DETERMINANTS OF SHARE PRICES AT KARACHI STOCK EXCHANGE

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─ **Abstract** ─

Knowing about stimulus of stock indices is a key for the future projection of stocks performance and in turn provide base for making and suggesting appropriate economic policies. The main objective of the study is to find different determinants of share prices and the relationship of these determinants with the share prices of Karachi Stock Exchange (KSE) 100 index of Pakistan. After going through literature review 5 quantitative determinants, namely Book to Market (B/M) ratio, Price Earning (P/E) ratio, Dividend, Gross Domestic Product (GDP) and Interest Rate were selected to find out the direction and strength of relationship. A sample of 34 companies has been randomly selected from 34 sectors of KSE. Ten years' (2000-2009) data has been collected for the sample companies. The tools used for analysis are Linear Multiple Regression and Correlation Model.

It has been concluded that all the factors selected have positive and significant relationship with share prices except Interest rate and B/M ratio. The rise in GDP, dividend and P/E ratio leads to rise in share prices. B/M ratio and interest rate are negatively related to share prices. The hypothesis developed for GDP rate, Dividend per share, Interest rate, B/M ratio and P/E ratio are thus accepted.

Key Words: *Determinants of share prices, Gross domestic product (GDP), Interest rate, Dividend per share, Book to market (B/M) ratio, Price earning (P/E) ratio, Karachi Stock Exchange*

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1. INTRODUCTION

Stock prices plays an important role in the development of an economy, it acts as a leading economic indicator in economic activity. Stock markets are expected to accelerate economic growth by providing a boost to domestic savings and increasing the quantity and quality of investments. Stock market is affected by many external and internal factors which affects its performance.

The main objective of the study is to:

- find out different determinants of share prices and

- the relationship of these determinants with the stock prices of KSE-100 Index.

2. LITERATURE REVIEW

Analysis of stock returns based on a multi-factor return-generating model shows that the Zimbabwe Stock Exchange assimilates changes in some important macro variables time after time. Tsuyoshi Oyama (1997) examined the general relationship between stock prices and macroeconomic variables in Zimbabwe from 1991 to 1994 and concluded that in 1991-1992 the movement of monetary aggregates caused the large fluctuation in stock prices and market interest rates while sharp increase in 1993-1994 was due to the shift of risk premium caused by partial capital account liberalization. He explained that the price earning (P/E) ratio and interest rates got marvelous changes in the share prices of Zimbabwe stock exchange. With the use of error-correction model he specified that the association between stock returns and the growth rate of money and treasury bills rates has been quite steady.

In 2009 G.R Fisher determined the relationship between British share prices and different quantitative variables. It showed the impact of dividends, undistributed profits and company size on share prices taken from five cross-sectional samples of equities quoted on the London Stock Exchange between 1949 and 1957.

An American economist Durand (1955) worked on bank share prices and pointed out that the proportional outcome of dividends on share prices is larger than the parallel proportional effect of retentions.

Johnson, Shapiro and O'Meara (1951) originated that an element of dividend has a greater effect on prices than an element of undistributed profit.

In India, S. C. Srivastava (1968) studied the share prices affected by the Dividends and the Earnings. He explained that the retained earnings have no affect on share prices. One instinctively feels that the price of the common shares of a company at a point of time will be governed by its past earnings and its future growth prospective. As dividend is a direct measurement tool of the precedent earnings of an organization, price will be determined by dividend payout.

The effect of unanticipated changes in the values of common stock, preferred stock, and bonds was shown by J. Randall Woolridge (1983). A previous study shows that positive or negative dividend change announcements make positive or negative common stock price changes. While these conclusions have been attributed to the signaling feature of dividends, they are also steady with the wealth transfer theory. Based on the declaration day returns of common and preferred stock and bondholders, it is demonstrated that the prime factor influencing security returns in response to dividend changes is market signaling. A wealth transfer effect is not necessarily vanished, but if it exists it is dominated by the signaling effect.

Different authors studied and discussed the record-breaking spree at KSE in 2007 and gave different determinants of market. In an article of daily Time different analysts give their opinion about the share prices of KSE-100 Index. Atif Malik said that the growing confidence of foreign investors is the main reason of healthy share prices. Senior analyst Ahsan Mehanti suggested that the good corporate earnings and expectations of better payout ratio is the main reason for bullish trend in market.

Nawazish Mirza in September 2008 studied book to market (B/M) ratio as key determinant of share prices. He concluded that the value and size of premium given to investor will boost up the investors to invest more in the stock as result of which the stock prices goes up. The premium is related with the Book to Market Ratio as explained in Fama and French Model for the Portfolio Return. It was also concluded that the size of the firm also play a very important role in value of stock. As market capitalization and B/M ratio is used in Fama and French to calculate the return, Nawazish said that beside these factors the environmental and economic factors can also influence the share prices.

Different researchers studied Ghana stock market in 2008. George Tweneboah and Anokye M. Adam (2008) researched stock prices in Ghana on data from 1991 to 2006. They used T-bill rates as measures of interest rates, consumer price index

as measure of inflation rate, inward foreign direct investment and exchange rate as macroeconomic factor. After applying different available models of correlation, regression and integration they concluded that the exchange rate, a macroeconomic factor, has long run relation ship between the stock prices of Ghana. While the inflation rate, FDI and interest rates are the key determinants of stock prices in Ghana.

In January 2008 Adil Najam said that many investors could make money from good news and bad news in market. Moreover, the international community stock market like USA, Europe and Japan, international politics and different issues influence the KSE more because fewer local investors invested in KSE and international investors invest more in KSE. That is the main reason that local news does not influence the KSE while international issues affect it more.

A study conducted in Olabisi Onabanjo University examined the determinants of stock prices in general. Jimoh Ezekiel Oseni (2009) named them information factors, which includes GDP, crude oil prices, foreign exchange rate, lending interest rate and inflation rate. A model defined by Al-Tamimi (2007) was used to regress the variables. The multi-correlation test revealed very strong correlation between gross domestic product and crude oil price, gross domestic product, foreign exchange rate, lending interest rate and inflation rate. All the variables had strong positive correlation with stock prices apart from the interest rate and foreign exchange rate, which had strong negative correlation with stock prices.

3. METHODOLOGY

3.1. Variables

After going through the literature review about 10 determinants were obtained. 5 of them are tested here. Details are given in the table below:

Table-1: Variables Involved in the Study

Terminology	Definition	Type	Unit	Source	Calculation
SP	Share Price	Dependent	Rupees	www.kse.com.pk	Share price at the end of each year
GDP	Gross Domestic Product Growth Rate	Independent	Percentage	www.statpak.gov.pk	[(Current GDP-Previous GDP)/Previous GDP]*100
IR	Interest rate	Independent	Percentage	www.sbp.gov.pk	Discount rates from State Bank of Pakistan
DPS	Dividend Per Share	Independent	Rupees	www.kse.com.pk	(% age of dividend/100) * Face Value
B/M Ratio	Book to Market Ratio	Independent	Percentage	www.kse.com.pk	Book value per share/Market value per share
P/E Ratio	Price to Earning Ratio	Independent	Percentage	www.kse.com.pk	Market value per share / Earnings per Share

3.2. Hypotheses

The following hypotheses have been developed in the light of literature above:

$H1_0$: B/M ratio is negatively related with share prices.

$H1_1$: B/M ratio is positively related with share prices.

$H2_0$: P/E ratio is positively related with share prices.

$H2_1$: P/E ratio is negatively related with share prices.

$H3_0$: Dividend payout ratio is positively related with share prices.

$H3_1$: Dividend payout ratio is negatively related with share prices.

$H4_0$: GDP growth rate is positively related with share prices.

$H4_1$: GDP growth rate is negatively related with share prices.

$H5_0$: Interest rate is negatively related with share prices.

$H5_1$: Interest rate is positively related with share prices.

3.3. Statistical Tools

After organizing the data, multiple regression and correlation models are used to find out the strength and direction of relation ship. Later on linear equation is

fitted which shows the relationship between the share prices and the determinants of share prices with direction and strength.

Srivastava (1968) used regression models as a tool for analysis.

3.4. Model

The model used in this research is as follows:

$$SP = \beta 0 + \beta 1 GDP - \beta 2 IR + \beta 3 DPS - \beta 4 BMR + \beta 5 PER + \eta$$

Where:

SP = Share Price

$\beta 0$ = Intercept of regression line

$\beta 1 GDP$ = Coefficient for Gross Domestic Product (GDP)

$\beta 2 IR$ = Coefficient for Interest rate (IR)

$\beta 3 DPS$ = Coefficient for Dividend per Share (DPS)

$\beta 4 BMR$ = Coefficient for Book to Market Ratio (B/M Ratio)

$\beta 5 PER$ = Coefficient for Price Earning Ratio (P/E Ratio)

η = Random Error

4. ANALYSIS

First of all data smoothening was performed because there was too much variation in data. For this purpose natural log of Dependent and Independent variables is taken.

4.1. Correlation

Table-2: Correlation Matrix

		Share prices	GDP Rate	Interest Rate	Dividend	B/M Ratio	P/E Ratio
Pearson Correlation	Share prices	1.000					
	GDP Rate	.312	1.000				
	Interest Rate	-.065	-.550	1.000			
	Dividend	.591	.162	-.066	1.000		
	B/M Ratio	-.404	-.093	.140	-.240	1.000	
	P/E Ratio	.161	.264	-.252	-.036	-.421	1.000

It is quite clear from the above table that the share prices are positively related to GDP rate, Dividend and P/E Ratio which means that these variable move together with share prices. Share price is negatively related to interest rate and B/M Ratio so when the share prices increases there will be a decrease in interest rate and B/M Ratio. GDP rate is positively related to Dividend per share and P/E ratio and negatively related to interest rate and B/M ratio. Interest rate is negatively related to Dividend per share and P/E ratio and positively related to B/M ratio. Dividend per share is negatively related to B/M ratio and P/E ratio.

4.2. Multiple Regression

Table-3: **Regression Model**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.705(a)	.497	.488	.394310

49.7% of variation in share prices is explained by variations in P/E ratio, Dividend per share, interest rate, B/M ratio and P/E ratio whereas the remaining 50.3% variation in Share prices is caused by variation in other variables.

Table-4: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.697	.503		7.351	.000
	GDP Rate	1.168	.219	.271	5.344	.000
	Interest Rate	1.024	.279	.182	3.676	.000
	Dividend	.681	.060	.496	11.387	.000
	B/M Ratio	-.396	.068	-.275	-5.788	.000
	P/E Ratio	.106	.075	.068	1.411	.159

So the fitted line is:

$$SP = 3.697 + 1.168GDP - 1.024IR + .681DPS - .396BMR + .106PER + \eta$$

4.3. Discussion

From the above table, when there is 1% change in the GDP growth rate so the share prices will increases by Rs.1.168. The hypothesis with respect to GDP is accepted which is evident from the low P-value at 99% confidence level. During the period under consideration GDP has registered extraordinary growth. Pakistan was regarded as the 3rd best growing economy of Asia after China and India according to Malik and Ahsan (2007).

1% change increase in the Interest Rate will decrease the share prices by Rs.1.024.

The hypothesis regarding IR is also accepted. The result is in conformity with what the various authors have proved. This increase in share prices due to other factors has dampened the effect of interest rate. Results from Tsuyoshi Oyama (1997) confirm a significant impact of interest rate on share prices.

The interest rate has a negative relationship with stock prices. This is also supported by Tsuyoshi Oyama (1997). The same thing happened with Pakistan when during 2001 State Bank of Pakistan adopted lose monetary policy which not only spurred the production activity in the country but also created huge demand in the economy, driven from improved purchasing power of the individuals.

The share price will increases by Rs. 0.681 when there is Re. 1 change in the Dividend per Share. Attractive amount of dividend gains the investors self-belief will result in increase number of buyers in market as compared to sellers as result of which share prices moves up. The coefficient of $\beta 4$ is -.396, which means that when there is 1 unit increase in Book to Market ratio, the share price will decreases by Rs.0.396.

The coefficient of P/E ratio is +. 106, which means that when there is 1 unit increase in price to earning ratio the share prices will increases by Rs.0.106. Tsuyoshi Oyama (1997) also concluded that P/E ratio has a significant impact on share prices.

5. CONCLUSION

This research was conducted to find out the various determinants that influence share prices and moves the KSE-100 Index in either direction. For this purpose various factors that affect the share prices were studied like Demand and Supply, News, Market Capitalization, Earning Per Share, Price/Earning Ratio, Dividend Effect, Bonus Issue, Warrants Exercise but only GDP Growth Rate, Interest Rate,

Dividend per Share, B/M ratio and P/E ratio are selected as the independent variables because they are quantitative in nature. The literature review clearly shows that factors like B/M ratio, P/E ratio, GDP growth rate, interest rate, dividend, government polices and law and order situation in the country affect the share prices.

Result clearly shows that the rise in GDP, dividend and P/E ratio will leads to rise in share prices. B/M ratio and interest rate are negatively related to share prices as it decreases the share prices moves up. So it means the hypothesis developed for GDP rate, Dividend per share, Interest rate, B/M ratio and P/E ratio are accepted.

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