is PhD student in the Department of Accounting at the Shiraz University. His main research interests are asset pricing, behavioural finance, and auditing. He has published many research papers in the field of accounting in leading international journals.

Vahid Daneshi obtained his MSc of Accounting at the University of Semnan. His areas of research interest include earnings management, investors' behaviour, financial reporting quality, and auditing. He has published many research papers in the field of accounting in leading international journals.

## 1 Introduction

In today's industrial world, the existence of reliable financial information is of critical importance. The economy of many countries is under the control of large corporations that provide the capital needed by millions of investors. Investors who invest their savings in corporations will ensure that their investments are used properly and efficiently, using the annual or seasonal financial statements issued by the corporations. The information reflected in financial statements is useful and effective for users when it has the necessary qualitative characteristics (Halabi et al., 2010; Man and Gadau, 2012; Grigoras-Ichim and Morosan-Danila, 2016; Aladwan and Shatnawi, 2019). Therefore, one of the major concerns and worries of investors in ensuring that changes and interpretations of financial reports are reliable in evaluations and decision makings is that the financial reports contain clear and reliable information in order to play an important role in predicting, judging and making informed decisions of the users (Bushman et al., 2004; Barth and Schipper, 2008). In this regard, the evidence indicates that annual auditing of financial statements as a supervisory procedure and a mechanism for detecting significant distortions is an instrument that, by improving the quality of financial information, can increase the predictive power of financial information and reduce the concerns and risks of investors in using financial reports (Zhang et al., 2017; Agyei-Mensah and Yeboah, 2019; Masrouki and Houcine, 2019). If the audit quality is high, it adds to the quality of the financial information (Masrouki and Houcine, 2019). Evidence shows that independent auditing, because of having adequate expertise and skills, creates double added value. Therefore, it can be expected that by increasing the audit quality, investors and creditors will have greater confidence in the quality of financial reporting and will be attracted to more and easier resources for investing opportunities (Zhang et al., 2017; Agyei-Mensah and Yeboah, 2019). This confidence improves and reflects more specific information of the company in the decisions of investors (for example Al-Thuneibat et al., 2008; Ittonen, 2012; Ianniello and Galloppo, 2015), in a way that it has a significant impact on investors' behaviour in the capital market. The point that the investors trust more in auditing, and hence the capital market reacts more to independent and qualified auditing can be reasonable and true; because in most cases investors do not have sufficient knowledge about the entire activity of a company and regard the auditing services reliable (Zhang et al., 2017).

Also, according to related theoretical bases, it has been found that emotions at the time of decision-making often lead to behaviours that are reciprocal of behaviours that are determined by measuring the costs and long-term benefits of activities and described by behavioural finance theory (Jurevičienė and Ivanova, 2013; Rossi and Gunardi, 2018; Rossi and Fattoruso, 2017). Stock pricing also includes long-term interest rates (the right to share in the net future cash flows to invest) and costs (future cash flow risks) (Bower et al., 1984). Therefore, it seems reasonable to consider the effect of investor sentiment on stock pricing (Loewenstein, 2000; Lo and Repin, 2002). Many studies have shown that investor sentiment influences stock market prices. Brown and Cliff (2004) have shown that high investor sentiment can influence investor expectations about liquidity and subsequently, affect stock prices. Baker and Wurgler (2007) argue that investor sentiment can affect stock prices by changing investor risk exposure. They discovered the multiplicative differences in the effects of the investor sentiment, they found that investor sentiment had a more pronounced effect on stocks that are difficult to value and are

expensive to trade. Shefrin (2008) implements a random discount factor based on investor sentiment and attaches the required rate of return to the investor sentiment. Stambaugh et al. (2012) discovered an asymmetric effect of investor sentiment, which is stronger and larger than inappropriate pricing derived from scepticism.

In recent research (for example Baker and Wurgler, 2007; Lin, 2010) has been shown to managers do not always make investment decisions to increase shareholder interest. Managers with investments may create a sense of optimism in investors and stimulate their emotions to achieve their goals. For example, managers, by arousing investors' sentiment, can provide a way to quickly raise the price of a company's stock, and in this way, they can earn more wages and reward or compensate for company losses. Therefore, it is clear that changes in stock prices can occur due to more or less attention to investor sentiment. Now, the main question is whether audit quality as a powerful tool in corporate governance can decrease stock price changes caused by investor sentiment?

In this regard, numerous studies have attempted to empirically investigate the role of independent auditing in the process of communication between stock price changes and investors' decisions (for example Pucheta et al., 2004; Robu and Robu, 2015; Chousa et al., 2016). Nonetheless, most of these studies have documented the relationship between audit quality and stock price only through analysing the market reaction. They have also stated the direct reaction of the capital market as the signs of the effect of independent auditing on investors' decisions. At the same time, little explanations have been made about the effect of audit quality on investors' emotional behaviours in-stock pricing. However, they have not shown how the difference in audit quality can affect the relationship between investor sentiment and stock price changes. Though, the relationship between the information provided by the auditing service is defined by its impact on investor sentiment in the decision-making process in the capital market; therefore, there is a significant gap in the existing literature that this research seeks to fill it.

In general, it is expected that independent and quality auditing can have a significant effect on investors' sentiment through strengthening corporate governance (Firth et al., 2014; Zhang et al., 2018). Audit quality leads to improved quality of information available to investors, greater transparency and reduced information risk (Lambert et al., 2007; Tao, 2012). Reducing information risk leads to a reduction in stock price uncertainty and approaching the intrinsic value of a stock to its market value, thereby reducing investor sentiment (Zhu and Niu, 2016). Therefore, it can be expected that audit quality will be reduced uncertainties and pricing errors associated with stocks by improving the quality of financial information, and affect investors' sentiment to buy and sell stocks.

The results of the present study can eliminate some of the ambiguities about investors' sentiment by providing solutions such as enhancing audit quality and also, leading to growth in stock market investment. The useful results of this study can be used by shareholders, organisations, institutions such as the Tehran Stock Exchange, public corporations, brokers and financial analysts, and other investors. The research findings help managers prepare the groundwork for enhancing investors' positive views and their positive behavioural attitudes toward the future of the company, thereby increasing stock returns. The results also alert investors to be more in control of their behavioural tendencies, because sometimes these tendencies can harm them.

Thus, in this research concerning the economic environment of Iran (as an important developing country) for the first time, it has been tried to use a composite index

consisting of macro and microeconomic variables to measure the investor sentiment index and to answer the following question. Does the audit quality have a moderating effect on the relationship between investor sentiment and stock price?

This paper used data of Iranian listed firms for several reasons. Iran's security market is at the developing stage, and the investor sentiment is higher than that is in developed markets. In general, all the differences between Iran's market and other developed markets make the research on the relationship between investor sentiment and stock price with an emphasis on the moderating role of audit quality in Iranian firms have more implications for other emerging markets like Iran.

Moreover, the prior literature focusing on behavioural finance simply examines the association between investor sentiment and stock price without considering audit quality. Iran's financial market provides an excellent institutional setting to address this issue.

This research contributes to the current literature in the following respects. First of all, we provide empirical evidence on the association between investor sentiment and stock price from an emerging market in which the investor sentiment is high and thus investor sentiment can provide incremental information to accounting data for decision-makers. Secondly, this research shows that the relationship between investor sentiment and the stock price would change when the audit quality change.

The rest of the paper is organised as follows. Section 2 briefly reviews the related literature and formulates the main research hypothesis. Section 3 describes the research methodology, data, sample, major variables and models. Section 4 presents the empirical results and analyses, and Section 5 provides our conclusions and implications.

## **2 Literature**

### *2.1 Investor sentiment and stock price: a behavioural finance perspective*

Traditional (classic) financial theory states that stock prices represent the intrinsic value of stocks and reflect the value of future cash flows. According to the efficient market hypothesis, investors behave wisely, which means they process all available information and seek to maximise expected utility (Rossi and Gunardi, 2018; Rossi and Fattoruso, 2017). Accordingly, stock price changes are related to systematic changes in the fundamental values of the firm and the investor's unwise behaviour does not affect returns. Even if some investors make shocks in supply and demand through unwise trading, other rational arbitrators will offset the effects of these shocks (Dhankar and Singh, 2005). Therefore, stock prices will remain at an intrinsic level (Kim and Ha, 2010). But the evidence suggests that investors are not using quantitative methods to determine stock values. Judgments are based on subjective imagination and unscientific information and psychological and emotional conditions in the exchange. Emotional variables based on cognitive constraints examine the psychological conditions of stock market participants (Lin, 2010).

Since the basis of any investment is the decision-making process and almost all decisions are made in uncertain terms and these decisions are influenced by the investor's feelings and sentiment; Therefore, it can be argued that market sentiment reflects investors' attitude toward the market forecast prices. This claim can be explained in behavioural finance theory (Jurevičienė and Ivanova, 2013). The behavioural finance is a new approach to respond to the abnormal phenomena in the market, which states that the

change of stock price does not rely solely on the fundamental values provided by accounting information (logical values), but also depends on the investor sentiment (Baker and Wurgler, 2006; Kim and Ha, 2010; Lin, 2010; Zhu and Niu, 2016). Investor sentiment is often driven from maintained subjective beliefs or financial information unrelated to the stock value and can cause investors' optimism or pessimism and create extreme reactions or low reactions to good or bad news about the real value of the stock (Brown and Cliff, 2004; Barberis et al., 1998).

Therefore, to understand such behaviours, it is necessary to study changes in stock prices through the behavioural finance theory. Baker and Wurgler (2006), Chen et al. (2013), Ni et al. (2015) and Zhu and Niu (2016) have investigated the effect of investor sentiment on the stock price. They understand the relationship between emotional decision making and investor sentiment and stock prices. Thus, the results of previous research indicate that there is a significant relationship between investor sentiment and stock prices. Now that it has become clear that some stock price changes have no fundamental reason and investor sentiment plays an important role in determining prices (Kim and Ha, 2010; Lin, 2010), in the following, we seek to explain how audit quality affects the relationship between investor sentiment and stock price changes.

## *2.2 Investor sentiment, stock price, and audit quality*

A review on previous researches in the field of auditing shows that, on one hand, the focus of researches has more been on analysing the direct reaction of the market to the way of disclosing information by an independent auditor, and on the other hand, the researches process has often been formed based on the two principles of rationality of investors and the efficient market hypothesis (Rossi and Gunardi, 2018; Rossi and Fattoruso, 2017). According to the efficient market hypothesis, the price of a stock reflects all the information available in the market and behaves based on the rationality principle of the economic factors of investors in dealing with economic events logically (Rossi, 2016, 2015). It also considers all available information in the decision-making process. However, during the last few decades, the emergence of some exceptions and unusual phenomena in the market, which could not be explained by the traditional financial theories, has posed serious challenges against the rationality principle of economic factors and the efficient market hypothesis; challenges that have led to the formation of a new behavioural finance paradigms (Baker and Wurgler, 2006).

In this regard, although the behavioural financial states that factors such as limited power in computations, the complexity of decision-making issues and the existence of some systematic errors in judgments result in emotional behaviours among investors, but with regard to the three dimensions of supervisory, informative and accreditation of the independent auditor, some reasons can be stated to show that an independent and qualified auditing has the ability to affect the investor sentiment in the market (Zhang et al., 2017; Agyei-Mensah and Yeboah, 2019; Masrouki and Houcine, 2019).

In the supervisory role, the auditor plays an important role in monitoring contracts. Moreover, the supervisory activities by the auditor can result in the reduction of interests' conflict and information asymmetry (Watts and Zimmerman, 1983). In the information role, the independent auditor, by investigating the compliance ratio of information inserted in the financial statements with the qualitative characteristics of information, can improve the quality of accounting information, increase transparency and reduce

information risk (Fama and Laffer, 1971). From the accreditation viewpoint, an independent auditor can be described as a provider of confidence in the financial information of the investors. Regarding the triple dimensions of auditing, it is logical to conclude that, despite the complexity of the signals that the financial information sends, auditing as a useful tool can have a relationship with the investor sentiment and it can moderate a part of investors' emotional behaviours. In other words, audit quality can influence investor sentiment in the market (Zhang et al., 2017; Masrouki and Houcine, 2019).

Accounting information has always been used as a basis for making informed decisions and optimal allocation of resources in the financial markets by investors (Clinch et al., 2012; Stoel et al., 2012). Making optimal decisions requires reliable information, and in this regard auditing due to the role of information accreditation and one of the supervisory circles of the information supply chain, has always been considered by market participants and analysts (Clinch et al., 2012; Stoel et al., 2012). This consideration has been in a way that so far numerous researches have empirically investigated this role of the independent auditor and its impact on the investors' decisions in the capital market. These researches can be categorised into two groups; studies that show the impact of auditing on stock price and regard independent and qualified auditing a useful factor in investors' making decisions (for example Ittonen, 2012; Robu and Robu, 2015), and researches that emphasise the lack of auditing impact on stock price, and state it as a result of the non-relevancy of auditing in the investors' decisions (for example Pucheta et al., 2004; Beneish et al., 2008).

Besides, the effect of audit quality on investor sentiment in-stock pricing can also be intuitively concluded. Investor sentiment changes investors' expectations about future cash flows and the ratio of investment risk and affects stock price (Baker and Wurgler, 2007). Investor sentiment often results from psychological factors and failures of the accounting system, the basis of which in most cases is the information that has been generated in the reporting process.

In other words, the behaviours and feelings of investors are more based on the information inserted in the financial statement, which is certified by the independent auditor; therefore, independent and qualified auditing as an effective monitoring tool can relatively assure people outside the organisation facing with suspicious and uncertainty, that the financial statement and the accounting information inserted in them have reasonable confidence. Thereby it may result in the creation of stability in the emotional behaviour of the investors. In general, the moderating effect of audit quality has been on the idea that auditing through value-added that adding's to the initial announcement of financial information from the reporting unit, can influence the perception of individuals in various decision-making situations and it can affect investor sentiment in-stock pricing.

The summary indicates that after the formation of behavioural financial-theory, and proposing the point that investor sentiment had a significant effect on stock price changes, a major objection was introduced to the behavioural finance theory (Jurevičienė and Ivanova, 2013). The major objection was that the behavioural finance theory disrupted the foundations of traditional finance theories and had only identified perceptual and behavioural errors of investors, but the point that what factors affected the behavioural errors of investors and how these errors could overcome or moderate had not been discussed. Rather it had focused more on the role of psychology and sociology and reduced the role of accounting information. While at the micro-level, independent and

qualified auditing could have a significant effect on the emotional behaviours of investors, so that auditing by strengthening the corporate governance system could enhance the quality of information available to investors. Improving the quality of financial information increased transparency and reduced information risk (Lambert et al., 2007). Reducing information risk decreases uncertainty about stock price and approximated to the intrinsic value of the stock with its market value. As a result, it caused the reduction of the emotional behaviours of investors (Zhu and Niu, 2016); therefore, it can be expected that independent and qualified auditing due to the improvement of the quality of financial information, reduces the pricing ambiguities and error associated with stock, and affect the investor sentiment to buy and sell stock.

Therefore, the audit quality is expected to moderate the relationship between investor sentiment and stock pricing and to improve the stock price formation process based on investor sentiment. In other words, audit quality can bring the market value of the stock closer to its intrinsic value and avoid as much emotional excitement as possible during the stock price formation process. Hence based on the theoretical questions and foundations, the research hypothesis has been compiled as follows:

H Audit quality has a moderating effect on the relationship between investor sentiment and stock price.

### *2.3 Background research*

To investigate the prior research, numerous studies have tried to examine the role of independent and qualified auditing in the process of relationship between stock price and investors' decisions (for example Menon and Williams, 2010; Robu and Robu, 2015).

In this environment, the process of researches often asks how audit quality affects people's perception in various situations and stock prices. However, most of the previous researches in investigating and answering this question only examined the relationship between audit quality and stock price. They have also stated the direct reaction of the market to criteria such as type of audit report, auditor size, and auditor specialisation, as the signs of the effect of audit quality on investors' decisions. According to the aforementioned viewpoint, Boone et al. (2010) investigated the investors' reaction in the market to the audit firm size. They stated that larger audit firms had a more motivational level to maintain auditor's independence; therefore, investors in their decisions considered the size of auditing firm as one of the factors of auditing services quality and reacted towards it in the market. Menon and Williams (2010) investigated market reaction to the dissemination of auditing reports and concluded that auditing reports contained new information for investors and led to their reaction to the market. As investors interpreted auditor reports as a result of the objective evaluation of financial conditions and the status of the company; therefore, the possible side effects of these reports affected their decisions. Hsu et al. (2011) showed that investors were reacting negatively to the stock price in near-time dissemination of qualified auditing reports. Ianniello and Galloppo (2015) found that the type of audit reports have information content, and affected investors' decisions in-stock pricing. In a way that qualified opinion has a negative effect and unqualified opinion with an emphasis on the particular topic has a positive effect on stock price; although the reaction of investors strongly depended on the point that the type of auditor report contained new information, not information that was available at that exact time. Robu and Robu (2015) and Ghasemi et al. (2017) stated

that changes in stock price are directly and positively affected by the type of unqualified reports and auditor's membership in larger audit firms. Ma et al. (2017) in their theoretical model, investigated the effect of investor sentiment on the audit quality and concluded that when the audit quality is lower, investor sentiment is more. Also, the results of their further analysis showed that auditors are less likely to disseminate unqualified auditing opinions when investors had high emotions towards the growth process of the company in the market.

### 3 Methodology

#### 3.1 Sample and data

Our empirical study is performed using annual data of the Tehran market in Iran from 2000 to 2016. For the data calculation quality, we limit our sample to non-financial firms, the resulting sample is composed of 140 firms, which included 2,380 companies over 17 years. The one-year deposit rate, our proxy for the risk-free rate, and the consumer price index are collected from the website of the Central Bank of Iran, and other data can be obtained from the KODAL database. Data processing is completed using Matlab (R2013a) and STATA 14.0.

#### 3.2 Model

In this research, moderated multivariate regression has been used to test the research hypothesis. The steps to perform this method are as follows: first, an interaction sentence was concentrated and produced; second, hierarchical regression was utilised; and third, the existence or absence of a moderating variable was identified.

##### 3.2.1 Concentration

In this method, at first to investigate the effect of moderating variable on the dependent variable, the effect of interaction variable was estimated; because if the values of interaction variables were simply multiplied to each other, then the multi-linearity problem occurred when estimating the regression. The effect of the interaction variable was estimated by using concentration as the following steps:

- a calculating the mean for each one of the variables
- b calculating the interaction sentence.

The interaction variable in this research was the multiplication result of the four variables of investor sentiment and audit quality that the measurement method of its interaction effect is as equation (1).

$$IS_{t-1} \times AQ_{i,t} = (IS_{t-1} - \overline{IS_{t-1}}) \times (AQ_{i,t} - \overline{AQ_{i,t}}) \quad (1)$$

where  $IS_{t-1}$  is the investor sentiment;  $AQ_{i,t}$  audit quality;  $\overline{IS_{t-1}}$  is the average of investor sentiment and  $\overline{AQ_{i,t}}$  is the average of audit quality. On the other hand, since in this research the variables of audit-report type, auditor size, auditor specialisation, and



auditor tuner have been used to measure audit quality; so, by replacing these four variables instead of audit quality, the equation (1) is converted to equations (2) to (5) as follows:

$$IS_{t-1} \times RE_{i,t} = (IS_{t-1} - \overline{IS_{t-1}}) \times (RE_{i,t} - \overline{RE_{i,t}}) \quad (2)$$

$$IS_{t-1} \times B_{i,t} = (IS_{t-1} - \overline{IS_{t-1}}) \times (B_{i,t} - \overline{B_{i,t}}) \quad (3)$$

$$IS_{t-1} \times S_{i,t} = (IS_{t-1} - \overline{IS_{t-1}}) \times (S_{i,t} - \overline{S_{i,t}}) \quad (4)$$

$$IS_{t-1} \times T_{i,t} = (IS_{t-1} - \overline{IS_{t-1}}) \times (T_{i,t} - \overline{T_{i,t}}) \quad (5)$$

where  $RE_{t-1}$  is the type of auditor report,  $\overline{RE_{i,t}}$  is the average of the type of auditor report,  $B_{i,t}$  is the auditor size,  $\overline{B_{i,t}}$  is the average of the auditor size,  $S_{i,t}$  is the auditor specialisation,  $\overline{S_{i,t}}$  is the average of the auditor specialisation,  $T_{i,t}$  is the auditor tenure and  $\overline{T_{i,t}}$  is the average of the auditor tenure.

The main reasons for using the type of audit report as a moderating variable are as follows: the first reason was that the auditing report could contain information that influenced the estimates and risks of future cash flows; the second reason was that the auditing report could include significant information about the continuity of the company's activity; and thirdly, the auditor reports as good or bad news could have a psychological effect on investors and it could lead to optimistic or pessimistic expectations (Robu and Robu, 2015). Additionally, the main argument about the auditing big being moderating was that the heavy costs paid for making reliable brands could make investors realise the quality of auditing services from the reputation and size of the auditing firm in terms of their imagination, and this could be interpreted as higher quality financial statements for larger auditors' customers (Boone et al., 2010).

### 3.2.2 Using hierarchical regression

After calculating the effects of the interaction variable, for doing a moderated multivariate regression, a special type of regression called hierarchical regression had to be used. In this type of regression, at first, the independent variable, then the moderated variable and finally the interaction effect' variable were respectively added to the research model, so that the research hypothesis could be tested.

Therefore, the models used based on hierarchical regression for testing the research hypothesis are as follows:

$$P_{i,t} = \beta_0 + \beta_1 IS_{t-1} + \varepsilon_{i,t} \quad (6)$$

$$P_{i,t} = \beta_0 + \beta_1 IS_{t-1} + \beta_2 AQ_{i,t} + \varepsilon_{i,t} \quad (7)$$

$$P_{i,t} = \beta_0 + \beta_1 IS_{t-1} + \beta_2 AQ_{i,t} + \beta_3 IS_{t-1} \times AQ_{i,t} + \varepsilon_{i,t} \quad (8)$$

where  $P_{i,t}$  is the stock price,  $IS_{t-1}$  is the investor sentiment,  $AQ_{i,t}$  is audit quality and  $IS \times AQ$  is the interaction effect of investor sentiment and audit quality, which its coefficient indicated that audit quality was moderating. Also, since in this research, for

measuring audit quality, the four variables of the type of auditor report, the auditor size, auditor specialisation, and auditor tenure had been used; so, by replacing these four variables in equation (8), this model is converted to equations (9) to (12) as follows:

$$P_{i,t} = \beta_0 + \beta_1 IS_{t-1} + \beta_2 RE_{i,t} + \beta_3 IS_{t-1} \times RE_{i,t} + \varepsilon_{i,t} \quad (9)$$

$$P_{i,t} = \beta_0 + \beta_1 IS_{t-1} + \beta_2 B_{i,t} + \beta_3 IS_{t-1} \times B_{i,t} + \varepsilon_{i,t} \quad (10)$$

$$P_{i,t} = \beta_0 + \beta_1 IS_{t-1} + \beta_2 S_{i,t} + \beta_3 IS_{t-1} \times S_{i,t} + \varepsilon_{i,t} \quad (11)$$

$$P_{i,t} = \beta_0 + \beta_1 IS_{t-1} + \beta_2 T_{i,t} + \beta_3 IS_{t-1} \times T_{i,t} + \varepsilon_{i,t} \quad (12)$$

### 3.3 *Dependent variable*

The stock price variable is considered as the dependent variable. The stock price is indicated by the closing price at the end of the following April, to match the time when the accounting statement is published.

### 3.4 *Independent variable*

#### 3.4.1 *Investor sentiment index*

To measure investor sentiment, the various index has been used in previous studies, and there is no definite and undisputable proxy yet (Baker and Stein, 2004). Therefore, in this research, according to the economic environment of Iran, use the method proposed by Baker and Wurgler (2006) to developed the investor sentiment index of Iran's stock market; thus, the sentiment can be indicated by the value of the sentiment at the beginning of the current year (the end of the previous year). In general, in this research according to the economic environment of Iran, a composite index consisting of five proxies proposed by Baker and Wurgler (2006) including the average first-day return on IPO<sub>S</sub> (RIPO), turnover rate (TURN), number of IPO<sub>S</sub> (NIPO), dividend premium (PDND), equity share in new issues (S), and two macroeconomic proxies including a risk free interest rate (R<sub>S</sub>) and the consumer price index (CPI) have been used, so that the impact of macroeconomics could be reduced. The factor analysis method has been used to measure this index so that the irrational elements of these proxies could be extracted by using the principal components decomposition method. The detailed descriptions of variable investor sentiment in this paper are reported in Table 1.

The most important step in the factor analysis method is to ensure that the variables are appropriate. Therefore, the KMO test and Bartlett's sphericity test were utilised. The results of these two tests about the variables of investor sentiment have been presented in Table 2. The results presented in Table 2 showed that the KMO statistic value is equal to 0.614, and since its value is higher than 0.50, it indicated that the data is suitable for performing factor analysis. Also, the results of Bartlett's sphericity test at the significance level of 0.05 are significant, indicating that there is a significant correlation between variables. In general, the results of these two tests indicated that the sample under investigation had necessary adequacy and appropriate variables are selected for performing factor analysis.

**Table 1** Descriptions of variable

<i>Variables</i>	<i>Descriptions</i>
RIPO	The average stock return on the first day of the initial public offerings of common stock.
TURN	The natural log of the share turnover ratio, detrended by the five-year moving average.
NIPO	The number of initial public offerings of common stock.
PDND	The log difference of the average market-to-book ratios of payers and non-payers.
S	The equity share is defined as gross equity issuance divided by gross equity plus gross long-term debt issuance using data from the database of the Stock Exchange (KODAL).
R <sub>s</sub>	The risk-free interest rate is calculated by the interest rate of one-year bank deposits.
CPI	The consumer price index is used as a measure of economic performance.

**Table 2** KMO and Bartlett's sphericity test

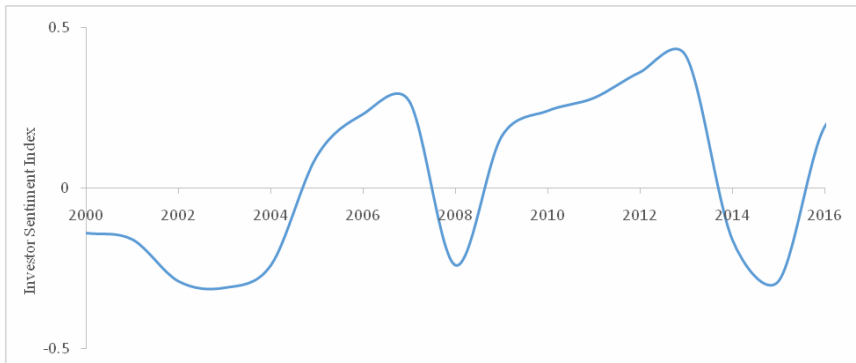
KMO-statistic	0.641
Bartlett's sphericity-statistic	78.058
P-value	0.000

After investigating the suitability of variables, to perform factor analysis, the method of factor extraction and the criterion for determining them had to be specified. The most basic method for extracting factors is the principal components decomposition method. The obtained results of the principal components decomposition method showed that only the first factor with a specific value of 1.185 had a specific value higher than 1; therefore, other factors were excluded from the analysis and all variables are aggregated in the first factor. The result of factor loads of each one of the variables based on the first principal component has been presented as a linear combination of the investor sentiment proxy as described in equation (13).

$$IS_t = 0.357 RIPO_t + 0.516 TURN_t + 0.404 NIPO_t + 0.473 PDND_t + 0.458 S_t + 0.171 R_t + 0.284 CPI_t \quad (13)$$

where  $RIPO_t$  is the average first-day return on IPOs,  $TURN_t$  is turnover rate,  $NIPO_t$  is the number of IPOs,  $PDND_t$  is dividend premium,  $S_t$  is an equity share in new issues,  $R_t$  is the risk-free interest rate and  $CPI_t$  is and the consumer price index.

Each sentiment measure is entered with the expected sign in equation (13). The monthly sentiment index of Iran's market from 2000 to 2016 is illustrated in Figure 1, which shows that the sentiment index was below zero from 2000 to 2006. This finding indicates that investors were generally pessimistic in this period. Also, the sentiment index rose sharply from 2005 to 2007 but decreased dramatically in 2008, which is very consistent with the market condition before and after the financial crisis.

**Figure 1** Sentiment index of Iran's market from 2000 to 2016 (see online version for colours)

### 3.4.2 Audit quality

Audit quality is often defined as market assessment and evaluation of the auditor's ability to detect important distortions and reporting the discovered distortions (DeAngelo, 1981). But there is an obvious problem for measuring the audit quality, which is the unobservable and perceptual audit quality. In other words, the selected factors of the researcher are the symbols of perceptual audit quality, but for operating and measuring the audit quality, it is necessary to select a scale for audit quality. Watkins et al. (2004) regarding the selection of appropriate scales for measuring audit quality stated that audit quality has been formed by two dimensions of reputation and supervision: that the reputation dimension refers to the perceived competence and independence of auditing, and the supervision dimension refers to the real competence and independence of auditing by the stakeholders. Therefore, in this research, in order to consider both dimensions of auditing and following previous researches (for example Ittonen, 2012; Robu and Robu, 2015; Elaoud and Jarboui, 2017) type of audit report, auditor size, auditor specialisation, and auditor tenure have been used as the dimension of perceived competence and independence of auditing. Moreover, the dimension of real competence and independence of auditing has been used as the dimensions of audit quality. These four variables are dummy variables and their values are 0 and 1. The method of measuring these variables is as follows:

- *Type of audit report*: an auditor report is a tool by which the auditor transfers his ideas regarding the reliability of information inserted in the financial statements to the users of financial reports (Al-Thuneibat et al., 2008). The type of auditor reports is divided into two types of unqualified opinion and qualified opinion. To calculate this variable, if the audit report is unqualified, the number 1 belongs to it, and otherwise, the number 0 is used.
- *Auditor size*: researchers use a variety of criteria to distinguish high-quality audit firms from low-quality audit firms. The revenue of audit firms, the age, and brand of the audit firms are examples of the general criteria that distinguish the quality of audit firms from each other (Boone et al., 2010). In this research, because of the high number of employees, the greater age and revenue, and also the public perception that the auditing organisation provides auditing services with greater assurance and

accuracy, and as it reduces the possibility that financial statements may be the results of fraud or negligence of management, the focus is on the auditing organisation. Therefore, to measure the auditor size, if the auditing organisation has been selected as an auditor of the company, the number 1 belongs to it, and otherwise, the number 0 is used.

- *Auditor specialisation:* to measure the auditor specialisation in line with researches such as Craswell et al. (1995) and DeBoskey and Jiang (2012), the market share approach has been used. In this approach, it is assumed that the larger the auditor's share of the market is, the greater the auditor specialisation and experience compared with other competitors are. Also, the auditor has been able to distinguish himself/herself from other competitors in terms of audit quality in a successful way. To calculate this variable, if the auditor market share is greater than the value obtained from equation (14), the auditor is an auditor industry specialist and the number 1 belonged to it, and 0 otherwise. Total revenue of all audit firms:

$$\frac{1}{\text{The number of audit firms in the industry}} \times 1.2 \quad (14)$$

The auditor market share is calculated by equation (15):

$$\text{Auditor market share} = \frac{\text{Auditor's annual revenue each firm from auditing}}{\text{Total revenue of all firms audit}} \quad (15)$$

- *Auditor tenure:* high complexities in the firms' work environment make the auditor not to be completely acquainted with the activities of the company being investigated in a short time. Therefore, the continuity in the selection and the auditor tenure lead the auditor to gradually acquire more specific knowledge in connection with the company under investigation, and this will increase the auditor's professional competence and the quality of auditing service. To measure the auditor tenure, if the auditor is the auditor of the company for four years or more, the number 1 belonged to it, and otherwise 0.

### 3.4.3 Moderating variable

To investigate the moderating variable of audit quality in the relationship between investor sentiment and stock price, in this research the interaction effect of investor sentiment and audit quality has been used. The IS  $\times$  AQ variable was formed from the IS and AQ multiplications, in which IS was the investor sentiment at the beginning of the current year, and AQ was the audit quality, that for measuring it the variables of the audit-report type (RE), the auditor size (B), auditor specialisation (S), and the auditor tenure (T) have been used. Through the replacement of these four variables instead of audit quality, the variables of interaction effect of investor sentiment and audit quality were converted to the variables of the interaction effect of investor sentiment, type of the audit report, the interaction effect of investor sentiment and auditor size, and the interaction effect of investor sentiment and the auditor specialisation and the interaction effect of investor sentiment and the auditor tenure. The method of calculating these variables was based on the aforementioned equations of equations (2) to (5).

### 3.4.4 Control variables

In this paper, variables such as firm size, market  $\beta$ , the book to market ratio, leverage, and return on assets are used to describe control variables, in which size is indicated by the market value. Market  $\beta$  is derived from the daily market returns of the previous year based on CAPM, and the book to market ratio is the corporation's book value divided by its market value. Besides, leverage is the debt to assets ratio. Return on assets is net income divided by total assets.

The detailed descriptions of variables in this paper are reported in Table 3.

**Table 3** Descriptions of control variables

<i>Variables</i>	<i>Descriptions</i>
P	The stock price at fiscal year t. P is indicated by the closing price at the end of the following April.
IS	Investor sentiment index. We select six measures and orthogonalise them on four macroeconomic variables, and SENT is calculated using the first principal component of these residuals.
RE	Auditor report, to calculate this variable, if the audit report is unqualified, the number 1 belongs to it, and otherwise, the number 0 is used.
B	To measure the auditor size, if the auditing organisation has been selected as an auditor of the company, the number 1 belongs to it, and otherwise, the number 0 is used.
S	Auditor specialisation, measured by the market share approach.
T	To measure the auditor tenure, if the auditor is the auditor of the company for four years or more, the number 1 belonged to it, and otherwise 0.
SIZE	Firm size, measured by logarithmic market value.
BETA	Market $\beta$ , which is derived from the daily market returns of the previous year based on CAPM.
BM	The market value of equity divided by the book value of equity.
LEV	Leverage, measured by the debt to assets ratio at the end of last year.
ROA	Return on assets, calculated as net income divided by total assets.

The variance inflation factor (VIF) is checked for each independent variable to ensure that there is no serious multicollinearity in the analysis. Since the VIF is not greater than 2 for any variables, we concluded that a multicollinearity problem does not exist in the models.

## 4 Results

### 4.1 Descriptive statistics

Table 4 summarises the descriptive statistics for the main variables in this paper. As the results in Table 3 show, RE (the type of audit opinion) has a mean 0.461, which indicated that of every ten audit reports, on average four opinions belong to the type of unqualified opinion. The mean of auditor size is 0.403, which showed that in the firms surveyed, out of every ten audited firms, on average, the auditing of three firms have been done by the

auditing organisation. This phenomenon could be explained through the priorities of the auditing organisation for accepting less efficient companies with lower risk levels. In some cases, this priority of the auditing organisation could also be explained by receiving high auditing and non-auditing wages. The mean of auditor specialisation in the industry is 0.346, which indicated that 34% of the under investigation audit firms were experts in their industry.

**Table 4** Descriptive statistics

<i>Variables</i>	<i>Mean</i>	<i>Median</i>	<i>Std. dev.</i>	<i>Max</i>	<i>Min</i>
P	0.168	0.142	0.050	0.761	-0.139
IS	0.273	0.310	0.135	1.187	-1.226
RE	0.461	0	0.209	1	0
B	0.403	0	0.341	1	0
S	0.346	0	0.170	1	0
T	0.665	0	0.202	1	0
SIZE	6.295	5.690	0.593	8.613	4.796
BETA	1.061	1.084	0.268	1.562	0.042
BM	0.394	0.363	0.207	1.430	-0.295
LEV	0.502	0.554	0.241	0.968	0.081
ROA	0.195	0.166	0.193	1.164	-0.247

#### 4.2 Regression-analyses

We examine the moderating role of auditor reporting type (the first variable of audit quality) on the association between investor sentiment and stock price using a panel data model, and Table 5 reports the regression results. For this purpose, in column (1), the sentiment index, in column (2), the auditor reports type, and in column (3), their interaction is respectively included as explanatory variables. Also, we include certain control variables such as firm size, market  $\beta$ , the book to market ratio, leverage, and return on assets in column (4). For columns (1) to (4), p-values of the Housman test are all smaller than 1%, implying that the fixed effect model should be applied to estimate the coefficients. In investigating the significance of each model, according to the results of Table 5, the probability of F-statistic at significance level was less than 0.01 that is confirmed with 99% confidence the significance of all models. Also, the  $R^2$  coefficients for each model are 0.210, 0.264, 0.305, and 0.512 respectively.

As shown in Table 5, the coefficients of the sentiment index are positive and significant at the 5% level even after controlling the firm size and other characteristic variables, indicating that sentiment can provide a positive effect on the stock price. In investigating the significance of interaction variable coefficient of the investor sentiment and the auditor report type, as the results in Table 5 show, the value of interaction variable coefficient of the investor sentiment and the type of audit report is equal to 0.183 and its significance level is 0.05, which according to the positive value of the coefficient the direction of this relationship is also direct. The positive and significance of the coefficient of this variable strengthened the relationship between an unqualified auditor's opinion and investors' trust and pointed to the fact that auditor

reports are among the factors that affected investor sentiment in-stock pricing. In other words, the auditor report had informative content and, along with the emotional behaviours of investors, affected the stock price jointly. Concerning the economic environment of Iran, this result can be regarded as investors' trust in auditing reports.

**Table 5** Effect moderating of auditor reporting on the stock price

<i>Variables</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>
IS	0.148* (4.529)	0.193* (3.401)	0.291* (3.055)	0.389* (3.214)
RE		0.164* (4.111)	0.218* (6.125)	0.108* (4.550)
IS × RE			0.347* (7.439)	0.183* (5.006)
SIZE				-0.959* (-3.681)
BETA				-0.031 (-1.214)
BM				-0.667* (-4.601)
LEV				-0.412 (-1.491)
ROA				0.346 (7.720)
$\beta_0$	1.102* (3.049)	0.736* (5.652)	1.566* (10.418)	0.171 (5.318)
Industry	Controlled	Controlled	Controlled	Controlled
Year	Controlled	Controlled	Controlled	Controlled
R <sup>2</sup>	0.210	0.264	0.305	0.512
D.W	1.911	2.079	1.981	2.053
F-statistic	633.212	425.143	346.356	310.956
P-value (F-statistic)	0.000	0.000	0.000	0.000
Observations	2,380	2,380	2,380	2,380
Housman test	3.329	11.791	6.550	13.418
P-value	0.000	0.000	0.000	0.000

In this part, the moderating effect of the second audit quality variable (auditor size) on the relationship between investor sentiment and stock price is investigated. The results have been presented in Table 6. In column (1), the sentiment index, in column (2), the auditor size, and column (3), their interaction is respectively included as explanatory variables. Besides, we include certain control variables such as firm size, market  $\beta$ , the book to market ratio, leverage, and return on assets in column (4). All parameters are estimated using the fixed-effect model according to the results of the Housman test. In investigating the significance of each model, according to the results of Table 6, the probability of F-statistics at the significant level was less than 0.01 that with 99% confidence, the significance of all models is confirmed. Also, the R<sup>2</sup> coefficients for each model are 0.210, 0.224, 0.267 and 0.319, respectively.



**Table 6** Investor sentiment auditor size, and stock price

<i>Variables</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>
IS	0.148* (4.529)	0.245* (6.163)	0.167* (2.603)	0.441* (3.329)
B		0.108 (1.635)	0.150 (1.047)	0.120 (1.852)
IS × B			0.183 (1.215)	0.208 (1.415)
SIZE				0.396 (2.221)
BETA				0.006 (1.058)
BM				0.054 (3.787)
LEV				1.801* (3.816)
ROA				0.907* (3.063)
$\beta_0$	1.102* (3.049)	0.803* (6.282)	0.943* (4.860)	1.747* (6.095)
Industry	Controlled	Controlled	Controlled	Controlled
Year	Controlled	Controlled	Controlled	Controlled
R <sup>2</sup>	0.210	0.224	0.267	0.319
D.W	1.891	1.943	1.910	2.079
F-statistic	633.212	342.957	288.502	138.836
P-value (F-statistic)	0.000	0.000	0.000	0.000
Observations	2,380	2,380	2,380	2,380
Housman test	4.643	5.593	19.005	12.016
P-value	0.000	0.004	0.000	0.000

As shown in Table 6, the coefficients of the value of auditor size and the interaction effect of investor sentiment and auditor size variable in the columns (2), (3), and (4) of Table 6 at the significance level of 0.05 are insignificant. This result shows that the auditor size is not only moderating and it does not affect the investor sentiment, but also it does not affect stock price and has no significant relationship with it. In other words, this result indicated that the auditor size is not a moderating variable, and did not affect the relationship between investor sentiment and stock price.

In this part, the moderating role of auditor specialisation (third audit quality variable) on the association between investor sentiment and stock price using a panel data model, and Table 7 reports the regression results. In column (1), the variable of investor sentiment, in column (2), the variable of auditor specialisation, in column (3), the interaction variable of investor sentiment and auditor specialisation, and in column (4) control variables have been respectively added to the model. All parameters are estimated using the fixed-effect model according to the results of the Housman test. In investigating

the significance of each model, according to the results of Table 7, the probability of F-statistics at the significant level is less than 0.01 that with 99% confidence the significance of all models is confirmed. Also, the moderated determination coefficients for each model were 0.210, 0.283, 0.349, and 0.471 respectively.

**Table 7** Investor sentiment, auditor specialisation, and stock price

<i>Variables</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>
IS	0.148* (4.529)	0.295* (4.772)	0.103* (2.795)	0.035* (3.008)
S		0.034* (2.492)	1.147* (3.254)	0.100* (2.149)
IS × S			0.455* (2.018)	0.121* (9.666)
SIZE				-0.945* (-3.053)
BETA				-0.003* (-2.168)
BM				-0.757* (-6.601)
LEV				-0.108* (-1.992)
ROA				0.251 (1.038)
$\beta_0$	1.102* (3.049)	0.138* (4.629)	0.336* (5.679)	3.813 (4.600)
Industry	Controlled	Controlled	Controlled	Controlled
Year	Controlled	Controlled	Controlled	Controlled
R <sup>2</sup>	0.210	0.283	0.349	0.471
D.W	2.023	2.015	1.980	2.043
F-statistic	633.212	371.112	424.477	263.882
P-value (F-statistic)	0.000	0.000	0.000	0.000
Observations	2,380	2,380	2,380	2,380
Housman test	7.202	9.745	10.203	14.888
P-value	0.009	0.000	0.000	0.000

In investigating the significance of interaction variable coefficient of the investor sentiment and the auditor specialisation, as the results in Table 7 show, the coefficient value of the interaction variable of investor sentiment and the auditor specialisation in column (4) is equal to 0.121 and it is at the significance level of 0.01, which according to the positive value of coefficient the direction of this relationship is also direct. The positive and the significance of the coefficient of this variable showed that auditor specialisation is among the factors that affected investor sentiment in-stock pricing. In other words, the auditor specialisation has informative content.

**Table 8** Investor sentiment, auditor tuner, and stock price

<i>Variables</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>P</i>
IS	0.148* (4.529)	0.611* (4.120)	0.739* (3.684)	0.110* (3.518)
RE		0.364 (1.228)	0.104 (1.317)	0.821 (0.929)
IS × RE			0.973 (1.653)	0.176 (1.910)
SIZE				-0.136* (-2.300)
BETA				-0.041 (-1.119)
BM				-1.014 (-3.092)
LEV				-1.697 (-4.555)
ROA				0.669 (3.770)
$\beta_0$	1.102* (3.049)	0.358* (4.002)	0.442* (3.406)	0.210 (2.954)
Industry	Controlled	Controlled	Controlled	Controlled
Year	Controlled	Controlled	Controlled	Controlled
R <sup>2</sup>	0.210	0.235	0.273	0.369
D.W	1.896	1.901	2.058	1.955
F-statistic	633.212	365.081	297.318	173.321
P-value (F-statistic)	0.000	0.000	0.000	0.000
Observations	2,380	2,380	2,380	2,380
Housman test	16.943	11.080	13.672	22.0352
P-value	0.000	0.006	0.000	0.001

In this part, the moderating effect of the fourth audit quality variable (auditor tuner) on the relationship between investor sentiment and the stock price has been investigated. The results are reported in Table 8. In column (1), the variable of investor sentiment, in column (2), the variable of auditor tuner, in column (3), the interaction variable of investor sentiment and auditor tuner, and in column (4) control variables have been respectively added to the model. Again, all parameters are estimated using the fixed-effect model according to the results of the Housman test. In investigating the significance of each model, according to the results of Table 8, the probability of F-statistics at the significant level is less than 0.01 that all model's significance is confirmed with the 99% confidence. Also, the moderated determination coefficients for each model are 0.210, 0.235, 0.271, and 0.369 respectively. These results showed that by using the R<sup>2</sup> changes test, the existence or absence of the auditor tuner as a moderating variable could be identified.

As shown in Table 8, the coefficients of the value of auditor size and the interaction effect of investor sentiment and auditor tuner variable in the second and third columns of

Table 8 at the significance level of 0.05 are insignificant. This result shows that the auditor tuner is not only moderating and it does not affect the investor sentiment, but also it does not affect stock price and has no significant relationship with it.

## 5 Conclusions

In this research, the moderating effect of audit quality on the investor sentiment in-stock pricing has been investigated. Thus, by investigating the audit quality literature, the four variables of the type of audit report, the auditor size, auditor specialisation, and auditor tenure have been considered. To measure the investor sentiment index, based on the principal component method, a composite proxy including the seven indexes of the average first-day return on IPOs (RIPO), turnover rate (TURN), number of IPOs (NIPO), dividend premium (PDND), equity share in new issues (S), risk free interest rate ( $R_f$ ) and the consumer price index (CPI) have been used.

The research findings in relation to the research hypothesis test and investigating the moderating effect of audit quality on the relationship between investor sentiment and stock market price showed that auditor report and auditor specialisation have informative role and affected the investor sentiment in stock pricing, in a way that the unqualified auditor's report and auditor specialisation in the industry could lead to investors' trust and affected the emotional behaviours of investors in the market. In other words, those firms that correctly display their performance and position are presented with a favourable and unqualified opinion, in such a way that it strengthens investors' trust in the information inserted in the auditor reports and the growth and attractiveness of a stock in the market. However, the research findings regarding the moderating effect of the auditor size and the auditor tuner on the relationship between investor sentiment and stock price showed that auditor size and auditor tuner did not affect the investor sentiment in-stock pricing. In other words, the type of auditing firm and auditor tenure did not have a moderating effect and could not affect the investors' emotional behaviours. Generally, the results of this research showed that among the criteria for measuring the audit quality, the type of auditor reports and auditor specialisation are more appropriate criteria for measuring the audit quality, and had a valued relationship with the investor sentiment. The obtained results related to the type of audit report in this research are more consistent with researches such as Ianniello and Galloppo (2015) and Robu and Robu (2015). With the difference that these researches have stated the direct reaction of the market to the auditor reports as the signs of the effect of audit quality on investors' behaviour in-stock pricing.

Regarding the results of the research based on the moderating effect of auditor's reports and auditor's expertise in the industry on the relationship between investor sentiment and stock price; the managers are recommended that with more supervision on the audit quality and the presentation of qualified financial statements, they can reduce the emotional and exciting behaviours of investors, and strengthen investors' trust and growth and attractiveness of a stock in the market. Also, they are recommended to improve the positive view of investors by using expert auditors and efforts to obtain an unqualified report. Investors are recommended to prioritise their investments in companies that have a high audit quality (with an unqualified report and an expert auditor), Because, increasing the audit quality leads to an increase in the information quality available to investors, a reduction in information risk and a decrease in stock price

uncertainty, and approaching the market value of the stock to its intrinsic value, thereby reducing investors' sentiment. Regarding research limitations, the effects due to factors such as inflation, the difference in accounting methods in measuring and reporting financial events can affect research results; but the effect of these factors has not been considered in the research. In this research, the effects due to the type of industry have not been considered. Regarding the severity and weakness of relations in various industries, in interpreting the results the influence of various industries should be considered.

## References

- Agyei-Mensah, B.K. and Yeboah, M. (2019) 'Effective audit committee, audit quality, and earnings management: evidence from the Ghana Stock Exchange', *International Journal of Managerial and Financial Accounting*, Vol. 11, No. 2, pp.93–112.
- Aladwan, M. and Shatnawi, Y. (2019) 'The association between accounting disclosures and stock market price: an empirical study on Jordanian commercial banks', *International Journal of Managerial and Financial Accounting*, Vol. 11, No. 1, pp.73–92.
- Al-Thuneibat, A., Khamees, B. and Al-Fayoumi, N. (2008) 'The effect of qualified auditors' opinions on share prices. Evidence from Jordan', *Managerial Auditing Journal*, Vol. 23, No. 1, pp.84–101.
- Baker, M. and Stein, J. (2004) 'Market liquidity as a sentiment indicator', *Journal of Financial Markets*, Vol. 3, No. 6, pp.271–299.
- Baker, M. and Wurgler, J. (2006) 'Investor sentiment and the cross-section of stock returns', *The Journal of Finance*, Vol. 61, No. 4, pp.1645–1680.
- Baker, M. and Wurgler, J. (2007) 'Investor sentiment in the stock market', *Journal of Economic Perspectives*, Vol. 21, No. 2, pp.129–152.
- Barberis, N., Vishny, A. and Shleifer, R.W. (1998) 'A model of investor sentiment', *Journal of Financial Economics*, Vol. 49, No. 3, pp.307–343.
- Barth, M.E. and Schipper, K. (2008) 'Financial reporting transparency', *Journal of Accounting, Auditing & Finance*, Vol. 23, No. 2, pp.173–190, <https://doi.org/10.1177/0148558X0802300203>.
- Beneish, M., Billings, M. and Hodder, L. (2008) 'Internal control weaknesses and information uncertainty', *The Accounting Review*, Vol. 83, No. 3, pp.665–703.
- Boone, J., Khurana, I. and Raman, K. (2010) 'Do the Big 4 and the second-tier firms provide audits of similar quality?', *Journal of Accounting and Public Policy*, Vol. 29, No. 4, pp.330–352.
- Bower, D.H., Bower, R.S. and Logue, D.E. (1984) 'Arbitrage pricing theory and utility stock returns', *The Journal of Finance*, Vol. 39, No. 4, pp.1041–1054.
- Brown, G. and Cliff, M. (2004) 'Investor sentiment and the near-term stock market', *Journal of Empirical Finance*, Vol. 11, No. 1, pp.1–27.
- Bushman, R.M., Piotroski, J.D. and Smith, A.J. (2004) 'What determines corporate transparency?', *Journal of Accounting Research*, Vol. 42, No. 2, pp.207–252.
- Chen, M.P., Chen, P.F. and Lee, C.C. (2013) 'Asymmetric effects of investor sentiment on industry stock returns panel data evidence', *Emerging Markets Review*, Vol. 14, No. 1, pp.35–54.
- Chousa, J.R., Cabarcos, M.L. and Pico, A.P. (2016) 'Examining the influence of stock market variables on microblogging sentiment', *Journal of Business Research*, Elsevier, Vol. 69, No. 6, pp.2087–2092, doi: 10.1016/j.jbusres.2015.12.013.
- Clinch, G., Stokes, D. and Zhu, T. (2012) 'Audit quality and information asymmetry between traders', *Accounting & Finance*, Vol. 52, No. 3, pp.743–765.

- Craswell, A., Francis, J. and Taylor, A. (1995) 'Auditor brand name reputations and industry specializations', *Journal of Accounting and Economics*, Vol. 20, No. 3, pp.297–322.
- DeAngelo, L. (1981) 'Auditor size and audit quality', *Journal of Accounting and Economics*, Vol. 3, No. 3, pp.183–199.
- DeBoskey, D.G. and Jiang, W. (2012) 'Earnings management and auditor specialization in the post-sox era: an examination of the banking industry', *Journal of Banking and Finance*, Vol. 36, No. 2, pp.613–623.
- Dhankar, R.S. and Singh, R. (2005) 'Arbitrage pricing theory and the capital asset pricing model-evidence from the Indian stock market', *Journal of Financial Management & Analysis*, Vol. 18, No. 1, pp.14–27.
- Elaoud, A. and Jarboui, A. (2017) 'Auditor specialization, accounting information quality, and investment efficiency', *Research in International Business and Finance*, December, Vol. 42, No. C, pp.616–629.
- Fama, E. and Laffer, A. (1971) 'Information and capital markets', *Journal of Business*, Vol. 44, No. 3, pp.289–298.
- Firth, M., Wang, K. and Wong, S.M. (2014) 'Corporate transparency and the impact of investor sentiment on stock prices', *Management Science*, Vol. 61, No. 7, pp.1630–1647.
- Ghasemi, L., Nazari, J. and Noorani Far, I. (2017) 'The effect of the audit report on the relevance of accounting information', *European Online Journal of Natural and Social Sciences*, Vol. 6, No. 1s, pp.135–145, ISSN: 1805-3602.
- Grigoras-Ichim, C.E. and Morosan-Danila, L. (2016) 'Hierarchy of accounting information qualitative characteristics in financial reporting', *The USV Annals of Economics and Public Administration*, Vol. 16, No. 1 (23), pp.183–191.
- Halabi, A.K., Barrett, R. and Dyt, R. (2010) 'Understanding financial information used to assess small firm performance: an Australian qualitative study', *Qualitative Research in Accounting & Management*, Vol. 7, No. 2, pp.163–179.
- Hsu, J., Young, W. and Chu, C. (2011) 'Price behavior of qualified companies around the audit report and report announcement days: the case of Taiwan', *Journal of International Financial Management and Accounting*, Vol. 22, No. 2, pp.114–130.
- Ianniello, G. and Galloppo, G. (2015) 'Stock market reaction to auditor opinions – Italian evidence', *Managerial Auditing Journal*, Vol. 30, Nos. 6–7, pp.610–632.
- Ittonen, K. (2012) 'Market reactions to qualified audit report: research approaches', *Accounting Research Journal*, Vol. 25, pp.8–24.
- Jurevičienė, D. and Ivanova, O. (2013) 'Behavioural finance: theory and survey', *Science-Future of Lithuania*, Vol. 5, No. 1, pp.53–58, DOI: 10.3846/mla.2013.08.
- Kim, T. and Ha, A. (2010) 'Investor sentiment and market anomalies', in *The 23rd Australasian Finance and Banking Conference*, August.
- Lambert, R., Leuz, C. and Verrecchia, R. (2007) 'Accounting information, disclosure, and the cost of capital', *Journal of Accounting Research*, Vol. 31, No. 2, pp.385–420.
- Lin, M.C. (2010). 'The effects of investor sentiment on returns and idiosyncratic risk in the Japanese stock market', *International Research Journal of Finance and Economics*, December, Vol. 60, pp.29–43.
- Lo, A.W. and Repin, D.V. (2002) 'The psychophysiology of real-time financial risk processing', *Journal of Cognitive Neuroscience*, Vol. 14, No. 3, pp.323–339.
- Loewenstein, G. (2000) 'Emotions in economic theory and economic behaviour', *American Economic Review*, Vol. 90, No. 2, pp.426–432.
- Ma, Z., Wu, L. and Zhou, K. (2017) *Sentiment and Audit Quality*, Working Paper, doi: 10.2139/ssrn.3023363.
- Man, M. and Gadau, L. (2012) 'The quality increasing of information in the financial statements. A rearrangement of the qualitative characteristics', *Valerian Journal of Economic Studies*, Vol. 3, No. 2, p.21.

- Masrouki, A. and Houcine, W. (2019) 'Auditor's knowledge and firms' investment decisions in MENA countries: evidence from the Tunisian context', *International Journal of Managerial and Financial Accounting*, Vol. 11, No. 1, pp.57–72.
- Menon, K. and Williams, D. (2010) 'Investor reaction to going concern audit reports', *The Accounting Review*, Vol. 85, No. 6, pp.2075–2105.
- Ni, Z.X., Wang, D.Z. and Xue, W.J. (2015) 'Investor sentiment and its nonlinear effect on stock returns – new evidence from the Chinese stock market based on panel quantile regression model', *Economic Modelling*, November, Vol. 50, No. C, pp.266–274.
- Pucheta, M., Vico, A. and Garcia, M. (2004) 'Reactions of the Spanish capital market to qualified audit reports', *European Accounting Review*, Vol. 13, No. 4, pp.689–711.
- Robu, M. and Robu, I. (2015) 'The influence of the audit report on the relevance of accounting information reported by listed Romanian companies', *Procedia Economics and Finance*, Vol. 20, pp.562–570.
- Rossi, M. (2015) 'The efficient market hypothesis and calendar anomalies: a literature review', *International Journal of Managerial and Financial Accounting*, Vol. 7, Nos. 3–4, pp.285–296.
- Rossi, M. (2016) 'The capital asset pricing model: a critical literature review', *Global Business and Economics Review*, Vol. 18, No. 5, pp.604–617.
- Rossi, M. and Fattoruso, G. (2017) 'The EMH and the market anomalies: an empirical analysis of the Italian stock market', *International Journal of Managerial and Financial Accounting*, Vol. 9, No. 3, pp.222–241.
- Rossi, M. and Gunardi, A. (2018) 'Efficient market hypothesis and stock market anomalies: empirical evidence in four European countries', *Journal of Applied Business Research*, Vol. 34, No. 1, p.183.
- Shefrin, H. (2008) 'Risk and return in behavioural SDF-based asset pricing models', *Journal of Investment Management*, Vol. 6, No. 3, pp.1–18.
- Stambaugh, R.F., Yu, J. and Yuan, Y. (2012) 'The short of it: investor sentiment and anomalies', *Journal of Financial Economics*, Vol. 104, No. 2, pp.288–302.
- Stoel, D., Havelka, D. and Merhout, J.W. (2012) 'An analysis of attributes that impact information technology audit quality: a study of IT and financial audit practitioners', *International Journal of Accounting Information Systems*, Vol. 13, No. 1, pp.60–79.
- Tao, M. (2012) *Financial Reporting Quality and Information Asymmetry: Evidence from the Chinese Stock Market*, Working Paper.
- Watkins, A.L., Hillison, W. and Morecroft, S.E. (2004) 'Audit quality: a synthesis of theory and empirical evidence', *Journal of Accounting Literature*, Vol. 23, No. 1, pp.153–193.
- Watts, R.L. and Zimmerman, J.L. (1983) 'Agency problems, auditing, and the theory of the firm: some evidence', *Journal of Law & Economics*, Vol. 26, No. 3, pp.613–633.
- Zhang, L., Ge, C. and Su, W.H. (2017) 'Does auditing quality mitigate investors' overpriced behavior? Evidence from the Chinese A-share market', *Journal of Accounting, Business, and Management (JABM)*, Vol. 24, No. 1, pp.52–63.
- Zhang, L., Ge, C. and Su, W.H. (2018) 'Auditing quality, investor sentiment, and earnings response: evidence from the Chinese A-share market', *Accounting and Finance Research*, Vol. 7, No. 2, pp.110–122.
- Zhu, B. and Niu, F. (2016) 'Investor sentiment, accounting information and stock price: evidence from China', *Pacific-Basin Finance Journal*, Vol. 38, No. 3, pp.125–134.