

Share Market Analysis Using Various Economical and Social Determinants to Predict Decision for Investors

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Abstract.

The following paper tries to develop six major hypotheses in Dhaka Stock Exchange (DSE), in Bangladesh. The paper tries to prove the hypothesis by collecting data from the fields on six sectors: exchange rates, oil prices, turbulence, bank interest, gold price and call money rate. The research uses these data as indicators to identify relationship and level of influence on Share prices of Dhaka Stock Exchange by rejecting and accepting the null hypothesis.

Key words: share market, predict, decision, Dhaka stock exchange, regression analysis, correlation analysis, path analysis, economical determinants, social determinants.

1.0 Introduction:

Stock market is one of the main economical sectors for developing currently like Bangladesh; whose economy is currently progressing rapidly due to the economical boost on South Asian region. Due to low labor cost and skillful manpower sectors like textile, garments, manufacturing, investments and banking had made a tremendous progress for the last decade which successfully influenced the trading on stock market investment. There are several factors which are directly or indirectly related to stock prices. Bangladesh has two Stock Exchanges: Dhaka Stock Exchange and Chittagong Stock Exchange. Dhaka Stock Exchange is the main stock exchange of Bangladesh. It was

incorporated in 1954. Dhaka Stock Exchange (DSE) is registered as a Public Limited Company and its 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 (DSE(2006)).

Due to the asymmetric information community, most of the people who are involved in share Market are not aware of the information for Trading. As a consequence, most unwary investors fall in problems after investing on a company by guessing. Our main goal of the research is to identify few determinants which influence the share prices in DSE and the level of influential.

In this research on DSE, we have tried to find out which factors are affecting most to change the price of share prices. To find out those factors, we have done a market analysis by investigating various economical sectors of our country and taking interview of peoples from different profession like stock broker, share holders, bankers, and investors as well those peoples who are directly or indirectly related to share business. After market analysis, we have chosen eight factors in primary level to find out whether they have an affect on share prices: Dollar price, oil price, gold price, Bank deposit interest, call money rate from economical sector and political turbulence from social sector.

The format of the paper is as follows. In section 2 the scope of the paper and the importance of selecting the specified identifiers were abruptly discussed. In section three the previous studies were discussed.

2. Scope and Objective

It is a well known fact that Dollar price or money exchange rate has a great influence on changes of share price. Our research identifies the level of influence of dollar price on share prices. The oil price of Bangladesh is totally depends on which countries are producing and selling oil. That's why the price of oil is varying time to time. The economy of Bangladesh is much depends on the price of oil, so we tried to find out if oil price influence the share price. If the interest rate is high then people may want to deposit their money in bank rather than to invest in share market. The strength and stability of the host country's currency measured by the level and volatility of call money rates. Domestic currency depreciation makes local firms more competitive, leading to an increase in their exports. This in turn raises their stock prices. Gold price is included in the model as an additional variable, to examine whether gold price contain any additional significant relation with share price movements. Since gold is an important savings material in Bangladesh, it is expected that gold may be looked upon as alternative asset for investing money. "Politics and Share market" they seem to have a very good relationship. Political turbulence in Bangladesh is very debatable and plays an important role in social life. Our research finding was extended to identify if there is a relationship between political turbulence and stock market.

3.0 Literature review:

In the past decades, many researchers attempted to use different methods in order to predict decision regarding share markets. Here we have described some previous research works related to our analysis sectors and tried to find out their limitations to improve the analysis process better than before.

Firstly we have tried to review on those papers/ articles which have done analysis to check whether stock prices and call money rate are related to each other or not. In the paper of Kenneth E. Homa & Dwight M. Jaffee (1971) they have uses stock price as a dependent variable and Supply of money as an independent variable. As he said, the nature of the relationship between the money supply and common stock prices can be most easily described if a share of common stock is viewed as an asset that yields its return to the investor over time. In this study the relationship between the money supply and the stock market is estimated using the techniques of regression analysis.

One attempt at estimating such relationship for use in simulating monetary effects within a macroeconomic model is described in the research of Robert H. Rasche and Harold T. Shapiro(1968). A fuller discussion of this common stock valuation formula can be found in Burton G. Malkeil (1963), Martin Feldstein (1980) discussed a crucial cause of the failure of share prices to rise during a decade of substantial inflation. The analysis here indicates that this inverse relation between higher inflation and lower share prices during the past decade was not due to chance or to other unrelated economic events. One of the analyses by Franco Modigliani and Richard Cohn (1979) also shows that it is unnecessary to invoke a theory of systematic error of the type.

According to Kenneth E. Homa & Dwight M. Jaffee (1971), while forecasting share prices, further realism could be introduced. in particular, short sales of stock, the tax treatment of short term and long term capital gains, bills perhaps other assets, all could be introduced into the simulation. Finally, more practical use might be made of timing implications of the model if forecasts were generated on a monthly or weekly basis.

So we have tried with some other assets and economical factors to make the forecasting more realistic according to this papers author's suggestion. We also tried to do the simulation on daily basis to make it more accurate. After getting knowledge from all of these papers subject, inflation rate which is also known as call money rate in our country included in our analysis to check if it is really related to Dhaka share market or have an effect on changing share prices.

According to Martin Feldstein (1980), full understanding of the equilibrium relation between share prices and inflation requires extending the current analysis in a number of ways. A more explicit portfolio model could derive asset demand equations from expected utility maximization and could recognize that some institutional holdings

are really indirect ways for individuals to hold assets in a tax-favored way. For that purpose we have included Gold price as a risk less assets in a tax-favored way. Martin Feldstein (1980) also concluded his study saying that the simplification that the capital stock remains constant should be replaced by a more dynamic model that recognizes the effect of inflation on capital accumulation.

To improve the analysis of checking the relationship between share price and call money rate, We have done our analysis using some more dynamic model like correlation analysis, regression analysis, factor analysis, path analysis etc. The lacking of Martin Feldstein (1980) analysis was, a complete analysis of the effect of inflation on share prices requires considering a wider range of alternative investments and incorporating the possibility that perceived risk varies with inflation which was absent here. So we tried to consider a big range of alternative investments with daily basis data to make the analysis more efficient.

According to the Executive Director of CPD (centre for policy Dialogue) Dr. Debapriya Bhattacharya's (2006) research, During the first ten months of FY06 the Dhaka Stock Exchange (DSE) observed a decrease in all of its share price indices. All Share Price Index (DSI) declined by (-) 340 points from 1486.34 in March 2005 to 1146.33 on March 2006. The General Index AB also declined by -427.5 points from 1919.3 to 1491.8 during the same period. Surprisingly, the major shock originated from the performance of the top ranked companies--the DSE20 index lost 605.0 points, declining from 2030.3 to 1425.3 during the period under consideration.

It seems that the present liquidity crisis in the money market is one of the key reasons for the continuing decline in share prices and indices. Under the current liquidity crisis in the banking sector, high deposit rate offered by banks and financial institutions may have encouraged small savers to deposit their money in banks instead of investing in capital market (Dr. Debapriya Bhattacharya, (2006)). From this report we got an idea that there may be a relationship between share prices and current call money rates. So that we have analyzed this two factor together to prove that relationship.

Then we have tried to review on those papers/ articles which have done analysis to check whether stock prices and oil price are related to each other or not. John Mauldin (2003) reported in an article of Swiss America Trading Corporation on the relationship between oil prices and stock prices that, he found strong evidence that changes in oil prices forecast stock returns. This predictability is especially strong in the developed countries markets. Among his (John Mauldin (2003)) chosen 12 of the 18 countries, changes in oil prices significantly predict future market returns on a lagging monthly basis. Not surprisingly, a rise on oil price suggests a lower stock market and a drop in oil price infers a rise in stock prices. The magnitude of the oil price shift is also carried over into the magnitude of the expected increase/decrease in stock prices.

John Mauldin (2003) used such a method, while adding alpha or excess returns over buy and hold, is still volatile as heck (that's a technical term) and is wrong over 40% of the time in most countries. It is just that when it is right, the returns are excessive. This

also means that there could be certain random entry/trend following variables. Though the study clearly showed that oil prices and stocks, especially if there are big moves in oil, tend to go in opposite directions. Here we saw that though John Mauldin (6) found a relationship between share price and oil price, but it is wrong over 40% of the time in most countries. So we have tried to find this relation using different method to see whether the significance level could be high.

Now we have examined those papers which have done analysis to check whether stock prices and exchange rates are related to each other or not. The issue of whether stock prices and exchange rates are related or not have received considerable attention after the East Asian crises. During the crises the countries affected saw turmoil in both currency and stock markets. If stock prices and exchange rates are related and the causation runs from exchange rates to stock prices then crises in the stock markets can be prevented by controlling the exchange rates. Moreover, developing countries can exploit such a link to attract/stimulate foreign portfolio investment in their own countries. Similarly, if the causation runs from stock prices to exchange rates then authorities can focus on domestic economic policies to stabilize the stock market. If the two markets/prices are related then investors can use this information to predict the behavior of one market using the information on other market.

This article of R. Smyth and M. Nandha (2003) examines the relationship between exchange rates and stock prices in Bangladesh, India, Pakistan and Sri Lanka using daily data over a six-year period from 1995 to 2001. Both the Engle-Granger two-step and Johansen cointegration methods suggest that there is no long-run equilibrium relationship between these two financial variables in any of the four countries. Granger causality tests find that there is unit-directional causality running from exchange rates to stock prices in India and Sri Lanka, but in Bangladesh and Pakistan exchange rates and stock prices are independent.

Most of the empirical literature that has examined the stock prices-exchange rate relationship has focused on examining this relationship for the developed countries with very little attention on the developing countries. The results of these studies are, however, inconclusive. Some studies have found a significant positive relationship between stock prices and exchange rates (for instance Smith (1992), Solnik (1987), and Aggarwal (1981)) while others have reported a significant negative relationship between the two (e.g., Soenen and Hennigar (1988)). On the other hand, there are some studies that have found very weak or no association between stock prices and exchange rates (for instance, Franck and Young (1972), Eli Bartov and Gordon M. Bodnor (1994)).

The study by Naeem Muhammad and Abdul Rasheed (2001) uses monthly data on four South Asian countries, including Pakistan, India, Bangladesh and Sri Lanka, for the period January 1994 to December 2000. They employed cointegration, vector error correction modeling technique and standard Granger causality tests to examine the long-run and short-run association between stock prices and exchange rates. The results of this study show no short-run association between the said variables for all four countries. There is no long-run relationship between stock prices and exchange rates for Pakistan

and India as well. However, for Bangladesh and Sri Lanka there appear to be a bi-directional causality between these two financial variables.

There is no theoretical consensus on the relationship between stock prices and exchange rates either. For instance, portfolio balance models of exchange rate determination postulate a negative relationship between stock prices and exchange rates. Franck and Young (1972) was the first study that examined the relationship between stock prices and exchange rates. They use six different exchange rates and found no relationship between these two financial variables. Aggarwal (1981) explored the relationship between changes in the dollar exchange rates and change in indices of stock prices. He uses monthly U.S. stock price data and the effective exchange rate for the period 1974-1978. His results, which were based on simple regressions, showed that stock prices and the value of the U.S. dollar is positively related and this relationship is stronger in the short run than in the long run.

Solnik (1987) examined the impact of several variables (exchange rates, interest rates and changes in inflationary expectation) on stock prices. He uses monthly data from nine western markets (U.S., Japan, Germany, U.K., France, Canada, Netherlands, Switzerland, and Belgium). He found depreciation to have a positive but insignificant influence on the U.S. stock market compared to change in inflationary expectation and interest rates.

Soenen and Hanniger (1988) employed monthly data on stock prices and effective exchange rates for the period 1980-1986. They discover a strong negative relationship between the value of the U.S. dollar and the change in stock prices. However, when they analyzed the above relationship for a different period, they found a statistical significant negative impact of revaluation on stock prices. Amare and Mohsin (2000) examine the long-run association between stock prices and exchange rates for nine Asian countries (Japan, Hong Kong, Taiwan, Singapore, Thailand, Malaysia, Korea, Indonesia, and Philippines). They use monthly data from January 1980 to June 1998 and employed cointegration technique. The long-run relationship between stock prices and exchange rates was found only for Singapore and Philippines. They attributed this lack of cointegration between the said variables to the bias created by the “omission of important variables”. When interest rate variable was included in their cointegrating equation they found cointegration between stock prices, exchange rates and interest rate for six of the nine countries.

To examine the long-run relationship between stock prices and exchange rates Naeem Muhammad and Abdul Rasheed (2001) employ the standard technique of cointegration. But their results suggested that in South Asian countries stock prices and exchange rates are unrelated. However, they suggested that the significance of our results could possibly be improved upon by applying daily or weekly data. The use of more frequent observations may better capture the dynamics of stock and currency market interrelationships.

Here most of the authors have used yearly or monthly based data to do the analysis which didn't return that much satisfactory result (Naeem Muhammad and Abdul Rasheed (2001)). So we have collected daily basis data to do the analysis and hope that that will be much more accurate then previous analysis. One of the lacking of previous works in these sectors was most of them tried to follow one method to prove their analysis. But here we have tried to do our analysis first in one method then we have used another method to compare both result for most optimum and better solution.

4.0 Research model

In this section, we have discussed about the overall process of our research work. The figure below shows the step by step working methodology of our analysis process.

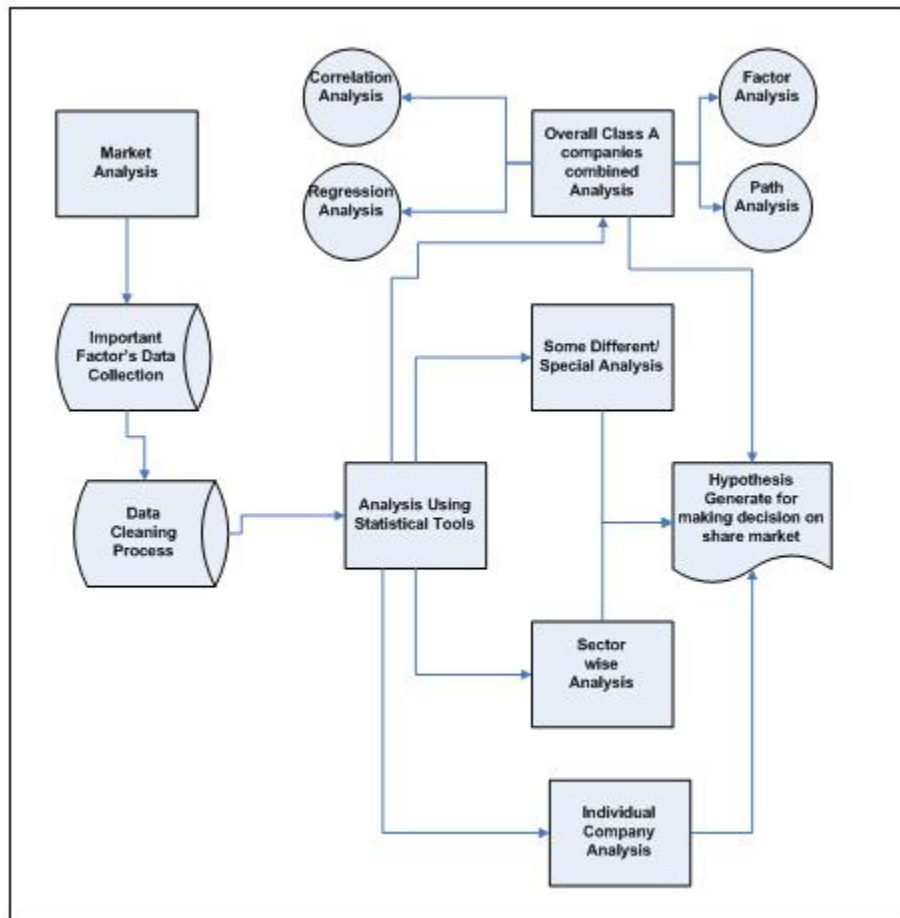


Figure 1: Research Model Used for analysis

At first, we have done the market analysis to find out which sectors are related to share market most and also tried to mark those factors which are effecting on share price in Bangladesh. For that we have talked to several personal of different sectors like share broker, share holder, banker, investors etc and analysis their suggestions. Then we find out eight factors in primary level that those can be a good factor to make a change on

share price in a systematic way. And those factors are: Dollar price, oil price, crime, gold price, bank deposit Bank deposit Bank deposit Interest and call money rate.

After that we have collected each sector's five years database on daily basis from specific sources. Then we had to do huge data cleaning process to make it prepare for final analysis. There are some holidays which didn't match in both share market & bank or exchange office. So we had to take previous day's closing price as those days share price.

We had to calculate all types of social and political crime and added them to get a total happened crime per month. To verify accurate gold price, we had to convert international price rate (which was in dollar) into BDT.

Then after data cleaning process, we have used some famous statistical tools to do several statistical analysis based on our database of several factors. SPSS, Statistica and Lisrel software are mainly used to do several data and graphical analysis.

On the contrarily, we have divided our analysis process into several ways. At first we have done the analysis on all the A graded companies of DSE individually. Then we divided all the companies into several sectors according to their criteria and done the analysis on sector wise. After that we have done our research on the basis of whole DSE (including 104 Class A companies) to find out some useful hypothesis which is related to share price.

5.0 Background of empirical studies:

Generally the efficient market hypothesis states that markets are efficient if prices fully reflect all available factors. Our analysis was based on some strong statistical methods like correlation analysis, regression analysis, multiple regression analysis, path analysis etc.

5.1 Correlation Analysis:

We did correlation analysis to find out if those economical and social factors really have a significant relationship with share price changes. This analysis allows us to investigate the relationship between two or more sets of variables. It varies from 0 (random relationship) to 1 (perfect linear relationship) or -1 (perfect negative linear relationship). There are several types of correlation analysis. (G. David Garson (2003))

Here we used Pearson correlation analysis. It assumes that the two variables are measured on at least interval scales, and it determines the extent to which values of the two variables are "proportional" to each other. Proportional means linearly related; that is, the correlation is high if it can be "summarized" by a straight line. In this analysis we need to check out the value of Pearson correlation /Correlation coefficients (r) which is a

measure of the relation between two or more variables. Correlation coefficients can range from -1.00 to +1.00. The value of -1.00 represents a perfect negative correlation while a value of +1.00 represents a perfect positive correlation. A value of 0.00 represents a lack of correlation. (G. David Garson (2003))

To measure the Pearson correlation coefficient (r) there are four Computational Steps: (Pearson correlation analysis (2003))

$$SP \text{ (sum of products)} = \sum XY - (\sum X \sum Y) / N \quad (1)$$

$$SSX \text{ (sum of squares for X variable)} = \sum X^2 - (\sum X)^2 / N \quad (2)$$

$$SSY \text{ (sum of squares for Y variable)} = \sum Y^2 - (\sum Y)^2 / N \quad (3)$$

$$r = SP / \sqrt{(SSX) * (SSY)} \quad (4)$$

In Eq. (1-4) Y = dependent variable (here share price)
And X = Independent variable (dollar price, oil price, political turbulence, gold price, bank deposit interest and call money rate)

5.2 Regression Analysis:

Then we have done the regression analysis to justify the relation's strength or weakness like as we have found that there is a significant relation between share price and other specific factors but we don't know how strong the relationship are. So by this analysis we have tried to figure it out. Regression analysis is a method of modeling the relationships among two or more variables. It is used to predict the value of one variable given the values of the others. It can establish that a set of independent variables explains a proportion of the variance in a dependent variable at a significant level. (Computer Desktop Encyclopedia (2006))

In statistics, regression analysis is used to model the relationship between random variables: One or more response variables or dependent variables (usually named Y), and the predictors (also called input variables, independent variables or explanatory variables), usually named X1, Xp). The most typical type of regression is linear regression (meaning we use the equation for a straight line, rather than some other type of curve), constructed using the least-squares method (the line we choose is the one that minimizes the sum of the squares of the distances between the line and the data points). It's customary to use "a" or "alpha" for the intercept of the line, and "b" or "beta" for the slope, (Richard I. Levin and David S. Rubin (2004)) so linear regression gives us a formula of the form:

$$y = bx + a \quad (5)$$

where b is the slope and a is the intercept (the point where the line crosses the y axis) (Correlation and regression analysis for curve fitting (2003))

For Eq. (5), we can calculate b as:

$$b = \frac{\sum d_x d_y}{\sum d_x^2} \quad (6)$$

Then we can calculate a from this equation:

$$a = -b \bar{x} \quad (7)$$

A linear regression equation is usually written as $Y = a + bX + e$. (8)

Where Y is the dependent variable, a is the intercept, b is the slope or regression coefficient, X is the independent variable, e is the error term in Eq. (8)

The equation will specify the average magnitude of the expected change in Y given a change in X. The regression equation is often represented on a scatter plot by a regression line. (Valerie J. Easton & John H. McColl, Paired Data (2003))

In this analysis we need to check out the value of Statistical significance (Sig. F change /p-value): The statistical significance of a result is the probability that the observed relationship (e.g., between variables). One could say that the statistical significance of a result tells us something about the degree to which the result is "true". In many areas of research, the p-value of .05 is usually treated as a "border-line acceptable" error level. The process of calculating this sig. F change is described below:

The coefficient of determination R^2 (R square) is also considered in this analysis. It is used to interpret the Values of Correlations. If the correlation coefficient is squared, then the resulting value R^2 will represent the proportion of common variation in the two variables.

Another way to measure the contribution of x in predicting y is to consider how much the errors of prediction of y can be reduced by using the information provided by x. The sample coefficient of determination is developed from the relationship between two kinds of variation: the variation of the y values in a data set around:

1. The fitted regression line
2. Their own mean

The term variation in both cases is used in its usual statistical sense to mean "the sum of a group of squared deviations". The first variation is the variation of y values around the regression line, i.e., around their predicted values. This variation is the sum of squares for error (SSE) of the regression model (Correlation analysis (2002))

$$SSE = \sum_{i=1}^n (y_i - \hat{y}_i)^2 \quad (9)$$

The second variation is the variation of y values around their own mean

$$SS_y = \sum_{i=1}^n (y_i - \bar{y})^2 \quad (10)$$

The coefficient of determination is

$$\frac{SS_y - SSE}{SS_y} \quad (11)$$

It is easy to verify that

$$r^2 = \frac{SS_y - SSE}{SS_y} = 1 - \frac{SSE}{SS_y} \quad (12)$$

where r is the coefficient of correlation in Eq. (12)

Therefore, usually we call R^2 the coefficient of determination.

F change is another variable which we need to know in order to measure the relationship's strength. The F-statistic is a ratio of two numbers, the mean square (or average variation) associated with the regression and the mean square associated with the residuals or errors. In other words, the F-statistic represents a ratio of explained variance to unexplained variance.

The F test is used to test the significance of R , which is the same as testing the significance of R^2 , which is the same as testing the significance of the regression model as a whole. If $\text{prob}(F) < .05$, then the model is considered significantly better than would be expected by chance and we reject the null hypothesis of no linear relationship of y to the independents. F is a function of R^2 , the number of independents, and the number of cases. In SPSS, the F test appears in the ANOVA table, which is part of regression output. Here in our analysis, the value of F is calculated by this equation:

$$F = \text{M.S. (regression)} / \text{M.S. (Residual)} \quad (13)$$

In Eq. (13) M.S. stands for Mean square and residual means error occurs in the analysis.

5.3 Multiple regression analysis:

We have done multiple regression analysis also to check multiple variables effect on share price changes. Multiple regression is used to account for (predict) the variance in an interval dependent, based on linear combinations of interval, dichotomous, or dummy independent variables. Multiple regression can establish that a set of independent variables explains a proportion of the variance in a dependent variable at a significant level (through a significance test of R^2), and can establish the relative predictive importance of the independent variables (by comparing beta weights). Power terms can be added as independent variables to explore curvilinear effects. Cross-product terms can be added as independent variables to explore interaction effects. One can test the significance of difference of two R^2 's to determine if adding an independent variable to the model helps significantly. (G. David Garson (2003))

In general, multiple regression procedures will estimate a linear equation of the form:

$$Y = a + b_1 * X_1 + b_2 * X_2 + b_3 * X_3 + \dots + b_p * X_p \quad (14)$$

In this Eq. (14) the regression coefficients (or B coefficients) represent the independent contributions of each independent variable to the prediction of the dependent variable. (Multiple Regression (2003)) Another way to express this fact is to say that, for example, variable X1 is correlated with the Y variable, after controlling for all other independent variables.

Here X1= dollar price, X2= oil price, X3 = turbulence and so on according to our analysis. The values of b1, b2 are coming from Multiple regression methods coefficient table. From this analysis we got that X1 and Y, X2 and Y has a highly significant relationship where as X3 and Y doesn't have any significant relationship.

5.4 Path analysis:

We have also done Path analysis to investigate that if these factors are internally related to each other or not. If all the chosen factors which we used in regression analysis are strongly interrelated to each other, then a problem could occur that, though we find a significant relationship between any two variables, but one factors variation or effect on another become weak. Path analysis is an extension of the regression model, used to test the fit of the correlation matrix against two or more causal models which are being compared by the researcher. The model is usually depicted in a circle-and-arrow figure in which single arrows indicate causation. A regression is done for each variable in the model as a dependent on others which the model indicates are causes.

On the basis of these analytical methods result, we have tried to draw some strong hypothesis which is related to share market.

6.0 Empirical studies and results

6.1 Data

6.1.1 Sample size and sample period

The sample includes data of DSE share price, dollar price, oil price, gold price, call money rate, bank deposit interest and political turbulence on daily basis for the period from 2001 to 2005.

6.1.2 Data Cleaning

After collecting data of the entire sector, we had to do huge data cleaning process to make it prepare for final analysis. There are some holidays which didn't match in both share market & bank or exchange office. So we had to take previous day's closing price as those days share price. We have used 0 and 1 value to indicate political turbulence where 0 means false and 1 means true. When any political turbulence occurs at a particular date, we have given 1 to that date and 0 for rest of the days when no political turbulence occurs. To verify accurate gold price, we had to convert international price rate (which was in dollar) into BDT. After doing all these process, the data become ready and clean to do the final analysis.

6.1.3 Reasons to use DSE share price index

There was one main reason to select DSE price index for our research which is DSE prepares daily price index from daily weighted-average price of daily transaction of each stock. Thus the biasness of thin trading is avoided.

6.2 Hypothesis

We have developed some null hypothesis on the basis of our data and analysis process and our study seeks evidence whether these hypothesis are accepted or rejected.

Hypothesis 1: Share price does not depend on dollar price

Hypothesis 2: Share price does not depend on oil price.

Hypothesis 3: Share price does not depend on turbulence.

Hypothesis 4: Share price does not depend on deposit interest.

Hypothesis 5: Share price does not depend on call money rate.

Hypothesis 6: Share price does not depend on gold price.

6.3 Empirical results and discussions

The empirical results are presented here in the different subsections.

6.3.1 Correlation analysis

Here we used Pearson correlation analysis. It assumes that the two variables are measured on at least interval scales, and it determines the extent to which values of the two variables are "proportional" to each other.

Table 1: Correlation analysis of different determinants in comparison to share price.

Correlations	
Pearson Correlation Method	
Share Price	1.000
Dollar Price	-0.044
Oil Price	-0.032
Turbulence	0.004
Bank Interest	-0.035
Call Money Rate	-0.028
Gold Price	-0.038

From correlation analysis we have found that dollar price, oil price, bank deposit interest and gold price are negatively related to share price changes where turbulence and call money rate has a positive relationship with share price changes. But from this analysis we won't be able to take the decision whether this relationship is really meaningful or not. For that we have done regression analysis to check this relationships significance.

6.3.2 Regression analysis:

We have done the regression analysis to justify the relation's strength or weakness like as we found that there is a significant relation between share price and other specific factors but we don't know how strong the relationship are. So by this analysis we have tried to figure it out.

This is the coefficients table of regression analysis to check the significance level of the relationship between share price and dollar price.

Table 2 : coefficients table of regression analysis of different variables

	Unstandar -dized Coefficients		Standardize Coefficients	t	Sig.	95% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	2103.050	185.386		11.344	.000	1739.689	2466.411
Dollar price	-23.237	2.838	-.042	-8.187	.000	-28.800	-17.674

Dependent Variable: Share price

Here, If the null hypothesis is $H_0 : \beta_1 = 0$,

$t = b_1 / \text{Std. Error} (b_1) = -23.237 / 2.838 = -8.18 = t \text{ value of coefficients table}$

$P (t \geq -8.18) = 0.000$

So we can say that dollar price and share price has a significant relationship that means if dollar price changes, share price also change at the same time.

Using these two methods we have tried to figure out that our research hypothesis are accepted or rejected.

This table's data is based on DSE's 104 companies 5 years' data on daily basis using correlation and regression analysis.

Table 3: Overall analysis table of all Class A companies of DSE

All class A companies				
	Pearson correlation (r)	Sig. F change (p)	R square	F
Dollar price	-0.042	0.000	0.002	67.024
Oil price	-0.030	0.000	0.001	33.927
Turbulence	0.004	0.436	0.000	0.607
Deposit Interest	-0.033	0.000	0.001	41.853
Call Money Rate	0.026	0.000	0.001	25.922
Gold price	-0.036	0.000	0.001	48.297

Here we used correlation analysis to check If there is any relationship exists between share price and other factors. After that we have done regression analysis to analyze how strong or weak the relationship is.

Hypothesis 1: Share price does not depend on dollar price

Conclusion: Hypothesis is rejected. ($F = 67.024$, $p = 0.000$)

From the analysis it is observed that share price is highly significantly depends on dollar price. If dollar price increases, share price decreases significantly ($r = - .042$). Around .2% of the variation of share price is due to variation of dollar price. (R square change = 0.002). Here the value of unstandardized coefficients B is -23.237. It means for 1 unit of dollar price change, share price decreases 23.237 units.

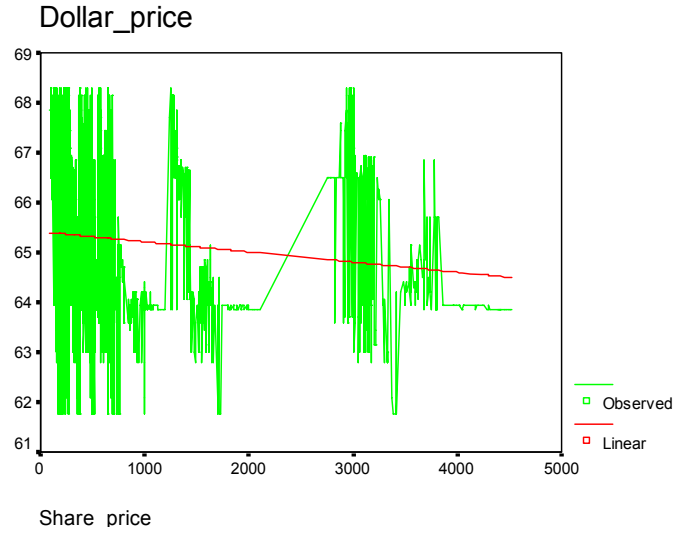


Figure 2: Curve fit of Share price vs. dollar price

From curve fit graph, we can check also that dollar price and share price has an inverse relationship.

Hypothesis 2: Share price does not depend on oil price.

Conclusion: Hypothesis is rejected. ($F = 33.927$, $p = 0.000$)

It is observed that share price is significantly depends on oil price. If oil price increases, share price decreases significantly ($r = - 0.03$). Around .1% of the variation of share price is due to variation of oil price. (R square change = 0.001).

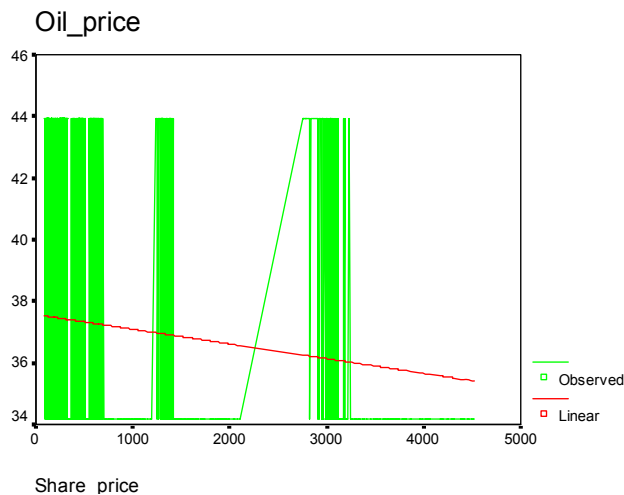


Figure 3: Curve fit of Share price vs. oil price

From curve fit graph, we can check also that oil price and share price has an inverse relationship.

Hypothesis 3: Share price does not depend on turbulence.

Conclusion: Hypothesis is accepted. ($F = 0.607, p = 0.436$)

From the analysis it is observed that share price is not significantly depends on turbulence. If significance level is less then 0.05, relationship is meaningful. Here significance level is approx 0.436, so the relationship is not significant.

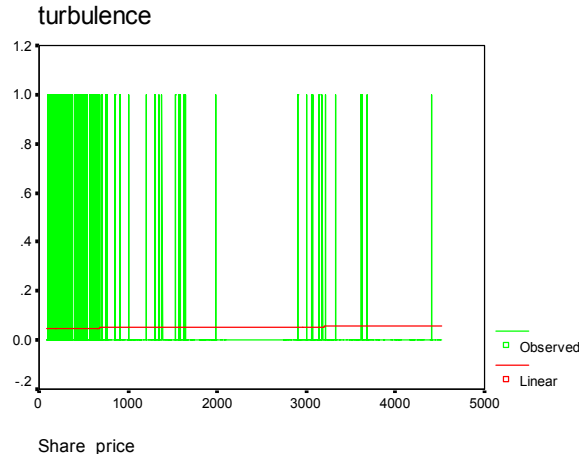


Figure 4: Curve fit of Share price vs. turbulence

Hypothesis 4: Share price does not depend on deposit interest.

Conclusion: Hypothesis is rejected. ($F = 41.853, p = 0.000$)

It is observed that share price is significantly depends on deposit interest. If deposit interest increases, share price decreases significantly ($r = - 0.033$). Around .1% of the variation of share price is due to variation of deposit interest. (R square change = 0.001).

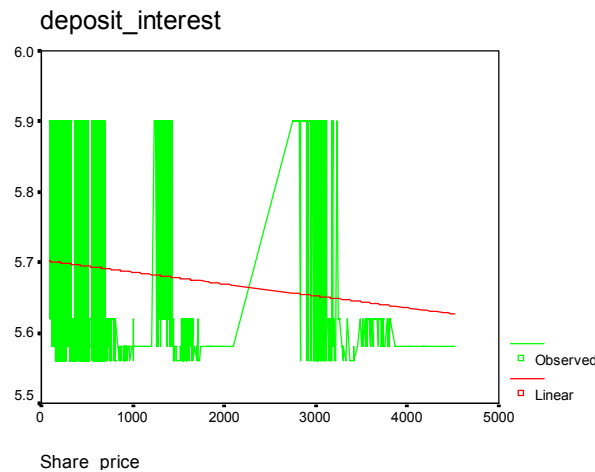


Figure 5: Curve fit of Share price vs. bank deposit interest

From curve fit graph, we can check also that bank deposit interest and share price has an inverse relationship.

Hypothesis 5: Share price does not depend on call money rate.

Conclusion: Hypothesis is rejected. ($F = 25.922$, $p = 0.000$)

It is observed that share price is significantly depends on call money rate. If call money rate increases, share price increases significantly ($r = 0.026$). Around .1% of the variation of share price is due to variation of call money rate. (R square change = 0.001).



Figure 6: Curve fit of Share price vs. call money rate

From curve fit graph, we can check also that call money rate and share price has a positive relationship.

Hypothesis 6: Share price does not depend on gold price.

Conclusion: Hypothesis is rejected. ($F = 48.297$, $p = 0.000$)

It is observed that share price is significantly depends on gold price. If gold price increases, share price decreases significantly ($r = -0.036$). Around .1% of the variation of share price is due to variation of gold price. (R square change = 0.001).

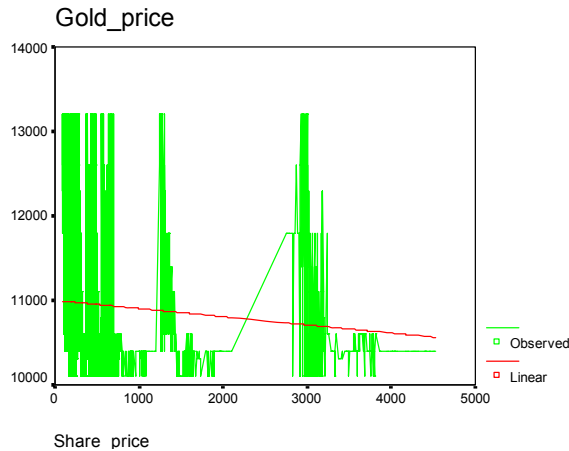


Figure 7: Curve fit of Share price vs. gold price

From curve fit graph, we can check also that gold price and share price has an inverse relationship.

6.3.3 Multiple Regression analysis:

We have done multiple regression analysis also to check multiple variables effect on share price changes. Multiple regressions can establish that a set of independent variables explains a proportion of the variance in a dependent variable at a significant level (through a significance test of R^2).

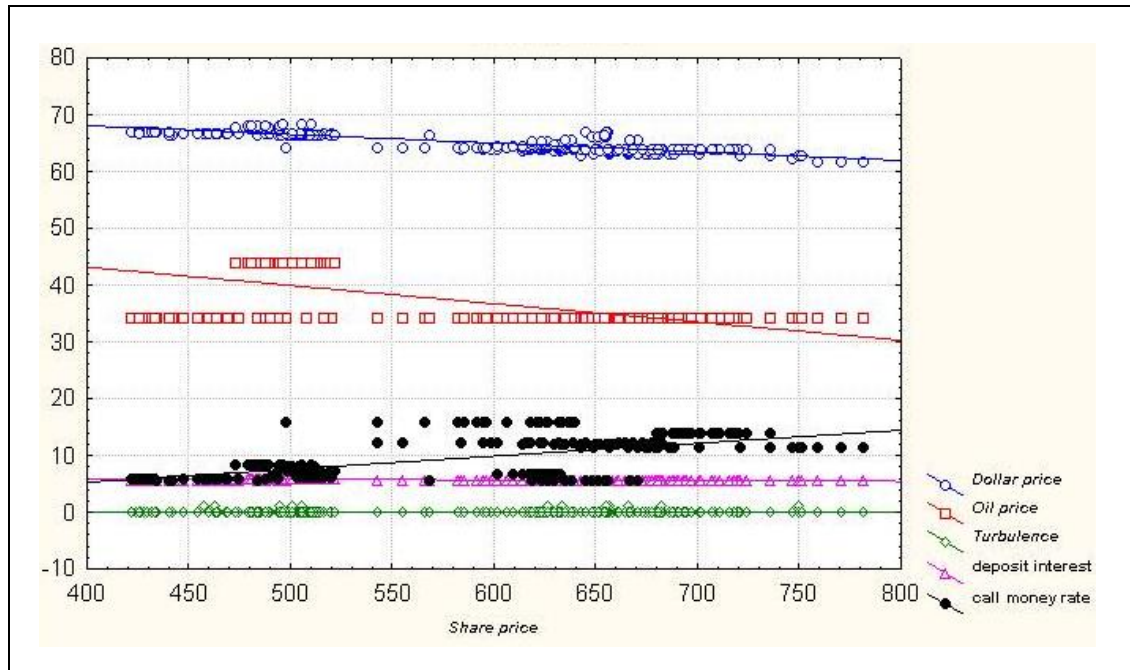


Figure 8: Graph of multiple regression analysis

From this single graph we can check each of the variables or factors effect on share price at a glance.

6.3.4 Path analysis:

We have also done Path analysis to investigate that if these factors are internally related to each other or not. If all the chosen factors which we used in regression analysis are strongly interrelated to each other, then a problem could occur that, though we find a significant relationship between any two variables, but one factors variation or effect on another become weak. Here though we have got some factors relationship with share price is really significant but their variance on share price is low, so we have done path analysis to find out the reason of this occurrence and saw that most of the factors which we have chosen for our research are also internally related to each other. That's why their

variation on share price becomes low. But that does not effect on their significant relationship with share price changes.

Overall markets path analysis diagram

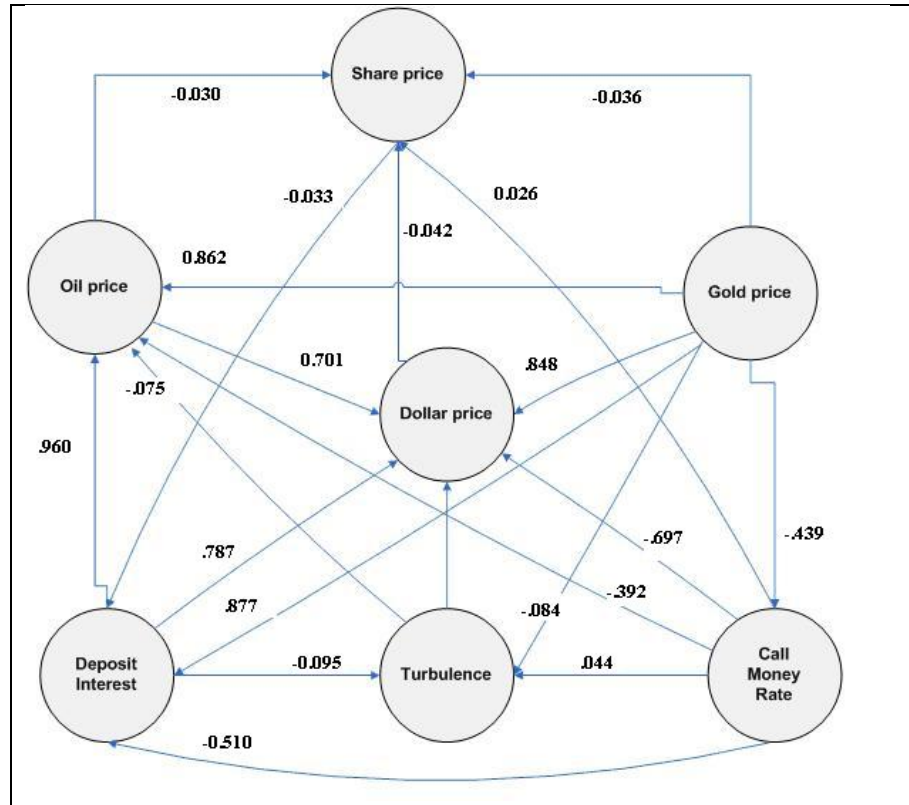


Figure 9: path analysis diagram of overall market

A regression is done for each variable in the model as a dependent on others which the model indicates are causes. Here the arrow indicates to the dependent variables. Each path contains a weighted value of their interlinked two variables relationship. From path analysis, we measure that except turbulence and share price pair, all other factors is internally related to each other.

7.0 Conclusion

In our research, we have tried our best to find out the relationship between share price and some other important economical and social factor and got some interesting results related to this. We have done the analysis on the basis of individual company, sector wise as well as on over all class A companies of Dhaka stock exchange. So we can tell that these hypotheses are reliable to take decision on stock market trading.

We have used several efficient statistical methods to do the analysis based on daily basis database of different economical and social sectors. Finally we got some relationships of those factors with share price changing. In our analysis we found that dollar price is the mostly effected factor which is responsible for changes of share price. Here we saw that dollar price and share price have a negative relationship that means if dollar price or exchange rate decreases, share price increases in the same time. Some other assets like gold, bank's fixed deposit etc also have a negative relationship with share price changes. It means if gold price or fixed deposit interest increases, share price decreases simultaneously. We also checked whether turbulence and share price has any relation, but we didn't find any significant relationship between them. There was another strong economical factor in our analysis which is call money rate, and we found a positive relationship between call money rate and share price changes. So we can tell if call money rate of our country increase, share price also increase at the same time.

From our analysis, one thing is clear that if the share investor doesn't have proper knowledge about our economical sector and its various factors, they have to invest only by guessing looking after some previous share prices of their chosen company. But that's not enough to take the decision that, that particular company's share price will increase or decrease in a natural flow. There are loads of factors which need to consider in our knowledge that those factors can have an effect on share price and change the price of share in an unexpected way.

Investors can get lots of help to take the right decision on a specific company or sector if he or she has proper information of all these economical sectors changes. So the chances of loss in share business can be reduced by acquiring knowledge on these factors and results what we got from different hypothesis.

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