A survey of the relationship between stock price volatility and a variety of companies on the stock exchange (Case study: The companies listed on Tehran Stock Exchange)

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Abstract
Stock pricing is one of the most important and yet most complex operational procedures in each stock exchange market. In financial markets, the pricing of tradable assets plays a fundamental role in resource allocation. After initial pricing of stock of companies listed on TSE, we can observe the changes of prices with determined values by stock exchange market. One of the adverse effects of capital market is the stock price fluctuations. The purpose of this study is the evaluation of the relationship between stock prices volatility variety of companies in stock market. The study population is all firms listed on Tehran Stock Exchange during2008to2013 in TSE. Based on a stratified random sampling, each industry is selected as a class and by each class, by Cochran's formula, n=$\frac{Z2S2}{d2}$, the sample size is 40 firms. Then by using a simple random sampling, 40 companies are selected based on a table of random numbers. This study is a descriptive –analytic design using cointegration econometric test and Fisher's exact test. The statistic tests analysis shows that there is no relationship between stock price fluctuations and the Companies type.

Keywords: The intrinsic value, stock exchange, volatility, market efficiency

Introduction

Stock price changes are one of the most important issues of each investor. The investors investing by long-term goals are sensitive to price of each share and its changes and react to it and price change is one of the important information source in evaluation of the condition of enterprises, comparative evaluation with other units, evaluation of efficiency of managers and above all are effective on investors decisions. Stock price volatilities are necessary and common in all stock exchanges. Stock price is affective by various internal and external organizational factors and are changed with each of them. Prediction of price changes requires discovery of behavioral models of stock price. If these behavioral models are discovered, the shareholders by evaluation of their share and the other existing shares in market can select the best share and hold, sale or replace their share with another stock. Investors are the best groups to receive timely, relevant and effective information. Stock price change is one of the important information source for them in evaluation of business unit, efficiency of managers and taking decisions. Thus, the most important issue for firms namely for investors is prediction and price changes. In 60s, some studies have been conducted regarding price forecast, the impact of information on price, capital market behavior and the price change and the relationship of these changes on capital market. The result of the studies led to the formation of an assumption regarding the capital market function as efficient market. The purpose of the studies was the evaluation of the stock market response to achieve information and processing it and the information was affecting the stock price timely without any specific inclination. According to Handrikson, the assumption of market efficiency is the result of Yugin Fama studies. He found that the lack of relation between prices due to full information reflection was non-biased in market and no relevant information was ignored. After the hypothesis was raised, capitalism countries gave much attention to efficiency of capital market. In such condition (market efficiency), stock price is determined fairly and trust of investors is attracted. Otherise (inefficiency), price is predicted and in trading, some groups take benefits with the loss of another group. It should be said, efficiency is not a black and white issue. The market is neither fully efficient nor fully inefficient. In a competitive and liberal economy, the only determining factor of the price of asset is supply and demand. One of the important goals of stock exchange is creating regular and transparent mechanism in supply and demand contrast to determine financial assets price. Generally, the designers and law makers in financial markets attempt to eliminate the barriers of lack of supply and demand balance as the price of financial assets is closer to their intrinsic value by this method. In new markets, there are many rules avoiding supply and demand contrast. In these markets, the law makers can consider some rules for entrance or exit of capital, stock supply and demand, determining stock price and etc. to protect the market against volatilities and financial crises. one of the most important rules in some new markets in this regard is stock price volatility limit and it is used as a control factor to stock price volatilities in financial markets. More stock price volatilities in new markets are created due to the lack of balance in supply and demand or speculations. In addition, in stock exchange markets as TSE without any market expert to smooth trading, we can observe higher stock volatility. Thus, TSE authorities determine daily stock price volatility to protect the investors and restrict the range of stock price volatilities in a day.

Using price limit of stock in Tehran is based on existing experiences in some new markets regarding the prevention of serious financial crises. The stock price volatilities have been determined by trial and error and there are many changes in stock price volatility limit in short time without evaluating the impact of these decisions on market and response of investors to volatilities range changes.

Statement of problem
The most important duty of stock market is creating an efficient and continuous market for securities as we can trade securities by fair and close to the previous trading price. Thus, stock exchange should create adequate liquidity for investors. In such market, investors can turn their securities immediately to cash or dedicate their assets to investment on securities. Another important duty of stock market is pricing securities. The pricing is based on sale and purchase orders (supply and demand) of stock. All securities sale and purchase orders are sent to stock exchange from all over the country and the pricing is based on supply and demand volume. An efficient market should evaluate securities based on information issued in market and reflects its impacts on securities price. In other words, in stock market, securities price responds to the various changes.

Effective factors on securities price namely stock
Various factors affect stock price and they are divided into endogenous and exogenous. Endogenous factors are divided into five factors of return on assets rate, volume of development plans and their return rate, funding costs or company capital rate, management factor and cash flow of firm. The exogenous factors are seven factors including inflation, capital security, tax on stock earning of firms, information weakness and imitation, brief coefficients, executive and regulations risks and stagnation.

Valuation of common stock
In financial theories, securities value is obtained by calculating their future cash flow. In other words, to determine securities value, at first cash flow of securities should be determined with their receiving time and then by discount rate consistent with the risk of the securities, their current value is computed. As discount rate or return rate of investors are based on risk or uncertainity to the future cash flows, thus, discount rate should be consistent with their future cash flow risk. Thus, for valuation of common stock, at first we should determine three main elements of valuation as 1)Future cash flow, 2)The time to receive cash flow, 3)Uncertainty to the fulfillment of cash flow. As it was said, cash flow devoted to a common share is dependent upon net profit of firm. The net profit of firm is dependent upon sale and fixed costs volume and operating and non-operating variable of firm. Based on the variety of these factors and their volatility from one year to another year, we cannot estimate firm profit exactly for future years. We can determine the ability of profit achieving of firm based on external and internal factors of firm.

Efficient market theory
Efficient market is the one in which securities price is adjusted to new information rapidly. In other words, the information is used for pricing and the investor is assured that securities are valuable as the market price of it. In other words, in an efficient market, financial information is issued rapidly in financial markets and affects the securities price rapidly. Thus, an efficient market is the one in which securities price reflects relevant information rapidly. Thus, potential investors can not use the information issued widely in an efficient market as the prices are adjusted based on relevant information. The markets can be efficient regarding some information while they are not efficient to other information type. For example, securities prices can reflect much information in society generally but the information that people very close to firm (e.g. managers or board members) is not reflected in the prices. Based on the rules of some of industrial countries, using this information for trading in stock market is illegal. Efficient market should be sensitive to new information. If new information is presented to the public, common stock price of firm should change based on the direction of given information. If a market is indifferent to new information and don't respond well, as there is no analyst in market for evaluation of new information on prices, the market is not efficient anymore. One of the destructive factors of capital market is forming bursting price volatilities in stock market as making an atomic bomb and its explosion can destroy all physical and infrastructural structures of environment in a country, formation of stock price volatilities and lack of its strategic control makes the stock price soaring in capital market and by bursting the price bubbles or financial bomb explosion, the economy and industry will be directed to bankruptcy and stagnation. Formation of stock price bubble is due to the increase of assets and unsuitable economic policies and speculation, asymmetrical information in market, collective behavior of shareholders due to the false predictions in assets pricing, pyramid plans of some of shareholders and firms and low depth of stock market and etc. Thus, the considerable increase in stock market prices increases the expectations to increase prices in future for shareholders. Thus, considerable increase of stock market prices increases the expectations to increase prices in future for shareholders. The high expectations cause that investors to speculate on potential future income of investment and speculation illusion is created. This type of speculation had been observed in the past and it was a threat for future investors. Regarding short-term speculations, the stock market cannot keep the high prices as continuously and by bursting the price bubble, the shareholders can be at loss and stock prices are adjusted. This strange phenomenon can not be controlled and it increases at a point but answering the question that at which point, the bubbles are exploded is not easy as the interference of various leverages as policy making in economic, political dimensions can avoid stock crash. If necessary measurements are not taken, the stock market stagnation can be increase and there will be no good condition in stock market. The best way is to sell the stock and avoid the future loss of prices reduction. Thus, by issuing stock market stagnation news, the shareholders predict their mistake in stock pricing and by collective behavior and sudden sale avoid their loss and transfer their loss to another one but there is no adequate time for turning the stock into cash and existing the crashing market and by prices crash at a short time, price bubbles can be reduced and after that shareholders and firms will encounter bankruptcy. Applying required control by economic policy makers and taking supportive policies by policy making authorities and forming stock portfolio by shareholders can avoid more losses and following outcomes of stock volatilities bursting and the market crash can be adjusted. The stock price volatilities outcomes can

range a mild economic stagnation to serious political and economic instabilities affecting the entire society or world. For example, stock bubble bursting 1929 is the greatest sudden crash of stock in US history and its outcome was economic stagnation. In economic literature, the assets price exceeding their long-term equilibrium prices is called bubble. Any stock price exceeding its real value leads to bubble. If we divide [1]stock market daily price, any difference of current price from current value of the sum of expected profits in an infinite period shows bubble in stock current price (Palgrave's Dictionary, 2000) [19]. Price bubble is the initial increase if price due to its increasing expectations as absorbing new buyers. Bubble is a kind of investment phenomenon explaining the weakness of some of mental and emotional aspects of human being. Bubble is occurred when investors demand for stock is increased and its price is directed to its real price. This price should be determined and performed by the company (Investopedia.Com, 2005). Indeed, when the price of an asset is different from its expecting price as predicted bubble is created in market. Normally, a bubble as a part of asset price trend can not be explained by common economic variables and is not defined by principles and factors changing asset price. A financial bubble is occurred when the price of an asset as stock is increased sudden for irrational reasons and then it crashes (Zhongyin& others, 2002) [29]. In semi-strong efficient capital markets, stock price reflects the issued information and can be presented to public. In such markets, stock price reacts to new information and price changes are based on received information. However, in some of markets, some procedures are considered to control stock price changes. This stock price control causes that stock price can not reflect issued information. This issue is not similar in various financial markets and is different based on reliability on news sources and financial analysis level in each market. If there is various and reliable news source in a market, the information is issued transparently and most of financial analysts, market authorities and market experts can process data. Then, irrational volatilities in stock price and response are reduced considerably. As all the above factors are not completely occurred in new markets, it is attempted to use specific procedures and eliminate this problem. One of the most famous procedures is automatic inhibitors and stock price volatility limit. The initial issues regarding automatic inhibitors and volatility limit consider that they provide a time opportunity to issue the information completely and all market activists achieve similar information about trading asset (Kim& Yungsoo, 2010). Stopping trading means preventing trading of a security at definite time based on market authorities views. The maximum allowable price change or stock price volatility limit means determining the maximum and minimum price for a security per day. In stock exchange of development markets, trading stopping is used. For example, New York stock exchange (NYSE) applied trading halt to protect the investors to serious volatilities. Based on B80 law approved in April 1998, the stock market can use trading halt if new and unexpected news is issued about firm activity or a considerable imbalance is created in supply and demand of stock of a firm. For example, when *Dow Jones* indexis reduced 10% before 2p.m each day, the trading halt is occurred and if the value reduction is occurred at 2 p.m. to 2:30, the trading

halt is occurred for half an hour. Thus, other conditions cause that in case of their occurring, stock trading system responds to the events automatically (Rhee &Rosita, 1993) [21]. Stock price volatility limit is logically based on two features controlling stock price volatility (Mei-Chen &Haung Chou, 2002) [17].
These two features include as:
1. Creating legal limitation in stock price change
2. Creating a time opportunity for re-evaluation and logical evaluation of stock

The impact of these features is obvious if the market is turbulent. In case of market turbulence, the investors are affected by mental climate of market and take irrational decisions. These decisions are mostly among individual investors and the loss of these investors in case of market turbulence is very high (Brady, 1988) [7]. Based on the above reasons, most of stock exchange markets apply stock price volatility limit. Table 1 shows the price volatility limit in 2010 for various countries (Kim& Yungsoo, 2010).

Table 1: Stock price volatility limit in various countries in 2010

Volatility limit percent	Country	Volatility limit percent	Country
10-20	France	10	Argentina
8	India	5	Austria
10-20	Italy	5-10	Belgium
10-60	Japan	15	Ecuador
10	Kenya	5	Egypt
15	Korea	15	Finland
10	Mexico	30	Malaysia
5	Peru	7	Pakistan
15	Portugal	40-50	Philippine
7	Taiwan	10	Spain
5	Turkey	30	Thailand
4	Iran	20	Venezuela

Although both trading halt and price volatility limit are automatic inhibitors, they are different from some aspects (Recep & Gulay 2002) [20]. Thus, first trading half indicates avoiding trading of a single asset (share) at definite time. However, price volatility limit restricts daily volatilities of the price of an asset (in a determined limit). Second, trading halt acts at a time limit as temporary and after the end of trading half of a share, the stock price is determined merely by supply and demand but in price volatility limit method, trading is possible by volatility condition in pre-determined limit. Third, trading half is performed at specific conditions and determining these conditions is for stock market authorities but price volatility limit is automatic and is used as the same for all stocks. Despite the difference between price volatility limit and trading halt, both of them are recommended to solve a unified problem and their goal is avoiding the abrupt changes in financial assets price. None of the studies achieved definite result and it is not defined which mechanism has better performance to other one to avoid illogical price volatilities (Miller, 1991) [18]. It seems that stock markets in US prefer trading halt. Despite stock markets in US, future contract markets of this country are inclined to price volatility limit (Kim & Lim paphayom, 2000) [12]. One of the studies regarding the positive impact of stock price volatility limit is

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[1] This division is to separate various effective components on stock price into intrinsic price and bubble

conducted by Ma *et al.*, (1989). In the study, they show that stock price shows inverse behavior after reaching fluctuation limit and their volatilities are reduced after reaching price volatility limit and this means avoiding abrupt changes in stock price and high stability of price (Ma *et al.*, 1989). Other researchers are disagree regarding applying volatility limit in stock markets and consider negative impacts of stock price volatility limit more than its positive impacts (Kim, 2001) [11]. Generally, price volatility limit believe that using price limit has at least four negative impacts on stock market as: a) Developing volatilities, b)Delay in achieving actual price, c)Overreaction, d)Interference in trading. Regarding developing volatilities after applying stock price volatility limit, Fama conducted a study in this regard. The results of his study show that if an interference is created in the process of achieving actual price (price detection), the volatilities are increased (Fama, 1989) [9]. Lehman in the study show that lack of balance in supply and demand causes that the stock reaches its price limit and achieving price limits leads to the transfer of trading to future days. Although price limit restricts price fluctuation in a day, it develops the fluctuations over time and instead of reducing fluctuations develops the volatilities to future days. He showed that price limit created an ascending or descending trend to approach actual prices. This can lead to increase of stock price volatility in long-term (Lehman, 1989) [15]. The delay in achieving actual prices is one of the problems created byp rice limit. As price limit determines the maximum and minimum of price per day it can avoid trading in a day (when the stock achieves its price limit) and the delay in supply and demand is continued till the maximum and minimum prices are revised in future days. Thus, stock price achieves its actual price with delay (Kim& Rhee, 1997) [28]. The delay in achieving actual price is the main factor of imbalance in stock supply and demand. Thus, sale or purchase queue is formed for a specific share and speculation motivations and achieving profit without risk tolerance are increased. Overreaction indicates that the main reason of reaching price volatility limit per day is very optimistic and pessimistic reaction of market activists about issued news and by much information processing and with the passage of time, it is expected these false reactions are corrected and the prices return to normal condition. The assumption of interference in trading attempts to in vestigates trading volume behavior after reaching price volatility limit. Two researchers Lauter batch, B., and Uri Ben-Zion (1993) [14] evaluated the impact of price volatility limit on stock liquidity and introduced the impact of price volatility on reduction of stock liquidity as "an explicit cost" of using price volatility limit. This is defined by Fama and Tesler (1989) [9] as if price volatility limit avoids trading, it has direct impact on stock liquidity and it is effective on increasing trading activities in future days (Lauter batch, B., and Uri Ben-Zion, 1993) [14]. For the first time, stock price volatility limit was applied in TSE in the earl y 1999 with serious stock price volatilities. The limitations on avoiding stock price volatility had no regular form on that time and it was based on the views of secretary of stock exchange market or stock market council. In 2001, stock price volatility limit had new dimensions. In the new structure, price to earnings per share ratio was used for applying limitations and volatilities limit 1%, 2.5% and 5% were used for various stocks. Due to trading of stock at maximum or minimum of daily prices and long purchase or sale queues, the authorities of TSE developed volatility ranges and since May 28, 2003, the volatility

limit of all the stocks listed on TSE (main and minor halls) was changed to 5% without considering price to income ratio. There are limitations in TSE avoiding favorite volatilities in stock price. These limitations include basis volume, calculation of weighted mean of prices as final price and stock price volatility limit. Based on the factors of basis volume and weighted mean of prices, the price of a share has volatility limit 5% that at first, all the trading is done at maximum and minimum price and second, at least eight 10/1000 of stock of the firm are traded. Indeed, by using these two conditions at the same time in TSE, reaching stock price volatility limit 5% is difficult. It can be said in next years, volatilities limit 2, 3, 4% were used in TSE.

Theoretical and review of literature

Theoretical basics of price volatilities have been raised in the review of economic issues in the past 100 years (Rima, 2001). However, the statistical hypothesis test methods have been encountered with some limitations and had high dependency on measurement economic indices and formal issued indices of stock market, The exact determination of volatility, bubble and recognizing prices bubble from actual stock prices has created a good ground for conducting further studies in stock market. Bierman (1995) [6] follows this theory that stock market prices are determined based on investors attitudes to the past(retrospective view) but comparative expectations theory is not a complete theory in explaining the economic factors behavior as it assumes economic factors commit systematic errors in decisions and rational expectations theory is presented to compensate the problem of this theory and this theory is applied in stock market.Diba& Grossman (1988) [8] believe that rational bubble is reflected in self-belief as the asset price is dependent upon the variables (or set of variables) as irrelevant. The main problem of empirical test refers to the rational bubbles raised by Flood & Carber (1980) [10] and emphasized by Hamilton & Whiteman (1985) as including the role of assumed fluctuations on assets price as are not recognized directly based on market basics and the variables not observed by researcher. Ohanian (1996) states that some of famous bubbles indicate a specific rational behavior and a set of bubbles are created called rational bubbles. A rational bubble indicates that performing predictions and beliefs of rational investment show that assets price depends upon irrelevant variables to market basics. Batiz (1994) [5] defines bubble as a situation in which a variable as stock price exceeds from the path including long-term intrinsic price". Misrepresentation about future stock price as stabilizing gradually increases stock price bubble. After finding this misrepresentation, the bubble be in burst condition. White (1990) [27] presents an alternative definition in which "rational bubbles are reflected in self-belief as asset price mostly depends upon the variables not intrinsic value, the bubbles create differences between assets price and intrinsic value. Allen & Gorton (1988) [4] presents a model with infinite horizon with rational indices in which bubbles can occur but the problem of empirical work is that the required models hardly show the tested limitations including rationality of indices.

Campbell *et al.*, indicates that "if a bubble has the limit higher than the price of an asset cannot be created. Thus, goods price bubble is cancelled in case of an alternative with high price in infinite horizon (e.g. solar energy in case of existence of oil). Tirol (1982) [25] believes that *Bubbles* cannot arise if there are a

finite number of agents with infinite rational agents. He says "when there is short selling, although bubbles don't depend upon short selling, if there is positive bubble in asset, as the infinite agent can sell in a short range, the existing incomes are devoted to stock dividend and positive capital is remained. This arbitrage opportunity negates the bubbles. Tirole also studied the bubbles in internal generations' model of Diamond (1965). There are "n" in this model but Tirle (1985) showed that no bubble is created as interest rate is higher than economic growth rate. As the bubble increases compared to economic capital infinitely and it violates some budget limitations. Thus, he concludes that bubbles can exist only in new symmetrical productive economies using personal capital density and they keep interest rate below the economic growth rate. However, most of economists believe that dynamic inadequacy is not occurred. Abel &Summers, Mankiw & Zekhauser (1989) presents empirical reasoning as this issue doesn't indicate US economy. Shiller (2000) explains the deeds of investors by psychology as they are inclined to herding behavior (e.g. they follow the guidance of a person who can understand better) and stock markets will be full of disorder, offences, bubbles and increasing problems. The unavoidable result is creating emergency condition in market inefficiency as financial values of market are relatively high or below intrinsic values. This shows that which profitability opportunities are not emerged till now and it is an opportunity for beating of market with high investment and achieving capital with high return than those involving with internal risk. Regarding asset price volatility and bubble of Shiller (2000) [23] and SIgol (1998), different views are presented about market future and economic growth rate of US. Sigol believed that stock market is reliable for long-term investment and this market has potentials for progress in future, presented optimistic views. The investors evaluated the required market risk considerable and estimated market growth vision lower than common level and evaluated the market. However, Shiller (2000) [23] believed that stock market experienced little growth for many years as ambitious pricing of asset led into its crash and showed their pessimistic views in this regard. Barro (2000) raised the third view as it was possible to reflect assets price in intrinsic values and considered future incomes as efficiency factor for pricing future investment. In Iran economy, Hazbarkiani and Mirshamsi (1999) [2] evaluated rational bubble in TSE and found that rational bubbles hypothesis in TSE cannot be rejected. They evaluated TSE condition for 17 firms during 1988 to 1997 by monthly data and reliability test of price to earnings (P/E) and convergence test of price and earnings per share of the required firms and presented some reasons by which rational bubble was not rejected in minimum price of 15 firms of 17 selected firms. Although this study presented some reasons to define the reasons of bubble formation in stock price of the studied firms, no effort was presented to support the rational relation of these causes and stock prices. Nasrollahi (1998) besides explaining theoretical basics and evaluation methods of speculative bubbles (speculation) in financial markets and evaluated their applied testing methods in empirical researches. He found that rapid growth of TSE index in 1995 and three first months of 1996 and reduction of this index in Fall and Winter of that year made the prices soaring among some of stock buyers and many experts. In the theoretical framework, false price soaring is not a phenomenon, unless the price bubble considering as the second part of price of asset.

Method and study measure
A researcher-built questionnaire is used in this study for data collection. The stock price volatilities include 37 questions provided by regular method or package and they are collected for evaluation of study hypotheses in the required population. Cronbach's alpha is used by SPSS software to evaluate reliability of questionnaires and the reliability of stock price volatility is 0.96. To evaluate the validity of questionnaires, face and content validity is used. The questionnaires are given to 5 management experts and their corrective recommendations are used. Then, by an initial test, 30 questionnaires are distributed among the study population members and based on the results of this questionnaires, the ambiguous questions are modified and excluded and final form of questionnaire is provided. Also, the validity of questionnaire is supported by internal consistency. Both inference and descriptive statistic methods are used, descriptive statistics is used to investigate the features of data and inference statistics is used for statistical analysis of questionnaire. The data are analyzed by Spss and Eviews software and Fisher test. The study data of the firm are collected besides questionnaire from site of TSE and Tadbripardaz software, journals and annual reports and other reports of TSE and audited financial statements of the firms. The study population is including all the firms listed on TSE during 2008 to 2013. Based on a stratified random sampling, each industry is selected as a class and by each class, by Cochran's formula, $n = \frac{Z2S2}{d2}$, the sample size is 40 firms. Then by using a simple random sampling, 40 companies are selected based on a table of random numbers. This study is a descriptive –analytic design using cointegration econometric test and Fisher's exact test. The intrinsic value of a share is obtained by sum of current value of net cash flows of their annual dividend. The stock price volatilities estimate high price return for achieving expected return but explosive abnormal growth of stock price exceeds stock price from its intrinsic value but the observation of this exceeding is not possible at any time as the calculation of intrinsic value of stock price is not possible due to the lack of exact information of estimation of future expect profits. Diba& Grossman in their studies on price bubbles in capital market showed that in linear models, expected current value, cointegration rank of earning process and stock intrinsic value are equal. For example, if time series of stock dividend is stationary by once differentiation, then intrinsic value is stationary by first order differentiation but in case of price rational bubble, first order differentiation of stock actual prices will not be stationary. This test was evaluated for the first time by Diba& Grossman (1988) [8] to evaluate the rational bubbles in stock price. Their studies are based on cointegration concept of Engle & Granger (1987) researches. The cointegration between stock dividend and price is a good reason regarding the significant economic relation between these two variables and if stock price and its profit are first rank cointegration, it is used as a reason for the lack of rational bubble. If the stock price and dividend are not co-integrated in cointegration test, it doesn't mean actual rational bubble in stock price as it is possible other important variables are in market leading to serious fluctuations and wide changes in stock price and this is one of the best tests of stock price volatility diagnosis as the criticisms on this test is less than that of other tests. This part deals with the test between type of firms and stock price volatilities in TSE. The following hypothesis is raised in this test:

Hypothesis

There is no statistical relation between stock price volatilities and variety of firms (H0), There is a relationship between price volatilities and type of firms (H1)

Study Findings

Based on the intersection of type of industry of each firm with the result of its price volatilities, contingency Table of price volatilities with confidence interval 95% can be created based on type of firms as the results are shown in Table 2.

Table 2: The results of contingency Table of stock price volatility in the firms listed on TSE

Confidence interval 95%				Variety of firms	No.	Confidence interval 95%				Variety of firms	No.
Without volatility		With volatility				Without volatility		With volatility			
%	N	%	N			%	N	%	N		
0	-	5	2	Tile and ceramic	11	2	1	0	-	Publication and copy	1
2	1	10	4	Rubber and plastic	12	2	1	0	-	Car and parts manufacturing	2
10	4	5	2	Machineries and equipment	3	2	1	5	2	Manufacturing Radio, TV and mass media systems	3
5	2	2	1	Electric machineries	14	5	2	2	1	Production of metal products	4
2	1	0	-	Wood products	15	10	4	10	4	Other mineral and non-metal products	5
10	4	0	-	Chemical products	16	5	2	0	-	Investment	6
16	5	13	5	Food and drinking products except sugar	7	0	-	13	5	Cement, lime and gypsum	7
5	2	8	3	Paper products	18	2	1	2	1	Oil products, coak, nuclear fuel	8
2	1	2	1	Textiles	9	2	1	2	1	Basic metals	9
5	2	8	3	Materials and products	20	13	5	13	5	Sugar	10
57	22	53	21	Total		43	18	47	9	Total	

As shown in Table 2, the test of relationship between two variables of type of firms and price volaity is required but contingency table can not test it with common chi-square tests as these tables don't satisfy having four or five observations in each block of Table and exact Fisher test is r*c is required. This test applies the latest SPSS software (version 13) and the above test is used in this study. The above Table evaluates the hypothesis of no relation between price volatility and type of firms. The results of exact r*c Fisher test are regarding the relationship between variety of firms and price volatility with confidence interval 95% as shown in Tabl e3. This hypothesis is analyzed by exact Fisher test statistics and above table. Based on the results p value reports exact Fisher test as 9%. Thus, based on Table 3 analysis, we can say at significance level 5%, two-way exact Fisher test is 9% and as it is bigger than 5%, H0 regarding the lack of relationship between price volatility and type of firms at significance level 5% is not rejected. Thus, the response of the study question regarding the relationship between type of firms and price volatility at confidence interval 95% is rejected. The summary of the results of exact Fisher test for the relationship between type of firms and stock price volatility is shown in Table 2.

Table 3: The summary of exact Fisher test to evaluate the relationship between type of firms and price volatility

Probability p- value	Degree of freedom	Exact Fisher test statistics	The firms with volatility at confidence interval
.090	19	24.08	95٪
.28	19	20.503	90٪

The above results show that at error level 10%, there is no relationship between variety of firms and price volatility as two-way exact Fisher test is 0.28 as bigger than 10%.

Cointegration econometric and exact Fisher test. It is found that at confidence interval 90, 95%, there is no relation between variety of firms and stock price volatilities.

Conclusion

One of the adverse factors in capital market is stock price volatilities. Thus, based on the importance of financial and economic strategy of this market, one of the important theoretical items in economy and financial management literature is statistical and economic modeling in evaluation of the price fluctuations namely price bubbles in TSE. To evaluate the price volatility in TSE during 2008 to 2013, 40 firms listed continuously in TSE are selected and tested by SPSS, Eviews test,

Recommendations

As high volatilities in the stock markets in the world exist based on the results of this study in TSE, its presence in future is also unavoidable. Thus, it is recommended that minor shareholders with less access to information and financial statements analysis invest on the stock of the firms with various stock portfolio to avoid direct risk and the outcomes of serious volatilities. The firms listed on stock exchange of industrial countries including US by sending annual and six-month reports send comprehensive information as standard including important financial points, management letter, report of board, the latest condition of

manufacturing performance, service, research and development with financial statements, comparison of profit and loss and balance sheet of some years with the notes for shareholders or applicants of information with the report provided by stock exchange market of US. Sending the above reports send by internet sites of economy and financial as financial times and etc. for those interested in investment as free by post or e-mail can be proposed. The mentioned procedure is obligatory for the firms listed on TSE to provide transparent and timely information to those interested in capital market.

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