Factors Affecting the Stock Price Variability of Dhaka Stock Exchange (DSE)

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ABSTRACT

Financial markets are absolutely vital for the proper functioning of capitalistic economy. They play a crucial role by channeling the fund to those can utilize them in productive uses. The financial markets permit both business and government to raise funds by selling securities. On the other hand, surplus units of the economy are earning and getting back the return through investing in the securities. In Bangladesh, investors become more interested in the secondary market especially in equity markets for its liquidity and the inherent return possibility due to the volatility of the market. Two stock exchanges are considered the hubs of capital markets in Bangladesh. They were founded to gear up the country's economy. From the intention of integrating the entire economic role, the Dhaka Stock Exchange Limited was set up in 1954. The capital market of Bangladesh has already experienced two major debacles which occurred in 1996 and 2010. These incidents took place because of the entrance of inexperienced investors and the sudden unsustainable growth of the stock market in a very short period. As they are the major causes of this huge collapse, the effect is the deteriorating of the stock prices for its irregular price variability. This research is focused towards identifying the factors of stock price variability and how they are affecting the A-rated and B-rated companies. Monthly time series data from January 2013 till December 2014 were collected from Dhaka stock exchange. An Ordinary Least Squared (OLS) multiple regression model was constructed and ran using SPSS to determine the statistical significance of the independent variables. Findings demonstrated a lack of significance for several variables, spotting a lack of market imperfections and efficiency in the Bangladeshi market

INTRODUCTION

The capital market is the engine of growth for an economy and an important avenue for channeling funds to investors through mobilizing resources from individuals. It is the market in which shares of publicly held companies are issued and traded either through exchanges or over-the-counter markets. A well-functioning capital market plays an important role in mobilizing savings and investments for organizing the production of goods and services, creating employment opportunities, and enhancing economic development. Capital market of Bangladesh is one of the smallest in Asia but the third largest in the South Asia. It has two full-fledged automated stock exchanges: Dhaka Stock Exchange Limited (DSE) and Chittagong Stock Exchange Limited (CSE). Bangladesh Securities and Exchange Commission (BSEC), the regulator of the country's capital market through enactment of the Securities and Exchange Commission Act 1993, has overall responsibility to formulate securities legislation, monitor their implications and develop the capital market as well [I].

Dhaka Stock Exchange Limited, the frontline organization for the securities market development of Bangladesh, was incorporated on 28th April, 1954. It is registered as a Public Limited Company and its activities are regulated by its Articles of Association rules & regulations and by-laws along with the Securities and Exchange Ordinance - 1969, Companies Act - 1994 & Securities & Exchange Commission Act - 1993. But in the beginning, the stock exchange formerly known as the East Pakistan Stock Exchange Association Ltd. was authorized to draw up the memorandum and article of association of the exchange and obtained register under the company's act 1913. Although incorporated in 1954, the formal trading was started in 1956 after obtaining the certificates of commencement of business [II].

Dhaka Stock Exchange Limited primarily introduced two indices following as per "DSE Bangladesh Index Methodology". DSE broad Index (DSEX), a benchmark index which reflects around 97% of the total equity market capitalization. DSE 30 Index (DS_{30}), constructed with 30 leading companies reflects around 51% of the total equity market capitalization. Later on, DSEX Shariah Index (DSES), a subset of the DSE broad Index was constructed to pass rules-based screens for Shariah compliance [III]. Altogether, DSE provides a market place along with facilities for bringing the buyers and sellers of securities, promote equitable principles of trade, and protect the interest of the investors.

The capital market of Bangladesh has already experienced two major debacles which occurred in 1996 and 2010; having major impacts upon the country's capital markets. These incidents took place because of the entrance of inexperienced investors and the significant growth of the stock market in a small period of time. As they are the major causes of this huge collapse, the effect is the deteriorating of the stock prices for its irregular price variability [IV, V].

In addition, researchers are continuously seeking other facts and features on this massive issue of an economy. Such researches result in developing new approaches of studies for the factors affecting the stock price variability. In this paper, these factors have been highlighted on the context of Dhaka Stock Exchange.

LITERATURE REVIEW

Stock Exchange is an Organized & regulated financial market where securities are traded at prices governed by the forces of demand and supply. Alike other developing countries, Bangladesh is supposed to allocate the resources through the appropriate mechanism of stock exchange. It is a proper canal for both the surplus unit and the deficit unit contributing to the growth of GDP in Bangladesh and thus, activates the wheel of socioeconomic development to facilitate the economic growth as well.

Earnings variability is a fluctuating pattern of a company's net income or earnings per share (EPS) during a given period of time. Variability in per share earnings of the stocks was measured by the difference between the high and low annual earnings per share for the previous 24 months as a percentage of the average annual earnings for the 24-month period. Number of factors affects stock prices in a number of different forms. Earnings announcement is one such event, and its information content is likely to trigger response of the market participants considering their anticipations. Resultantly, a different trading pattern is likely to emerge in the market around earnings announcement event. [VI] One other factor used to determine price variability is the Price-Earnings (P/E) Ratio. P/E ratio is considered as a valuation ratio of a company's current share price compared to its per-share earnings. This variable has been employed to allow for possible price variability arising because the market price reflects an expected large increase in future earnings. Strong historical evidences have been found regarding stocks with high price earnings ratios followed by disappointing stock market performance in the short and long term. Specifically, high price-earnings ratios have been followed by slow long-run growth in stock prices. Moreover, when high price-earnings ratios have reduced the earnings yield on stocks relative to returns on other investments, short-run stock market performance has suffered as well. Despite this evidence, however, we cannot rule out the possibility that these historical relationships are of little relevance today due to fundamental changes in the economy [VII]. Apart from these factors, studies also used average price and share activity/turnover ratios as representative of price variability [VIII, IX]

The impact of an announcement of Earnings per Share (EPS) on stock prices has often been the centre of interest to researchers, shareholders and investors. This is because; EPS is one of the investment tools to evaluate a company's performance

either in the short or long term. The estimated earnings can be used to measure the financial health and prospect of a company. Although, there are some limitations in the use of EPS as an investment analysis tool, EPS is considered a classical model, which is important and relied upon by investment analysts to measure the performance of business entities. [X] Other studies studied the relationships and examined the information content of prices with the change in earnings as the dependent variables and found that the variations of stock prices have significant correlation with the variations of earnings. [XI]

Some economists have argued, in recent times that the average price-earnings ratio for a stock market index can help predict long-term changes in that index. According to this view, a low P/E ratio tends to be followed by rapid growth in stock prices in the subsequent decade and a high P/E ratio by slow growth in stock prices. [VII] In an attempt to bring some scientific evidence to the problem of 'Normality' in P/E ratios, several studies have been concluded that, a stock's price and P/E can change with every trade. A rising stock price results in a higher P/E, while a falling stock price results in a lower P/E. A change in EPS will change the P/E and could lead to a change in the stock price, which, in turn, would further affect the P/E. [XII]

Many researches worldwide demonstrated how volatility oscillates the volume of trade in the market which impacts stock price. Therefore, it becomes imperative to understand the inter-relationship between the trading volume and stock returns which may help investors to identify the future patterns of the stock market for effective decision making. Stock's price-volume relation can also be used for the formation of trading strategies for maintaining the efficiency of the stock markets. Theoretically, low volume makes the market illiquid which causes low price fluctuation whereas high volume usually implies that the market is highly liquid, resulting in high price variability that lessens the price effect of large trades. In general, with an increase in volume, broker revenue increases, and market makers have greater opportunity for profit as a result of higher turnover [XIII, XIV]

Research focused towards finding the factors determining the variability of stock prices of Dhaka stock exchange have divulged into separate criterions. One such study found support of different macroeconomic factors i.e. inflation rate, exchange rate, interest rate, money supply and production index. [XV]Other studies have focused on a range of different factors i.e. dividend policy, earning variability, price-earnings ratio and turnover of the stocks. [XVI, XVII]

So far, there are more or less such similar studies done earlier centralizing the factors of stock price variability in Bangladesh. However, this research paper is prepared to highlight more of distinct features of those factors on the basis of very recent situations. To be very specific, the criteria of the third citation above have been taken into account along with other factors such as; listed companies of DSE

which are rated "A" and "B" by credit rating firms during 2013 and 2014. This paper has a reflection of the most recent political instability during these two years which will lead to an advancing scenario of the price variability in the stock market.

METHODOLOGY

The methodology is the general research strategy that outlines the way in which research is to be undertaken. These methods define the means or modes of data collection or, sometimes, how a specific result is to be calculated. This research included both qualitative data and quantitative data collected from Dhaka stock exchange and a credit rating firm, CRISL. As being one of the capital hubs of Bangladesh, DSE is enriched with twenty-two industrial sectors totaling more than five hundred companies. Among them, there are some dominating sectors like; telecommunication, pharmaceuticals, fuel & power, bank, corporate bond etc. which influence the entire fluctuation in the stock market. Twenty companies of various industries were randomly chosen from the listed companies of Dhaka Stock Exchange Limited for the purpose of this study. These companies were rated "A" and "B" according to the Credit Rating Information and Services Limited (CRISL) of Bangladesh. The relevant quantitative secondary data of these companies were collected on monthly basis for the most recent consecutive years; 2013 and 2014.

Regression equations attempt to model the relationship between two or more explanatory variables and a response variable by fitting a linear equation to observed data. Following model was established to determine the significance of factors on the stock price variability of firms categorized by 'A' and 'B' ratings.

$$V_a = A + b_p x_p + b_e x_e + b_r x_r + b_a x_a$$
$$V_b = A + b_p x_p + b_e x_e + b_r x_r + b_a x_a$$

Where,

V_a	=	Relative Price Variability of 'A'-rated Stock
V_b	=	Relative Price Variability of 'B'-rated Stock
A	=	Constant Term
b	=	Coefficient
x_p	=	Average price of the Stock
x_e	=	Earnings Variability
x_r	=	Price-Earnings ratio of the Stock
x_a	=	Activity or turnover of the Stock

HYPOTHESES

Here the dependent variable is V_a and V_b termed as both the relative price variability of 'A'-rated stock and 'B'-rated stock, respectively. This research aims to test the individual significance of the independent variables, namely, the average price of the stock (x_p), earnings variability (x_e), price-earnings ratio of the stock (x_r), and activity or turnover of the stock (x_a) over the movements of the dependent variables. On such premise, the hypotheses between the independent variables and the dependent variable are as below:

Null hypothesis	Alternative hypothesis
There is no significant relation between the relative price variability of 'A' and 'B'-rated stock with the average price of the stock.	There is a significant relation between the relative price variability of 'A' and 'B'-rated stock with the average price of the stock.
There is no significant relation between the relative price variability of 'A' and 'B'-rated stock with the earnings variability of the stock.	There is a significant relation between the relative price variability of 'A' and 'B'-rated stock with the earnings variability of the stock.
There is no significant relation between the relative price variability of 'A' and 'B'-rated stock with the price-earnings ratio of the stock.	There is a significant relation between the relative price variability of 'A' and 'B'-rated stock with the price-earnings ratio of the stock.
There is no significant relation between the relative price variability of 'A' and 'B'-rated stock with the activity or turnover of the stock.	There is a significant relation between the relative price variability of 'A' and 'B'-rated stock with the activity or turnover of the stock.
There is no significant relation between the relative price variability of 'A' and 'B'-rated stock with the average price of the stock.	There is a significant relation between the relative price variability of 'A' and 'B'-rated stock with the average price of the stock.

FINDINGS

Table I and II outlines the regression estimates for "A" and "B" rated companies separately, with price variability as the dependent variable in both cases.

Table I: Estimates for "A"-rated companies

Independent Variables	B	Std. Error	Significanc (p-value)
(Constant)	48.240	27.796	0.099
Average_EPS	- 0.388	0.389	0.331
Average_PE	- 0.245	0.311	0.440
Average_Turnover	4.617	7.879	0.565
Average_Price	- 0.061	0.105	0.566
R^2	0.346		
Adjusted R^2	0.120		

Table II: Estimates for "B"-rated companies

Independent Variables	B	Std. Error	Significance (p-value)
(Constant)	9.696	12.199	0.437
Average_EPS	- 0.068	0.096	0.486
Average_PE	- 0.370	0.204	0.085
Average_Turnover	161.479	55.911	0.009
Average_Price	0.176	0.137	0.215
R^2	0.737		
Adjusted R^2	0.544		

As noticeable from the P-values, only Average PE ratio and the Average turnover were found to be individually significant for the "B"-rated stocks at 10% significance level. None of the independent variables were significant with regard to the price variability of "A"-rated stocks. A major contributing factor to such occurrence might be due to the extreme price volatility observed in the markets between this particular time period. "B" rated stocks also displayed comparably high level of turnover compared to "A" rated stocks, signifying the soaring level of trading volume associated with such low rated companies. These findings also illustrate that, this high level of price variability of Bangladeshi stocks is unpredictable and cannot be explained by known market factors, something that supports the existing findings about the volatility of the developing markets.

CONCLUSIONS

According to the credit rating definitions, A-rated companies are better than the B-rated companies in terms of achieving the capability to pay back to the creditors. However, the consistent performance of A-rated companies, particularly in Bangladesh can get interrupted because of economic and political instability. Moreover, the inherent volatility of the market led the way for the B-rated companies to perform well at times. This contradicts literature in many ways, as major previous studies illustrated stocks of higher credit quality and higher price are less volatile compared to lower priced counterparts. Future studies can be conducted in this particular regard to investigate whether this phenomenon is solely attributable to the developing, volatile nature of Dhaka Stock Exchange or whether there are other factors with significant influential power. Proactive investors and arbitragers can approach this market condition and utilize the most out of this market anomalies, something risk takers look forward to.

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