

The Effect of Nuclear Negotiations Reporting on Tehran Stock Exchange Market

Marzieh Fouladchang^a, Hassan Parandvar^b

^aInvited Master, Department of business Management, Payame Noor University (PNU), PO Box: 19395-3697, Iran,

^bIran Department of Mechanical engineering, Marvdasht Branch, Islamic Azad University Marvdasht, Iran

Received: May 14, 2015

Accepted: August 27, 2015

ABSTRACT

In many countries non-financial news such as the nuclear negotiations reporting or social conditions in the capital market has a huge impact on the stock price. In recent years the main concern in the Tehran capital market has been nuclear negotiations. This news is the most important factors that change the market in investor opinion. This paper examines the impacts of the news on the nuclear negotiations in Tehran Stock Exchange indicators, by using price volatility. The results of this paper shows that Tehran stock markets react to nuclear negotiations reporting after it actually published.

KEYWORDS: nuclear negotiations reporting, Tehran stock exchange

1 INTRODUCTION

In recent years Iran nuclear negotiations are main topics of discussion between investors. Since 2004 Islamic Republic of Iran defend its rights despite of western countries Discourse by trying to interact and negotiate. The negotiators had a high impact due to its capabilities in this policy. Approach regarding austerity measures, bound actions and, the central bank decisions are being watched by investors. Dutescu (2000) [1] studied the effect of accounting information on investment decision on stock markets and showed that the level of understanding and application of accounting and financial information have a significant influence on Romanian capital market. Spatacean, (2011) [2] studied the effects of financial reports issued by the Financial Investment Companies over the period of 2006-2012 on the trading prices' volatility in the abnormal market conditions. Adeli and Fahimiduab (2011) [3] founded that rumors are effective in stock buyers election in 2011 and information that stock market regards is not effective in investors decision. Movafaghi, Tehrani and Baharvand (2010) [4] were searching about effective of rumor on stock buyers cognition and behavior in Tehran Stock Exchange .In addition, they analyze the responses of the subjects on the basis of gender, educational level; occupation and experience try to explain potential differences of the various classes' behavior. In this paper, the effects of nuclear negotiations as a non-financial reporting on stock prices movements studied. The main question in the paper is to determine whether the market proves effective at anticipating new reporting about nuclear negotiations.

2 RESEARCH METHODOLOGY

To measure the impact of negotiations news on Tehran Stock Exchange I have been selected 10 market indexes of all the market groups Include (TSE Website) [5]:

Total Index, First market index, Second market index, Industry Index, Free-float index, Index of 50 companies, Index top 50 companies, Index of 30 large companies, Financial intermediation index ,cash dividend and price: Index. We will consider all information relating to the negotiations that include nine periods

1-Geneva negotiations took place in July 2008 in Geneva.

2-Geneva took place in October 2009 in Geneva.

3- Geneva negotiations took place in December 2010 in Geneva.

4-Istanbul negotiations took place in February 2010 in Istanbul.

5-Istanbul negotiations2 took place in 14 April 2012 in Istanbul.

6-Baghdad negotiations took place in 23 May 2012 in Baghdad.

7-Moscow negotiations took place in Moscow on 18 June 2012 in Moscow.

8-Negotiations Almaty 1 took place on 26 February 2013 in Almaty.

9-Negotiations Almaty 2 took place on 5 April 2013 in Almaty. There is a series of negotiations from 13 July 2008 to 12 April 2012 that starts and ends. All the news is about the negotiations between Iran and the 5+1. The

purpose of this paper is to study the effect of these news on the price action of the studied index. Accordingly, an index that shows price amplitude is defined. The volatility can be determined using the concept of true range that developed by Wilder (1978) [6]:

$$TR(t) = \text{MAX}(|H(t) - L(t)|, |L(t) - C(t-1)|) \quad (1)$$

where $H(t)$ and $L(t)$ show the highest and lowest price of the day. The close price of the previous day is denoted by $C(t-1)$. All the differences are calculated using their absolute value. The volatility of price compared with those of previous and past seven days. Therefore if a great difference is showed then it can be concluded that the non-financial news are affected on price. Because of the index changes significantly in the period of negotiations, in this paper the volatility of price is expressed as a percentage. The average volatility of a specified number of days (n) can be expressed as, Wilder (1978) [6]

$$AV_{FD} = \frac{1}{n} \sum_{i=1}^n \frac{TR(t+i)}{C(t+i-1)} 100 \quad (2)$$

$$AV_{PD} = \frac{1}{n} \sum_{i=1}^n \frac{TR(t-i)}{C(t-i-1)} 100 \quad (3)$$

where AV_{FD} and AV_{PD} are average volatility that are calculated using following and past days, respectively. TR , n , and t are the true range, the number of days, and the news day, respectively. A time frame of ten days are used for highlight an eventual higher volatility on the news day. The following inequality equations can be used to compare the volatility of price of the news with the average volatility of the previous (AV_{PD}) and following (AV_{FD}) days, respectively. In this study, seven days are considered for both previous and following days.

$$\frac{TR(t)}{C(t-1)} 100 > AV_{PD} \quad (4)$$

$$\frac{TR(t)}{C(t-1)} 100 > AV_{FD} \quad (5)$$

3 Data analysis and interpretation

Tables 1-9 are shown Average volatility of 7 days after and 7 days before and actual range for the 9 period of negotiation.

Table 1. Average volatility of 7 days after and 7 days before and actual range in first negotiation

Index name	$TR(t)/C(t-1) \times 100$	AV_{PD}	AV_{FD}
Total index	0.760	0.031	0.048
First market index	0.340	0.038	0.043
Second market index	2.830	0.007	0.090
Industrial index	0.173	0.048	0.030
Free-float index	0.360	7.240	0.030
Index of 50 companies	0.400	0.030	0.096
Index top 50 companies	0.896	0.076	0.095
Index of 30 large companies	0.230	0.160	0.240
Financial intermediation index	0.430	0.050	0.018
cash dividend and price: Index	0.083	0.043	0.023

Table 2. Average volatility of 7 days after and 7 days before and actual range in second negotiation

Index Name	$TR(t)/C(t-1) \times 100$	AV_{PD}	AV_{FD}
Total index	0.290	0.030	0.067
First market index	0.290	0.020	0.060
Second market index	0.410	0.059	0.120
Industrial index	0.310	0.070	0.067
Free-float index	0.124	0.040	0.080
Index of 50 companies	0.390	0.080	0.060
Index top 50 companies	0.993	0.119	0.041
Index of 30 large companies	2.190	0.144	0.107
Financial intermediation index	0.640	0.100	0.120
cash dividend and price: Index	0.166	0.025	0.074

Table 3. Average volatility of 7 days after and 7 days before and actual range in third negotiation

Index name	$TR(t)/C(t-1) \times 100$	AV_{PD}	AV_{FD}
Total index	0.110	0.024	0.027
First market index	0.110	0.024	0.026
Second market index	0.270	0.039	0.056
Industrial index	0.160	0.019	0.048
Free-float index	0.210	0.054	0.030
Index of 50 companies	0.570	0.260	0.060
Index top 50 companies	0.111	0.015	0.410
Index of 30 large companies	0.270	0.020	0.030
Financial intermediation index	0.058	0.010	0.018
cash dividend and price: Index	0.138	0.011	0.029

Table 4. Average volatility of 7 days after and 7 days before and actual range in fourth negotiation

Index name	$TR(t)/C(t-1) \times 100$	AV_{PD}	AV_{FD}
Total index	2.36	0.160	0.060
First market index	2.37	0.150	0.530
Second market index	1.22	0.080	0.330
Industrial index	2.57	0.140	0.560
Free-float index	2.13	0.120	0.540
Index of 50 companies	1.99	0.170	0.010
Index top 50 companies	2.40	0.169	0.020
Index of 30 large companies	2.32	0.400	0.500
Financial intermediation index	0.60	0.049	0.24
cash dividend and price: Index	2.19	0.144	0.500

Table 5. Average volatility of 7 days after and 7 days before and actual range in fifth negotiation

Index name	$TR(t)/C(t-1) \times 100$	AV_{PD}	AV_{FD}
Total index	0.560	0.060	0.060
First market index	0.550	0.060	0.070
Second market index	0.035	0.038	0.027
Industrial index	0.440	0.043	0.068
Free-float index	0.750	0.052	0.069
Index of 50 companies	0.480	0.060	0.044
Index top 50 companies	0.643	0.055	0.089
Index of 30 large companies	0.800	0.060	0.070
Financial intermediation index	0.840	0.090	0.620
cash dividend and price: Index	912.45	10.24	0.072

Table 6. Average volatility of 7 days after and 7 days before and actual range in sixth negotiation

Index name	$TR(t)/C(t-1) \times 100$	AV_{PD}	AV_{FD}
Total index	0.810	0.030	0.040
First market index	0.810	0.020	0.030
Second market index	0.0230	0.043	0.025
Industrial index	0.560	0.017	0.038
Free-float index	0.860	0.030	0.037
Index of 50 companies	1.220	0.080	0.020
Index top 50 companies	0.643	0.030	0.059
Index of 30 large companies	0.900	0.040	0.050
Financial intermediation index	1.050	0.079	0.029
cash dividend and price: Index	0.666	0.270	0.035

Table 7. Average volatility of 7 days after and 7 days before and actual range in seventh negotiation

Index name	$TR(t)/C(t-1) \times 100$	AV_{PD}	AV_{FD}
Total index	0.290	0.008	0.080
First market index	0.290	0.078	0.072
Second market index	0.397	0.030	0.050
Industrial index	0.320	0.007	0.082
Free-float index	0.340	0.280	0.080
Index of 50 companies	0.210	0.044	0.130
Index top 50 companies	0.345	0.013	0.096
Index of 30 large companies	0.290	0.012	0.090
Financial intermediation index	0.230	0.020	0.060
cash dividend and price: Index	0.310	0.006	0.107

Table 8. Average volatility of 7 days after and 7 days before and actual range in eighth negotiation

Index name	$TR(t)/C(t-1) \times 100$	AV_{PD}	AV_{FD}
Total index	0.580	0.120	0.090
First market index	0.580	0.120	0.094
Second market index	0.610	0.116	0.087
Industrial index	0.690	0.150	0.110
Free-float index	0.626	0.130	0.072
Index of 50 companies	0.880	0.140	0.790
Index top 50 companies	0.457	0.128	0.068
Index of 30 large companies	0.760	0.190	0.080
Financial intermediation index	0.070	0.020	0.120
cash dividend and price: Index	0.588	0.148	0.082

Table 9. Average volatility of 7 days after and 7 days before and actual range in ninth negotiation

Index name	$TR(t)/C(t-1) \times 100$	AV_{PD}	AV_{FD}
Total index	0.320	0.083	0.060
First market index	0.310	0.050	0.060
Second market index	0.708	0.170	0.116
Industrial index	0.172	0.140	0.078
Free-float index	0.490	0.057	0.038
Index of 50 companies	1.075	0.250	0.090
Index top 50 companies	0.664	0.054	0.085
Index of 30 large companies	0.490	0.050	0.070
Financial intermediation index	1.760	0.022	0.027
cash dividend and price: Index	0.410	0.095	0.065

Table 10 shows the resulted data that are obtained using the above presented methodology. The Columns of Table 10 shows studied stock indexes, volatility of price of the news day when was greater than both AV_{PD} and AV_{FD} , the number of cases in which the volatility of price of the news day was greater than AV_{PD} and AV_{FD} . The last column shows the number of cases in which the AV_{PD} of 7 days was greater than the AV_{FD} for following 7 days.

Table 10. Compare price volatilities related news based on $TR(t)/C(t-1) \times 100 > AV_{PD}(\%)$ and B) $TR(t)/C(t-1) \times 100 > AV_{FD}(\%)$

Index name	A and B	A	B	$AV_{PD} > AV_{FD}(\%)$
Total index	1.00	1.00	1.00	0.33
First market index	1.00	1.00	1.00	0.22
Second market index	0.78	0.78	0.89	0.44
Industrial index	1.00	1.00	1.00	0.44
Free-float index	0.89	0.89	1.00	0.67
Index of 50 companies	1.00	1.00	1.00	0.56
Index top 50 companies	0.89	1.00	0.89	0.33
Index of 30 large companies	1.00	1.00	0.89	0.22
Financial intermediation index	0.89	1.00	0.89	0.89
cash dividend and price: Index	1.00	1.00	1.00	0.56

As can be seen in the first column of Table 10, the price volatility of the news days at the same time was mainly lower than the average volatility of the previous and following seven days. Fig 1(a) shows variety of average of different cases in news day. As can be seen in Fig 1(a) the second market Index has highest sensitivity to news, whereas other cases, the First market index, Industrial index, Index of 50 companies, Index of 30 large companies, and Financial and cash dividend and price Index have the lowest sensitivity to news. The results of all of figures of Belongs to average more than 50% show that if the investors react to news strongly, these reactions probably occur one day before or after of news day.

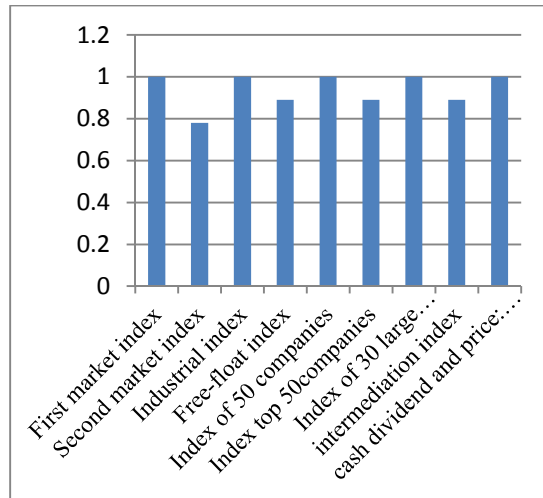


Fig.1.(a)The volatility of different indexes at news day. Volatility of price of indexes that are higher than volatility of both seven days before and after.

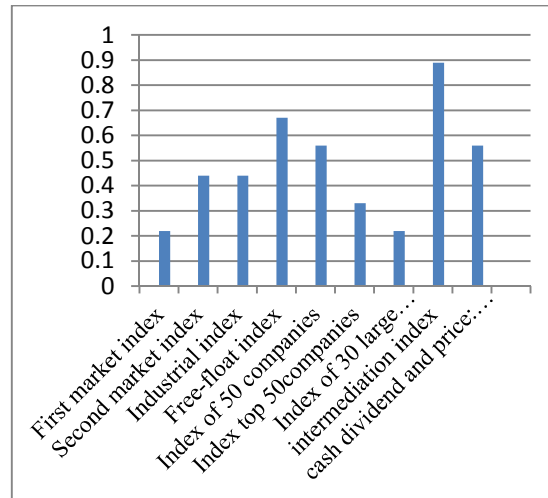


Fig. 1. (b).The volatility of different indexes at news day. Volatility of price of indexes that are higher than volatility of seven days before.

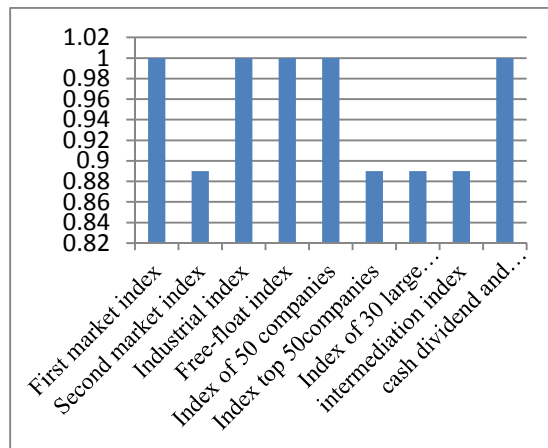


Fig. 2. (a).The volatility of different indexes at news day. Volatility of price of indexes that are higher than volatility of seven days after.

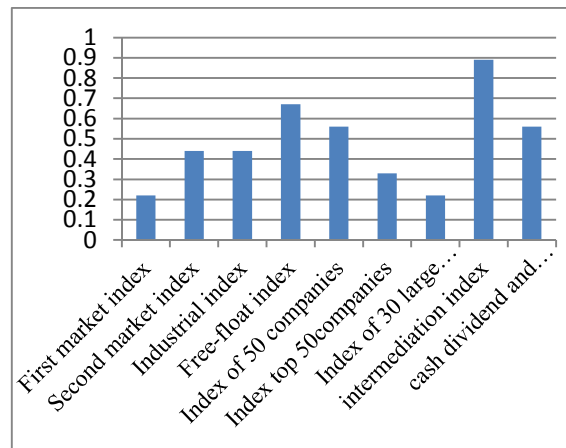


Fig. 2. (b).The volatility of different indexes that their volatility of price of seven days before are higher than volatility of price of seven days after.

By analyzing the results have been drawn in the second column in the graph (b). We can see that the second market index and free float index have volatility earlier than other indicators of the actual news. The third data set has been drawn in the fig2graph (a) we can see that the most important outcome of this chart of all the parameters that are above 80%, which means that investors react primarily released after the real news. The last data set has been drawn in the fig 2 graph (b) compare the previous 7 day volatility was higher than the following 7 days volatility The results show that the majority of indicators such as total index, first market index, second market index, industry index, an index of 50 companies and Index of 30 large companies are less than 50%, which means

that investors react to the news after its release. In other words, Investors do not trade on rumors and consider the market value at the time when the news is released.

4 Conclusion

The investors always analyze the news. However, Studies show that the investors always trade in the before or after of news day. Therefore, it can be concluded that in the news day the prices volatility rarely occurs. As can be seen in the last table of this paper, most indexes don't have many changes at the beginning of the news. However, most indexes are changed after fixing the news. Therefore, the prices don't change due to rumors.

5 REFERENCES

1. Dutescu, A, Accounting information and stock markets. 2000, Economics Publishing House Bucharest.
2. Spatacean, O, Impact of financial reporting upon stock prices evolution-an approach based on financial contagion. 2011 *studia Universitatis Petro Mayor Series economic*.
3. Adeli, M. H. and Fahime Duab, R, Comparison of official information and rumors on real buyers' market shares in Tehran Stock Exchange. *Journal of Research Journal*, 2011. 18(32).
4. Movafaghi, M. R. Tehrani and S. Baharvand, Determine the effects the rumours on stock buyers cognition and stock buyers behaviour were in Tehran Stock Exchange, *Daneshvar Raftar bulletin*, 2010.
5. TSE market classification: <http://www.tse.ir/market/indices.aspx>
6. Wilder, J. W, *New concepts in technical trading systems* 1978.