THE EVLUATION OF TEHRAN STOCK EXCHANGE (TSE) EFFICIENCY FROM 2003 TO 2012: THE CASE OF ECONOMIC GROWTH

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ABSTRACT

This study evaluated Tehran Stock Exchange (TSE) as one of the financial markets in Iran from 2004 to 2012. Since stock exchange institutes are the main factors which determine the economic growth, inflation, fluctuation and the decline for any country, the present study evaluation the role of Tehran stock market in Iranian marketing and business system in TSE. Research problem focuses on the discovering of the enterprise in a period of time which covered the recent decade. Theoretical background of this study may refer to (Nikunj, Petal, Radadia & Dhaun, 2012). who deal with the efficiency of the stock market as a determining factor in measuring the assets and legal bonds. Design of the study is ex-post facto and data were collected from the TSE web site. Data were analyzed through KS and Runs tests to find out the normality of data. Then the correlation analysis evaluated weak efficiency of the TSE in the period of the recent decade. Results showed that there was not a significant growth in the previous decade and TSE lacked economic growth and efficiently at the weak level. Implications of the study suggest that the internal factors (e.g., inflation, lack of investment, information transparency, etc) and outside factors (foreign investment, sanctions, threats, etc) may affect such a problem. The TSE should consider these issues and adjust its strategies to make a balance to cope with such problems in a smooth way.
Key words: *Weak level efficiency, KS test, Runs test, TSE, stock exchange*

1. Introduction

The role of stock market organizations is very vital in directing investment and money to move any country's economy. These organizations help the government to share the citizen's finance and develop the country's GNP (Rabinson, 2005). This role has attracted researchers (e.g., Fama, 1965) to evaluate the stock marketing in the previous decades. These studies may help as to arrive at the model to evaluate stock marketing in Iran. The main target of the study is to evaluate Tehran Exchange Market(TSE) market through the data gathered in the recent decade (i.e. from 2004 to 2013) to study the effectiveness of the investors proportion in TSE and the trends they follow in their investment. This study may focus on two main factors affecting the practicality of TSE. These factors are internal (i.e., lack of enthusiasm on investment, trust, faction, etc) and external factors (i, e., lack of foreign investment, the UN sanctions, foreign threats, etc) these may affect the reliability and proficiency of TSE.

1.1. Significant of the study

The correlation among the prices of the rates of TSE may help the researchers to arrive at a model to discover and evaluate the efficiency of TSE. There are search studies on the SSE around the world, however, in our country, Iran. There are a few studies the focus on the stock markets (Saeedi, Miraskari & Sadrara, 2012). Thus we have not seen any study focusing on the recent decade of TSE efficiency. The efficiency of TSE is vital since Iran is considered as a developing country and finds its way towards growth and development (Salimifar, & Shirzour, 2010). Scientific studies, richness, strategic situation and the most important of these, its young population and human resources should be put into consideration. The study of TSE may help Iran economists focusing on the efficiency of the investment in TSE market and make a better economic situation. This study also helps the government to focus on the economic problems and improve the situation.

2. Review of Literature

Nowadays, the growth and developments of stock exchange markets are the indicators of economic sustainability. Fama (1965) noted that the business researchers should focus on the data collected in the stock exchanges. These data could affect the future rates of stock dealing and may predict the future of the TSE which focused on the stock exchange prices as determining factors in the prospective economic activities (Rabinson, 2005). In other words, the present stock prices affect the future stock prices and normalize them. The following table shows the studies related to the literature review in the recent years.

Table 1: Literature Review Related to Examining Stock Market Organization

No.	Researcher(s)	Year	Purpose	Tests	Results	Period
1	Fadaeinejad & Sadeghi	2006	Stock exchange efficiency	Correlation	Inefficiency of TSE	1993-2004
2	Khani & Farahani	2008	Evaluation of TSE	Price balance ratio	Lack of information Liquidity	1999-2005
3	Talaneh & Keshrad	2010	Examining TSE	Regression analysis	Inefficiency of both at the strong and weak levels	2005-2009
4	Rengasamy Elango, Mohammed Ibrahim Hussein	2008	Examining TSE Dubai ,Saudi Arabia, Abu Dhabi, Qatar, Kuwait, Oman, Bahrain,	Run test, KS test. Auto-Correlation	Analysis of the daily stock index returns of markets indicates that there are larger variations in returns during the study period and the markets are not efficient in the weak-form.	2001-2006
5	Naeini,Hasheminejad & Sanaei Aalam & Ebrahimi	2011	TSE Limitations on price fluctuation	Correlation	Slow Liquidity of information	2003-2004
6	Olowe	1999	Examining the stock market efficiency of Nigeria	Correlation	Weak efficiency not confirmed	1999
7	Mishra and Pradhan	2009	Sweden stock exchange efficiency	Unit Root Test, Phillips-Perron tests augmented Dickey-Fuller(ADF)	The study provides the evidence of weak form inefficiency of Indian capital market.	2001-2009
8	Chavdhri	1991	India stock exchange	Serial correlation and Runs test	Weak efficiency not confirmed	1988-1995
9	Lawrence & Quin	1997	Stock market in China	Unit root test, Granter-casualty test, Serial correlation, co-integration test	Weak efficiency confirmed	1993-1996
10	Simon	2005	The US stock market	MRL & ANN models	Confirmed weak efficiency	1995-2004
11	Elango & Ibrahim Hussein	2006	Study Abu Dhabi, Dubai, Saudi Arabia, Qatar, Bahrain, Kuwait, Oman	Runs test, KS test, Auto-correlation	Weak efficiency not confirmed	2001-2006
12	Robinson	2005	Jamaica	Correlation	Weak efficiency not confirmed	2005

The above studies show that there are after studies in Iran and the rest of the world which have focused on the efficiency of stock market organizations. These studies prepared as a framework of evaluation, statistical procedures, and data collection which formed the methodology of the study.

2.1. Research Questions

RQ1. Do the prices of TSE follow a rationale and logical policy?

RQ2. Is there any correlation between the rates of TSE in the recent decade?

3. Methodology

3.1. Design

This study is a descriptive research and follows ex-post facto design in which the previous data have been collected and analyzed following (Venkatatesan, 2010). The data were analyzed through KS and RUNS tests. Results discussed the efficiency of TSE on the three levels: (A) High efficiency, (B) Moderate efficiency, and (C) Low efficiency.

3.2. Data collection and Analysis

Data were collected from the Website of TSE in a period which started from 23/03/ 2003 to 04/03/2012.Table 2 shows the data collection.

Table 2: Data Collection

Logo	Website	Currency	Volume	Market Cap	NO. of Listing	Type	Founded	Location	Indexes
	www.tse.ir	Iranian rial	82479 million (2009)	170 billion (March2014)	339 (may 2012)	Stock Exchange	1967	Tehran, Iran	TEPIX

4. Results

Data were analyzed through Kolomogrov-Smirnov Test and KS test to achieve the normality of data. The RUNS tests were conducted to evaluate the efficiency of TSE. Data were calculated through SPSS 21. KS test showed the normality of data distribution which led us to use parametric data analysis. Thus Runs test was manipulated as a parametric test. This test indicates the occurrences of the data in based on the following formula:

The occurrences of exchange showed 5085 changeable occurrences in TSE which indicated the prices inadequate normality at the significant level. This test was used to examine TSE stock rates at the significant level. Results are presented in Table 3.

Table 3: The Occurrences of Exchanges

Years	N	Mean	Std. Deviation	Minimum	Maximum
2003	424	6366.337	9525.730	.000	74913.877
2004	424	4778.780	6816.193	.000	63036.375
2005	424	4315.562	7180.819	.000	57947.931
2006	424	3255.182	5059.533	.000	52978.909
2007	424	2853.642	4093.486	.000	44364.666
2008	424	2595.924	3474.194	.000	31850.000
2009	424	3069.339	4046.444	.000	30540.134
2010	424	3266.199	4087.795	.000	26513.156
2011	424	3340.258	4992.718	.000	41412.373
2012	424	5773.932	8273.264	.000	61383.390

Table 3 shows that stock exchange occurrences at TSE stocks do not have normal distributions. Runs test used to show the inefficiency of stock exchange occurrences in each year. The results are presented in Table4.

Table 4: RUNS tests on Stock Exchange Occurrences

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Test Value[a]	6366.337	4778.780	4315.562	3255.182	2853.642	2595.924	3069.339	3266.199	3340.258	5773.932
Cases < Test Value	307	301	305	296	287	292	293	292	305	287
Cases >= Test Value	117	123	119	128	137	132	131	132	119	137
Total Cases	424	424	424	424	424	424	424	424	424	424
Number of Runs	150	148	140	142	148	138	144	144	131	142
Z	-2.487	-3.264	-3.880	-4.353	-4.277	-5.083	-4.335	-4.403	-4.964	-4.944
Asymp. Sig. (2-tailed)	.013	.001	.000	.000	.000	.000	.000	.000	.000	.000

 Test distribution is normal

Runs test analysis showed that hypothesis of the research which noted that rates of exchanges at TSE Significantly confirmed the inefficiency of TSE at $(p<0.05)$ level. It means that the stock pricing system TSE follows a non-random trend. Thus TSE has been inefficient throughout the recent decade.

5. Discussion and Conduction

The evaluation of TSE could be the main target of the present study. This may be great characteristics of the investment markets among which stock exchange organizations play a major role. Moreover, TSE can play its role in information gathering and distribution to the firms and investors to run the information liquidity and transparency (Nikita & Soekarno, 2012). Information can affect the country's economy such as determining the price of exchanges and other issues including the rate of currency stocks. The main finding of the present study is that liquidity of information is not followed properly in the recent decade in Iran. This may affect the share holders' decision-making process. The other main problem is that the occurrences of stock exchanges in TSE showed a random structure which does not follow any organized trend (Dahouz & Mansouri, 2012; Dniali Dalhouz & Mansouri, 2012). In other words, the previous stock prices could not affect or determine the future prices. The non-random distribution of exchange rates showed that TSE is inefficient at the weak level (Bodd, 2011). This study was supported by other researchers such as Fadaeinejad (2004) and Talaneh and Keshrad (2010). The reason of the inefficiency at the weak level may be due to several limitations coming from outside and inside of the TSE organization. Inside effects could be lack of information and transparency and inflation which declines of Iranian currency. Outside ones may be the UN sanctions against economic infrastructures, lack of money transferring, foreign threats, and discouragement of foreign investors. The results of the study showed that TSE can come up with both outside and inside threats if it focuses on the non-random and stable stock exchanges with a prospective power to see the future in stock exchanges. Shareholders also need to follow economic trends rather than political perspectives (Asiri & Alzeera, 2013). Therefore, the discussion between political issues and economic trends could be an appropriate the line of the study in the future. The mentioned outside and inside factors could be studied to discover their effects on the efficiency of TSE (Namazi & Shoushtarian, 1996). The present study has focused on the recent decade TSE efficiency while other studies can include the longer periods than this in the future research.

References

1. Asiri, B. & Alzeera, H. (2013). Is the Saudi Stock market efficient? A case of weak form efficiency. *Journal of Finance and Accounting, 4*(6), 35-48.
2. Bodd, Q. B. (2011). A "Random Walk" through the Saudi Arabian financial market: Is the travel efficient? *Journal of Finance and Accountancy, 1*, 1-13.
3. Dahouz, M. D. & Mansouri, H. (2012). Review of TSE at the weak level and the priorities of the affective factors. *Journal of Economic Research, 47*, 71-96.
4. Dniali Dalhouz, M.D, & Mansouri, H. (2012). Examining and the priorities of factors affecting TSE at the weak level. *Economic Seasonal Journal, 12* (47), 71-96.
5. Elango, M., & Hussein, M. I. (2008). An empirical analysis of the weak form efficiency of the GCC markets: Applying statistical tests. *International Review of Business Research Papers.* Retrieved April 30, 2014 from: SSRN:http://ssrn.com/abstract=1026569
6. Fadaeinejad, M.E., & Sadeghi, M. (2006). Studying the usefulness of momentum and reverse strategies in Tehran Stock Exchange. *Management Message Journal, 5*, 17-18.
7. Fama, E. F. (1965). The behavior capital market: A review of theory and empirical work. *The Journal of Finance, 25* (2), 383-417
8. Khani, A., & Farhady, D. (1994). Evaluating Tehran Stock exchange efficiency by using price adjustment coefficient. *Research Journal of Esfahan University, 31*(3), 55-72.
9. Lawrence, M., Cai, F. & Quin, S. (1997). Weak form market efficiency and causality test in Chinese Stock Market. *Multinational Finance Journal*, 1(4) 291-307.
10. Naeini, Gh. N., Hasheminejad, S. M., Sanaei Alam, M.S & Ebrahimi, S.B. (2011). The review on the effect of limited measures affecting stock prices fluctuation at TSE. *Journal of Stocks, 4*(13), 87-111.
11. Namazi, M. & Shoushtarian, Z. (1996). The review of the tests on the stocks of TSE at the weak level. *Financial Studies, 11*(12), 62-109.
12. Nikita, P, M., & Soekarno, S. (2012). *Testing on weak form market efficiency: The evidence from Indonesian stock market from 2008 to 2011*. 2nd International Conference on Business, Economic, Management and Behavioral Sciences Proceedings, 2, 56-60.
13. Nikunj, R., Petal, N. P, Radadia, N., & Dhaun, J. (2012). An empirical study on weak form of market efficiency of selected Asian stock markets. *Journal of Applied Finance and Banking, 2*(2), 100-148.
14. Olowe, R, A. (1999). Weak form of the Nigerian efficiency of market: Future evidence. *African development Review, 11*(1), 54 -68.
15. Mishra, P.K. & Pradhan, B.B. (2009). Capital market efficiency and financialiInnovation. *The Research Network*, 4(1), 1-6.
16. Rabinson, J. (2005). Stock price behavior in emerging market. Test for weak efficiency on the Jamaica Stock Exchange. *Social and Economic Studies*, 54(2), 54-59
17. Rengasamy, E. & Ibrahim Hussein, M. (2008). An empirical analysis on the weak-form efficiency of the GCC markets applying selected statistical tests. *International Review of Business Research Papers*, 4(1), 140-159.
18. Saeedi, A & Miraskari, R.S., & Sadrara, M. (2012). *The investigation of efficient market hypothesis: Evidence from an emerging market.* The Asian Business and Management Conference Proceedings, 363- 373.
19. Salimifar, M. & Shirzour, Z. (2010). Investigation of informative efficiency of stock market using Variance Ratio test method. *Science and development Journal, 18*(31), 29-57.
20. Simon, H. K. (2005). *An examination weak form of efficient market hypothesis within the context of NASDAQ composite index.* A Test of Forecasting Abilities of Artificial Neural Networks. *The H. Wayne Hulizenga School of Business and Entrepreneurship Nova Southeastern University*, 166.
21. Talaneh, A. & Keshrad, H, H. (2010). Evaluation of TSE efficiency at the weak and moderate levels. *Journal of Accounting and Audit Studies, 3*(12), 1-23.
22. Venkatatesan, K. (2010). Testing random walk hypothesis of Indian stock market returns: Evidence from the National Stock Exchange (NSE). *ICBI,* 1-11.
23. www. TSE. Ir