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The Study of Improvement of the Level of Access to Capital Market on Efficiency of Tehran Stock Exchange

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Abstract

The present study identifies the importance of the level of access to capital market on Tehran stock exchange with attention to opening 21 regional markets and use of PAM software in Iran. The goal of the present study is to find out about the effect of two factors on Tehran stock exchange: A) The effect of the geographical spread of regional markets on Tehran stock exchange performance. B) The effect of the use of information and trading software on four indices: 1. The number of the traded stocks, 2. The value of the traded stocks, 3. The number of traders, and 4. The changes of the total index in Tehran stock exchange. To study of this subject we employed Kolmogorov-Smirnov and then Two tail test respectively and The study is done during an era of two years, that is a year before and a year after the geographical spread of the regional markets and the use of the PAM software and then We have used the SPSS software for statistical analysis. It was found that if the standard is the total index, then the geographical spread of the regional markets has had a positive effect on Tehran stock exchange. But such result cannot be concluded for those three factors. Simultaneously, it cannot be concluded that the use of the new software has caused an increase in the standards of evaluating the stock performance that is the number and the value, the number of the traders and the stock traded and the total index in Tehran stock exchange and as a result improving its performance.

Keywords: Capital Market, Tehran Stock Exchange, Geographical Spread, Regional Markets, Technology Advances, PAM Software

Introduction

Stock market which draws the attention of economic interpreters as the heart of the economy of the country is the center of attracting savings on the one hand and it is the formal and reliable center for the ones who have stagnant savings to securely invest on the other or use their savings to buy government bonds or bonds belonging to credited companies and make ensured profit. To find out about the importance of the present survey, the importance and the stand of financial market in the economy of every country must be considered. The attraction of small amount of money owned by the people of a society and increasing the rate of investment is necessary at the same time vital for the growth

and development of the economy of a country. Stock market is the best place for the formation of capital to be used in many economic sectors; on the one hand, stock market directs wandering or stagnant savings to the sectors which need money, on the other, they meet the financial needs of companies and organizations. For some developing economies, the stock exchanges are relatively large. The market Capitalization of exchanges in Malaysia and Jordan represents a higher share of GDP than in France or Germany, while India's stock exchange lists more companies than the stock markets of all other countries except the USA.

Definition of Stock Exchange

Stock market or stock exchange means a systematic and formal market which consist the base of capital market; it is one of the subcategories of financial markets in which stocks, government shares, or shares of other credited private companies are sold or bought under certain rules. The most outstanding characteristic of stock exchange is the legal support provided for savings owners and stagnant capitals. There are legal obligations for those who ask for capital.

A stock exchange constitutes anybody of individuals, whether incorporated or not, constituted for the purpose of assisting, regulating or controlling the business of buying, selling or dealing in securities. It serves as a specialist marketplace for facilitating transactions in existing corporate securities at prices that are "fair and equitable" (Gurusamy 2004)

Stock market indices

Investors often ask the question: How is the market doing? This interest in the broad market movement stems from the general observation that prices of most of the stocks tend to move together, a fact that has a fairly strong empirical underpinning. The general movement of the market is typically measured by indices representing the entire market or important segments thereof. Most of the market indices used in practice is of three types: a) price-weighted index b) equal-weighted index c) value-weighted index. (Prasanna 2005)

What is PAM

PAM allows property developers of all sizes to manage their development projects from concept to completion. Through every stage of development, PAM enables the evaluation of acquisitions, creating professional reports and automatic cash-flow forecasts instantly - saving the need for complex spreadsheets. PAM doesn't just allow you to evaluate land - it also allows you to manage the whole development in as little or as much detail as you wish. (Farahani Fard, Kamyar and Ghasemian 2008)

Review of literature

Any countries stock exchange should pay attention to following factors:

1. Should create an opportunity for a competitive investment for all the players (investors).It must allow large number of sellers and buyers a trouble free entry and exit while doing the trading.
2. The information should distribute quickly in stock market with minimum expenditure.
3. No investor should be able to influence and control the prices of any share/script.

On the other hand, one of the important improvements of stock exchange is Technology advances. The most important role in the technology advances in stock market is the fast distribution of financial information in stock market, the reaction of the stock market to distribution financial information (accounting earning announcement), transparency of financial information. Technology advances play important role in increasing the efficiency of stock market.

Investigation of the influence ability of stock price, result in annual earnings announcement. For this purpose, they selected samples of earning announcement that have average abnormal return rate in the same way and in the year with unexpected earning. Their hypothesis was transferring informational of annual earnings announcement to market. They made this hypothesis by investigating average abnormal earning announcement, during informed months. The conclusion was that if earning announcement has informational contents, samples with positive unexpected changes earning, their average abnormal earning announcement, in informed time is also positive and vice versa. (Bal and Brawn 1968)

"Earnings Quality and Market Reactions to dividend changes" investigated the relation between earning quality and off-type dividend yields in those firms whose dividend has either increased or decreased. The results of their research showed that a stock price reaction to dividend changes and unexpected earning is positive and

statistically meaningful. (Saghafi and Kordestani 2004)

“Stock Market Reaction to Estimates of Earning Per Share in Tehran Stock Exchange” investigated the effect of EPS announcement on stock trading volume and stock price. The results of their research showed that the EPS announcement has been informational content and cause stock price changes and stock price changes. (Jahankhani and Saffariyan 2003)

“The Influence of Transparency of Financial Information on Stockholders’ behavior in the exchange securities of Taiwan” investigated the role of dimensions of transparency of financial information in increasing of the amount of investment in exchange market. The results of his research showed that there is a positive and meaningful relationship between exchanges investors from the transparency of financial information and their behavior. (Hsiu 2006)

“The Reaction of stock market, Relation To Earning Per Share Predicted By The Responsible of Company” that published in Journal of accounting research in 1973, investigated the huge and personal behavior of market in relation with the earning per share predicted (ESP) of company in New York stock exchange.

He used Beaver’s Formula to deliberate the individual behavior of market from statistic trading volume. Also, He benefited from controlling group that has not announced predicted EPS, for controlling his results. Then he calculated Vi.t for each group in 8 weeks before and 8 weeks after announcing predicted EPS and in two stages 1- The time of announcement of EPS 2- The time of presentation of the primary reports, the result of the research showed that for the first group that presented primary reports before, increasing in trading volume in the week of the presentation is %47, whereas for group control this increasing is equal to %51. In other words, with presenting primary reports from the informational reports of the predicted EPS, in the time of announcement is decreased. (Foster 1973)

Hypotheses

The goal of the present survey is to recognize the affective factors on Tehran exchange market performance. The following factors are the affective:

- a. The geographical spread of the stock market in Tehran by the opening regional markets
- b. The use of new software for obtaining information called PAM

In this survey four factors or indicators are used as standards to evaluate Tehran stock exchange performance.

1. Total index
2. The number of traders
3. The value of the stock traded
4. The number of the stock traded

In other words, an increase in these standards indicates an improvement and a decrease indicates lack of improvement in stock exchange performance.

So, the following hypotheses are suggested:

Hypothesis No1. Geographical spread of regional markets has positive effect on stock exchange performance.

Hypothesis No2. Technology advances (in the information and connection domain) has positive effects on stock exchange performance.

Scope

The area of present survey which is studied from three aspects of time, place and subject is:

Subject Area: The suggested topics that is geographical spread of regional markets and technology advances (from information and trading aspects) are the subject area of this survey. The effect of these subjects on the performance of Tehran stock exchange is the subject area of the present survey.

Time period: The event of geographical spread of regional markets from 2003 to 2006; also the technology advances in the stock market during 2008 and 2009 and the use of new trading software PAM is the time area of the present survey.

Place Area: The place of the study is Tehran stock exchange and 21 regional markets.

Research Methodology

a. Data collection

The necessary information for the study and for testing the hypotheses was accessed through Tehran stock exchange formal website.10The information can be found in index. In this survey we have used the SPSS software.(Kothari 2008)

Hypothesis No 1.The geographical spread of regional markets has positive effect on the stock market performance.

a) Normal test of the data for the first hypothesis11

To test the degree of normality of the survey Kolmogorov-Smirnov test was used. The result related to 1st hypothesis can be seen in Table No1:

Findings

Table-1: Kolmogorov- smirnov for 1st H

Independent Sample t-test								
Index explanation	sample	t-test for Equality of Means		95% Confidence Interval of the Difference			t	Sig. (2-tail)
		Mean (3)	Std. Deviation	Sig.	Upper	Lower		
Previous year-total index	21	157	611	.184	.184	-.103	.842	.478
Previous year-No of Buyer	21	-8565	71555	.154	.154	-.095	.704	.704
Previous year – No of Sold Stocks	21	-62351919	536610224	.217	.217	-.090	.996	.275
Previous year-Sold Stock Value	21	598100	5310405	.189	.189	-.145	.864	.444
current year-total index	21	-495	615	.172	.146	-.172	.789	.562
current year-No of Buyer	21	-4108	38159	.170	.170	-.090	.778	.580
current year-No of Sold Stocks	21	-128597187	494034832	.120	.120	-.095	.549	.924
current year-Sold Stock value	21	156851.5919	7068914	.234	.234	-.085	1.072	.200

The probability number of Kolmogorov-Smirnov is more than 0.05 which is an indication of normality of data with 95% level of significant which means out of 100 times 95 times the result will be normal. With attention to result of Kolmogorov-Smirnov test the use of non-parametric tests rejected and to identify 1st hypothesis two tail test was provided.

a) Two tail test

To study this hypothesis, first the changes of the four standards used to evaluate the market’s performance that is, the number of the stocks traded, the value of the traded stock, the number of traders, the changes of the total index, a month before and a month after the opening of the regional markets were computed; the same procedure was followed for each pair and for every regional market for the year before. The result of the descriptive analysis can be seen in Table No 2:

Table-2: Descriptive Statistics of Pairs 1st H

Descriptive Statistics of Pairs					
Explanation of Indicator		Mean	No of Sample	Standard Deviation	Standard Error Mean
First Pair	Previous year- total index	157	21	611	133
	current year- total index	-495	21	615	134
Second Pair	Previous year- No of Buyer	-8565	21	71555	15614
	current year- No of Buyer	-4108	21	38159	8327
Third Pair	Previous year –No of Sold Stocks	-62351919	21	536610224	117097951
	current year –No of Sold Stocks	-128597187	21	494034832	107807238
Fourth Pair	Previous year- Sold Stock Value	598100	21	5310405	1158825
	current year- Sold Stock Value	156851	21	7068914	1542563

The mean of the standard deviation of the changes of the total index in the months before and after the opening of the regional markets is -495 which means the total index after the opening of the market has increased while this number during the same period last year was 157, an indication of a decrease in the total index. The mean of the changes of number of the traders in the opening year was -4108 while

during the same period last year it was -8565, before the opening of the regional markets.

The Result of Two Tail test

If the result of the two tail test is less than 5% then the null hypothesis is rejected which means the main hypothesis is accepted.

Table-3: Two Tail test Result 1st H

The results of applied test for identifying 1st hypothesis are in Table No 3:

Index Explanation		t	Df.	Sig. (2-tail)
First Pair	Current total index- Previous total index	3.678	20	.001
Second Pair	No of current buyers- No of previous buyers	-.342	20	.736
Third Pair	No of current Stocks- No of Previous Stocks	.491	20	.628
Fourth Pair	Value of current Stocks- Value of Previous Stocks	.226	20	.823

By taking a look at the chart above, it can be seen that only the first pairs are at 20 degree of freedom are less than 5. So, it can be said that if the standard to evaluate the market performance is the total index, then, the geographical spread of regional markets has had positive effect on the market performance. For other standards to evaluate the stock exchange market that is the increase of the number of traders, the increase of the number and value of the traded stocks this hypothesis is not proved.

It means it cannot be said that the geographical spread of regional markets has caused an increase in the number and value of the traded stocks also the number of traders and as a result has caused a performance of the stock market.

Hypothesis No 2: technology advances in the area of information and trading has positive effect on the stock exchange performance.

As it was said before the use of trading software (PAM) has been considered as an evidence of technological development.

a) Normal test for the second hypothesis

Kolmogorov- Smirnov has been used to discover the normality of the data in the present survey. The results of the test are in Table No 4:

Table-4: Kolmogorov- smirnov for 2nd H

Independent Sample t-test								
Index explanation	sample	t-test for Equality of Means		95% Confidence Interval of the Difference			t	Sig. (2-tail)
		Mean (3)	Std. Deviation	Sig.	Upper	Lower		
total index - before setting software	12	9729	318	.152	.119	-.152	.525	.946
No of Buyer- before setting software	12	158559	38122	.132	.132	-.097	.457	.985
No of Sold Stocks- before setting software	12	1946150480	1319146293	.259	.259	-.135	.898	.396
Sold Stock Value- before setting software	12	5719028	2807701	.221	.221	-.138	.764	.603
Total index- after setting software	12	9782	1502	.186	.186	-.147	.645	.799
No of Buyer-- after setting software	12	236056	120897	.192	.192	-.136	.665	.769
No of Sold Stocks-- after setting software	12	6827666666	8147124404	.282	.282	-.230	.977	.296
Sold Stock value-- after setting software	12	14286250	24089683	.363	.363	-.298	1.259	.084

As it can be seen the number of result of the test is bigger than 0.05 which is an indication of the normality of the data in the second hypothesis. With attention to result of Kolmogorov-Smirnov test the use of non-parametric test rejected and to identify 2nd hypothesis two tail test was provided.

a. Result of Two-tail Test:

To find out about this hypothesis first the mean of the standard deviations for the four standards, the number of the traded stocks, the value of the traded stocks, the number of the traders, and the changes of the leading indicator, in Tehran stock exchange a year before and a year after the use of the software must be compared

Table- 5: Descriptive Statistics of Pairs 2nd H
 Before declaring the result the descriptive analysis can be seen in Table No 5:

Descriptive Statistics of Pairs					
Explanation of Indicator		Mean	No of Sample	Standard Deviation	Standard Error Mean
First Pair	previous year- total index	9729	12	318	92.00368
	current year- total index	9782	12	1502	433.6537
Second Pair	previous year - No of Buyer	158559	12	38122	11005.01
	current year- No of Buyer	236056	12	120897	34900.15
Third Pair	previous year –No of Sold Stocks	1946150480	12	13191462930	3.809
	current year –No of Sold Stocks	6827666666	12	8147124404	2.353
Fourth Pair	previous year - Sold Stock Value	5719028	12	2807701	810513.7
	current year- Sold Stock Value	14286250	12	24089683	6954093

Two-tail Test for the second hypothesis

If the chance of occurrence is less than 5%, then the null hypothesis will be rejected. In other words, the main hypothesis is approved. the

Table-6: Two Tail test Result 2nd H
 Results of the second test can be found in the table No 6:

Index	Explanation	t	Df.	Sig. (2-tail)
First Pair	Current total index- Previous total index	-.113	11	.912
Second Pair	No of current buyers- No of previous buyers	-2.168	11	.053
Third Pair	No of current Stocks- No of Previous Stocks	-2.215	11	0.50
Fourth Pair	Value of current Stocks- Value of Previous Stocks	-1.223	11	.247

The two-tail number in the 11 degree of freedom in none of the pairs of means before and after the use of the software is not less than 5%; so it can be concluded that the use of trading and information software has caused an increase in the number and value of the stock exchanged, also in the number of traders; it has improved the leading indicator in Tehran stock exchange so it has caused an improvement in performance stock exchange.

Conclusion

This paper attempts to improvement the level of access to capital market on efficiency of Tehran Stock Exchange in Iran. To study of this subject we employed

Kolmogorov-Smirnov and then Two tail test respectively and The study is done during an era of two years, that is a year before and a year after the geographical spread of the regional markets and the use of the software. PAM was used in this study.

It was found that if the standard is the total index, then the geographical spread of the regional markets has had a positive effect on Tehran stock exchange. But such result cannot be concluded for those three factors. Simultaneously, it cannot be concluded that the use of the new software has caused an increase in the standards of evaluating the stock performance that is the number and the value, the number of the traders and the stock traded and the total index in Tehran

stock exchange and as a result improving its performance.

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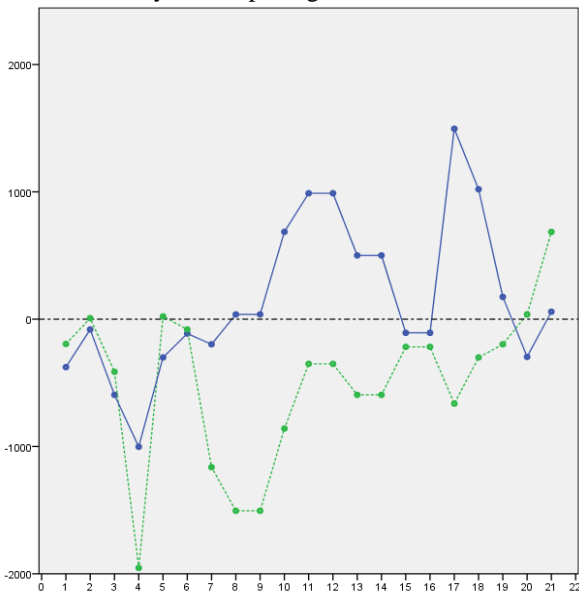
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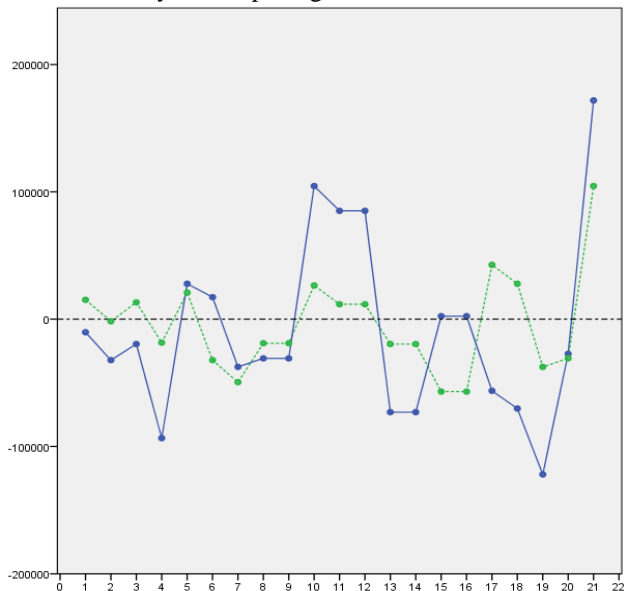
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Appendix1

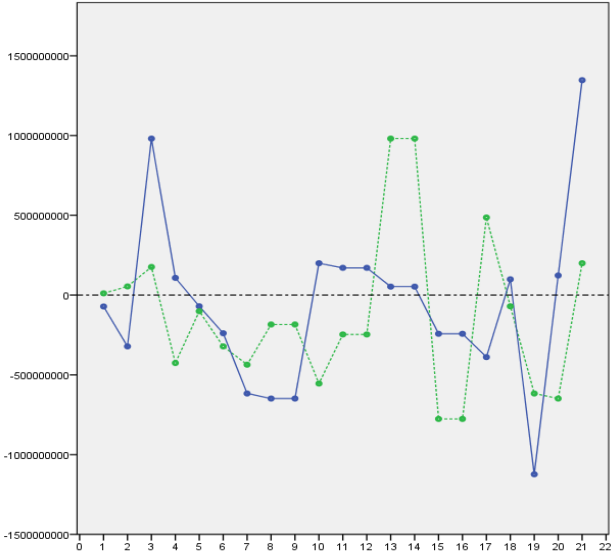
1. Graph for the difference of total index, Last year and the year of opening of Chambers



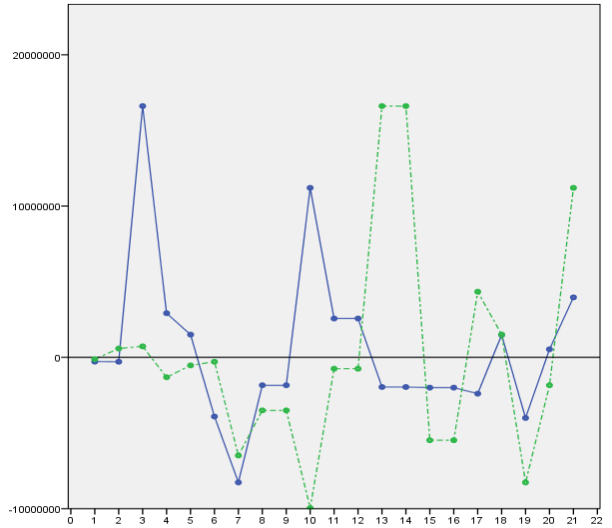
2. Graph for the difference of No of buyer, Last year and the year of opening of Chambers



3. Graph for the difference of No of traded stocks, Last year and the year of opening of Chambers

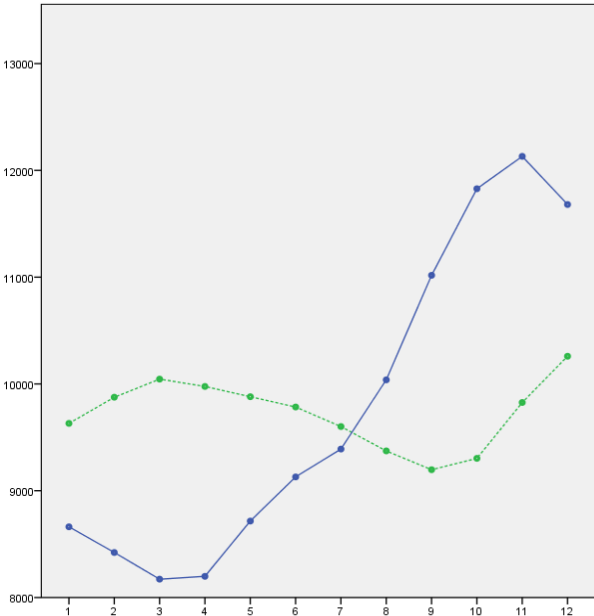


4. Graph for the difference of the value of the traded stocks, Last year and the year of opening of Chambers

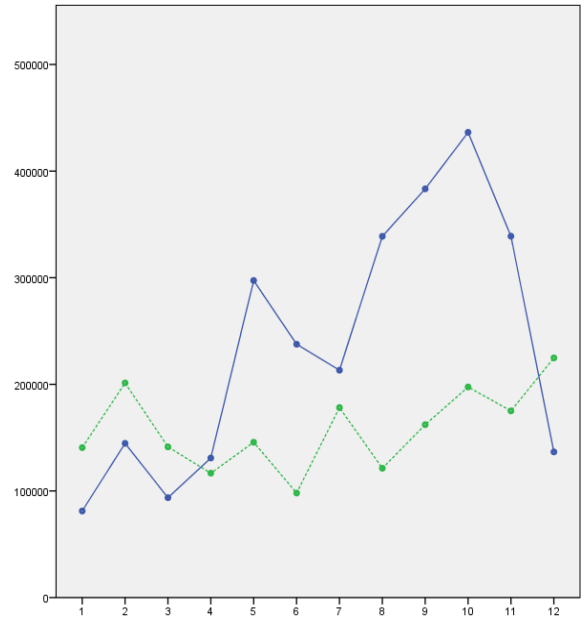


Appendix2

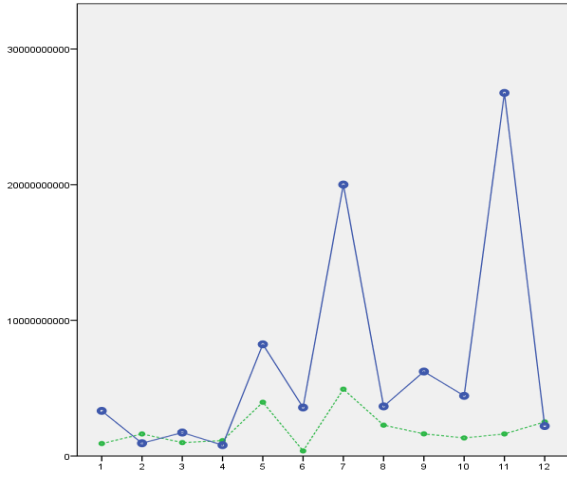
1. Graph for the changes of the total index during the year before and a year after the setting the software



2. Graph for the changes of No of buyer during the year before and a year after the setting the software



3. Graph for the changes of No of traded stocks during the year before and a year after the setting the software



4. Graph for the changes of the value of the traded stocks during the year before and a year after the setting the software

