

# Determinants of market price of stock: A study on bank leasing and insurance companies of Bangladesh\*

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**Abstract:** Financial firms make up a substantial fraction of the domestic equity market. A number of studies subsequently used different conceptual and methodological approaches to model equity return of financial services firms. Movement of the stock price as the consequence of the movement of the micro and macroeconomic factors is strongly supported by the literature review. Dhaka Stock Exchange in Bangladesh is inefficient in weak form. Multiple regression analysis is conducted to find out the relationship microeconomic factors with the stock price. In this study found a significant linear relationship among market return and some microeconomic factors such as net asset value per share, dividend percentage, earning per share of bank leasing and insurance companies. Also found non-linear relationship among the variables is insignificant at 95 percent level of significance.

**Key words:** market price of stock; earning per share; dividend percentage; net asset value per share

## 1. Introduction

Financial firms make up a substantial fraction of the domestic equity market. Indeed they have comprised almost 25 percent of the market value of all firms on NYSE (New York Stock Exchange) in recent years, and their stock returns have been found to have a significant relationship with future economic growth (Cole, et al., 2008). A number of studies subsequently used different conceptual and methodological approaches to model equity return of financial services firms. Viale, et al (2009) tested an unconditional two-factor ICAPM model that includes the stock market excess return and stock to the slope of the yield curve is useful in explaining the cross section of bank stock return. However, there are no firm specific factors such as size and bank to market ratios are priced in bank stocks return.

Market inefficiency is the major drawbacks for developing countries like Bangladesh where the regulatory system and information transparency is not certainly proficient to get the confidence of the investors and provide the sufficient basis for analyzing the data without anomalies. Evidences found that the stock markets of Bangladesh are weak form inefficient Mobarek and Keasey (2000), Raihan, et al (2007). Sometimes it is assumed that to some extent stock markets of Bangladesh are weak form efficient. In this paper it was tried to analyze what are the influence of some micro economic factor such as net asset value per share, dividend percentage and earning per share on the equity return of bank leasing and insurance companies of Bangladesh? I used regression analysis and found that there is significant relationship among independent variables (NAVPS, DIV, and EPS)

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with dependent variable market price of stock.

The objectives of this paper are primarily having an idea about the factors affecting the equity return of studied companies stock. Secondly, to identify whether there is a significant relationship between market return of listed financial firms of Bangladesh with some microeconomic factors. Finally, to identify how much they influence individually to the stock return by using confirmatory factor analysis (CFA).

The rest of the article is structured as follows. The second section reviews the literature on determinants of market return of stocks; the third section discusses the institutional background; the fourth section introduces the data and illustrates the methodology; the fifth section presents the empirical results; and the sixth section concludes the study.

## **2. Literature review**

Before the decade of eighty much of the stock market literature viewed the present value of dividends to be the principal determinant of market return of stocks. LeRoy and Porter (1981) and Shiller (1981) found that under the assumption of constant discount factor stock prices were too volatile to be consistent with movement in future dividends. The decomposition of stock price movements is very sensitive to what assumption is made about the presence of permanent changes in either real dividend growth or excess stock return (Wohar & Mark, 2006). Cochrane (1992) Timmerman (1995) have argued that fluctuation in stock prices can be explained by time-varying discount rates and future excess returns. Cochrane (1992) by using an alternative methodology to decompose the variability of stock prices also found the variability of excess return to be more important than the variability of dividend growth.

A lower degree of efficiency in less developed countries market might be caused by common characteristics of loose disclosure requirements as well as thinness and discontinuity of trading. It is generally assumed that the emerging markets are less efficient than the developed markets. Raihan, et al (2007) found that in Chittagong Stock Exchange (CSE) in Bangladesh, stock return series do not follow random walk model and the significant autocorrelation co-efficient at different lags do not accept the hypothesis of weak form efficiency. Mobarek and Keasay (2000) also found the same result after conducting research in Dhaka Stock Exchange (DSE) of Bangladesh. Conducting research in Dhaka Stock Exchange (DSE) Rahman, et al (2006) found the negative correlation between the beta and stock return, which is reason for inefficiency of market where the assumptions behind the CAPM model is not supported. Examining empirically the validity of the efficient market hypothesis in African market Alagided and Panagiotidis (2009) found a positive relationship between expected return & risk and did not find evidence to reject the hypothesis of weak form efficiency of market. Razin, et al (1999) showed that the market that lack regulation and disclosure rules face greater moral hazard and adverse selection problem. This lacks of monitoring possibilities hinders international investments and lower international return correlations.

Consistent with Subrahmanyam (1994) Wong, et al (2009) found that when limit hits are imminent stock prices approach limit bounds at faster rates & with increased volatility and higher trade efficiency. They also argued about asymmetry effects between limit hits at the ceiling and floor bounds. Glaser and Weber (2007, 2009) found the correlated individual overconfidence score with several measures of trading volume of individual investors. After high portfolio returns investors buy high risk stocks and reduce the number of stocks in their portfolio. High past returns did not lead to higher risk because of the diversification. A stable long term relationship exists between broad money and its determinants including real income, foreign interest rate and

stock price. Stock prices have a significant positive effect on long term money demand and its omission can lead to serious misspecification in the money demand function in both short and long term WU, et al (2005) and Baharumshah, et al (2009). Richardson and Peterson (1999), and WANG, et al (2009) found that large firms respond faster to new information compared with small firms. There is a positive momentum effect for the cumulative stock returns earned one week prior to the crash data. Since stock prices are forward looking, they provide a unique record of shifts in investors' views about the future prospects of companies.

### **3. Institutional background**

Market inefficiency is the major drawbacks for developing countries like Bangladesh where the regulatory system and information transparency is not certainly proficient to get the confidence of the investors and provide the sufficient basis for analyzing the data without anomalies. Generally public limited companies are listed in Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE) and their activities are regulated by its Articles of Association rules & regulations and bye-laws along with the Securities and Exchange Ordinance, 1969, Companies Act 1994 & Securities & Exchange Commission Act, 1993. For bank companies there is a separate act "The Bank Company Act, 1991" and for insurance companies "The Insurance Act, 1938" are prevailing in Bangladesh. For all financial service companies there is "The Financial Act, 1993" existing.

In 2006 Securities and Exchange Commission (SEC) imposed some conditions to the issue of capital by the companies listed with any stock exchange in Bangladesh. The companies listed any stock exchange of Bangladesh should comply with those conditions (board of directors; CFO, head of internal audit & company secretary; audit committee; external auditors; reporting the compliance in the director's report) or shall explain the reason for non-compliance of those conditions.

In exercise of the powers conferred by section 34 of the Securities and Exchange Ordinance, 1969(XVII of 1969), Dhaka Stock Exchange makes, with the approval of the Securities and Exchange Commission, the following regulations, namely The Listing Regulations of Dhaka Stock Exchange, 1996; Settlement of Stock Exchange Transactions regulations, 1998 by categorization of companies such as A, B, G, N, Z by stock broker. Investors' Protection Fund regulations, 1999; Margins Rules, 1999; Automated Trading Regulations, 1999 mentioning trading day, qualification of trading, types of market, trading session etc; DSE (Member's margin) Regulations, 2000; and Dhaka Stock Exchange (Direct Listing) Regulations, 2006 are made by Dhaka Stock Exchange. In 2007 the total market capitalization of DSE was \$ 10822 million which shows 135 percent growth in compare to previous year.

Investors are constantly concerned with the market value of a share of stock. Perceptions that a stock is rising prompts the purchase of stock while perceptions of a fall in price prompts selling. Three major market value factors such as earning per share, dividend yield and net asset value per share are often used to determine whether buying or selling a stock is warranted. In all three, the market price per share is compared with relevant indicators of company profitability.

### **4. Data and methodology**

Archival research methodology was used in this study using publicly available archival data. Archival data means data for which the original purpose of gathering it was not academic research (Moers, 2007). Basically the regression model was applied on Dhaka Stock Exchange in Bangladesh on the data of bank, insurance, and leasing

listed companies. The population size is 86 listed companies in Dhaka Stock Exchange (DSE). Primarily I have chosen 68 companies as sample on probability sampling basis. Probability samples increase the representativeness of survey results, thus allowing inferences to be made from the sample to the survey population within a calculable margin of error. Six sample companies were excluded because of lack of sufficient information. The data have been collected from Dhaka Stock Exchange and companies' annual reports.

#### 4.1 Dependent variable

In this study the dependent variable is "Market Price of Stock (MPS)" in Bangladeshi taka. There was collected 62 companies' average market value of share for the time period of December 2007 to November 2008. Each company's per share face value is Bangladeshi (currency) taka 100.

#### 4.2 Independent variables

There was chosen three independent variables and tried to identify how they affect on determination of market value of share. Independent variable data are collected for the time period of year 2007. The independent variables are:

- (1) Net Asset Value per Share (NAVPS) in Bangladeshi taka;
- (2) Dividend percentage (DIV);
- (3) Earnings per Share (EPS) in Bangladeshi taka.

#### 4.3 Hypotheses

H<sub>1</sub>: There is a significant linear relationship between Market Price of Stock (MPS) and Net Asset Value per Share (NAVPS), Dividend Percentage (DIV), and Earnings per Share (EPS). This hypothesis is tested by linear function model.

H<sub>2</sub>: There is a non-linear association between Market Price of Stock (MPS) and Net Asset Value per Share (NAVPS), Dividend Percentage (DIV), and Earnings per Share (EPS). This hypothesis is tested by logarithmic function model.

#### 4.4 Model

In this study two regression models were used for data analysis and finally identified one provides the better result than another. The models are:

Linear function model (linear variable and parameters):

$$MPS_t = \text{const} + b_1 \text{NAVPS}_{t-1} + b_2 \text{DIV}_{t-1} + b_3 \text{EPS}_{t-1} + e_t$$

Logarithmic function model: (non-linear variable, linear parameters)

$$\text{Ln } MPS_t = \text{const} + b_1 \text{Ln } \text{NAVPS}_{t-1} + b_2 \text{Ln } \text{DIV}_{t-1} + b_3 \text{Ln } \text{EPS}_{t-1} + e_t$$

### 5. Empirical results

It is grudging admittance from the researchers that autocorrelation is found in time series data. Autocorrelation normally occurs only in regression analysis using time series data. Time series data can also suffer from the heteroscedasticity problem. Atindehou and Gueyle (2001) made research on Canadian stock return to find out the influence of exchange rate on Canadian bank stock return.

Table 1 presents the means medians, modes and standard deviations of the variables. In descriptive statistics it was found the mean value of MPS is 541.2815, mean value of NAVPS is 224.0823, mean value of DIV is 20.25 and, EPS is 37.1589. The standard deviation of MPS, NAVPS, DIV and, EPS is 398.45649, 127.89559, 16.102, and 29.71508 respectively. Also the minimum maximum and range value are shown in Table 1. Only in dividend

percentage the mean, median and mode provides the approximately equal value.

**Table 1 Descriptive statistics**

		NAVPS	DIV	EPS	MPS
N	Valid	62	62	62	62
	Missing	0	0	0	0
Mean		224.0823	20.25	37.1556	541.2815
Median		189.1200	20.00	28.5950	440.5625
Mode		107.61(a)	20	0.99(a)	445.00
Std. deviation		127.89559	16.102	29.71160	398.45649
Variance		16357.283	259.260	882.779	158767.576
Range		674.44	100	142.88	2115.00
Minimum		107.61	0	0.99	137.00
Maximum		782.05	100	143.87	2252.00

**Table 2 Comparison of two models**

Model	Variable/ constant	Unstandardized coefficients		Standardized coefficients	t value	Sig.	F-value	Sig.	R <sup>2</sup> value	Adjusted R <sup>2</sup> value	Durbin-Wa tson statistics
		B	Std. error	Beta							
Linear function model	Constant	-29.363	49.116		-0.598	0.552	70.237	0.000	0.784	0.773	1.856
	NAVPS	1.210	0.270	0.389	4.491	0.000					
	DIV	6.644	2.516	0.268	2.641	0.011					
	EPS	4.437	1.434	0.331	3.095	0.003					
Logarithmic function model	Constant	1.427	0.518		2.756	0.008	50.331	0.000	0.751	0.736	1.938
	Ln NAVPS	0.691	0.136	0.556	5.085	0.000					
	Ln DIV	-0.019	0.117	-0.019	-0.166	0.869					
	Ln EPS	0.327	0.102	0.389	3.204	0.002					

Both models were tested by ordinary least-squares (OLS) estimators. Using multiple regression analysis of two models found unequal beta coefficients and these are more or less than zero. By comparing result of Table 2, it was found that the linear function model accept the hypothesis one. It contains the highest adjusted R squared value (0.773) says that the model explains more than three fourth of the variation in market value of share. F ratio is found significance at  $\alpha = (0.05, 0.01)$ , that means the regression model is significant at 95 percent and also 99 percent level of significance. Also the independent variables namely NAVPS and EPS are significant at  $\alpha = 0.01, 0.05$  ( $p < 0.01$ ), DIV is significant at  $\alpha = 0.05$  ( $p < 0.05$ ). Another model has lower adjusted R squared value in compare to linear function model. In case of logarithmic model independent variable DIV is significant at  $\alpha = 0.87$  ( $p < 0.87$ ) i.e. it is not significant at 95 percent confidence interval, that does not accept the second hypothesis. There is no non-linear relationship among the dependent (MPS) and independent (NAVPS, DIV, EPS) variables. Durbin–Watson test statistics value of linear function model is 1.856 which is near to 2.0 means that the model has no autocorrelation problem. Theses are the sufficient evidence to accept the first hypothesis that is there is a significant linear relationship between market price of stock and net asset value per share; dividend percentage; earning per share.

**Table 3 KMO and Bartlett's test**

Kaiser-Meyer-Olkin measure of sampling adequacy.		0.830
Bartlett's test of sphericity	Approx. Chi-Square	188.075
	df	6
	Sig.	0.000

Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy are both tests used to determine the factorability of factor matrix as a whole. In Table 3, Bartlett's test is significant at 99 percent level of significance. The KMO value is 0.830 which is more than 0.60 shows the sampling adequacy of data. To identify degree of influence of independent variables (NAVPS, DIV, EPS) on dependent variable (MPS) conducted confirmatory factor analysis (CFA) and found the standardized regression weight for Net Asset Value per Share (NAVPS) is 0.53; Dividend Percentage (DIV) is 0.36; and Earning per Share (EPS) is 0.45. This result implies that in linear regression model, NAVPS has the highest degree of influence having the highest standardized regression weight (0.53) followed by EPS (0.45) and lastly DIV (0.36).

## 6. Conclusion

Market inefficiency is the major drawbacks for developing countries like Bangladesh where the regulatory system and information transparency is not certainly proficient to get the confidence of the investors and provide the sufficient basis for analyzing the data without anomalies. Using multiple regression analysis in this study found significant relationship between market price of stock and net asset value per share; market price of stock and dividend percentage; and market price of stock and earning per share of market returns of bank leasing and insurance companies of Dhaka Stock Exchange in Bangladesh. Used two models such as linear function model, and logarithmic function model linear function model provided accepted result supporting to hypothesis one and logarithmic function model does not accept the second hypothesis i.e. non-linearity among the variables.

In this study only microeconomic factors were considered for analysis and one industry was under consideration. Inverse function model also can be used for testing non-linearity association among the variables. Future research can be conducted considering macroeconomic factors like money supply, inflation rate, exchange rate, interest rate etc. time series analysis also can be done in market as a whole or in different industries.

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