

# Determining the Impact of Dividends, Earnings, Invested Capital and Retained Earnings on Stock Prices in Pakistan: An Empirical Study

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## Abstract

Investment in capital market is always subject to high volatility and consequently evaded by risk averse investors. An analysis of the key factors behind variation in stock prices can motivate investors to inject their money into the capital market and invest in shares of listed companies. Ample researches have been conducted to explore the determinants of stock prices comprising company's specific as well as macroeconomic factors. However, this study is focused on excavating the relationship between selected companies' specific factors and stock prices of companies listed on Karachi Stock Exchange of Pakistan. These include dividend per share, earning per share, capital employed and retained earnings. Estimated Generalized Least Square (EGLS) has been used for analysis of data based on a sample of 99 listed companies for a period of six years from 2006 to 2011. Findings indicate that dividend per share and earning per share possess positive and significant relationship with market prices, meaning by an increase in these variables tends to increase stock prices. These findings are consistent with those of the previous researches. However, capital employed and retained earnings are found to have statistically insignificant relationship with stock prices. It may be due to collection of data from different sectors and limited number of data observations for the study. This study captures descriptive analysis as well as panel regression for better and in-depth analysis of selected fundamental variables on stock prices and led us to the conclusion that companies should focus on earnings per share and dividend per share to get desired financing and for well-being of economy.

**Keywords:** Estimated Generalized Least Square (EGLS), Company's Specific Factors, Stock Prices, Capital Market.

## Introduction

There has been always a variety of investment vehicles available for investment such as bonds, treasury bills, term deposits, equity shares, mutual funds, etc. It is the investors' priorities about risk and rewards tradeoff that guides them towards the selection of a suitable tool(s) of investment. Such as people in search of guaranteed returns opt for investment in treasury bills. Similarly, people with low risk tolerance usually prefer to invest in mutual funds.

Investment in equity shares of companies is usually done by investors who have the aspiration of getting higher or abnormal returns. The desire of getting abnormal returns leads them towards high risk as well. Capital market is highly volatile market. Frequent fluctuations in share prices of companies make it difficult for the risk averse investors to invest their savings in capital market. It is therefore pertinent to know the factors responsible behind volatility of stock prices and consequently stock returns. This is primarily because only sufficient awareness of these factors can protect investors from making irrational investment decisions and thus can safeguard their interests.

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The subject of significant importance for the scholars and researchers is the determination of factors that affect the volatility of stock prices. Factors that affect the volatility of stock prices are classified as fundamental, international, and macroeconomic factors. Fundamental factors comprise company specific factors such as earnings, dividends, leverage, liquidity, etc. International factors include foreign remittances, changes in foreign currency, oil prices, etc. Macroeconomic factors include gross domestic product, inflation, interest rate, exchange rate, etc.

Hub of this study is to determine the impact of company specific factors on share prices i.e. whether share prices of companies in the market are affected by the information revealed by companies in their annual reports and if these are, then up to what extent this information is contributing towards the volatility of stock prices.

Among the enormous company specific factors, study is focusing on determining the effect of earnings, dividends, invested capital and retained earnings on market prices of companies' shares being traded on secondary market i.e. stock exchange. The selection of these factors is primarily on the basis of the investors' attention and focus specifically on these factors while opting for investment decision in stock.

Earnings reflect companies' actual profitability. These are mostly referred to as company's revenues net of expenses. These affects share price movements as pointed out by Bhole(1980), Sen and Ray (2003), Zahir (1992) and Bapat and Raithatha (2009). Companies with increasing trend of earnings are an apple in eye of investors as they perceive these companies having sound financial position and thus suitable for investment.

Dividends refer to the money distributed to the equity investors/shareholders out of either the profits earned or retained earnings. This is the most crucial factor of interest to the investors and is the major determinant of volatility in share prices as per Zahir and Khanna (1982), Chawla and Srinivasan (1987), Zahir (1992), Sen and Ray (2003) and Azhagaiah and Priya(2008). Every rational investor pools money in equity investment mainly for two reasons. First one is for capital appreciation through increase in the value of shares being traded and the second one is for receiving dividends on these shares. Dividend payments give signals to both the existing investors as well to the intended investors about the company's financial position

and consequently affect the investment decisions.

Invested capital refers to the investment carried out by the company to finance its assets. Company's assets are financed through two main sources i.e. internal and external sources. Equity is the internal source of funds. It is the combination of share capital, unappropriated profits/reserves, and surplus on revaluation of assets. External sources include funds taken in the form of loans from financial institutions (banks, DFIs, etc.), debentures, term finance certificates, etc. Excessive external leverage affects the companies' profitability adversely. It gives negative signal to the investors as pointed out by Uwuigbe *et al.*(2012). This is mainly because investors perceive that company accompanied with financial obligations it owes. It consequently affects the dividends payments to shareholders.

Retained earnings refer to the part of company's profit left after netting the expenses and payment of dividends to the shareholders. It is also known as unappropriated profit. As per Kumar and Hundal(1986), stock prices are positively related with retained earnings. Meanings by investors' perceive companies with reasonable retained earnings as potentially sound.

Panel data of companies listed on Karachi Stock Exchange (the largest stock exchange of Pakistan) have been used for the purpose of study. To generalize the results of the study, the companies selected are not restricted to a single sector rather ninety nine companies from different sectors have been selected.

## Theoretical Background

The relationship between stock prices and company's specific factors has always been very divisive. Massive studies have been conducted in this regard. However, this study is focusing on exploring the collision of four major company specific areas on stock prices i.e. dividends, earnings, invested capital and retained earnings on stock prices.

Nisa and Nishat (2012)conducted a study for explore the relationship among stock prices, macroeconomic and fundamental factors. Stock prices of 221 companies were taken as dependent variable. Explanatory variables included company specific factors and macroeconomic factors. Company specific factors under consideration were liquidity ratio, capital structure, market to book

value, dividend payout ratio, previous year's, earning per share, size of firm, and share turnover ratio. Whereas GDP growth, inflation rate, interest rate, money supply, size of stock market, and financial depth were considered as oscillators for macroeconomic variables. Generalized Method of Moments (GMM) was applied on data of selected 221 companies for the period from 1995-2006. Findings of the study indicate that macroeconomic variables selected under study have significant impact on share prices of companies and so resulting in volatility. However, fundamental factors showed mixed affect. Dividend payout ratio, size of stock market and liquidity ratio have no influence on share price of companies traded on exchanges.

The relationship between volume of securities and earnings announcements was studied by Bamber (1986). Daily data of 397 companies listed on NYSE, AMEX and OTC were selected for the period from 1977 to 1979 as sample. Total observations were 1200. Findings of the study indicated that there exists a stock relationship between earnings announcements and stock prices. Meaning by companies who report higher earnings in their annual reports provide positive signal to the investors. This ultimately increase share prices of companies.

The relationship between stock price and dividends was found to be significant as per the study was conducted by Nirmala, Sanju and Ramachandran (2011). It was based on determining the impact of dividends, earnings, leverage and price earning ratio on stock prices using panel data for a period of 2000-2009. Dividend per share, return on assets, debt to equity ratio were used as surrogate for dividends, earnings and leverage respectively. Three sectors, healthcare, auto and public sector, were considered for analysis. Fully Modified Ordinary Least Square (FMOLS) was used for analysis of selected 37 companies.

Findings of this study indicated that investors perceive companies with consistent dividend payments to shareholders as having sound financial health. This increases market prices of the shares traded on exchanges irrespective of the sectors under study. However, there were variations being the impact of return on assets on stock prices for the sectors under study. For auto sector, it was found to have a significant impact on share prices but there was no significant impact of return on assets on stock prices of healthcare and public sector companies.

Leverage and price earnings ratio were also found to have significant role in explaining the determinants of share prices.

Outcomes of the study conducted by Nirmala *et al.* (2011) were in consistent with the results of the study conducted by Uwuigbet al. (2012). It was aimed in exploring the factors behind movement of share prices of listed companies and so share prices were taken as explained or dependent variable. Explanatory variables comprised dividends payout, financial leverage and performance. A sample of 30 listed companies was screened using Judgemental Sampling. Regression analysis was applied using Ordinary Least Square (OLS) for a period of 2006-2010. Dividend payout, debt to equity and return on assets ratio were taken as proxy for dividends payments, leverage and financial performance respectively.

Results suggested that there exists a significant positive relationship between stock prices and dividends payouts. The same positive relationship exists between stock prices and financial performance. However, leverage affects the stock prices significantly but in a negative direction meaning by increased leverage is considered as a signal of financial burden by investors and so affects the market prices adversely.

Bajaj and Vijh (1995) examined the impact of dividend announcement on the volatility of share prices of companies on NYSE. Analysis was carried out on daily data by taking the companies closing prices for the period from 1962 to 1987. They found that dividend announcements have a significant but negative impact on share prices of companies.

Khan (2009) studied the impact of dividends and retained earnings on share prices of companies listed on Dhaka Stock Exchange of Bangladesh. The study was based data of 96 listed companies for a period of seven years from 2000 to 2006. The outcomes of the study indicated that dividends tend to influence market prices more strongly as compared to retained earnings. However, results cannot be generalized as there have been variations for different sectors.

Another study was conducted by Kumar and Hundal (1986) to investigate the determinants of share prices. It was aimed to examine the role of dividend per share, net sales per share, retention ratio, earning per share, growth in assets, and net worth on share prices of companies.

Linear regression model was applied for analysis. Findings indicated that stock prices possess a positive and significant relationship with earnings per share, dividend per share, retention ratio, and growth in assets. However, the dividends per share and earning per share tend to have a stronger influence on stock prices as compared to other variables under study. Also leverage was found to affect stock prices in adverse direction.

However, stock dividends were found to have negative insignificant relationship with stock prices in a study conducted by Khan (2011) to excogitate the effects of dividends on stock prices specifically on chemical and pharmaceutical industry of Pakistan. A sample comprising 25 listed companies was selected. Analysis was based on panel data of selected companies from a period from 2001-2010. Findings showed that share prices are volatile to changes in retention ratio, earning per share, cash dividends, and return on equity whereas stock dividends affect the stock prices in opposite direction.

Earnings	Earnings per share	Earnings/Number of shares Outstanding
Invested Capital	Capital Employed	Equity + Non-Current Liabilities
Retained Earnings	Retention in business	Net profit after tax – Amount of Dividends

### Objectives

Focus of the study is to explore the causal relationship between stock prices and selected companies’ specific factors through regression analysis. It is intended:

- To ascertain the dependency of stock prices on selected companies’ specific factors /variables
- To determine the positive/negative relationships between selected companies’ specific factors / variables and stock prices
- To trace the strength of relationship of selected companies’ specific factors with stock prices of selected companies

### Methodology

Estimated Generalized Least Square technique of regression analysis has been used owing to serial and

auto correlation problem in data for consistent result of analysis. Period seemingly unrelated regression (SUR) of EGLS is used majorly on panel data analysis in order to resolve the issues of hetroscaasticity and autocorrelation among residuals. The impact of company’s specific factors on stock prices of selected companies is studied by keeping all other company’s specific factors as constant.

### Data Collection Sources

The study is based on secondary data. Sample comprised of 99 companies listed on Karachi Stock Exchange. The selection of companies is based primarily on the availability of explanatory variables data under study such as all dividends paying companies. Panel data of selected companies for the period 2006-2011 have been used. It comprises 575 observations. Annual reports of the selected companies have been consulted for the purpose of getting companies’ specific factors data. These annual reports are available on companies’ websites as well as on the website of Karachi Stock Exchange. Further, data for capital employed and retention in business have been gathered from a Financial Statement Analysis report published by State Bank of Pakistan, Statistics & DWH Department.

### Operationalization of Variables

To analyze the impact of selected company’s specific factors on market prices, explanatory variables have been operationalized as follows:

Variable	Operationalization/ Proxy	Calculation
Dividends	Dividend per share	Dividends/Number of shares Outstanding

### Model Specification

The finalized model is as follows:

$$MVPS_{it} = \alpha_i + EPS_{it} \gamma_i + DPS_{it} \gamma_i + RIB_{it} \gamma_i + TCE_{it} \gamma_i + \epsilon_{it}$$

where MVPS = Market (value) price per share,  
 DPS= Dividend per share (expected to have positive impact on market price),  
 EPS= Earnings per share (expected to have positive impact on market price),

Dependent Variable: MVPS				
Linear estimation after one-step weighting matrix				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EPS	1.141749	0.279168	4.089828	0.0000
DPS	8.752364	0.483251	18.11141	0.0000
RIB	2.02E-06	3.01E-06	0.670568	0.5028
TCE	-1.30E-07	6.28E-07	-0.206847	0.8362
C	54.45368	10.56300	5.155133	0.0000
Prob(F-statistic)	0.000000			

RIB = Retention in business (expected to have positive impact on market price),

TCE = Total Capital employed (expected to have negative impact on market price),

$\varepsilon$  = Stochastic variable or error term

## Hypothesis of the Study

Study is based on the following hypothesis:

**Null hypothesis ( $H_0$ ):** Dividend per share, earning per share, retention in business and capital employed have no impact on market prices of companies.

## Data Processing Tool

EViews statistical software has been used to process and examine the nature of relationship between dependent and explanatory variables. Model has been tested using F-test at 5% level of significance.

## Empirical Results

As shown in Table 1, results of the analysis obtained through EViews indicate that model is significant as its F-value (0.0000) is less than the level of significance (0.05). Meaning by stock prices are affected by companies' specific factors. Therefore, we reject the null hypothesis and conclude that dividend per share, earning per share, retention in business and capital employed have significant impact on market prices of companies.

Dividend per share has a positive and significant impact on share prices. Analysis indicates that with one rupee change in dividend per share, market price per share on average increases to 8.75 rupees provided other variables remain constant.

Earnings per share also possess positive and significant impact on share prices of companies. As per the analysis with one rupee change in earning per share, market price per share on average increases to 1.14 rupees keeping other factors/variables constant.

However, retention in business and capital employed are found to have statistically insignificant impact on share prices of companies. This is because the p-value of retention in business and capital is greater than the level of significance (0.05) i.e. 0.5028 and 0.8362 respectively. Meaning by volatility in share prices is not affected by these two variables. Also capital employed holds a negative relationship with share prices.

Model possesses reasonable explanatory power as it is 62.2%. It means 62.2% variation in stock prices is explained by the selected companies' specific factors and the rest is unexplained i.e. due to other factors.

R-squared	0.622923	Mean dependent var	0.602130
Adjusted R-squared	0.620276	S.D. dependent var	1.547390
S.E. of regression	0.924687	Sum squared resid	487.3760
F-statistic	235.4065	Durbin-Watson stat	1.797284

The value of Durbin Watson derived as per the analysis is 1.8. It depicts that there is no auto correlation between residuals and explanatory variables. Initially, there was problem of auto correlation and heteroscedasticity. However, the use of EGLS (Period SUR) technique has resolved these issues. Residuals have zero mean value and there is homoskedasticity among residuals.

## Testing of Unit Root and Normality testing

One of the basic assumptions of regression analysis is to assure that data used is stationary. We have used “Levin, Lin and Chut Method” to ascertain stationary problem in data. Results show that DPS, MVPS, EPS and RIB have also no stationary issue as the P-value is less than 0.05 so we conclude that coefficients are not biased (see Table 1 for details). Moreover, model follows approximate normal distribution as it evident from the graph (see Table 2 for details).

## Correlation Analysis of Model

The correlation between dependent variable and independent variables as per Pearson Correlation Method has been shown in Table 3. The correlation coefficient between EPS and MVS share shows positive correlation coefficient of 0.73 at P-value of less than 1%. It depicts that with increase in EPS will cause MVPS share to increase. Correlation coefficient between DPS and MVPS is 0.85 at P-value of less than 1%. It means that both variables have positive correlation and the values of DPS and MVPS have association around 85%.

Coefficient between RIB and TCE also possesses a positive association of 0.82 at high degree of significance. This relationship is also empirically proved as valid this is because whenever a company increase the retention its business it will ultimately increase total capital employed in business (firm size).

## Descriptive Analysis

A brief descriptive analysis of data reveals that average EPS was Rs. 22 during our time study analysis. The highest and lowest values for EPS were Rs. 308 and Rs. -0.39 respectively along with standard deviation of 37. Average MVPS was Rs. 197 whereas the share prices reached the top at Rs. 4360 during our analysis. Minimum share prices were Rs. 4 only with standard deviation of 381. DPS reached at its extreme at Rs. 307. However, its minimum value was Rs. 0 indicating no dividends payments. Also on average it was Rs. 10.9 with variation/standard deviation of 25.

## Conclusion

The motive of the study is to explore the relationship between selected companies’ specific factors and stock prices. As per the analysis, dividend per share and earning per share are found to have a positive and significant effect on share prices of companies. It means investors have associated signaling affect with these two variables. An increase in dividend per share and earning per share gives positive signal to the investors about financial performance of the company as well about its future sustainability.

On the other hand, capital employed and retained earnings are found to have insignificant relationship with stock prices. It indicates that stock prices are not affected to changes in these two variables. This may be due to data collection from different sectors or limited number of data observations under study. There is a room for further study by the researchers to explore the reasons that have resulted in insignificant relationship of capital employed and retained earnings primarily because this is inconsistent with the previous researches.

## Recommendations

To sustain in this era of competition, companies should put extra ordinary efforts to increase their profitability. It will enable them to pay dividends to the shareholders and consequently will provide a positive signal to the investors about the financial position of the companies. Further, new investors will also opt for investment in these companies. It will ultimately increase the economic activity in the country.

Moreover, companies should design an optimal capital structure to finance the assets. On one hand, using excessive leverage provide tax shield to the companies but on the other hand, it further traps the companies in to financial distress position by way of debt cost. Therefore, a balance should be maintained between debt and equity for financing assets.

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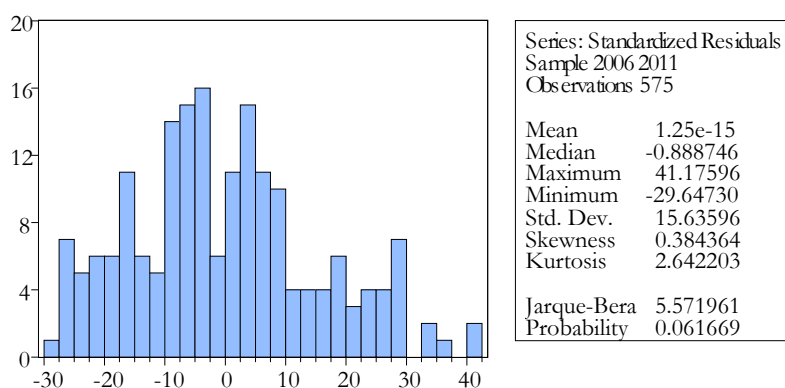
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Table 1

Null Hypothesis: Unit root (common unit root process)				
Method			Statistic	Prob.**
Levin, Lin & Chu t*			-8.80835	0.0000

**Table 2**



**Table 3**

Correlation Analysis (pearson): Ordinary					
Date: 05/23/13 Time: 12:59					
Sample: 2006 2011					
Included observations: 575					
Balanced sample (listwise missing value deletion)					
Correlation					
t-Statistic					
Probability	MVPS	EPS	DPS	RIB	TCI
MVPS	1.000000				
	-----				
	-----				
EPS	0.730525	1.000000			
	25.60732	-----			
	0.0000	-----			
DPS	0.850073	0.779383	1.000000		
	38.63658	29.77650	-----		
	0.0000	0.0000	-----		
RIB	0.004154	0.074371	-0.020194	1.000000	
	0.099446	1.785184	-0.483500	-----	
	0.9208	0.0748	0.6289	-----	
TCE	-0.007549	0.004412	-0.019970	0.825481	1.000000
	-0.180709	0.105618	-0.478118	35.00855	-----
	0.8567	0.9159	0.6327	0.0000	-----