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Original Research

Analyzing the Effects of Fundamental and Technical Factors on Stock Prices: A Study on the Information Technology Sector of Dhaka Stock Exchange

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Abstract

The purpose of this paper is to investigate and identify the main forces that may affect the stock prices of one of the emerging sectors, the information technology industry of the Dhaka Stock Exchange. A total of 6 companies in the IT industry have been picked for the study, for a quarterly dataset within a period of 2015 to 2022 for six factors, of which three belong to the fundamental factors named EPS, NAVPS, and P/E ratio. In contrast, the other three belong to the technical factors termed GDP growth rate, Inflation rate, and IRS. The investigation approach has been designed with ordinary least square regression, where multiple regression model analysis is made. The findings show that while fundamental factors have a mentionable significance on the stock prices of the IT sector, the technical factors are not found to have noticeable significance. Thus, this research recommends to both the existing and potential investors the importance of fundamental analysis to gain a better understanding of this fast-growing industry of the Dhaka Stock Exchange which is in its infancy.

Keywords: Fundamental Factors, Technical Factors, Information Technology Sector.

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Introduction

According to scholars, the Bangladesh capital market has been facing some dramatic concentration only around a few industries, such as fuel and power, pharmaceuticals, engineering, and cement (Hossain and Hamid, 2021). The investment tendency of the investors tends to roam around this handful of industries. Whether there is any logical explanation or just a hunch of the market players, is yet to be found out (Chowdhury, 2014). The market has shown that newly issued IPOs are capable of increasing trade volume in the short-term, however, most of these have proved to fail to perform consistently in the long run. Moreover, the investors are more interested in gaining in the short term rather than in holding for long (Bose et al., 2014). With this knowledge regarding the present scenario of the market, this study has tried to find out the major factors that can affect the share prices of firms in the Information Technology (IT) industry, at a time of digitalization and those that are enlisted in the stock market.

With the aim of digitalization, Bangladesh is among the most fast-paced developing countries that are serving the world with its digital services. Because of its cheap labor cost and mass pull of technical talent regarding IT, which can serve the youth and eradicate the unemployment problem, the industry is booming (In the sense of cost minimization, India and the Philippines have been the toughest competitors for Bangladesh.

However, cost structuring and diverse risk profiles are the issues that can give a competitive advantage to Bangladesh to sustain in the global competition. Hence, the IT sector's capital market is expected to have growth potential. More and more IT companies are enlisting themselves into the platform. Another reason behind this is that with a low-cost structure, Bangladesh is being able to provide more and more IT services with the freelancing opportunity. The government has set incentives for youths to join the free market. The IT industry of Bangladesh has demonstrated one of the highest growth rates globally indicating a huge untapped potential and increasing interest by investors (Karthik et al., 2017). The growth of the domestic industry and the high focus on digitalization have spurred sharp progress in technical and functional knowledge of the resources.

Studies have been conducted on other industries of this country, for example, a study on the cement industry of Dhaka Stock Exchange has been conducted. This time, the study has tried to investigate if any of the six major variables, amongst which three were fundamental and three were technical factors, can affect the stock prices of any other industry as well, especially the IT sector. The IT industry is the fastest-paced industry in today’s digital world. How being enlisted in the Dhaka Stock Exchange affects the firm towards growth, is taken for the investigation purpose in this paper.

Hence the study has been conducted based on the objective of determining whether the firm-specific fundamental factors as in EPS, NAVPS, and P/E ratio, and the technical factors as in GDP growth rate, inflation rate & IRS have any impact on market prices of the IT sector stock price.

In the process of building the potential association among the concerned factors, two hypothetical statements can be developed:

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H_1: The significance of Fundamental Factors on the share prices of the IT sector.

i. Null Hypothesis (H_0) = none of the fundamental variables have a positive and significant impact on the stock prices of Bangladeshi IT Companies.

ii. Alternate Hypothesis (H_1) = At least one of the fundamental variables has a positive and significant impact on the stock prices of Bangladeshi IT Companies.

H_2: The significance of Technical Factors on the share prices of the IT sector.

i. Null Hypothesis (H_0) = none of the technical variables have a positive and significant impact on the stock prices of Bangladeshi IT Companies.

ii. Alternate Hypothesis (H_1) = at least one of the technical variables have positive and significant impact on stock prices of Bangladeshi IT Companies.

Theoretical Framework

Determining factors that influence a stock market has been a topic of serious debate since the beginning. Many researchers have debated over this and several research has been conducted on determining the factors to influence the price variability of stock market. Among those, the first one was done by Collins in 1957, where he identified that US stock market tends to get influenced by firm specific factors like operating earnings, net profit, dividend, and book value. The study was conducted on 37 nationwide banks (Collins, 1957).

After this many theoretical and empirical studies have been conducted to determine the actual causes of this price volatility. Balkrishna (1984) conducted his investigation on both market value and book value of shares. According to them book value per share is a sound indicator of financially sound performance. The statement was that a firm having a higher financial base will generate a higher EPS in the future (Balakrishnan, 1984).

Many studies in the South Asian subcontinent have been conducted as well. Among the studies, in 2002, Irfan and Nishat presented that there are factors impacting the share prices in Karachi Stock Exchange share prices. The study was conducted from 1981 to 2000. It employed cross-sectional weighted least square Regression. The analysis showed that variables like dividend yield, price-earnings, earnings per share, leverage, and earning volatility had a positive impact on share prices. This study also suggested that firm-specific factors have a great impact on price volatility in the stock market. (Irfan et al., 2002).

Furthermore, an investigation by Dr. Amal and Sameer, an investigation on Amman Stock Exchange showed some similar results. The study was conducted on the financial performance of 25 Jordanian Insurance Companies for the 5-year period. Several statistical techniques such as T-test and Multiple-regression were used as tools to analyze the data and the results revealed that variables like leverage, size of the firm, liquidity position, and management competency have a positive statistical effect on the financial performance on the Jordanian Insurance Companies. (Almajali et al., 2012).

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As a developing country, Bangladesh also faces a great deal of impact of stock market on the overall economy. Bangladesh capital market, dividend policies are proved to have great impact on stock market (Islam and Jahan, 2012) the study was conducted on 30 commercial banks by Islam and Jahan for the period 2007 to 2011. They also concluded that EPS plays a dominant role on share price and equity base of the companies has a future potential. Even though Studies on IT sectors are very handful, very significant ones are to observe. India is very advanced in IT industry and is reputed of earning a great deal of export revenue from the IT sector. And Vaishali reviewed in her research how the major economic factors and macroeconomic variables affect the IT companies (Agrawal, 2019). As there is an increase in the value of company specific variables, it would lead to an increase in stock returns. On the contrary, when the fact is about foreign exchange rates, stock returns increase with depreciation in home currency. Moreover, there exists a positive correlation between foreign direct investment and stock returns. (Dimitropoulos et al., 2009).

To investigate these two major facets of discussion in regard to the IT industry of Bangladesh, the following direct and forward approach can be used for rolling up the knowledge gap of similar aspects for such an emerging and new industry of DSE:

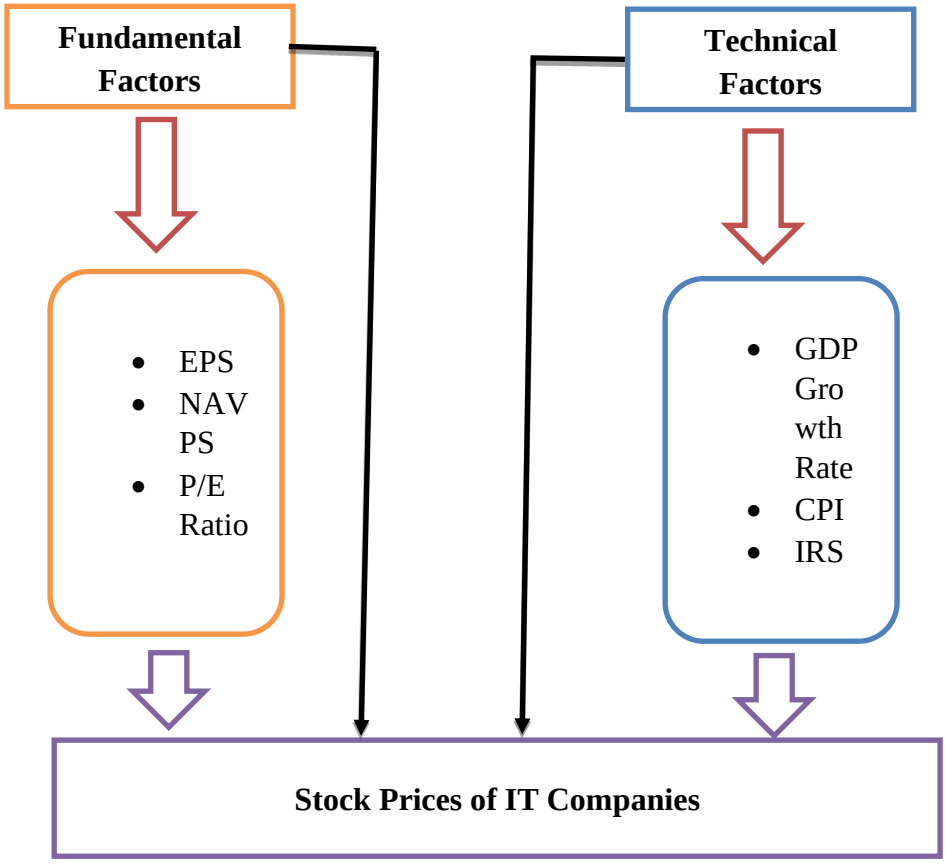

Figure 1. Theoretical Framework

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Literature Review

According to Charles Schwab, a financial researcher, IT services include making software, personal computers, semiconductors, communications and providing consultancy services. Charles provides a more present time scenario of IT sector worldwide and the present trade war that is going on between US and China, two tech savvy powerful nations in the world. According to him, this sector receives significant revenue from foreign sources, and it's going to suffer as the sector is likely to suffer a US-China trade war and face rise –fall in stock prices (Hanson, 2020**).** According to Ranjan and Sandip age, gender, marital status, and family size firmly have an impact on the investment decisions of individual investors (Chattopadhyay and Dasgupta, 2015). Although Zhao conducted research on Chinese economy where he presented that Consumer Price Index (CPI), Industrial Outputs and the share prices have negative relationship among each other (Zhao et al., 2015). Similar research was conducted by Deepa Mangala in India that was conducted for a period of 8 years on 119 listed companies belonging to different industries in the Indian stock exchange. According to the EPS, BV and Size of the firm have a positive impact. On the other hand, dividend yield has a significantly negative influence on stock prices (Mangala, 2015).

Another macroeconomic study on stock within the Asian subcontinent was conducted in the twin cities of Pakistan, Rawalpindi, and Islamabad, by Nauman and Hafiz. The research was conducted on 100 investors and the aim was to determine whether demographic factors like education, investment knowledge, income level, and investment experience affect the risk tolerance of the investors regarding choice of investment. And this showed a positive result. It also reported that gender, marital status, family size, and occupation showed no effect on investor's risk tolerance levels (Sadiq & Ishaq, 2014). However, there are other investigations conducted too that suggest the otherwise from Nauman and Hafiz. A significant study on the same stock market was conducted by Sattam and Sameer, where the variables like internal and external factors were undertook. The study population was 227 listed companies and a sample of 60 companies were taken to run the test, the results showed that inflation rate has the most and nature of firm business has the least impact on the share pricing (Allahawiah & Al Amro, 2012**).**

After that Ramachandran in 2011 in order to infer the main factors influencing the stock market, ran his examination on three sectors: auto, healthcare, and public sector by using panel data. The study analyzed 10 years of data and revealed that dividend, leverage, and Price/Earnings ratio are major factors in price fluctuation. The study undertook the method of fully modifying ordinary least squares (Nirmala et al., 2011). Taking examples from developing countries like Africa, Somoye, Akintoye and Oseni conducted a survey on 130 companies listed in the Nigerian stock exchange, for the period from 2001 to 2007, to find the macroeconomic influence on the stock exchange. This study employed OLS regression and Regressed stock prices where EPS, DPS, gross domestic product, oil price, lending rate and foreign exchange rate were independent variables. The variables revealed a positive correlation except lending and foreign exchange rate (Okafor et al., 2011).

The middle eastern countries have also researched their stick market condition and found a significant impact of GNP, CPI and interest rate highly instrumental in

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influencing the stock market (Midani, 1991). The research was conducted for the time 1981-1997 in Kuwait. In the study, the GNP and EPS were proved to have a positive impact on share prices whereas interest rate and CPI had negative impacts. They also suggested behavioral factors of investors that emotion and sentiment often force their investment decisions other than the fundamental or technical ones. In his paper, Eric talked about why investable securities add a premium in stock price and less investable securities don't, taking into consideration the local firm specific factors. According to the investigation, 3,782 companies showed an overwhelming premium price traded in 29 emerging markets within the period of 1988 to 2006. He implied that foreign ownership has played a significant role in local companies in recent years but no firm-specific factors appeared significant in the process (Girard, 2010). Research on South Asian countries like India has found some significant results too. One was conducted on this issue by DAS and Pattanayak, in 2009 on Bombay Stock Exchange in India. The investigation undertook 30 shares of the Stock Exchange and concluded that macroeconomic factors like economic sustainability, future growth potential of the industry and higher return on the investment has positive impact on stock price, whereas uncertainty and the volatility of the industry has a negative impact (Das & Pattanayak, 2007).

Although the studies conducted on stock markets in various continents and economic regions showed a great emergence on the issue, from the above discussion it can be seen that the results came out quite mixed. The geographical difference and cultural variety tend to be the cause of that. However, the researchers over this topic could not come to a general conclusion whether all these variables and factors are altogether positive or negatively correlated to the stock market. And most importantly, not many studies have been conducted on this issue on Bangladesh capital market, especially on IT sector. This paper aims at reducing the gap by studying the six variables, to determine their expected to dominant stock price of IT sector in Dhaka stock exchange.

Methodology

This study relied extensively on quantitative data which has been handpicked from the field visits of selected IT companies listed on the Dhaka Stock Exchange (DSE) for the period 2015-2022. Based on the convenience sampling technique, the target companies have been set based on the parallel line of available dataset. Because of this reason only six companies have been selected with availability of dataset for stated time period. The rest of the companies listed on the exchange either are very new to be included or lack the proper database system for such tenure due to their infancy into the industry. During the data collection and the analysis process, ethical issues were carefully considered by the researcher through eliminating complete distortion or any kind of manipulation. According to the security chart presented by DSE there are only ten companies that are enlisted in the IT sector. Among which all the companies are local. Two of the companies, ADN Telecom Ltd and Genex Infosys Ltd have enlisted in 2019, two of the companies, Aamra Networks Ltd and IT Consultants Limited have enlisted itself been 4 years. Therefore, in order to keep consistency of the data analysis, six companies were taken for the analysis purpose, so that the model can present a better understandable result. The six companies taken for the analysis are Aamra Technologies Limited (AAMRATECH), Agni Systems Limited (AGNISYSL), BDCOM Online Limited (BDCOM), Daffodil

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Computers Limited (DAFODILCOM), Intech Limited (INTECH), and Information Services Network Ltd. (ISNLTD).

For the analysis purpose, the ordinary Least Square Regression or OLS regression has been used first, both in case of fundamental variable and technical variable analysis. The analysis is focused on OLS regression with multivariate mode because of its better possibility of predicting the percentage variation of the dependent variable by each of the independent variables. The model draws out the relationship between stock price and six independent variables, three fundamental or firm specific and the other three being the technical or macroeconomic factors. In this study, the fundamental variables; EPS, P/E & NAVPS and technical variables GDP, CPI and IRS have been considered as independent variables (X) and the market prices per share as dependent variable (Y). The study was in the line with the study conducted on the Cement industry of Bangladesh (Alam et al., 2016). The study was initiated to provide a basic test of the firm specific factors that may affect stock prices. Thus, to keep in line with the stated hypothesis, the models were developed as:

$$Stock\ Prices\ (Y) = \beta 0 + \beta 1\ (EPS) + \beta 2\ (NAVPS) + \beta 3\ (P/E) + \varepsilon \quad \ldots\ldots\ldots\ldots\ldots (1)$$ (Alam & Miah, 2016).

The following is an overview table that provides the definition of variables employed with the hypothesized sign for the fundamental factors used in the model (Alam & Miah, 2016).

Table 1. Fundamental Factors of Stock Prices

Variables	Definition	Symbols	Previous studies which employ indicated variables
Earnings Per Share	Net profit after Tax/ Total Share Outstanding	EPS	Canbaş et al., 2007; Bildik & Gülay, 2007.
Price Earnings	Market price/Earnings per share	P/E	Ege & Bayrakdaroğlu, 2007; Yalçıner et.al., 2005.
Net Asset Value Per Share	Net Asset/ Total Share Outstanding	NAVPS	Ege & Bayrakdaroğlu,2007; Kalaycı & Karataş, 2005.
Stock/Share Price		Y	Dey & Sampath, 2018.
Constant		$\beta 0$	
Standard Errors		ε	

The equation for technical factors would be following in the analysis:

$$Stock\ Prices\ (Y) = \beta 0 + \beta 1\ (RGDP) + \beta 2\ (CPI) + \beta 3\ (IRS) + \varepsilon \quad \ldots\ldots\ldots\ldots (2)$$ (Alam & Miah, 2016).

The following is an overview table that provides the definition of variables employed with the hypothesized sign for the technical factors used in the OLS model.

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Table 2. Technical Factors of Stock Prices

Variables	Definition	Symbols	Previous studies which employ indicated variables
RGDP	Growths in Gross domestic Production	GDP	Türsoy et al., 2008, Karagöz & Armutlu, 2007.
Inflation	A benchmark of the variation in prices paid by	CPI	Mutan & Çanakçı ,2007, Albeni & Demir ,2005, Al-Sharkas,2004.
	typical consumers for goods and other items in		
	different times.		
Interest Rate Spread	The Deviation between the deposit rates and	IRS	Türsoy et al. 2008, Al-Sharkas,2004; Akkum & Vuran,2003.
	rate of loans and advances		
Stock/share Price		Y	Dey & Sampath, 2018.
Constant		*β0*	
Standard Errors		ε	

Findings

Descriptive Analysis

The summary of descriptive statistical data testing has been done to provide different aspects of explanation of the characteristics of the data. The following table represents the selected results of the observations for descriptive statistical tests in the form of the average or mean value, median, mode, kurtosis, skewness, and standard deviation.

Fundamental Factors

Table 3. Descriptive analysis of Fundamental Factors

	Stock Price	EPS	Navps	P/E
Mean	21.23776	0.301979	15.49068	61.91964
Standard Error	0.601547	0.016554	0.259582	3.674279
Median	19.545	0.27	15.05	50.335
Mode	21.45	0.26	15.32	54.61
Standard Deviation	8.335282	0.229382	3.596874	50.9123
Sample Variance	69.47692	0.052616	12.93751	2592.062
Kurtosis	0.690343	3.767397	0.705608	3.963912
Skewness	0.872139	1.001366	1.158715	1.603829
Range	46.45	1.8	15.36	331.03

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	Stock Price	EPS	Navps	P/E
Minimum	9.39	-0.33	10.4	-24.33
Maximum	55.84	1.47	25.76	306.7
Sum	4077.65	57.98	2974.21	11888.57
Count	192	192	192	192

The stated descriptive statistics show the standard deviation for EPS is 0.33. This indicates that the average or typical distance of EPS varies from its mean 0.31 by 0.23 points. So, the standard deviation 0.23 tells that it varies or deviates from its mean value of 0.31 by 0.23 points, either higher or lower. Similarly, the stock price tends to deviate from its mean 21.24 by 8.34 points, either higher or lower, NAVPS tends to deviate from its mean 15.49 by 3.60 points and P/E ratio tends to deviate from mean 61.92 by 50.91, either higher or lower.

Technical Factors

Table 4. Descriptive analysis of Technical Factors

	Stock Price (Y)	GDP (%) X1	CPI (%) X2	IRS (%) X3
Mean	20.84	6.94	6.22	2.94
Standard Error	1.14	0.11	0.10	0.18
Median	19.40	6.83	6.12	3.31
Mode	19.61	8.10	6.05	0.16
Standard Deviation	7.91	0.75	0.67	1.26
Sample Variance	62.56	0.56	0.46	1.59
Kurtosis	-0.02	-1.32	-0.51	0.55
Skewness	0.82	0.27	0.84	-1.27
Range	31.18	2.09	2.016	4.05
Minimum	10.24	6.01	5.514	0.16
Maximum	41.42	8.1	7.53	4.21
Sum	1000.17	333.24	298.464	141.06
Count	48	48	48	48

From the following table it can be seen that the standard deviation of stock price is 7.91, and its mean is 20.84. The standard deviation indicates that it tends to deviate from the mean 20.84 of stock price by 7.91, either higher or lower. Similarly, the other variables show their variation from the mean value by standard deviation. The RGDP tends to deviate from its mean by 0.75, the CPI tends to deviate by 0.67 from its mean of 6.22 and lastly the IRS deviates by 1.26 from its mean of 2.94, either higher or lower.

Inferential Analysis

Multiple regression models have been used to predict the linear relationship between predictive variables and observations. Predictive variables are dependent variable/s and observations are independent variables.

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Fundamental Factors

This paper tries to find out the correlation and causal-effect relationship between three company-specific independent variables, EPS, NAVPS, and P/E ratio with the stock price of the selected IT companies for the year 2015 to 2022.

Regression Analysis

Table 5: Regression Output of Fundamental Factors

Multiple R	0.640292026
R Square	0.409973878
Adjusted R Square	0.400558568
Standard Error	6.453475525
Observations	192

ANOVA	df	SS	MS	F	Significance F
Regression	3	5440.391223	1813.464	43.54332027	2.05245E-21
Residual	188	7829.701114	41.64735		
Total	191	13270.09234			

Intercept	1.635344326	2.069919014	0.790052	0.430492597	2.447907689	5.718596
EPS	4.618317579	2.118712033	2.179776	0.030516878	0.438813396	8.797822
NAVPS	0.935360887	0.139816965	6.689896	2.48639E-10	0.659549177	1.211173
P/E	0.060052145	0.009625542	6.238832	2.8507E-09	0.041064197	0.07904

To show the relevance amongst the variables and the degree to which they are related to each other Multiple R is necessary. From the analysis the Multiple R is 0.640292026 or 64.03%. The value tells that the variables have fair level of correlation towards each other; also, the model can provide a healthy relevance of the variables.

Next important value is the R square. It explains the extent to which an independent variable creates variation to the dependent variable. The greater the value, the better the answer will be. From the table it can be seen a result of 0.409973878= 41%, which means, independent variable can help to explain up to 41% of the variation in the dependent variable which is stock price variability.

Since multiple variables are taken into consideration, it is needed to focus on the adjusted R square result. That is 0.400558568= 40.56%. The adjusted R square gives an inflated result of the R square result. 40.56% is healthy and indicates that the independent variables can help to explain 40.56% of the variation in the dependent variable stock price variability.

The standard error tells the strength of the model at which the results can be reliable. It gives the accuracy of the regression coefficient. The standard error of whole model is 6.453475525 or 6.45, which is not very large. The lower the standard error of the model the better is for the result. From the analysis of variance table, the significance F can be found which tells whether the model fits the properly and provides the confidence for the

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model to be accepted for the analysis. The significance F must be less than 0.05 to be statistically significant. The lower the significance value of F, the better. From the table the significance F is 2.05245E-21, which is much less than 0.05 and it tells the model in the analysis is strong enough to give appropriate result.

In the regression analysis, the P-value has great importance too. The P-values of each independent variable must be less than 0.05 to be statistically significant same as the significance F. However, the difference is that F significance gives us the result of the entire model, whereas the P-value talks about each individual independent variable. If the P-value of a certain independent variable is less than 5% ($p < 0.05$) then it has a statistically significant relation with the dependent variable. The smaller the P-value the better. This analysis has the P-values for the three independent variables 0.030516878, 2.48639E-10 and 2.8507E-09 respectively, all of which are below 0.05. That means that all of them are showing statistically significant relationship with the dependent variable – stock price. Here the test was run with the confidence level of 95%.

Stock prices = 1.635344326 + 4.618317579(EPS) + 0.935360887 (NAVPS) + 0.060052145 (P/E) + 6.453475525

The intercept is 1.635344326. This indicates that there is constant value of 1.64 taka of the stock price, when the values of EPS, NAVPS, and P/E ratio are all 0. According to the model it can be found that the coefficient of each independent variable has a positive relation with the change in dependent variable. It can be explained as:

i. For every unit change of EPS, stock price changes by 4.62 units. Given that all the values of other variables remain the same.

ii. For every unit change of NAVPS, stock price changes by 0.94 units. Given that all the values of other variables remain the same.

iii. For every unit change of P/E ratio, stock price changes by 0.06 units. Given that all the values of other variables remain the same.

Correlation Analysis

Correlation analysis is another statistical tool to evaluate the existing correlation between independent and dependent variables. The correlation can exist ranging from -1 to +1. The further the value is from 0 and closer to 1, the stronger will be the relationship. The sign of the correlation shows in which direction the variables create impact on each other. If it is positive, it means the variables move in the same direction, and if it's negative it indicates that variables move in the opposite direction.

Table 6: Correlation analysis of Fundamental Factors

	Stock Price	Eps	Navps	P/E
Stock Price	1			
EPS	0.194658429	1		
NAVPS	0.531777285	0.236475092	1	
P/E	0.465081373	-0.076017597	0.267426	1

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As per the above analysis, the following correlations can be found-

- The correlation between EPS and stock prices is 0.194658429. It means that EPS has a weak positive correlation with stock price, and that stock price moves in the same direction as EPS.

- The correlation of NAVPS and Stock price is 0.531777285, which means that there is a positive correlation of NAVPS with the stock prices, also both move in the same direction.

- Also, the correlation between the P/E ratio and stock price is 0.465081373, which also shows a positive correlation with the stock price.

Technical Factors

To run the technical tests, the database of the macroeconomic variables was collected secondarily. Since the research was being conducted based on quarterly data, it had to rely on the data of a published research, that was conducted in the Cement industry of Bangladesh, for a similar purpose (Alam and Miah, 2016). The motive of this study is to find if technical factors like RGDP, CPI, IRS have any impact on stock price or not. And OLS regression analysis is considered the best statistical tool to find that answer due to its nature of panel data type.

Regression analysis

Table 7: Regression analysis of technical factors

Multiple R	0.292055502
R Square	0.085296416
Adjusted R Square	0.022930263
Standard Error	7.818555332
Observations	48

Table 8: ANOVA Output of Technical Factors

ANOVA	df	SS	MS	F	Significance F
Regression	3	250.8165024	83.605501	1.367672	0.265086959
Residual	44	2689.711529	61.129807		
Total	47	2940.528031			

Adjusted R square provides the result of variation at which the independent variables affect the dependent variable. The more R square and adjusted R square is near to 1, the better the answer it provides. The adjusted R square in the analysis is also very small (0.022930263). In other words, the adjusted R square shows that the independent variables of the model can only explain 2.29% of the variation of the dependent variable which is the stock price in this case. Since it is a multiple linear regression the R square is important. It reveals that the model is very poor and it does not fit the data of the

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analysis at all. The adjusted R square is just a slight modification of the R square to only those in the predictive model. Lastly, the significance F also needs to be greater than 0.05 but, in the analysis, the significance of F turns out very large, around 0.265086959 or 0.265. The significance F tells whether the model fits the data or not. The lower the significance of F, the higher is the chance of acceptability of the model for analysis. The significance F shows that the probability of the regression model to be wrong is very high and it should be discarded.

Table 9: Co-efficient output of technical factors

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-98.69843	111.62311	-0.88421	0.38139	-323.66003	126.26318
GDP (%) X1	9.15144	7.46906	1.22525	0.22700	-5.90146	24.20433
CPI (%) X2	8.01818	8.33912	0.96151	0.34155	-8.78822	24.82458
IRS (%) X3	2.09083	3.02693	0.69074	0.49336	-4.00956	8.19121

The model using the OLS to this study looks like as follows.

Stock prices (Y) = -98.69843 + 9.15144 (RGDP) + 8.01818 (CPI) + 2.09083(IRS) + 8.968

The model equation shows that there is an intercept of -98.69843 or a constant -98.70 taka of stock price, given that all the other variables remain the same. Also, the standard error of the entire model is 7.81. The smaller the standard variable is the better the model is considered. According to the model the following interpretations can be obtained:

i. For every unit change of growth rate of GDP, stock price changes by 9.15144 units. Given that all the values of other variables remain the same.

ii. For every unit change of CPI, stock price changes by almost 8.018 units. Given that all the values of other variables remain the same.

iii. The stock price changes by taka for 1 unit of change of the interest rate spread by almost 2.09 units. Given that all the values of other variables remain the same.

From the regression analysis it can be seen that the test was run with the confidence level of 95%. The P-value must be less than 0.05 to be statistically significant for the dependent variable. And form the above regression table it can be seen that the P-values are as follows:

i. P-value of RGDP is 0.22700, which is higher than 0.05. Therefore, statistically insignificant.

ii. P-value of CPI is 0.34155, which is also higher than 0.05. Therefore, statistically insignificant.

iii. P-value of IRS is 0.49336, again, higher than 0.05. Therefore, statistically insignificant.

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As it can be observed that none of the variables have P-value below 5% or 0.05, it indicates that none of the variables has any significant relationship with stock price.

Correlation Analysis

Correlation analysis shows the relationship of variables to each other. The nature of the correlation analysis is to complement the regression analysis. The following is an analysis of correlation of variables RGDP, CPI% and IRS%, how they relate to dependent variable stock price and to each other.

Table 10: Correlation Analysis of Technical Factors

Stock Price (Y)		Stock Price (Y)	GDP (%) X1	CPI (%) X2	IRS (%) X3
		1			
GDP (%) X1		0.236270356	1		
CPI (%)	X2	-0.091263868	-0.766428616	1	
IRS (%)	X3	-0.171065952	-0.317649921	-0.334480706	1

- The growth rate of GDP has correlation of 0.236270356 with the stock price, which is quite weak positive correlation.
- The CPI rate has a correlation with the Stock price of -0.091263868, which is also very weak. Also, they move in the opposite direction.
- The IRS rate has correlation of -0.171065952 with the stock price, which also indicates a weak negative correlation.

Among the other correlations CPI has a strong negative correlation with the GDP meaning that they move towards opposite directions from each other and are strongly correlated. The IRS has a weak to moderate level of negative correlation with GDP and CPI respectively. None of the independent variables, GDP, CPI or IRS has any strong correlation with the stock price. Therefore, the correlation analysis also complements the regression analysis.

Discussion and Summary of Findings

From the above analysis of both fundamental and technical factors it can be found that since the analysis could successfully show that among the three independent variables all the independent variables that the EPS, NAVPS and P/E has simultaneously can have impact on stock price variability, the OLS model rejects the null hypothesis (H_0) and supports the alternate hypothesis (H_1) for the fundamental factors. From the technical analysis it can also be concluded that since none of the technical variables support the regression model, and show any strong significance towards the stock prices, the analysis can accept the Null hypothesis (H_0), meaning, none of the technical variables show any significant relationship with the dependent variable – stock price.

Based on the results of the output that has been obtained, the panel data regression model is suitable for use in hypothesis testing to analyze the factors that affect the stock prices of the IT (Information Technology) companies in the Dhaka Stock Exchange.

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Though no specific work on the stated variables has been done on the IT industry of the DSE, those have been examined in the context of other industries like manufacturing firms, the pharmaceutical industry, and bank and non-bank financial institutions of different countries and these research findings showed quite similarity with the experimental findings. The findings are in line with what has been found in the cement industry of Bangladesh (Alam et al.,2016) while contradicting the impact of macro-economic variables on the stock prices of emerging economies like Egypt and Tunisia (Barakat et al.,2016). The findings in the context of IT companies of Bangladesh also show similarity with the impact of key fundamental factors in the long run done on one of the neighboring countries like the Karachi Stock Exchange which also validates the findings done on the listed firms (Irfan et al, 2002). On the contrary, another key player of the Asian emerging economy- the Indian Stock Exchange showed a significant impact of macroeconomic variables on the stock prices of listed firms (Mangala, 2015).

Recommendations

The study provides a clear message to the local investors about Bangladesh capital market that the investors should carefully watch out the firm specific factors, such as financial base of a firm, earnings growth, growth potential and changes in managerial power. The study gives reliability since the dataset collected for the study was consistent with 192 observations and no manipulation was done either by the source or the researcher. The macroeconomic analysis couldn't be extended since the consistency of stock prices data was not found for the extended period. Hence, the study had to limit its technical analysis annually for 8 years. However, there is a chance if the technical analysis were conducted on other industries with long enlisting period with the capital market a few statistical significances could be revealed. The study suggests that more and more research should be conducted on the IT industry of Bangladesh capital market and its relationship with potential fundamental and macroeconomic factors.

Conclusions

In the context of especially Bangladesh capital market, the biasness towards a certain company and sentiment of investors are quite common mistakes while making investment judgments. Because of lack of proper investment knowledge and infatuation towards a certain firm has often led many investors to make irrational investment and trading. Thus, the firms with less potential and growth earn more, while the firms with promising future are failing due to lack of funds. According to the researcher, this study does not provide any guidance towards these common mistakes. However, to the degree at which this study is dependable and authentic, it will help the potential investors to ride on the right investment track and utilize their money more wisely in the IT sector. The study also encourages conducting research on more micro and macro-economic variables to find their respective relationship with stock prices of IT industry in Bangladesh.

References

Agrawal, V. (2018). *Factors affecting stock returns of IT companies*.

Akkum, T., & Vuran, B. (2003). Analysis of the Macroeconomic Factors Affecting

Stock Returns in Turkish Stock Market with Arbitrage Pricing Model. *Istanbul Chamber of Certified Public Accountants Financial Fiscal Solution Journal*, *65*, 1-14.

Alam, S., Miah, M. R., & Karim, M. A. (2016). Analysis on factors that affect stock prices: A study on listed cement companies at Dhaka stock exchange. *Research Journal of Finance and Accounting*, *7*(18), 93–113.

Albeni, M., & Demir, Y. (2005). Impact of Macroeconomic Factors on Financial Sector

Stock Prices (ISE Application). *Muğla University SBE Journal*, *14*, 1-18.

Allahawiah, S., & Al Amro, S. (2012). Factors affecting stock market prices in Amman Stock Exchange: A survey study. *European Journal of Business and Management*, *4*(8), 236–245.

Almajali, A. Y., Alamro, S. A., & Al-Soub, Y. Z. (2012). Factors affecting the financial performance of Jordanian insurance companies listed at Amman Stock Exchange. *Journal of Management Research*, *4*(2), 266.

Al-Sharkas, A. (2004). „The Dynamic Relationship Between Macroeconomic Factors

and the Jordanian stock market". *International Journal of Applied Econometrics and Quantitative Studies*, *1*, 1.

Balkrishnan, X. (1984). Determinants of equity prices in India. *Management Accountant*, *19*(12), 728–730.

Barakat, M. R., Elgazzar, S. H., & Hanafy, K. M. (2016). Impact of macroeconomic variables on stock markets: Evidence from emerging markets. *International journal of economics and finance*, *8*(1), 195-207.

Bildik, R., & Gülay, G. (2007). Profitability of contrarian strategies: Evidence from the Istanbul stock exchange. *International Review of Finance*, *7*(1-2), 61-87.

Canbaş, S., Kandır, S., & Erişmiş, A. (2007). Test of the some of the firm properties affecting stock efficiency in ISE. *Finance Politics & Economic Comments*, *44*(512), 15-27.

Chattopadhyay, S., & Dasgupta, R. (2015). Demographic and socioeconomic impact on risk attitudes of the Indian investors-an empirical study. *Asian Economic and Financial Review*, *5*(4), 601.

Collins, J. (1957). How to study the behavior of bank stocks. *Financial Analysts Journal*, *13*(2), 109–113.

Das, N., & Pattanayak, J. K. (2007). Factors affecting Market Price of SENSEX shares. *The Icfai Journal of Applied Finance*, *13*(8), 33–51.

Dey, S., & Sampath, A. (2018). Dynamic linkages between gold and equity prices:

Evidence from Indian financial services and information technology companies. *Finance Research Letters*, *25*, 41-46.

Dimitropoulos, P. E., Asteriou, D., & Feraiou, R. (2009). The relationship between earnings and stock returns: empirical evidence from the Greek capital market. *International Journal of Economics and Finance*, *1*(1), 40–50.

Ege, İ., & A. Bayrakdaroğlu. (2007). Analysis of ISE Firm Stock Return Performance in

Globalisation with Logistic Regression (In Turkish). *8th Turkey Econometrics and Statistics Conference*, 1-6.

Girard, E. C. (2010). Empirical Evidence of the Existence of Investable Premiums in Emerging Market Investable Stocks. *Financial Review*, *45*(4), 1025–1051.

Hanson, G. H. (2020). The impacts of the US–China trade war. *Business Economics*, *55*, 69–72.

Irfan, C. M., Nishat, M., & Sharif, H. (2002). Key Fundamental Factors and Long-run Price Changes in an Emerging Market—A Case Study of Karachi Stock Exchange (KSE) [with Comments]. *The Pakistan Development Review*, *41*(4), 517–533.

Islam, M. S., & Jahan, S. (2012). Analysis of financial products of capital market in Bangladesh: present status and future development. *International Journal of Marketing Studies*, *4*(5), 119.

Kalaycı, Ş., & Karataş, A. (2005). The relationship between common stock returns and

financial ratios: A fundamental analysis in the İstanbul Stock Exchange. *Muhasebe ve Finansman Dergisi*, *27*, 146-157.

Karagöz, K., and R. Armutlu. (2007). Development of Stock Return Market and

Economical Growth (In Turkish). *8th Turkey Econometrics and Statistics Conference*,1-7.

Karthik, H., Kala, P., Jain, P., & Gupta, R. (2017). *Betting on the Future–The Bangladesh IT-ITeS Industry is Poised for Growth. Texas: Everest Group.*

Mangala, D. (2015). Revisiting the dynamic relationship between macroeconomic fundamentals and stock prices: An evidence from Indian stock market. *International Journal of Financial Management*, *5*(3), 53–63.

Midani, M. A. (1991). *Determinants of Kuwaiti stock prices: An empirical investigation of industrial services, and food company shares*.

Mutan, O., & Canakci, E. (2007). *Effects of Macroeconomic Factors on Stock Markets*

(pp. 1-36). Research Report of Share Market.

Nirmala, P. S., Sanju, P. S., & Ramachandran, M. (2011). Determinants of share prices in India. *Journal of Emerging Trends in Economics and Management Sciences*, *2*(2), 124–130.

Okafor, C. A., Mgbame, C. O., & Chijoke-Mgbame, A. M. (2011). Dividend policy and share price volatility in Nigeria. *Journal of Research in National Development*, *9*(1), 202–210.

Sadiq, M. N., & Ishaq, H. M. (2014). The effect of demographic factors on the behaviour of investors during the choice of investments: evidence from Twin Cities of Pakistan. *Global Journal of Management and Business Research*, *14*(3), 46–56.

Tursoy, T., Gunsel, N., & Rjoub, H. (2008). Macroeconomic factors, the APT and the

Istanbul stock market. *International Research Journal of Finance and Economics*, *22*(9).

Yalçıner, K., M. Atan, & D. Boztosun. (2005). Relationship Between Financial Ratios

and Stock Returns (In Turkish). *Journal of Accounting and Finance,27*, 176-187.

Zhao, Y., Yang, Z., & Qian, X. (2015). Investor Sentiment and Chinese A-Share Stock Markets Anomalies. *International Journal of Economics and Finance*, *7*(9), 293–312.

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