



## Investigation of the Information Content of Investors' Emotional Behavior and Financial Reporting Quality with Emphasis on the Role of Capital Structure and Free Float

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### ABSTRACT

The purpose of the present study is to test the information content of investors' emotional behavior and the quality of financial reporting by emphasizing the role of capital structure and free floats in listed companies in Tehran Stock Exchange. Initially, data on 110 companies were collected from the databases of the Iranian Stock Exchange during the years 2009 to 2018 and they were then analyzed in the framework of ANOVA method. In this study, the criteria for measuring financial reporting quality are Jones method, Ball and Shivakumar methods. The hypothesis testing results indicate the increasing influence of understanding the relationship between investors' emotional behavior and financial reporting quality on information content is influenced by capital structure. In other words, external supervision through receiving loans increases the information content of accounting items because with the addition of financing amounts, financial risk also increases, and shareholders behave more rationally with the perception of increased risk.

### Keywords:

Information Content - Financial Reporting Quality - Investors' Emotional Behavior - Capital Structure - Free Float.



## 1. Introduction

Accounting information is said to contain information when the users of financial statements consider them as relevant and reliable in their evaluations. Relevant information is either of predictive value or of confirmatory value. Predictive and confirmatory roles are related to information confirmatory role, and information about the current level and structure of a business entity's assets is valuable to users who are trying to predict the entity's ability to seize opportunities and respond to adverse circumstances. The same information plays a role in confirming past forecasts, such as the structure of the business unit and the outcome of operations (Jones et al., 2000). Increased quality of financial reporting is a tool to fulfill the responsibility of responding to the demands of their own communities. In addition, the quality of financial reporting has a multidimensional meaning and there is no definition that everyone agrees on (Kiani & Aghaei, 2016). Accounting is an effective tool for providing useful information for the judgment and decision making of financial statement users. As the core of many of the arguments put forward, in support of the existential philosophy of accounting knowledge, has been the emphasis on the judgment and decision-making process of users (Rahnamaye Roudposhti et al., 2013). Given the behavioral finance literature, the assumption of investors' rationality and the belief in stock market efficiency has been criticized by experts. Critics argue that, in addition to the fundamental factors, the behavioral and emotional conditions of investors should also be taken into account (Doren, 2009). Behavioral researches in accounting provides valuable insights into issues such as the processing accounting information by decision makers, their response to information, and its transmission; these insights can be used to improve decision making. On the other hand, it helps accountants increase their expertise in collecting, processing and transmitting information (Rahnamaye Roudposhti et al., 2019). The quality of financial reporting is a broad concept that not only refers to financial information but also to other non-financial information that is helpful in making decisions by users. According to the definitions of the Financial Accounting Standards Board, the International Accounting Standards Board, the British Accounting Standards Board and the Australian Accounting Standards Board, the quality of financial reporting leads to the presentation of sound and fair financial statements about the financial status and financial performance of an entity (Haras & Albarghi 2017). Based on the mentioned content in this paper, the researcher examines the information content of investors' emotional behavior and the quality of

financial reporting with emphasizing the role of capital structure and free float.

## 2. Theoretical Foundations and Literature Review

The quality of financial reporting from the perspective of (Penman 2001), is derived from the information of the companies' current period profit to predict future profits. He believes that investors are taking advantage of the company's prior-period profits to forecast future profits or in fact buy them. In this case, financial reports will be more supportive of purchasing decisions. Basically this definition of financial reporting is very general and ambiguous and it should be seen from the perspective of the individual who defines it. In another definition, the quality of financial reporting is the financial statements ability to transmit information about a company's operations, and in particular to predict its expected cash flows for the investors; this is based on the view that accruals improve the information value of earnings by reducing the effect of unstable fluctuations in cash flows (Biddle & Hillary, 2009). Free floats are a number of company stocks that are expected to be available in the near future at current prices and be available to buyers or they are part of a company stock that can be traded without any restrictions. Jafari et al. (2015) showed that there is an upside down U-shape nonlinear relationship between the percentage of free float of the company and the voluntary corporate accruals; that is, voluntary accruals increase with the increase in the percentage of a company's free float. Optional accruals decrease after the variable of the percentage of free float passes the maximum level. Short-term debt can be beneficial to managers because it can act as investment with net present value under conditions of inadequate investment; therefore, the impact of financial reporting quality on investment efficiency would be less severe in firms with shorter debt maturities and this is because delivered general information through the quality of financial reporting, is replaced due to closer and more private relationships as a result of frequent access to internal information and this is possible by shorter debt maturities. Conversely, for companies with more short maturity debt, the impact of financial reporting quality on investment efficiency could be greater if the useful effects of private and public information on investment efficiency complement each other; therefore, it can be stated that the effect of financial reporting quality on investment efficiency is under the influence of debt maturity (Mashayekhi & Mohammadpour, 2014). According to Barth and Shipper (2008), financial statements are transparent when they have features such as being comprehensive, available, reliable, relevant and timely. In fact the

financial statements include information content when they are transparent. The most important element in accounting (financial) reports and statements is net profit, and its information content, if is biased and reflects reality, is at a high level and causes information asymmetry (Darabi, Moradloo, 2011). Lack of adequate value of accounting information increases capital costs and enhances investors' emotional behaviors. The theoretical perspective is evidence that, at the micro level, investors' emotional behaviors depend on the quality and transparency of accounting information and are counted as the investors' judgment assumptions (Cronell, Landesman, & Stebben, 2017).

### 3. Research background

Hasani and Meysami (2019) conducted a test to see the effect of debt maturity and financial reporting quality on underinvestment and overinvestment. Underinvestment and overinvestment were measured using the Biddle et al. (2009) model and the quality of financial reporting was measured following the models of Dechow and Dichev (2002). The statistical sample of the study includes 219 companies listed in Tehran Stock Exchange during the period of 2009 to 2013. The results showed that debt maturity and financial reporting quality had a significant and negative effect on investment inefficiency. This test was performed separately in the observation group with overinvestment and in the observation group with underinvestment. Evidence suggests that the quality of financial reporting has a significant and negative effect on overinvestment, while it does not have a significant effect on underinvestment. Also, short-term debt maturity has no significant effect on overinvestment and underinvestment. Other results showed that operating cash flow, asset visibility, and operating cash flow fluctuation had a significant and positive effect on overinvestment, while sales fluctuation had a significant and negative impact on overinvestment. Bahar Moghaddam and Jokar (2018) examined the impact of accounting information quality and information uncertainty on investors' sentiments. For this purpose, a sample consisting of 560 years - company during the period of 2008 to 2015 was investigated using multivariate regression. The results showed that the quality of accounting information has a significant negative relationship with investor sentiment and the information uncertainty has a positive and significant relationship with investor sentiment. The results also showed that increasing the quality of accounting information and reducing information uncertainty reduce the intensity of investors' emotional behaviors in stock pricing. Safari Gerayeli & Ranaei (2017) examined the relationship between financial reporting quality and investment

efficiency and the impact of debt maturity structure on this relationship. To test the research hypotheses, a sample of 92 companies listed in Tehran Stock Exchange from 2009 to 2013 was selected. The experimental findings showed that there is a significant positive relationship between financial reporting quality and debt maturity structure with firm's investment efficiency. Karimi Harini and Hassanvand (2014) analyzed the quality of reporting and capital structure. A company can have the right capital structure when it creates more value in competitive markets and has a good coordination with external and environmental factors and has a good balance between the forces of its internal structure; these researchers have also show that the quality of financial reporting has a significant impact on the company's capital structure. Richwohrie et al. (2019) also examined the effects of financial reporting quality and disclosure of accounting information on corporate investment and stated that higher reporting quality enhances shareholders' ability to monitor managers and thereby reduce investment incentives for overinvestment. At the same time, relying on accounting information in contracts and valuation create financial reporting criteria that managers motivate to realize or exceed the criteria, partly by distorting their investment behaviors. Zhou and New (2016) argue that the quality of accounting information is linked to investors' sentiments through criteria such as accrual quality, coefficient of response to profitability, and profit sustainability, and the quality of accounting information affects investors' sentiments.

### 4. Research hypotheses

**Main hypothesis 1:** Understanding the relationship between investors' emotional behavior and financial reporting quality (Jones model) has an increasing impact on information content.

- 1-1: The increasing impact of understanding the relationship between investors' emotional behavior and financial reporting quality (Jones model) on information content is influenced by the structure of capital.
- 1-2: The increasing impact of understanding the relationship between investors' emotional behavior and financial reporting quality (Jones model) on information content is influenced by free float.

**Main Hypothesis 2:** Understanding the relationship between investors' emotional behavior and financial reporting quality (Ball model) has an increasing impact on information content.

- 2-1: The increasing impact of understanding the relationship between investors' emotional behavior and financial reporting quality (Ball

model) on information content is influenced by the structure of capital.

- 2.2: The increasing impact of understanding the relationship between investors' emotional behavior and financial reporting quality (Ball model) on information content is influenced by free float.

## 5. Research Methodology

In this research, in order to formulate the theoretical foundations, a library study method has been used. The statistical population in this research is companies listed in Tehran Stock Exchange. The companies surveyed in this study were selected through a screening sampling method. For this purpose, the following four criteria were considered and if a company met all the criteria, it could be selected as the sample and the rest were eliminated. The sample selection process is presented in the following figure.

- 1) Due to the need for 5-year earlier data, to calculate some of the research variables, the company was listed in Tehran Stock Exchange before 2003 and has not been removed from the list of stock companies by the end of 2017 and is active.
- 2) Due to the specific nature of the activities of holding companies, insurance, leasing, banks, financial and investment institutions and their significant differences with manufacturing and trading companies, the selected companies should not be among the mentioned companies.
- 3) The fiscal year of the company ends on 19 March and there must be no change in fiscal year during the research time period.
- 4) Corporate financial information is available.

**Figure 5-1- Sample Selection Process**

Total number of listed companies in stock exchange at the end of the year 2018	505
Companies are deducted due to the following restrictions:	
The number of companies that were not active on the exchange in the 2009-2018 time period	(176)
The number of companies listed in the stock exchange after 2007	(143)
The number of companies which were holding, investments, financial intermediaries, banks or leasing	(28)
The number of companies that have changed their fiscal year during the research time period or their fiscal year is not due to end on 19 March	(46)
The number of companies the information of which is not available during the research time period	(2)
Number of sample companies	110

After considering all the above criteria, 110 companies remain as the screening community, all of which have been selected as samples. Hence our observations are from 2009 to 2018 and of 1100 year-company (10 years \* 110 companies).

## 5.1. Research variables

### 5.1.1. Emotional Behavior of Stock Market Investors:

Market sentiment is the feeling of boom or stagnation in the market. When the market is booming, investors are willing to buy stocks at prices even higher than their real value. In this case, investors tend to accept more risk, which implies their trust to the market and economic conditions. In this case, they expect the market to continue the trend and predict that prices will rise again (Kim et al. 2016). There is plenty of evidence that investors overreact to new information. They tend to give more value to new information. They estimate the stock price of companies that have been successful over a period of time above its actual market price and the stock price of unsuccessful companies below its real price (Kell et al., 2016).

How to measure investors' emotional behavior:

Investors' emotional behavior is calculated using the Capital Market Sentiment Index (this index is calculated by Bandopadhyaya and Jones (2005) and by modifying the model proposed by Persaud (1996) as well as the proposed model of Setayesh and Shams Aldini (2016)).

$$SENT_i, t = D1 \times AAR_{i, t} + D2 \times AAR_{i, t} + D3 \times PE, t + D4 \times PCF_{i, t} + D5 \times SIZE_{i, t} + D6 \times GPI, t$$

D1 = is a virtual variable, such that if the firm's abnormal rate of return the year before was higher than the average abnormal market rate of return, it is equal to one and is otherwise zero.

AAR = is the abnormal rate of return which is equal to the actual rate of return minus the expected rate of return (industry average).

D2 = is a virtual variable, such that if the abnormal return rate of the company three years ago was below the average abnormal return rate of the market, it is equal to one and is otherwise zero.

D3 = is a virtual variable, such that if the ratio of price to profit per share of the previous year was greater than the average of proportion of price to profit per market share, it is equal to one and otherwise equal to zero.

PE = each share price to earnings per share ratio.

D4 = is a virtual variable, such that if the firm's profit to cash flow ratio last year was greater than the average profit to market cash flow ratio, it is one, and otherwise it is zero.

PCF = ratio of price per share to net cash flows per share.

D5 = is a virtual variable such that for small companies it is equal to one and for other companies it is zero.

SIZE = Company size which is equal to the value of each company.

D6 = is a virtual variable, such that if the company was in debt the previous year, the number is one and otherwise zero.

GP = Profit or Loss Growth Rate (current year profit or loss minus previous year profit or loss divided by previous year profit or loss)

### 5.1.2. Quality of financial reporting

According to the Conceptual Statement No. 1 of the Financial Accounting Standards Board, financial reporting should "provide useful information to assist actual and potential investors in making rational decisions." also

according to Financial Accounting Standards Board Statement No. 37, "Financial Reporting provides information that financial reporting provides information that helps actual and potential investors evaluate the amounts, timing and uncertainty of future receivable cash." (Khodaei Vole Zaghrad & Yahyaei 2010).

How to Measure the Financial Reporting Quality, the modified Jones Model 1991 (Niko Maram & Noravesh & Mehrazin, 2009).

$$TA_i = \beta_0 + \beta_1 \frac{1}{A_{i-1}} + \beta_2 \frac{(\Delta Rev - \Delta Rec)}{A_{i-1}} + \beta_3 \frac{PPE}{A_{i-1}} + \varepsilon_i$$

TA<sub>t</sub> = Total accruals of company i in year t.

1 / A<sub>t-1</sub> = Reversal of total assets at the beginning of the year t

Rev<sub>t</sub>Δ = Changes in total sales revenue this year compared to year t-1

Rec<sub>t</sub>Δ = Net changes in accounts receivable this year compared to those in the previous year t-1

PPE<sub>t</sub> = Total cost of observable fixed assets (before reduction of accumulated depreciation).

Financial reporting quality: Standard deviation of absolute value remained from the above model

### How to measure the financial reporting quality, Ball and Shivakumar method 2005 (Ghalibaf Asl et al., 2015)

$$ACCD_t = \beta_0 + \beta_1 DCF_t + \beta_2 CF_t + \beta_3 DCF_t \times CF_t + \varepsilon_t$$

ACCR<sub>t</sub> = Total accruals of company i in year t

DCF<sub>t</sub> = with values of 0 and 1 when CFO is negative 1 otherwise 0 in year t

CF<sub>t</sub> = Operating cash flow of company i in year t  
Financial reporting quality: value of the coefficient β<sub>3</sub>

### 5.1.3. Information content

Many of the company's performance evaluation models are designed based on the company's stock or profit valuation. This real earning can contain information content that is real and free from any prejudice or bias and reflects the economic reality of the business unit. The earning is effective in making decisions and has information content when it has high quality and transparency. In other words, greater transparency leads to increased information content of accounting profit (Darabi & Moradloo, 2011).

### How to measure information content (Olsen & Feltham Model, 1995)

$$R_{it} = \beta_0 + \beta_1 BVP + \beta_2 EPS + \varepsilon_{it}$$

R<sub>it</sub> = Stock returns this year

BV<sub>t</sub> = book value of equity for each share this year

EPS<sub>t</sub> = Earnings per share this year (net profit divided by number of shares)

Information content: R<sub>2</sub> values for each company is the amount of information content of the same company.

### 5.1.4. Capital structure (financial leverage)

Financial leverage is one of the most important financial concepts and has a special use and place in the capital structure. The financial leverage shows the debt to equity ratio in the firm's capital structure, and the higher the debt in the capital structure, the higher the financial leverage. Increasing shareholder wealth from debt leverage is one of the issues that should be taken into account when managing corporate finance. Financial experts are looking for the optimal combination of capital to maximize the value of the company and thereby maximize shareholder wealth. The presence of financial leverage indicates that a change in operating profit (pre-tax profit) will result in a greater profit per share in the company. Thus, despite constant financial costs, a 1% change in operating profit will result in a change of more than 1% in the company's earnings per share. The criterion for measuring this effect is usually called the degree of financial leverage (Afzalnia, 2019).

The debt to total assets ratio is used to calculate the financial leverage.

**5.1.5. Free float**

It refers to a part of share of a joint stock company the holders of which are ready to offer and sell that part of the share and they are expected to be traded in the near future. Owners of free floats do not intend to participate in the management of the company by maintaining it. In order to calculate free float, it is necessary to investigate the combination of shareholders and identify strategic shareholders. Strategic shareholders are those who, in the short term, do not intend to transfer their shares and usually wish to retain their shares for management purposes.

equilibrium point and the center of gravity of the distribution and is a good indicator of the centrality of the data. For the financial reporting quality variable, the Jones model and the Ball and Shivakumar model are 11.96, -4.46, respectively.

Based on the results of the descriptive statistics of the Jones method, it can be concluded that the scattering of financial reporting quality data is lower than those in Ball model and due to the positive skewness number, the skewness curve is to the right.

In analyzing the financial reporting quality in Ball model, since the skewness is negative, the skewness curve is to the left, and with respect to the standard deviation, it can be concluded that the dispersion of the numbers from the mean is higher than that in the other methods.

**6. Research findings**

**6.1. Descriptive statistics**

The descriptive statistics of the research variables are as follows: The mean that represents the

**Figure 6-1- Descriptive statistics table of financial reporting quality- (Jones model)**

$$TA_{it} = \beta_0 + \beta_1 \frac{1}{A_{it-1}} + \beta_2 \frac{(\Delta Rev - \Delta Rec)}{A_{it-1}} + \beta_3 \frac{PPE}{A_{it-1}} + eit$$

Number of observations 110 companies							
Kurtosis	Skewness	SD	Min	Max	Median	Mean	Variable
20.09	-0.67	0.18	-2.07	1.39	0.04	0.05	TA
19.30	1.83	0.32	-1.98	3.51	0.05	0.08	ΔREV ΔREC
8.05	2.12	0.22	0.01	1.87	0.22	0.28	PPE
14.45	2.98	9.18	1.19	88.03	9.56	11.96	FRQ-J

**Figure 6-2 Descriptive Statistics Table of Financial Reporting Quality- (Ball and Shivakumar Model)**

$$ACCD_{it} = \beta_0 + \beta_1 DCF_{it} + \beta_2 CF_{it} + \beta_3 DCF_{it} \times CF_{it} + u_{it}$$

Number of observations 110 companies							
Kurtosis	Skewness	SD	Min	Max	Median	Mean	Variable
16.35	0.24	0.18	-1.81	1.25	-0.02	-0.01	ACCD
2.76	2.18	0.34	0.00	1.00	0.00	0.13	DCF
15.85	1.64	0.17	-0.77	1.99	0.12	0.13	CF
80.24	-7.67	0.05	-0.77	0.00	0.00	-0.01	DCF*CF
360.38	-18.98	87.38	-1672.24	122.13	0.00	-4.46	FRQ- BAL

**Figure 6-3 Descriptive statistics table - Investors' emotional behavior**

$$SENT_{it} = D_1 \times AAR_{it} + D_2 \times AAR_{it} + D_3 \times PE_{it} + D_4 \times PCF_{it} + D_5 \times SIZE_{it} + D_6 \times GP_{it}$$

Number of observations 110 companies							
Kurtosis	Skewness	SD	Min	Max	Median	Mean	Variable
-1.92	0.27	0.49	0	1	0	0.433	D1
-1.9	-0.19	0.49	0	1	1	0.54	D2
1091.55	32.97	2395.63	-1435.16	79360	6.01	94.28	P/E
4.39	2.52	0.31	0	1	0	0.10	D3
-0.84	1.07	0.44	0	1	0	0.26	D4
92.18	8.24	199.66	0.65	3205.28	23.80	74.19	PCF
0.78	0.60	1.43	10.03	19.24	13.74	13.89	SIZE
-0.82	-1.08	0.44	0	1	1	0.73	D5
3.07	2.25	0.33	0	1	0	0.12	D6
874.76	-28.54	102.06	-3195.41	78.86	0.020	-4.55	GP
110.11	8.27	206.76	-1714.61	3590.62	14.10	59.53	sent

By analyzing the results of the descriptive statistics of the emotional behavior of the investors, it can be stated that the sample size is 13.89 on average, the highest is 19.24 and the lowest is 10.03 and the average price-to-earnings ratio is 94.28. Given that the standard deviation of the variable emotional behavior of investors is relatively high and considering the minimum and maximum data, it can be concluded that the data dispersion from the mean is high and the data have positive skewness.

By analyzing the results of the descriptive statistics of the information content model it can be stated that the average stock return in the studied sample is 0.43 and considering that the stock return in the sample is also negative, the average return of the statistical

sample of companies is appropriate. The coefficient of determination of the information content model, which indicates the amount of information content, is 0.56, therefore it can be expressed that the mean of information content of the studied sample is appropriate.

Analyzing the results of the descriptive statistics of the above table showed that the mean of the financial leverage is 0.63 and the median is also 0.63 which indicates that the data are in good homogeneity.

Analysis of the results of the descriptive statistics of the above table showed that the average percentage of free float in the sample is 21% and the maximum of this variable is 77% in the sample companies.

Figure 6-4 Descriptive statistics table - Information content model

Number of observations 110 companies							
Kurtosis	Skewness	SD	Min	Max	Median	Mean	Variable
14.45	3.07	-0.92	-0.78	8.10	0.14	0.43	R
5.64	1.28	1852.82	-6973.4	12731.20	1166.60	2214.85	BV
8.4839	2.09208	1274.32	-4019.94	9144.67	433.37	763.00	EPS
-1.17	-0.21	0.29	0.001	0.99	0.57	0.56	R <sup>2</sup>

Figure 6-5 Descriptive statistics table - Information content model with capital structure variable

$$R_u = \beta_0 + \beta_1 BVP + \beta_2 EPS + \beta_3 EPS + \beta_4 LEV + \epsilon_u$$

Number of observations 110 companies							
Kurtosis	Skewness	SD	Min	Max	Median	Mean	Variable
14.45	3.07	-0.92	-0.78	8.10	0.14	0.43	R
5.64	1.28	1852.82	-6973.4	12731.20	1166.60	2214.85	BV
8.4839	2.09208	1274.32	-4019.94	9144.67	433.37	763.00	EPS
35.16	3.33	0.24	0.09	1.56	0.63	0.63	LEV
0.38	-1.18	0.24	0.28	0.99	0.89	0.78	R <sup>2</sup> LEV

Figure 6-6 Descriptive statistics table - Information content model with free float variable

$$R_u = \beta_0 + \beta_1 BVP + \beta_2 EPS + \beta_3 FF + \epsilon_u$$

Number of observations 110 companies							
Kurtosis	Skewness	SD	Min	Max	Median	Mean	Variable
14.45	3.07	-0.92	-0.78	8.10	0.14	0.43	R
5.64	1.28	1852.82	-6973.4	12731.20	1166.60	2214.85	BV
8.4839	2.09208	1274.32	-4019.94	9144.67	433.37	763.00	EPS
0.33	0.83	0.14	0	0.77	0.19	0.21	FF
0.34	-1.13	0.23	0.30	0.99	0.87	0.78	R <sup>2</sup>

### 6.2. Testing hypotheses

In this study, a two-stage approach was used to analyze and test research hypotheses.

#### Step 1- ols test

To estimate the model parameters, the OLS method, or ordinary least squares method, is used. First, in terms

of investors' emotional behavior, companies are divided into three categories of high, medium and low emotional behavior, and then the quality of financial reporting used in this study was categorized in three groups of high, medium and low. Three methods were used in this study.

Then the coefficient of determination of the information content of companies in each matrix tested by the ols method, was calculated which is as follows:

**Figure 6-7 Relationship matrix of investors' emotional behavior and financial reporting quality**

SENT <sub>L</sub> ,FRQ <sub>L</sub>	SENT <sub>L</sub> ,FRQ <sub>M</sub>	SENT <sub>L</sub> ,FRQ <sub>H</sub>
SENT <sub>M</sub> ,FRQ <sub>L</sub>	SENT <sub>M</sub> ,FRQ <sub>M</sub>	SENT <sub>M</sub> ,FRQ <sub>H</sub>
SENT <sub>H</sub> ,FRQ <sub>L</sub>	SENT <sub>H</sub> ,FRQ <sub>M</sub>	SENT <sub>H</sub> ,FRQ <sub>H</sub>

**Figure 6-8 Investors' emotional behavior and financial reporting quality, Jones model Ols method**

High	Medium	Low	emotional financial reporting quality behavior
58.0000	1.0000	2.0000	Low
01.0000	3.0000	7.0000	Medium
.0000	.0000	8.0000	High

**Figure 6-9 Investors' emotional behavior and financial reporting quality, Ball model Ols method**

High	Medium	Low	emotional financial reporting quality behavior
30.0000	56.0000	4.0000	Low
9.0000	29.0000	.0000	Medium
87.0000	7.0000	09.0000	High

**Step 2- ANOVA test**

At this stage the companies are divided into two groups:

Group 1: Normal and reasonable behavior of investors, the companies that meet the following requirements are in this group:

A: Companies with high reporting quality and low emotional behavior.

B: Companies with low reporting quality and high emotional behavior.

Group 2: The abnormal and irrational behavior of investors, companies that meet the following criteria are in this group:

A: Companies with high reporting quality and high emotional behavior.

B: Companies with low reporting quality and low emotional behavior.

ANOVA comparisons were performed on each of the matrices resulting in the 9 portfolios of groups 1 and 2. The results of this test are as follows:

In the first hypothesis, the relationship between investor's emotional behavior and financial reporting quality of the Jones model and the role of information content are examined.

**Figure 6-10 Investors' emotional behavior and financial reporting quality, Jones model - ANOVA method**

The probability value	F statistic	Mean square	Degree of freedom	Sum of squares	reporting quality Jones model
.071	3.285	.300	1	.300	Variance between groups
		.091	488	44.530	Intergroup variance
			489	44.830	Total

Mean of Group 1: 0.556 Mean of Group 2: 0.517

H0: There is no significant difference between the mean of the first and second groups.

H1: There is a significant difference between the mean of the first and second groups.

According to the results of the research, there is a significant relationship between group 1 and group 2 investors' emotional behavior and financial reporting quality of Jones at confidence level %10, and the mean coefficient of determination of information content model in group 1 is higher than that in group 2; thus the hypothesis of "understanding the relationship



between investors' emotional behavior and financial reporting quality (Jones model) has an increasing impact on information content" is confirmed. The following table shows results of retesting the information content model with capital structure variable (financial leverage) which indicate that the increasing impact of understanding the relationship between investors' emotional behavior and financial reporting quality (Jones model) on the information content is influenced by capital structure (Financial leverage) of the company.

**Mean of Group 1:** 0.809 **Mean of Group 2:** 0.756

H0: There is no significant difference between the mean of the first and second groups.

H1: There is a significant difference between the mean of the first and second groups.

According to the following table, the information content model was re-tested with the free float and the results showed that the increasing influence of understanding the investors' emotional behavior and financial reporting quality (Jones model) on the information content is not affected by the free float.

**Mean of Group 1:** 0.783 **Mean of Group 2:** 0.772

H0: There is no significant difference between the mean of the first and second groups.

H1: There is a significant difference between the mean of the first and second groups.

The second hypothesis examines the relationship between investors' emotional behavior and the financial reporting quality by Ball model and the role of information content.

**Mean of Group 1:** 0.514 **Mean of Group 2:** 0.556

H0: There was no significant difference between the mean of the first and second groups.

H1: There is a significant difference between the mean of the first and second groups.

According to the results of the research, there is a significant relationship between group 1 and group 2 investors' emotional behavior and financial reporting quality of Ball model at confidence level %10, but the mean coefficient of determination of information content model in group 1 is not higher than that in group 2; thus "understanding the relationship between investors' emotional behavior and the quality of financial reporting (Ball model) has an increasing impact on information content" is not confirmed." The following table shows the results of retesting the information content model with capital structure variable (financial leverage) and they indicate that the increasing impact of understanding the relationship between investors' emotional behavior and financial reporting quality (Ball model) on information content is influenced by capital structure (Financial leverage) of the company.

**Mean of Group 1:** 0.755 **Mean of Group 2:** 0.804

H0: There is no significant difference between the mean of the first and second groups.

H1: There is a significant difference between the mean of the first and second groups.

According to the following table, the information content model was re-tested with the free float variable and the results showed that the increasing influence of perception of investors' emotional behavior and financial reporting quality (Ball model) on the information content is not affected by the free float.

**Mean of Group 1:** 0.768 **Mean of Group 2:** 0.788

H0: There is no significant difference between the mean of the first and second groups.

H1: There is a significant difference between the mean of the first and second groups.

**Figure 6-11 Investors' emotional behavior and financial reporting quality, Jones model - Capital structure- ANOVA Method**

Value of probability	statistic F	Mean square	Degree of freedom	Sum of squares	Capital structure
.18	5.656	0.342	1	0.342	Variance between groups
		.060	488	29.518	Intergroup variance
			489	29.860	Total

**Figure 6-12 Investors' emotional behavior and financial reporting quality, Jones model - Free float –ANOVA method**

Value of probability	statistic F	Mean square	Degree of freedom	Sum of squares	Free float
0.600	0.276	0.015	1	0.015	Variance between groups
		.055	488	27.007	Intergroup variance
			489	27.022	Total

**Figure 6-13 Investors' emotional behavior and financial reporting quality, Ball model - ANOVA Method**

Value of probability	statistic F	Mean square	Degree of freedom	Sum of squares	financial reporting quality Ball model
.082	3.040	.274	1	.274	Variance between groups
		.090	487	43.958	Intergroup variance
			488	44.232	Total

**Figure 6-14 Investors' emotional behavior and financial reporting quality, Ball Model - Capital structure - ANOVA Method**

Value of probability	statistic F	Mean square	Degree of freedom	Sum of squares	Capital structure
.33	4.573	0.284	1	0.284	Variance between groups
		.062	487	30.204	Intergroup variance
			488	488.30	Total

**Figure 6-15 Investors' emotional behavior and financial reporting quality, Ball model - Free float - ANOVA Method**

Value of probability	statistic F	Mean square	Degree of freedom	Sum of squares	Free float
0.358	0.847	0.047	1	0.047	Variance between groups
		.055	487	907.26	Intergroup variance
			488	26.953	Total

## 7- Discussion and Conclusion

Financial reports should include information needed to evaluate the financial status and financial foundation of the firm, its performance and profitability, evaluate how it is financed and how it spends the cash, the supervisory responsibility of the manager and performing legal responsibilities, to provide complementary information to better understand presented financial information and as a result be able to provide a forecast of the future. As it is clear, these reports are of great importance in achieving the mentioned goals and enhancing their quality can help companies invest more efficiently and preserve and develop their resources. Recent research suggests that the quality of financial reporting can have significant economic consequences for the firm (Daniel et al., 2010). One of the proven subjects in psychology is the effectiveness of people's emotions on their decision making and judgment about future events. So that when people have positive emotions, make optimistic choices and when they have negative emotions, make pessimistic choices. Market sentiment reflects investors' attitude towards the quality of information in the market (Soroushyar & Ahmadi, 2016). The quality of accounting information usually indicates that the information is produced on the basis of generally accepted principles, such as international standards in accounting or auditing. Thus, if companies provide high quality and transparent accounting information, this quality and transparency in the presentation of accounting information can affect the judgment and consequently investor preferences and reduce the stock pricing error, which

also show that the quality and transparency of accounting information has both a direct impact on investors' sentiments and a moderating impact on the relationship between investors' sentiments and information content. The purpose of the present study is to test the information content of investors' emotional behavior and financial reporting quality with emphasis on the role of capital structure and free float in companies listed in Tehran Stock Exchange. The results of testing the research hypotheses using 110 firms listed on the Tehran Stock Exchange showed that in Ball and Jones models, the increasing impact of understanding the relationship between investors' emotional behavior and financial reporting quality on the information content is affected by the capital structure. In other words, outsourcing through receiving loans from bank increases the information content of accounting items because with the addition of financing amounts, financial risk also increases, and shareholders behave more rationally with increased risk perception. The results of testing the research hypotheses provide an experimental mechanism on how the investors' sentiments and accounting information have a common influence on information content and the role of capital structure. Given that the results of the study showed that capital structure, which is one of the criteria for financing and influences investors' preferences; the investors are recommended to, when there is emotional news in the market, act along with analysis of the capital structure of the company and in line with buying or selling shares. It is also possible to reduce shareholders'

emotional behavior through receiving loans from bank and increasing company debt levels.

In this study, the effects of macro factors such as inflation can affect the results; the effects of these factors as well as the effects of industry type are not considered. Due to the severity and weakness of the relationships in different industries, they should be noted at the time of interpreting the results. Finally, some intra-organizational factors or some managers' self-interest policies may influence the results of the research; these factors have not been considered in the research.

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