



Movement of PE Ratio and its Impact on Price Fluctuations: A Case Study of Dhaka Stock Exchange in Bangladesh

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Abstract- This study describes the movement of PE ratio mentioned in corporate annual reports and impact on market price fluctuations in stock market. Specifically, this report discovers the affiliation between PE ratio and market price fluctuation in stock market in an emerging market like Dhaka stock Exchange, Bangladesh. For this purposes, it has analyzed and utilized a disclosure index about PE to measure the extent of relation with market fluctuation made by companies in corporate annual reports. This study reports that a very few company's share price in DSE are making efforts to run with PE ratio which are mostly quantitative in nature. Whether the price earnings ratio is a good criterion on which to base investment decisions is also examined in this report.

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I. INTRODUCTION

In recent years investments in equities have surged manifold. This evident from the fact that a large number of stocks have been enrolled in the Dhaka Stock Exchange in the last few years as well as from the significant increase that has taken place in the daily turnover of the market. With the entry of foreign institutional investors in Dhaka Stock Exchange coupled with stronger activity of domestic financial institutions and the arrival of private mutual funds; the erstwhile rule of stock picking has matured from speculation to research base investment. There is an increased awareness about the need for investment analysis is looking at various parameters in assessing the performance of corporate in the stock market.

Dhaka Stock Exchange has been shown greater volatility which has affected the informational efficiency of DSE. The Dhaka Stock Market has been experiencing volatility since its inception-the indices reached the highest level in its history in November 1996 and December 2010 and eventually crashed; afterwards investors lost their confidence about the stock market.

Different researchers have inquired on various side i.e; R Vaidyanathan and Ranadev Goswami (1997) show the affiliation between PE and stock returns. Pu Shen (1998) talks about the PE ratio (2010) research on the affiliation between P/E Ratio, Dividend Yield Ratio, Size and Stock Returns in Jordanian Companies: A Co-

integration Approach. It is generally originated to be convenient to identify a single indicator which can be used to reflect the changes in the underlying fundamentals pertaining to scrip. Equity researchers are however divided in their opinion regarding the single parameter which represents the fundamental of scrip and hence EPS, RONW, P/BV or P/E ratio etc. are used for this purpose.

a) Hypothesis

The following hypothesis was set in order to achieve the research objective.

H1: There is no significant relation between the P/E ratio and price fluctuation of stock.

II. METHODOLOGY

This research is based on P/E ratio of a specific date and stock price fluctuation for a specific. The methodology of the overall work is as under.

Researcher followed the procedure for the sampling. It facilitates of accounting data accesses which is most reasonable and standardized information. The genesis of the sample was the Dhaka Stock Exchange (DSE) industry wise company list. There were total 500 companies among which 221 are Treasury bond which are not traded in market. So it is handpicked 100 companies from 279 companies randomly.

For completing the study secondary data and primary data were utilized. For secondary data collection, companies annual report, daily trading price of stock and DSE general index, Dhaka stock exchange's library was used. Dhaka stock exchange's web site was also used to collect companies yearly performance data. For primary data oral questioned were asked to investor about P/E ratio.

For data analysis, Karl Pearson's coefficient of correlation has been used to find out the affiliation between the P/E ratio and stock price fluctuation. This analysis is made without concentrating and group of the company. For regression analysis, P/E ratio has been used as the independent variable, price fluctuation a dependent variable. Other calculation like: Mean, standard deviation, covariance etc were done as well. Two tailed hypothesis test done to test the presumed hypothesis.

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III. OBJECTIVES OF THE STUDY

General objective of the study are to specify the affiliation between P/E ratio and market price fluctuation. Other objectives of the study are:

1. To know the nature of P/E ratio
2. Interducing with individual company P/E and overall market P/E.
3. Price volatility of individual company.
4. Confidentiality of P/E ratio.
5. Measure the efficiency of Dhaka stock Exchange.

IV. SIGNIFICANCE OF THE STUDY

This research is remarkable is various aspects. First of all, it will pave the easy way for investors to identify the nature of P/E ratio and market price fluctuation along with help them to take decision regarding investment . Secondly, future researcher would be able to extend the research by including other indicators. Furthermore, it will help government or authorized department like, SEC, CSE, DSE, Board of Investment etc. to understand the role of P/E ratio is stock market.

V. LIMITATIONS OF THE STUDY

The limitation confronted while conducting the research were:

- The scope of the report is limited to only hundred companies listed in DSE without any grouping.
- Availability of information was limited for which data of only one year has been incorporated.

VI. LITERATURE REVIEW

Recent research in empirical finance has shown that variables like dividend yields, price to earnings (P/E) ratios as well as past returns have significant explanatory power for the variation in cross section of expected returns even after controlling for market risk (Fama and French, 1992, for a through coverage of the topic). Similar results are reported for several developed markets (Ferson and Harvey, 1997, Fama and French, 1998) as well as emerging markets (Bekaeet,et. Al., 1997; Claessens, Dasgupta and Glen, 1998; Rouwenhorst, 1999). Whether these variables are risk proxies in an efficient market or signs of mispricing is the subject an ongoing debate in financial economics. Yet for the practitioner in the market, it is the longer term predictive ability, rather than contemporaneous explanatory power , that is really important .

R vaidyanathan & Ranadev Goswami (1997), said the price earnings ratio is the single most popular tool for equity valuation . The inherent simplicity in understanding its significance has made it particularly popular among ordinary investors. The investment analysis also gives P/E ratio its due importance before

making investment decision and for timing the entry into or exists from a stock. Base (1997) showed how the price earnings ratio that is computed from reported accounting earning can be used to select that have good price appreciation potential. His analysis showed that stocks with low P/E ratio earned risk adjusted rate of return that beat the returns earned by a naïve buy and hold strategy. The price /earnings ratios of Japanese firms are known to be higher than of other countries. In addition apart from forecasting individual stock returns stock market investors are also interested in the forecasting power of market wide averages of variables like dividend yield/E and book to market ratios as tools in market timing in highly volatile stock markets. The objective of this paper is to investigate the ability of P/E ratios to predict future stock market volatility in emerging equity markets. Emerging markets are differentiated from developed markets with respect to their heterogeneous nature and inherent dynamics. These are the markets characterized by high volatility and high average returns. It has been shown that they are not integrated to the developed markets of the world as evidenced by very low correlation with the rest of the world and among them (Bekaert ET. Al.1998). Hence the importance of market time and country selection for an internationally diversified portfolio investor is obvious. Bleiberg (1994) employs aggregate data for future stock returns and average P/E ratio to develop a market timing and asset allocation strategy. To this end, he groups historical average P/E ratios into quintiles and relates them with future returns using S&P 500 index.

Bierman (1991) points out that P/E of Japanese firms are considerably overstated because of widespread reciprocal ownership in Japan. In his opinion, when large amounts of common stock are held by corporations and when dividend payout are low as is common in Japan, P/E can be substantially inflated. Another study by Ikeda M (1992), however, claims that such upward biasness of P/E ratio is not necessarily due to crossholding alone. Instead, the P/E adjustment process should take into account different levels of scale, earning and payout ratios that are interconnected by different degrees of reciprocal ownership. Some researchers have should that P/E ratio is a combination of present and future growth rate.

Leibowitz and Kogelman (1992) establish that the P/E ratio of a firm wi9th not franchise value gives the base P/E which is simply the reciprocal of the market capitalization rate. in contrast, the P/E of a firm with substantial franchise opportunities will command a premium to the base P/E. The author later (1994) shown that the current growth rate of a firm although greater than market average, not in excess to its expected franchise opportunities. On the other hand, high earning derived from franchise opportunities which in turn pull down the P/E value. Hence, firm's valuation will be able to maintain higher P/E ratio.

Evans (1993) finds that the usual stock market 20-which says the P/E ratio plus the inflation rate should equal 20- no longer holds true. He suggests that the rule might have lost its validity and many are trading at much higher P/E ratios, but there still exist some fundamental affiliation between the yield on stock and bonds. Several attempts have also been made to find the effect of firm size and earnings/price ratio in relation to equity return. *Basu (1997)* claims that earning/price ratio subsumes the size in sample specific cases. Another study by *Reinganum (1981)* originated that size subsumes the earning/price ratio due to fortuitous choice of methods.

Cook and Rozff (1984) late examined the joint effect of size and earning/price ratio and their findings suggest that both effects are at work. i. e. one is not subsumed by another as alameda by previous work. A more study by fama & French (1992) provided even greater support for this ratio as a measure of relative value. The purpose of the study was to examine alternative variable that would explain the cross-section of the rates of return on common stock. One of the explanatory variables was the well known beta coefficient. Their results did not provide much support for beta as an explanatory variable but the results did reveal that both size of the firms and the ratio of book value to market value of equity were significant explanatory variable but the result did reveal that both size of the firms and the ratio of book value to market value of equity were significant explanatory variables. They also contended that the book to market value ratio was the single most important variable.

Penam (1996) in his study explain that the P/E ratio indicates the future growth in earning which is positively correlated to expected future return on equity and negatively related to current return on equity. Empirical evidence indicates differential P/B ratios but not P/E ratios expect in the extreme. Current return on equity is not good indicator of P/E since a given level of P/E can be associated with alternative combinations of current and future return on equity *vidyanathan & Ranadev Goswami 1997* researched that the investment in low P/E stocks on an average will give higher return than in higher P/E stocks. They have considered 60 active scrip's listed on Bombay stock exchange for period 1991-1997. They also said that the annual average return of the portfolios formed on the basis on P/E ratios is not significantly different from each other. They also originated that even these risk adjusted returns are not significantly different for different portfolios formed on the basis of P/E ratios. *Pu shen 2000* when price earnings ratios have been high stock prices has usually grown slowly in the following decade. Moreover at tomes such as the present when high price earnings ratios have reduced the earnings yield on stocks relative to interest rates stock prices have also tended to grow slowly in the short run. Forecasts based on such evidence are subject to much uncertainty,

however, because history may not repeat itself. Specifically, the possibility cannot be ruled out that this time will be different due to fundamental changes in the economy that will allow high price-earnings ratios to persist and thus stock prices to continue growing both in the near term and in the coming decade.

Fama and French (1988) and *Campbell and Shiller (1998, 2001)* use, in addition to P/E, the dividend-yield in order to predict future market returns. *Shiller (2000)* indicates that P/E ratios that are high relative to their long -run historical average signal "irrational exuberance" in the stock market are usually followed by sell-offs and low future return. Thus, the P/E ratios has a tendency to revert back to its long-run historical mean. *Kane, Marcus and noh (1996)* used the P/E ratio as a proxy for the required rate of return and find it to beinversely related to volatility. This support the notion that investors are risk-averse. Since asset return exhibit volatility clustering;i. e. "large changes then to be followed by large change of either sign, and small changes tend to be followed by small changes" [see *mandelbrot (1963, p. 418)*] large increases in current volatility entail higher volatility in the future. Consistent with the above mentioned studies, high (low) P/E ratios relative to their long-run hitoricsal mean lead to lower (higher) future market returns. Thus, when investors exprct higher future volatility, they will sell their current position (leading to a drop in P/E)/ and wait until expected returns rise in the future to compensate them for the risk. This paper examines the relation between P/E and volatility using several measures for each. *Kane et al (1996)* findings suggest a negative relation between P/E and volatility. *Dimitros koutmos (2010)* originated that P/E can serve as an important market valuation tool. Since it is significantly related to volatility, it embodies information regarding investor' expectation for future market condition and future return. Secondly , although the long-term interest rate has been suggested as a proxy for the investment opportunity set [see *Merton (1973)*], empirical findings provide weak support of this.

Mona Al -Mwalla, Ahamad M. Al-Omari, Fayssal Ayad (2010) research indicates the existence of long run equilibrium between dividend yield, P/E ratio, size and stock' return for the simple under study. This research got out the connection between average P/E for company remain alive under Dhaka stock exchange for the year ended 2009 and convert in market share price for one year from 15-10-2010 to 15-10-2011. Correlation analysis along with other examination between them worked hard to explore out whether there exist any coordination between them or not.

VII. ANALYSIS AND INTERPRETATION OF FINDINGS

In five fragments the result of the study are scrutinized. In the first phase, disclosure levels by

simple companies in Bangladesh has been scrutinized and discoursed. The second phase focuses on top and bottom level companies listed from several paradigms under Dhaka stock exchange. Third season explored the correlation analysis. Forth debated on Result of Regression analysis. The final stage engrossed on Test of hypothesis.

a) *Disclosure level by the sample companies in Bangladesh*

This section focuses on the measurement and analysis of the extent of P/E ratio and share price

fluctuation in Dhaka stock Exchange. In most of the studies reviewed, a disclosure index was prepared in order to measure the extent of P/E ratio and share price fluctuation in the annual reports of the companies under study. Mean, Standard deviation, Maximum, minimum occurred in individual companies are given below in the table.

Table 1: Descriptive statistics of the P/E ratio & Market price fluctuation

	P/E	Market price fluctuation
Mean	30.8646	40.2243
Standard Deviation	18.51627	17.42609
Maximum	98.11	86.95
Minimum	8.24	0

From the table it is found that mean of P/E ratio is lower than that of market price variation. But if we into the maximum and minimum P/E ratio both are higher than market price fluctuation.

In table 2, P/E ratios of companies have been scrutinized. For analysis, P/E ratio has been classified into ten categories from 0 to 100

Table 2: Number of companies in P/E scale

P/E ratio range	No of companies	% of companies
0-10.99	6	6%
11-20.99	30	30%
21-30.99	27	27%
31-40.99	16	16%
41-50.99	10	10%
51-60.99	4	4%
61-70.99	3	3%
71-80.99	1	1%
81-90.99	1	1%
91-100.99	2	2%

In the table, it has been found that maximum companies are Lying in scale of 11 to 20.99 (which in number is 30) and they occupy 30% of the total examined companies. 27 companies are standing capturing 27% of total in scale of 21 to 30.99. Least number of companies is seen in the scale bith in 71-

80.99&81-90.99. So from the table it can be assumed in DES that most of the companu,s P/E ratio ratio are higher than 117Lower than 50.99.

Table 3 shows sample companies according to price fluctuations in the last one year ended 15-10-2011. The change is shown in percentage.

Table 3: Number of companies in stock fluctuation scale

Price fluctuation scale (%)	No of companies	% of companies
0-10.99	2	2%
11-20.99	10	10%
21-30.99	17	17%
31-40.99	27	27%
41-51.99	20	20%
51-60.99	10	10%
61-70.99	10	10%
71-80.99	2	2%
81-90.99	2	2%
91-100.99	0	0%

Form the above table, it is clear that in the last one year most of the company's share price has

changed significantly.27 companies are standing in the scale of 31 to 40.99 which occupies 27 of the total

companies. 17 companies are standing in the scale 21 to 30.99. Least number of companies is situated in the highest scale and in lowest scale, which means market share price change is in moderate stage.

VIII. TOP AND LEAST RANKED COMPANIES

The simple companies were ranked on the basis of P/E ratio & market price fluctuation of each company. Table 4 shows the top ranked companies by

the size of P/E index. These provide insights about which company are capturing low P/E and which having high P/E. This table indicates that the lowest P/E in Bangladesh was obtained by South East Bank Ltd. None of the top ranking companies are subsidiaries of multinational companies. Further, when these companies were classified into industrial categories. It was found that six of them came from the "Bank" category.

Table 4: Ranking of the companies based on the lowest P/E ratio

Name of companies	P/E ratio	Ranking
South East Bank Ltd	8.24	1
ICB acml 1 st mutual fund	8.78	2
Exim Bank Ltd	10.13	3
Titas Gas Lit	10.57	4
Mutual Trust Bank LTD	10.63	5
Rupali Bank Ltd	10.89	6
AB Bank Lit	11.04	7
Olympic Industries	11.32	8
BAT BC	11.87	9
Mercantile Bank Ltd	12.28	10

Table 5 presents the highest P/E OF seven companies in Bangladesh using the percentage of change in share price. The lowest scores were obtained by Bangas Ltd and Metro Spinning Ltd. In the table it is originated that in highest P/E ratio there are two

companies from "Insurance" category. It is interesting to note that in highest P/E ratio eight companies are different categories. For normal investors it may be seen that Bangas Ltd is the most risk companies for investment but it may not be true all times.

Table 5: Ranking of the companies based on the highest P/E ratio

Name of companies	P/E ratio	Ranking
Bangas Lit	98.11	100
Metro Spinning Lit	94.8	99
Janata Insurance Lit	82.32	98
Aziz Pipe Lid	78.6	97
RAK Ceramics Ltd	67.29	96
BD Auto cars Ltd	66.29	95
Desh Ceramics Ltd	63.14	94
BSC Ltd	61.22	93
MJL BD Ltd	59	92
Pragati insurance Ltd	58.13	91

In table, 6 research organized the company of least price fluctuation according to their position. In this ranking the highest ranked obtained by Dhaka Insurance Ltd. Price fluctuation of Dhaka insurance Ltd. Shows a change of 0%. But it doesn't mean that the company's share price did not change last year. The company's share went up to a high position in the middle of the year because of high EPS (65). It is interesting that the lowest price fluctuation has occurred to only one Bank where in lowest P/E of 10 companies. In the table, two companies are from pharmaceutical group and three from agriculture sector have low share price fluctuation.

Table-6: Ranking of the companies based on the lowest Share price Fluctuation

Name of companies	Price Fluctuation	Ranking
Dhaka insurance	0	1
Islami Bank Ltd	10	2
THE ibn SINA Ltd.	11.26	3
Reneta Ltd	12.06	4
Bangas Ltd	12.89	5
golden son Ltd	14.63	6
national tea Ltd	15	7
Bata shoe Ltd	16.22	8
MJL BD Ltd	16.55	9
BAT BC Ltd	18.67	10

In table-7, companies are categorized in order of their price fluctuation. It is Libra infusion whose share price has changed the largest among the samples during last year (86.95%). In the table, it can be found

that seven companies are from “insurance & finance” sector in high price fluctuation category. So it also can be derived that financing and insurance companies have high share price fluctuation rate.

Table-7: Ranking of the companies based on the highest share price fluctuation

Name of companies	Price of fluctuation	ranking
Libra infusion	86.95	100
Geminisea food	86.67	99
Global insurance	71.27	98
Uttara finance	71.15	97
Federal insurance	70.59	96
Popular leasing	70	95
Summit alliance	68.89	94
Janata insurance ltd	67.86	93
Lanka bangle finance	66.8	92
United capital ltd	66.67	91

If companies is done among all the figures it can be found that the companies having highest or lowest P/E ratio have no affiliation with share price fluctuation. There is one company bangas Ltd. Whose P/E was high but we see that it has low price fluctuation rate. Most of the investors of our country invest on the basis of P/E ratio. But from that analysis it is found that P/E ratio has no affiliation with price fluctuation.

a) Correlation analysis

To examine the correlation between the independent and dependent variables, person correlation coefficients (r) were computer. A correlation matrix of all the values of r for the explanatory variables along with the dependent variables was constructed and is reported. The person product-moment coefficients of the correlation between P/E ratio and share price.

Table-8: Correlation and Covariance

Coefficient of Correlation	0.158
covariance	50.73155

From the above table it is originated that there is no significant affiliation between P/E ratio & market price fluctuation. The affiliation between them is near to no affiliation. So it can be said that P/E ratio doesn't indicate anything about future price fluctuation.

b) Regression Analysis

Analysis of P/E & Price fluctuation on sector base:

Companies listed under DSE have been categorized under different sector. Here sector wise analysis was done to identify whether P/E ratio and price fluctuation have any affiliation or not.

Table 10: Classification of P/E ratio on sector based

Sector	P/E ratio
Banks	12.313
Insurance	42.83
Engineers and power	33.58
Pharmaceuticals	31.52
Garments	32.81
Chemicals and others	35.48
Network	30.515
Finance	280243
Steel and housing	32.45
Mutual fund	15.39

From the table and chart analysis it has been found that highest P/E ratio are captured by insurance companies, whereas, banks standing in the lowest stage of P/E ratio.

Data obtained can be arranged in order of price fluctuation rate both in table and chart.

Table 11: Sector based price fluctuation

Sector	Price fluctuation (%)
Banks	35.17
Insurance	47.68
Engineers and power	36.18
Pharmaceuticals	32.40
Garments	40.26
Chemicals and others	37.62
Network finance	40.835
	61.40

On the basis of above mentioned table and chart it is explored that the highest price fluctuation incurred in Finance sector. The last was in mutual funds. It is to note here that least P/E was captured by banks though price fluctuation is much high 47.68% for the same. This indicates that P/E ratio has no influence on price fluctuation.

IX. CONCLUSION AND TEST OF HYPOTHESIS

Since the computer value to Z test is 0.80 (hypothesis), which is less than the table value (1.96 at 5% level of significant), the hypothesis is accepted. This indicates that there is no significant relation between the P/E ratio and stock price fluctuation.

X. RECOMMENDATIONS

- Capital market is not a casino. Investors should evoke that is a logistic investment place.
- Necessary tidings before sorting investment in stock must be curbed. They should not travel and panic with rumor.
- Investor running out from short run investor should invest for long term to gain profit.
- It should not be recognized as a profession as some investors do. It must be ancillary of profession.

PE ratio must not be considered as only single parameter for investment. Other parameters like EPS.

Dividend payout ratio, book to market price and price statistics may also be judged.

For further research

- This study evolves over a single year (I.E. 2009). Additional research can be commenced to gauge the extent of liaison between them. Such a study would provide additional insights in scrutinizing P/E for investment.
- This study concentrates not on any particular industry type. Next research can be commenced based on particular industry type (e.g. the pharmaceutical industry and textile industry in Bangladesh).
- Research also contained only 100 companies further research can be designed considering more companies.
- Affiliation between two factors is considered here. Other factors like EPS, profitability margin, and dividend yield can be practiced in upcoming researches.

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