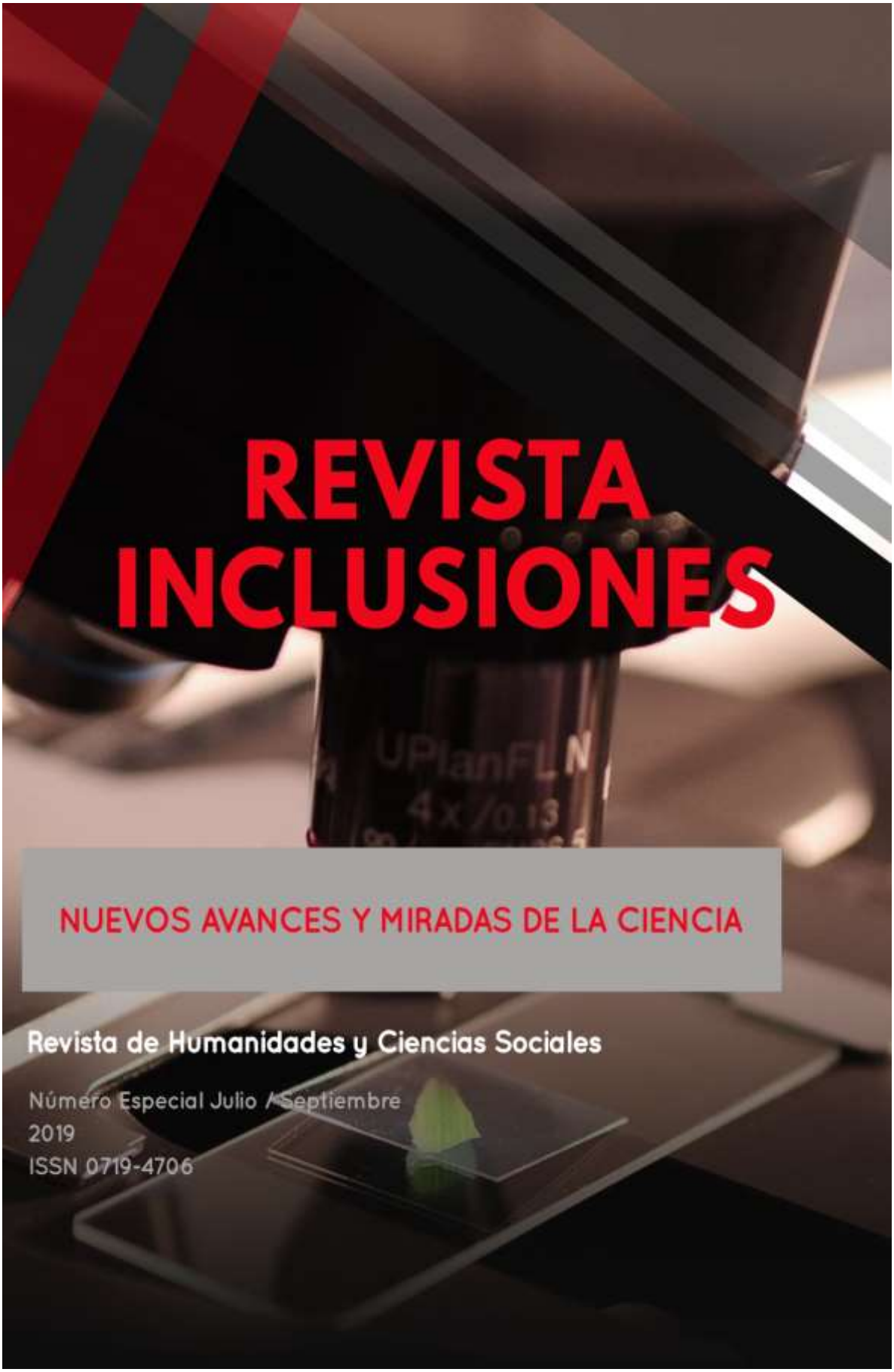

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INSTITUTIONAL AND INDIVIDUAL INVESTOR'S PREFERENCES IN THE CRUDE OIL AND NATURAL GAS BUSINESS CYCLE

Samad Ayazi
Gorgan Branch, Islamic Azad University, Gorgan, Iran
Mansour Garkaz
Gorgan Branch, Islamic Azad University, Gorgan, Iran
Parviz Saeedi
Aliabat Katoul Branch, Islamic Azad University, Aliabat Katoul, Iran
Alireza Maetoofi
Gorgan Branch, Islamic Azad University, Gorgan, Iran

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Abstract

The main purpose of this paper is to test which firm's characteristics attract institutional and individual investors in crude oil and natural gas Business cycle. The data about business cycle is obtained from statistics center of the Islamic Republic of Iran and the data about investment of investors, collected from explanatory notes to financial statements of 222 listed companies of the Tehran Stock Exchange during the years 2006 to 2015.This research is a purposeful, applied and methodological descriptive of correlation type. The present study is theoretically positive and inductive in terms of reasoning. The results of the research indicate that investor preferences in different industries are very important between institutional investors and individual investors, and institutional investors have a lower percentage of investment changes than individual investors. Also, the findings shown that the characteristics of the active industries in Iran have affected the preferences of institutional and individual investors in the in crude oil and natural gas business cycle. According to the findings, the crude oil and natural gas business cycle has experienced a recession in the years 2006 and 2012 through 2014 during the and there were boom in other years. The peak point is 2011 and the point perigee is 2012.

Keywords

Investor preferences – Institutional investors – Individual investors

Para Citar este Artículo:

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Introduction

Institutional investors are one of the major actors in the capital market. Their ability is a function of their investment level. Investors have different preferences for selecting the stocks, and accordingly, they give different weights to each stocks selection criterion. Institutional investors purchase stocks from real investors in response to the news of the desired cash flows using the under-response phenomenon. However, institutional investors do not really pursue immediate price-related strategies. When prices increase in the absence of positive cash flow news, institutional investors sell their stocks to real investors. Institutional investors are large investors, such as banks, insurance companies, and investment companies that large volume of their operations return to their stocks trading. Based on the Clause 27 of the Article 1 of the Law on Securities of the Islamic Republic of Iran, institutional investors include banks and insurances, holdings, investment companies, pension funds, investment supply companies and investment funds registered in the Securities and Exchange Organization, any real or legal person rights which purchase more than 5% or more than 5 billion Rials of the nominal value of the issuer's securities, governments and public organizations, public companies and board members and issuer managers or individuals who have same function. It is difficult to hold investors after a long-term recession. Although investors perceive the concept of business cycles, they are generally not optimistic about improving conditions in a recession. Thus, recognizing and investigating commercial cycles and its impact on investors' preferences can help capital sector actors make the right decisions in an economic recession and a boom status. Given what was stated above, it is important to investigate the oil variable as a risk factor in asset pricing model. Investigating the business cycle of crude oil in Iran is important since Iran's economy is highly dependent on oil and changes in the Iran's economy depend on the changes in its oil incomes. As a result, by recognizing the business cycles created in the economy, it is necessary to identify and use it in decision makings. Increasing the intensity of business cycles will increase the instability in the economy, so investors cannot predict a clear picture of the future. Institutional investors, as a group of investors, play an important role in the economic development of the capital market due to access to large financial resources. Thus, the present study aims to answer this question: based on which components, the investors' preferences in the business cycle of crude oil and natural gas are codes?

Theoretical principles and review of litrature

According to the rational economic man theory, investors consider all aspects while investing and they adopt the most rational decision. However, in some cases, some factors lead to irrational behavior and affect one's decision making process. It results from the ineffectiveness of financial markets. In fact, economic agents in behavioral models, unlike the neoclassical theories, are not rational. However, due to their preferences or due to cognitive errors, they do not behave completely rational. The prospect theory presented by Kahneman and Tversky in 1979, to investigate the behavioral decision-making model, aims to explain how the emotions and psychological preferences of individuals influence their decision making. This model shows how individuals sometimes systematically ignore the principle of utility, which is one of the basic principles of rational schools from the economic human perspective and behave in contrast to rational principles. According to the wave theory, any event may affect the stock market and the investors' preferences in investing in stocks or its selling. In this regard, economic and political events have more impact on the economic activity of firms and investors.The theory of trust states that the main factor in stock Price changes is the increase or decrease of investors 'trust in the

future of stock prices, the income of each share and dividend. According to this theory, market psychosocial atmosphere has higher preference in stock price justification compared to statistical analysis. As institutional investors have more access to information of company and can effectively control the performance of the company managers, their investment models may also be different from individual investors. It is assumed that institutional investors have more stock selection ability compared to individual investors. They should be able to provide a more accurate estimate of the intrinsic value of companies to predict future performance of the stock price. Thus, institutional investors will purchase the stock that they think will be successful in future and sell the stock that they predict, it will not be successful, and this prediction will be more accurate than that of the individual investors.

Moreover, since as individual investors are trading against institutional investors, they will more likely purchase the future unsuccessful stocks and sell future successful stocks. One of the most effective external control mechanisms of corporate governance is the emergence of institutional investors. The institutional stakeholders are making use of their influence on corporate behavior in several ways. They may influence the company operational decisions through management monitoring and improve the selection of the projects and the level of investment and reduce the probability of lost resources. The results showed that international policies affect the production and exploitation of oil and gas industries in the oil-rich countries and this positive relationship affects the environment of the country and institutional investors change their preference. Somia Guyoha[1] examined investor preferences and the characteristics of companies in India. Based on the results, investors tend to invest in high-profit companies, large companies, and high return companies. Ashrafi et al.[2] examined the preferences of institutional investors in Malaysia. The results of their research showed that institutional investors in Malaysia have invested more in large size companies, with the volume of tangible assets, high return on assets and high growth rate, and with operating leverage, corporate governance and low business risk. In addition, institutional investors have changed their preferences during different periods and have been more conservative in their investment decisions .Yihong Deng and Yongxing[3] examined the institutional investors' ability in stocks selection in China. They used 18-month data of individual and institutional investors to examine whether institutional investors in China have a higher ability than individual investors to select the stocks. They found that the ability to select the stocks by institutional investors in China is higher than that of individual investors .Gompers and Metrick[4] investigated the relationship between institutional ownership and stock characteristics.

They found evidence that suggests institutional investors prefer stocks with high market value, stocks with high liquidity and the change in such preferences over time. They showed that large institutional investors, compared to other investors, prefer to invest

[1] Guha Soumya, "Institutional Investors and firm characteristics: new evidence from India", Research in International Business and Finance Vol: 12 (2017): 45-63.

[2] Majid Ashrafi & Muhammad Joriah, "The preferences of Malaysian Institutional Investors: do they change their preferences during Time?", International Journal of Business and Society, Vol: 14 num 3 (2013).

[3] Deng Yihong and Xu Yongxing, "Do institutional investors have superior stock selection ability in China ", China Journal of Accounting Research, Vol: 4/3 (2011): 107-120.

[4] P. A. Gompers and A. Metrick, "Institutional Investors and Equity prices", Journal of Economic. Vol: 116 num 1 (2011): 229-259.

in large companies stocks with high liquidity. Pour Heydari and Ahmad Pour[5] examined the behavior of accounting data with regard to business cycles in Tehran Stock Exchange. This study also examines the behavior of accounting data with regard to business cycles by considering the specific characteristics of companies. The results of this study revealed a significant relationship between some of the accounting variables, such as sales growth and margin of profit and business cycles. In addition, the results of this study showed that the relationship between accounting data and business cycles is influenced by company size or non-cyclicality and cyclicality of the companies. Nemazi and Kermani[6] (2008) examined the impact of ownership structure on the performance of listed companies in Tehran Stock Exchange. Their research results showed a significant and negative relationship between "institutional ownership" and company performance and a significant and positive relationship between "corporate ownership" and company performance.

Research hypotheses

As institutional and individual investors are examined in this studyand we aim to design and code a preferential behavior model for actors in the capital market, it can be satedthat a conceptual model with this structure has been investigated for the first time in Iran and it applies a comprehensive coverage on the behavior of investors. Thus, the main objective and question is at the heart of the study.The aim of this study is to explain and design a preferences model for investors based on the business cycle of crude oil and natural gas. In line with the main objective of this study, this question is asked that which factors are coded in the preferences of investors in the business cycle of crude oil and natural gas.

The coded conceptual model is as follows in Figure 1:

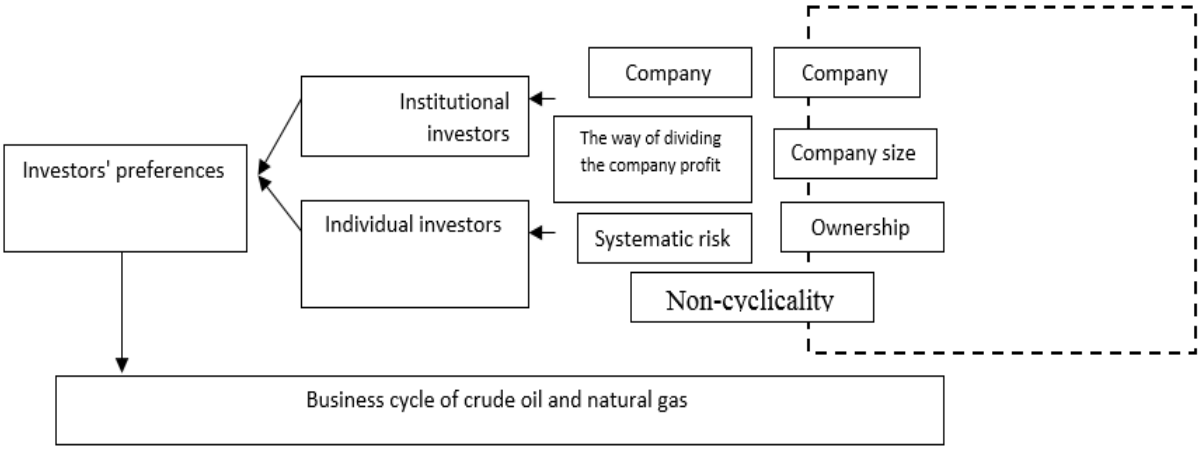

Figure 1
Research proposed model

[5] O. Pour Heydari and D. Alipour, "Investigating the relationship between accounting data and business cycles in Tehran Stock Exchange", Journal of Financial Accounting Research, Vol: 3 Issue 2 (2011): 1-16.

[6] M. Namazi and E. Kermani, "The effect of ownership structure on performance of listed companies in Tehran Stock Exchange", Journal of Accounting and Auditing Reviews, Issue 53 (2008): 83-100.

To answer the main research question, the following hypotheses are presented based on the previous studies and theories:

Hypothesis 1: The preferences of investors in the business cycle of crude oil and natural gas are based on the size of companies.
Hypothesis 2: The preferences of investors in the business cycle of crude oil and natural gas are based on the growth of companies.
Hypothesis 3: The preferences of investors in the business cycle of crude oil and natural gas are based on dividing or not dividing of profits by companies.
Hypothesis 4: The preferences of investors in the business cycle of crude oil and natural gas are based on the ownership structure of companies.
Hypothesis 5: The preferences of investors in the business cycle of crude oil and natural gas are based on the systematic risk of companies.
Hypothesis 6: The preferences of investors in the business cycle of crude oil and natural gas are based on the performance of companies.
Hypothesis 7: The preferences of investors in the business cycle of crude oil and natural gas are based on the cyclicality or non-cyclicality of the companies.

Methodology

The present study is an applied research in terms of objective and post hoc quasi-experimental in terms of data collection method. It has been conducted in the area of positive accounting studies. In this research, the deductive method was used to study the theoretical foundations on the variables to calculate the values of the variables according to the appropriate methods. Then, inductive method was used to examine the significance of the relationship between the variables of the research. Data on the crude oil and natural gas business cycle were collected from the information disclosed on the Islamic Republic of Iran Statistic Center site and the data related to individual and institutional investors was also extracted from the notes on the financial statements of 222 listed companies in the Tehran Stock Exchange. These companies should not change their fiscal year during the years 2006 to 2015 and all data required for the studied companies should be available completely and continuously in the years studied. Given what was stated above and review of the research literature, the model used in this study is as follows:

$$PREF_{it} = \beta_0 + \beta_1 Size_{it} + \beta_2 Structure_{it} + \beta_3 Risk_{it} + \beta_4 Performance_{it} + \beta_5 Growth_{it} + \beta_6 Divit + \beta_7 Cycle_{it} + \varepsilon_{it}$$

Table 1 the summary of research variables is as follows:

Measurement criterion	Symbol	Variable name
The highest point is 1 and the lowest point is zero	Value	Commercial cycle of crude oil and natural gas
Natural logarithm of assets	Size	size of the company
Government ownership takes the value 1 and private ownership takes the value zero	Structure	Ownership structure
Beta index	Risk	Systematic Risk Factor
Net profit divided by equity	Performance	Equity performance ratio
Net profit of current year minus net profit of the previous year divided by net profit of previous year	Growth	Net profit growth

Companies that had profit division take the value 1 and the companies that do not have profit take the value zero	Div	Division of profit or non-division of profit
Cyclical companies take the value 1 and non-cyclical companies take the value zero	Cycle	Cyclicality or non-cyclicality

Table 1
Research variables

Business cycle of crude oil and natural gas

The business cycle explains the change in economic and business activities over time[7]. For the business cycle, Eviews and Hodrick-Prescott filter (HP) and Baxter King's filter software was used for de-processing. In the year when the value of gross production of crude oil and natural gas is larger than the trend value, the year will be boom period and in the year when the value of gross production of crude oil and natural gas is less than the process value, the year will be recession period. The highest point in the boom period is considered as the boom and the lowest point is also considered as the recession period[8].

Investors' preferences

In this study, investors' preferences include two sections of the preferences of institutional investors and individual investors. Investors' preferences have been investigated in seven areas of company size, company growth, and division of profit or non-division of profit, ownership structure, and systematic risk factor, performance of companies, and cyclicality or non-cyclicality of companies.

- Company size: In this study, the natural logarithm of the assets was used to measure the size of the company. The number 1 is considered for large companies and the number zero is considered for small companies.
- Return on equity (ROE) ratio: This ratio examines the ratio of the company's efficiency in creating net profits on equity. The computational equation of the above ratio results from the division of net profit into equity. The number 1 is considered for a company that has a positive (profitable) performance, and the number zero is considered for a company with a negative performance.
- Systematic risk factor: Using daily stock returns over the past 12 months, OLS regression was implemented, resulting in a beta coefficient used as systematic risk assessment.
- Cyclicality or non-cyclicality of companies: Cyclical industries are industries that are facing a variable demand for their products. Demand increases with the economic boom, but decreases with the recession. Non-cyclical industries are facing a sustained demand and generally, economic conditions do not affect the demand for their products. In this research, Fama and French classification were used to determine cyclicality and non-cyclicality of the industries. Fama and French have classified the food industries, pharmaceutical industries, financial services, public service industries (water, electricity, telephone and gas companies) as non-cyclical industries and other industries as cyclical industries.

[7] O. Pour Heydari and D. Alipour, “Investigating the relationship between accounting…
[8] S. A. Soltani and F. Ismaeili, “The effect of the business cycle on the sustainability of bankruptcy forecasting models”, Empirical Accounting Researches, Vol: 4 Issue 13 (2014): 1-22.

- Dividing or not dividing profits: number 1 is considered for the companies that have had profit distribution, otherwise, they take the number zero.
- Profit growth: To examine the growth of the company, profit growth index and the ratio of net profit of the current year minus net profit of the previous year divided by net profit of the previous year, were used.
- Ownership structure: government-owned companies or the companies that more than 50 percent of their shares are owned by government organization stake the number 1, while the companies owned by non-government organizations take the number zero.

Results

Descriptive statistics

The industries studied in this study are classified into 12 industries based on their type of activity. These industries are listed in Table 2.

row	Industry	n	Sum of observations	%	Combined number	Combined percentage
1	Banks and monetary, financial and credit institutions	9	90	4.05	90	4.05
2	Equipment and machinery	10	100	4.50	190	8.55
3	Automobile and parts	32	320	14.41	510	22.96
4	food	20	200	9.01	710	31.97
5	Medicine and medical instruments	24	240	10.81	950	42.78
6	Chemically	21	210	9.46	1160	52.24
7	Extraction of coal, oil and gas	35	350	15.77	1510	68.01
8	Telecommunication and communication equipment	3	30	1.35	1540	69.36
9	Transport and communications	4	40	1.80	1580	71.16
10	Non-metal minerals and others	46	460	20.72	2040	91.88
11	Computer	4	40	1.80	2080	93.68
12	Basic Metals	14	140	6.32	2220	100
Total		222	2220	100	2220	100

Table 2
Classification of industries by type of activity

Descriptive statistics- The parameters related to the estimation of mean, variance and correlation are as follows:

Description	Preferences	Company size	Ownership structure	Risk	Performance	Industry type	Growth	Profit division	Cyclonical
mean	55.89	60.06	0.92	0.66	0.27	6.46	- 0.64	0.78	0.75
median	1.58	5.93	0.00	0.44	0.28	6.00	0.03	1.00	1.00
max	6783.81	9.25	1.00	22.38	8.57	12.00	69.91	1.00	1.00
min	-817.6	4.27	0.00	35.01-	7.29-	1.00	-828.25	0.00	0.00
SD	305.52	0.75	0.29	1.92	0.58	3.08	21.93	0.41	0.43
Skewness	12.75	1.01	2.80	2.71-	-0.83	0.06	-28.41	-1.35	1.16-

kurtosis	238.09	4.54	8.86	96.18	60.63	1.87	972.78	2.83	2.36
Normality	5265954	612.02	6200	820462	313102	120.64	888866995	694.65	552.15
Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	126315.8	13709.18	210	1514.08	617.16	14620.00	1464.-92	1764.00	1700.00
Sum of squares	2.11	1293.42	190.48	8344.28	761.26	21502.83	1086941	387.14	421.23
observations	2220	2220	2220	2220	2220	2220	2220	2220	2220

Table 3
Descriptive statistics
Source: research findings

Findings of the business cycle of crude oil and natural gas

Diagram shows the research findings on the business cycle of crude oil and natural gas during the study period in Figure 2.

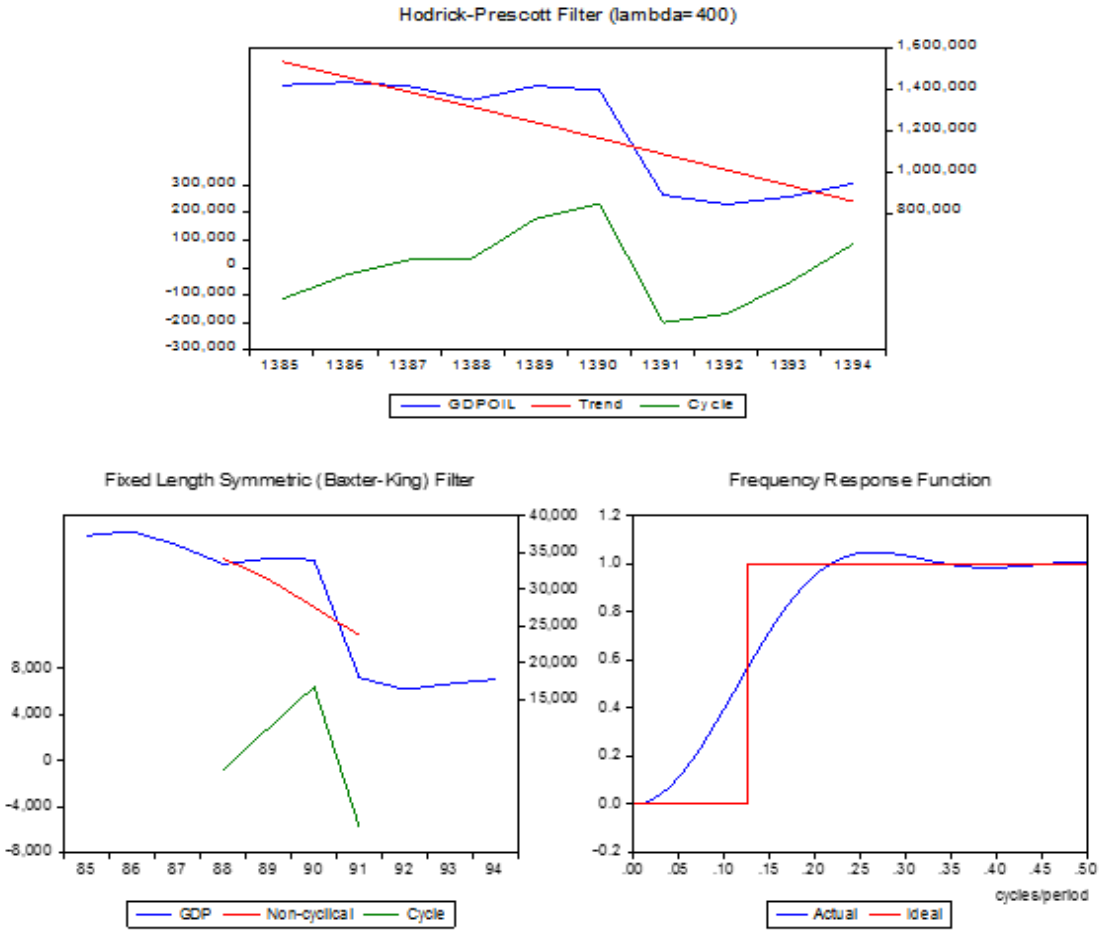

Figure 2
Diagram for business cycle of crude oil and natural gas
Source: research findings

According to the diagram of research findings, regarding the business cycle of crude oil and natural gas, the relevant business cycle shows the recession period during the years 2006 and 2012 to 2014, but it shows boom period in other years. Additionally, according to the findings, 2011 is the highest or peak point and 2012 is the lowest point in Figures3-14.

Findings of the preferences of institutional and individual investors separately by industry

The mean investment percentage by institutional and individual investors in the studied industries is as follows:

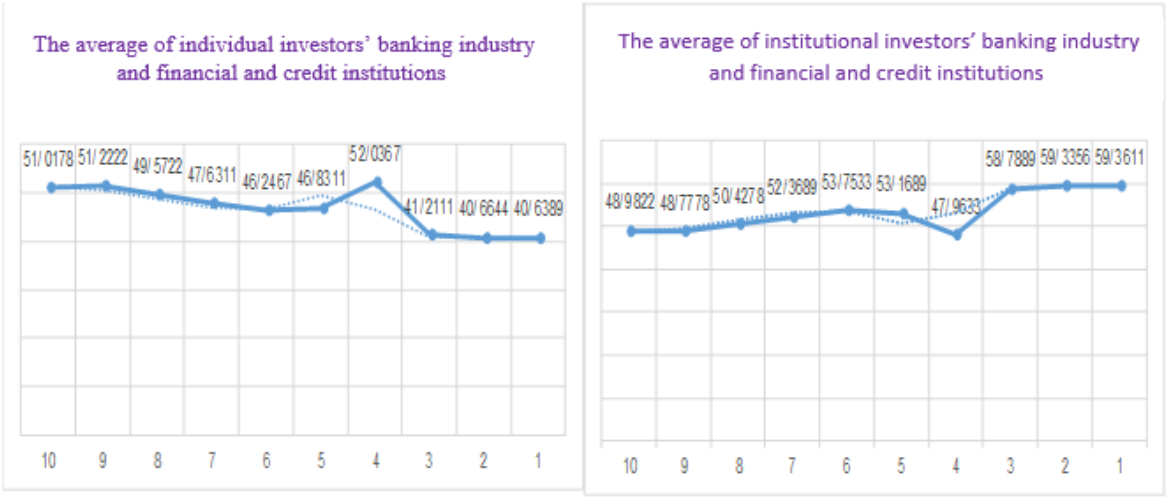

Figure 3
Diagram of investment percentage in the banking industry
and financial and credit institutions

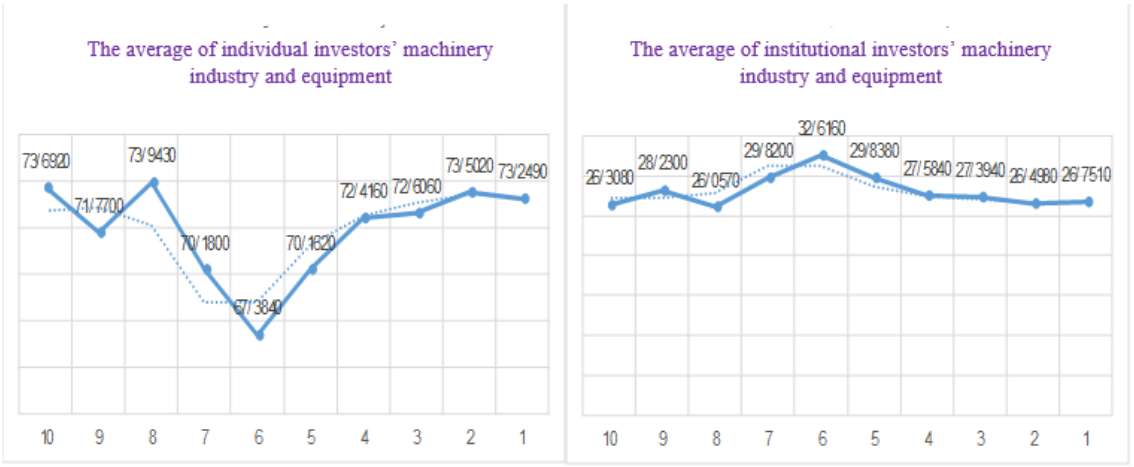

Figure 4
Diagram of investment percentage in the machinery and equipment industry

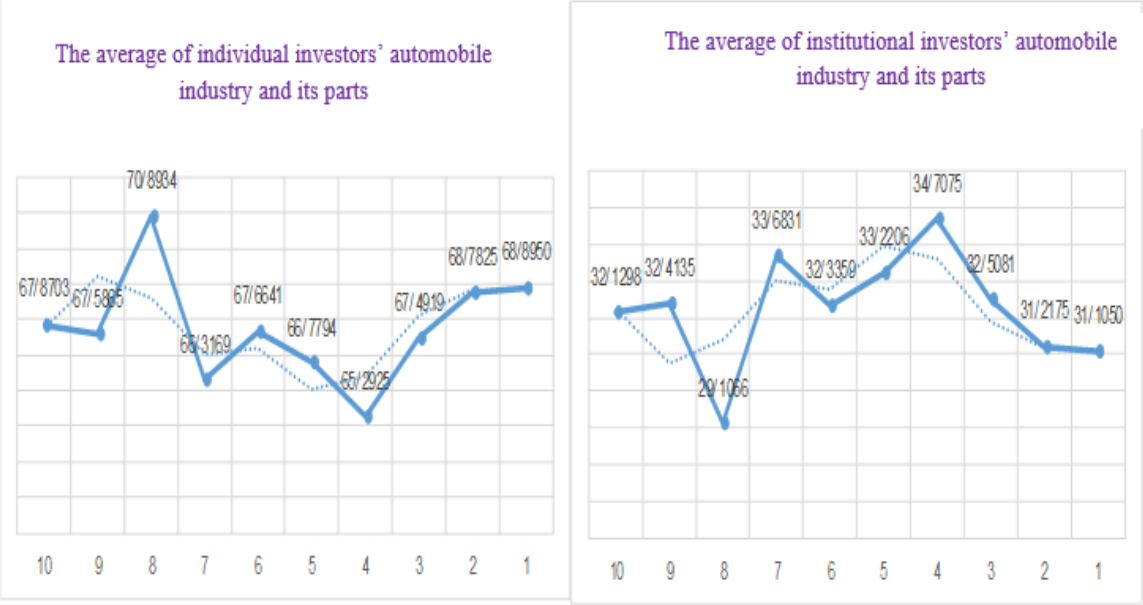

Figure 5
Diagram of investment percentage in automobile and its parts industry

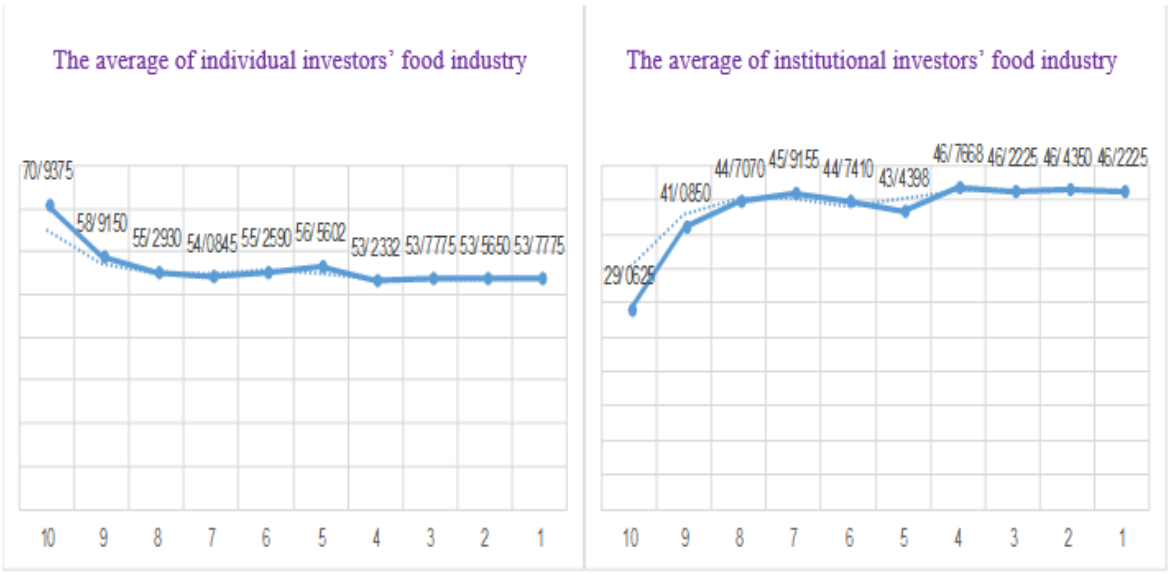

Figure 6
Diagram of investment percentage in the food industry

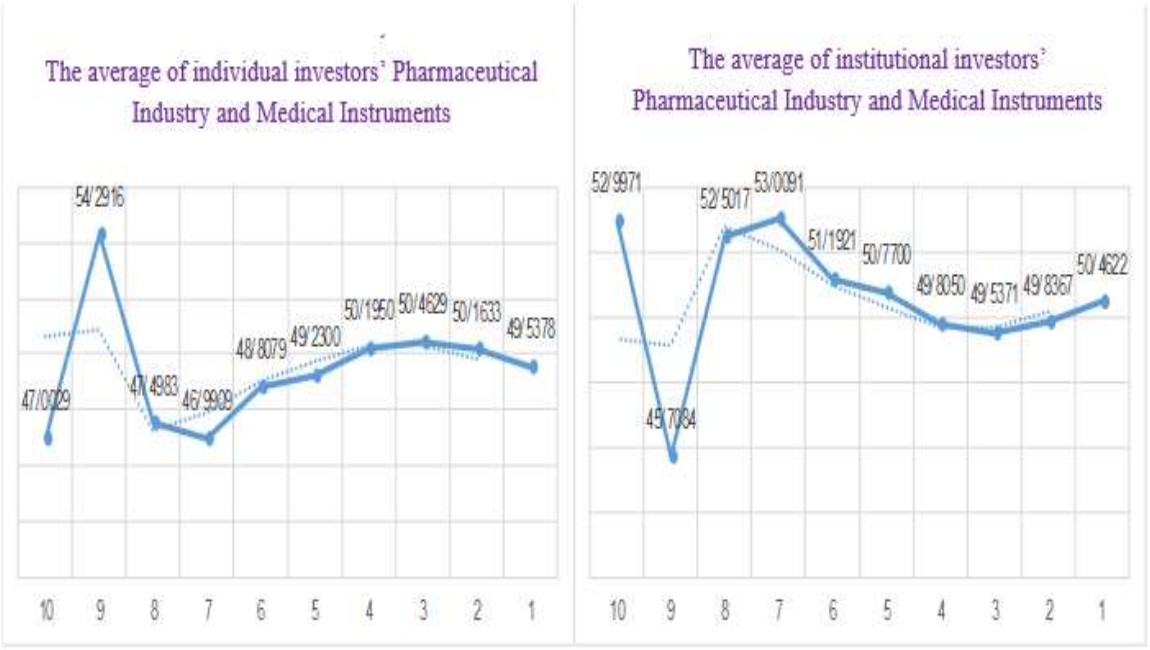

Figure 7
Percentage of investment in the pharmaceutical and medical instruments industry

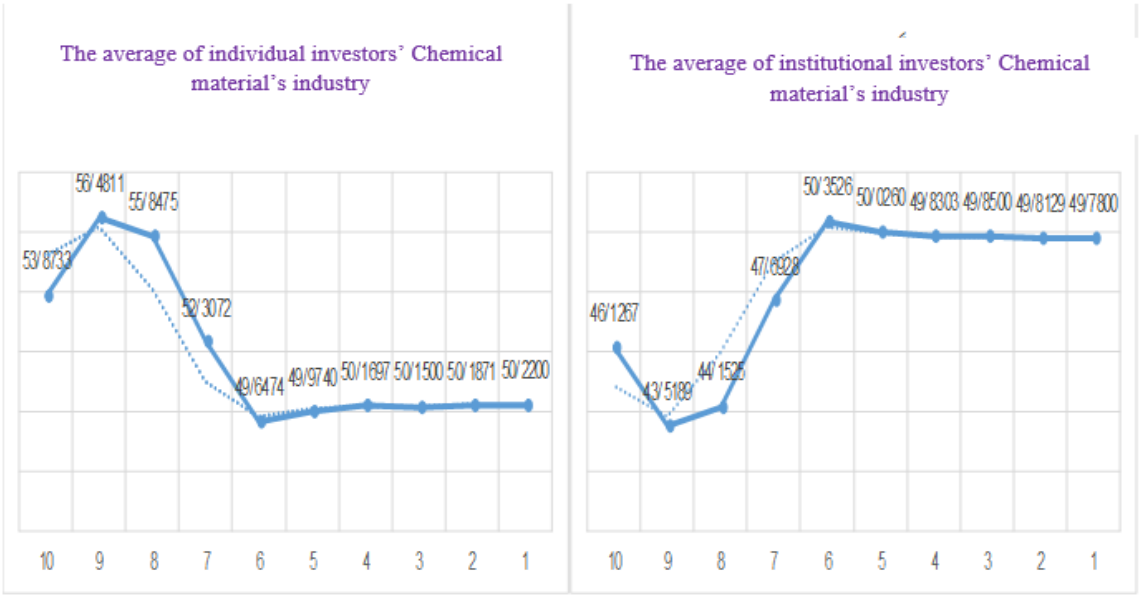

Figure 8
Diagram of investment percentage in the chemical industry

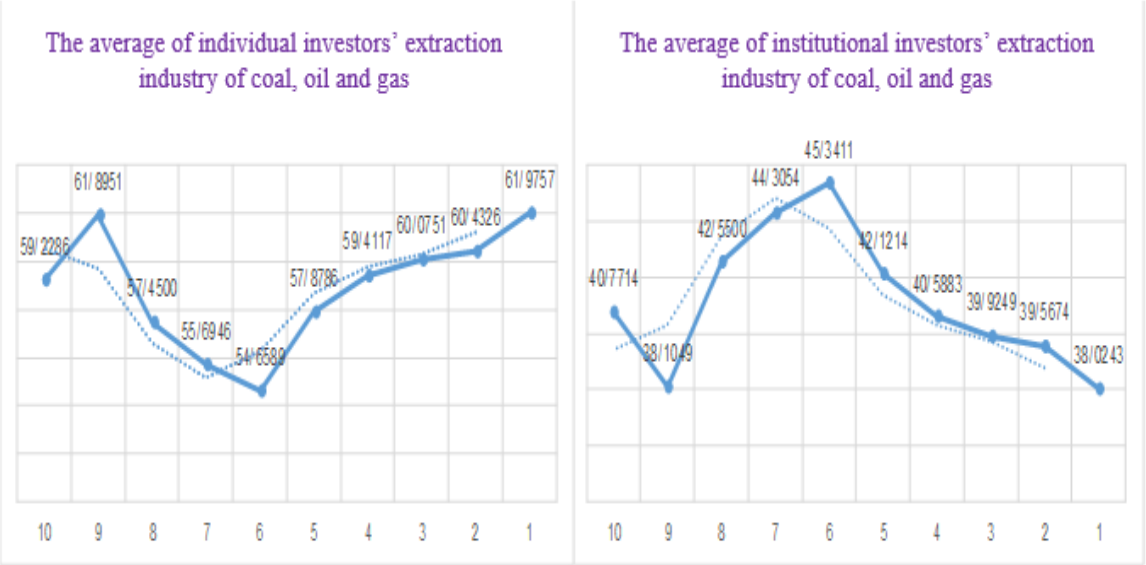

Figure 9
Graph of Percent I-Diagram of investment percentage in the coal, oil and gas extraction industry

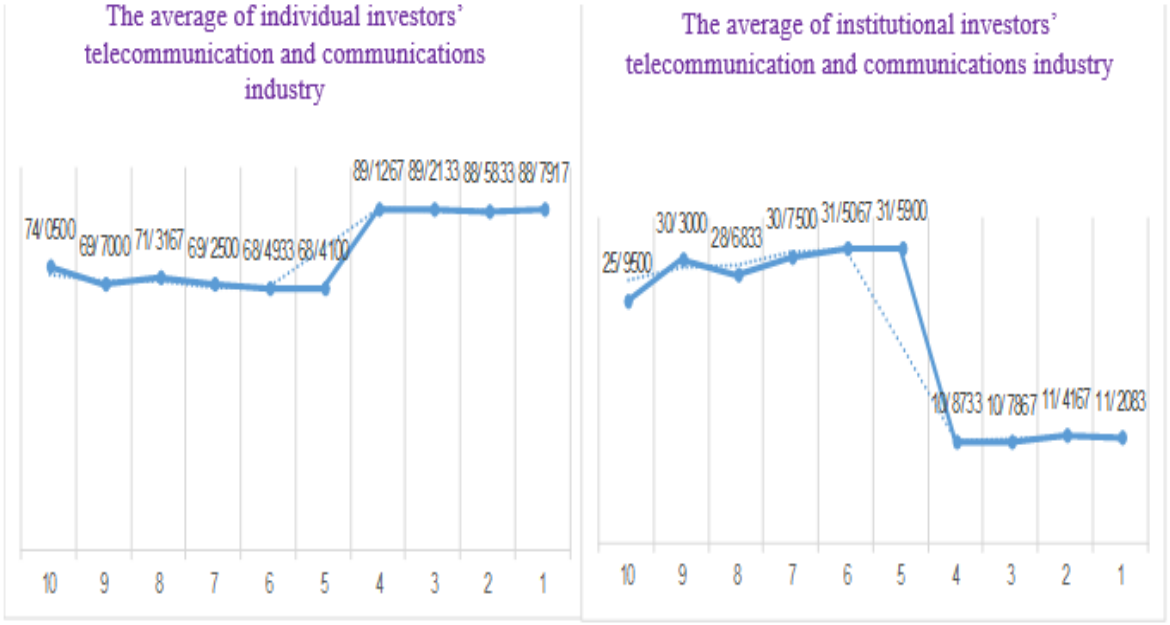

Figure 10
Diagram of investment percentage in the telecommunication and communications industry

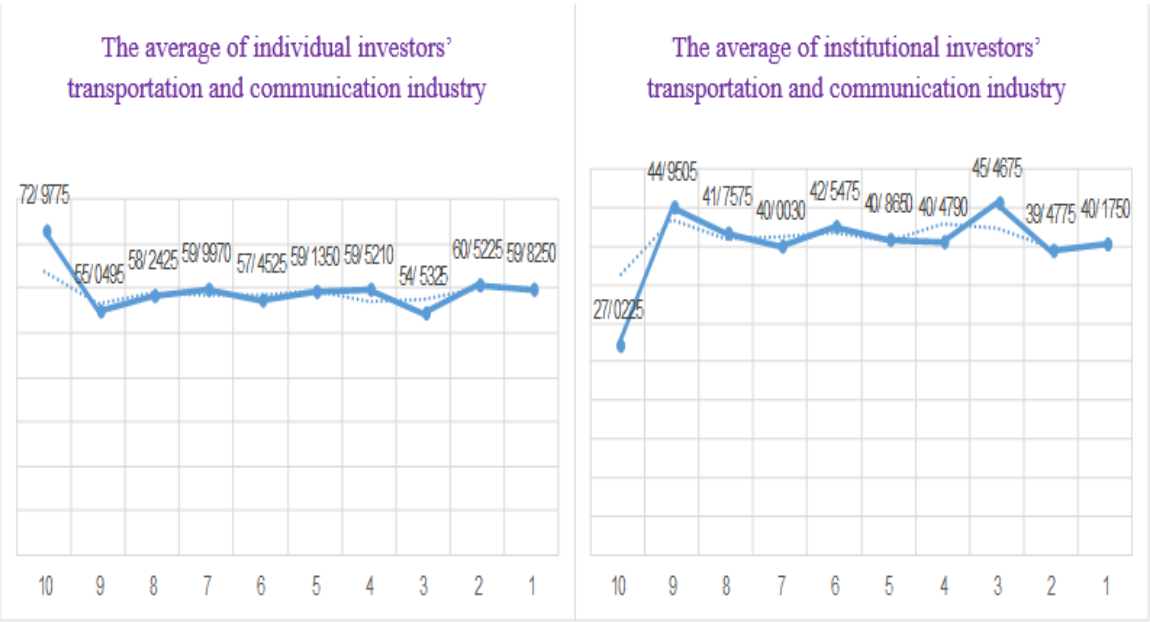

Figure 11
Diagram of investment percentage in the transportation and communications industry

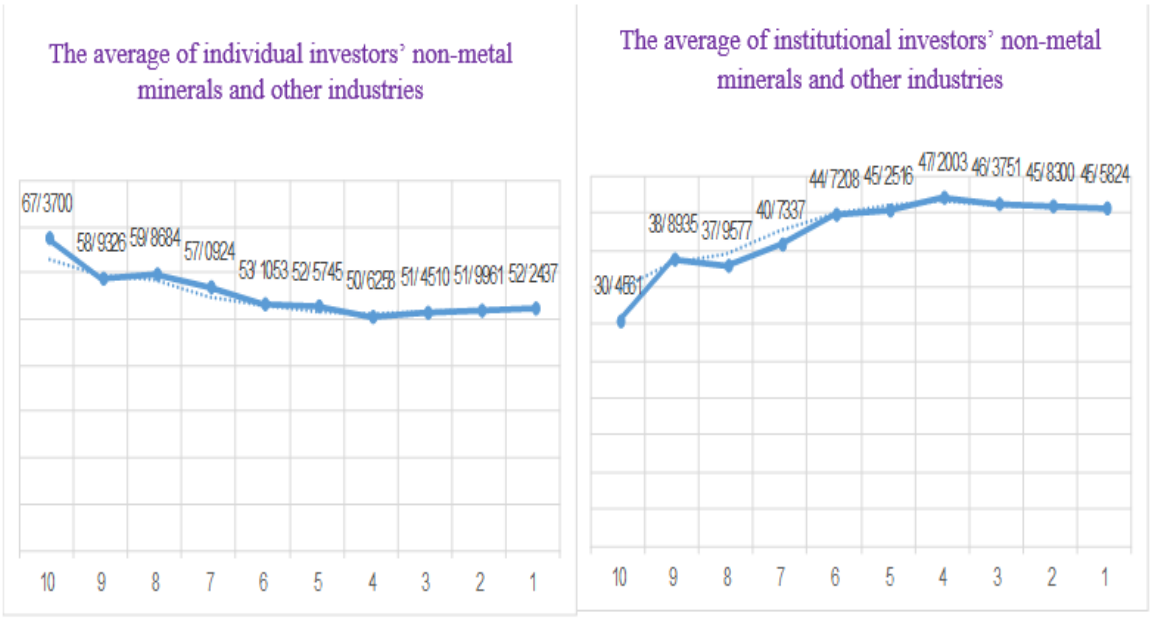

Figure 12
Diagram of investment percentage in non-metal minerals and other industries

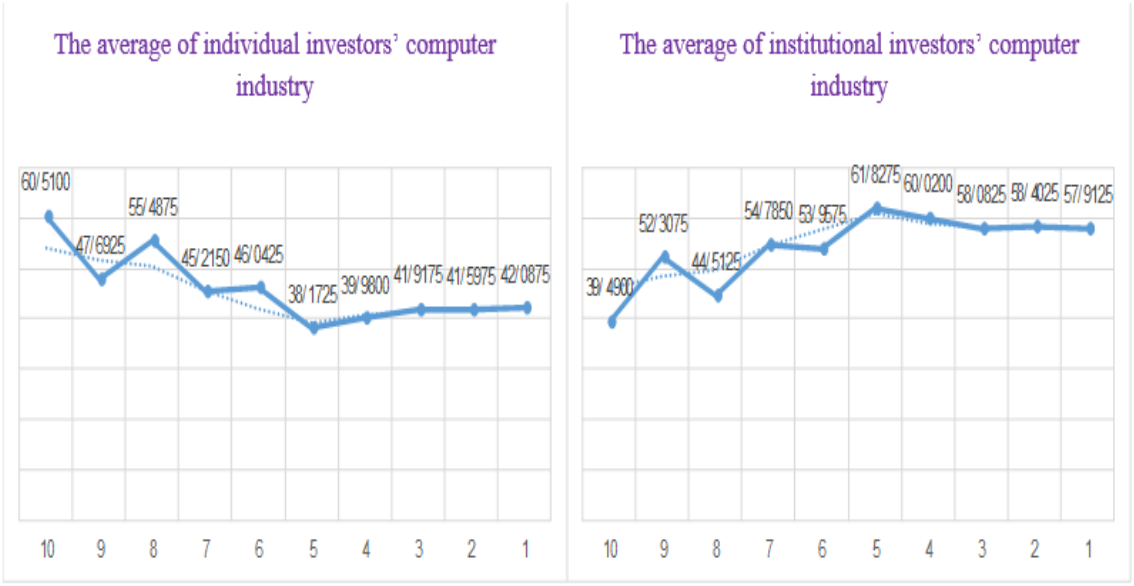

Figure 13
Diagram of investment percentage in the computer industry

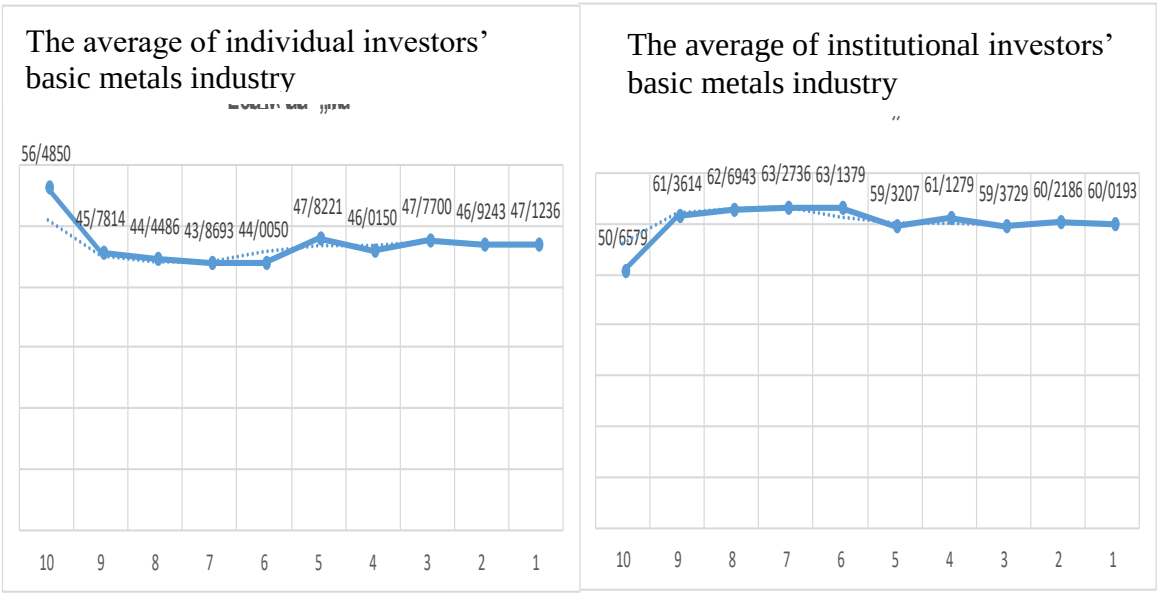

Figure 14
Diagram of investment percentage in the basic metals industry
Source: research findings

Results of the relationship between the variables

To test the hypotheses, simple regression was used through data panel method. The Table 4 presented below shows the results of analyzing the relationships between the variables investigated separately by the institutional investors' preferences and the characteristics of the industry at the highest point and lowest point.

Variables	Dependent variables							
	The preferences of institutional investors				preferences of individual investors			
	Highest point		Lowest point		Highest point		Lowest point	
	Significance level	Coefficients	Significance level	Coefficients	Significance level	Coefficients	Significance level	Coefficients
Intercept	0.019	89.19	0.30	160.50	0.90	4.42	0.69	-60.46
Ownership structure	0.0020	14.39	0.16	214.90	0.39	33.15	0.16	-214.85
Company size	0.34	-0.38	0.51	-0.21	0.90	0.06	0.51	0.21
Systematic risk	0.87	0.00	0.04	-0.03	0.00	-0.04	0.04	0.03
Performance	0.66	-0.03	0.00	0.25	0.00	0.53	0.00	-0.25
Growth	0.81	0.00	0.41	0.00	0.88	0.00	0.41	0.00
Profit division or non-division	0.39	0.15	0.00	-0.51	0.22	-0.40	0.00	0.51
Company cyclonicity	0.01	-70.82	0.85	15.04	0.16	55.12	0.85	-15.04
The banking industry and monetary institutions	0.39	-24.47	0.53	-96.90	0.00	48.88	0.53	96.89
Machinery and equipment industry	0.23	-64.80	0.43	-144.09	0.03	80.31	0.43	144.05
Automobile and its parts industry	0.44	24.17	0.57	-63.41	0.18	38.44	0.57	63.39
food industry	0.01	-104.05	0.25	-293.54	0.20	55.32	0.25	293.45
Chemical industry	0.64	-29.14	0.96	30.45	0.51	134.87	0.96	-30.50
Extraction industry	0.96	-1.48	0.49	-111.89	0.04	44.24	0.49	111.82
Telecommunications and communications industry	0.87	-4.49	0.72	-41.02	0.10	30.19	0.72	41.03
Transportation and Communications Industry	0.83	-13.37	0.80	-76.04	0.32	61.94	0.80	75.90
Non-metal	0.30	72.54	0.84	-31.69	0.24	59.79	0.84	31.68

minerals industry								
Computer industry	0.86	-5.53	0.51	-90.64	0.00	80.96	0.51	90.60
Basic metal industry	0.98	0.86	0.56	-70.58	0.65	-16.36	0.56	70.57
First order auto-regression	0.00	0.99	0.00	0.99	0.00	0.99	0.00	0.99
coefficient of determination	0.99		0.99		0.99		0.99	
Adjusted coefficient of determination	0.99		0.99		0.99		0.99	
Durbin-Watson statistics	2.21		2.27		10/2		2.27	

Table 4
Panel regression for relationships between variables
Source: research findings

Conclusion and discussion

In the present study, investors' preferences including two sections of the preferences of institutional investors and preferences of individual investors were investigated. The necessary tests were performed with this assumption that institutional investors have a different preferential model for investing than individual investors. In addition, the industries active in the securities market have strategic reporting and competitive differences that can affect the decision-making model of investors. In the present study, in addition to the characteristics of the company, the type of investors and their preferences in different industries in the business cycle of crude oil. The results show that the investment model and preferences of investors in different industries has significant differences between institutional investors and individual difference, and institutional investors have a lower investment changes than individual investors. However, the lowest percentage of institutional and individual investment changes were seen in automobile and parts industry and the highest percentage of changes were seen in the coal, oil and gas extraction industry.This finding is consistent with that of the research conducted by Yi hong Deng and Yong xing who examined the ability of companies in selection of stocks and concluded that the ability to select stock by institutional investors in China is higher than that of individual investors. The institutional investors of the oil and gas industry can control manager of the company better than individual investors due to more access to company information.

Hence, their preferences model has more fluctuations than individual investors. The results of investigating and testing research hypotheses suggest that the characteristics of active companies in Iran have influenced the preferences of the institutional and individual investors in crude oil and natural gas business cycle. The preferences of institutional investors are influenced by characteristics such as ownership structure and cyclicality or non-cyclicality of the company that can be seen in the industries active in the Iranian capital market. This result is line with that of Ashrafi et al and Gompers and Metrick.According to their research findings, institutional investors have invested more in large size companies with tangible assets, high asset returns and growth

rates and with operating leverage, corporate governance, and low business risk. This result suggests that the demand for the products of these industries increases with economic boom and this demand decreases with economic recession. Individual investors' preferences are affected by systematic risk and company performance and the market is influenced by some factors that are instantaneous and unavoidable and affect the total price of securities in financial market. Companies that are more capable in creating profit will more affect the preferences of individual investors. Based on the results, the business cycle has experienced an economic recession in the years 2006, 2012, and 2014 and it has experienced an economic boom in other years studied. It also reached to its highest point or peak in 2011 and the lowest point at 2012.

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