



Relationship Between Price/Earning, Dividend Yield, Size and Stock Returns of Listed Pakistani Firms

Hamid Mahmood, Abdul Waheed

Department of Business and Economics, Foundation University Rawalpindi Campus

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ABSTRACT

The economic behavior of listed stock companies in Pakistan has rarely been explored for appropriate strategies and policy option. This study has analyzed the impact of dividend yields ratio, price earnings ratio and total assets on the firm stock prices. In this study, we have used sample of 111 non-financial Pakistani firms listed on Karachi Stock Exchange from period 1998 to 2009. Panel data methodology has been used for analyzing the impact of above mentioned variables on firm stock prices using fixed effect model. The results support our hypothesis that price earnings ratio and size of firm has significant positive impact on stock price. Dividend yield has significant negative impact on stock price. The findings of this study suggest that investors can apply investment criteria that utilize price earnings and size of firms' anomalies to earn abnormal returns.

KEYWORDS: Price Earning Ratio, Dividend Yields Ratio, Fixed Effect Model.

INTRODUCTION

Stock market is the most important part of any economy. The judgment of countries economic condition is measured through the performance of its stock market (Bashir et al., 2011). At the end of 2009, 651 companies were listed on Karachi Stock Exchange (KSE). The paid up capital was Rs. 894.2 billion and percentage of GDP it was 6 percent. At the end 2009, aggregate market capitalization was Rs. 2,890 billion. Market capitalization to GDP is less than 20 percent, which is very low. Corporate profitability has decreased since 2006(GOP, 2009). After tax profit for the listed firms have decline 77 percent among 2006 to 2009. As compare to 2008, after tax profit decrease 67 percent in 2009, manifesting the impact of a difficult operating environment (GOP, 2009). A bad law and order situation in the country, the crisis of balance of payments and rupee depreciation of more than 20 percent, and the energy crisis have all combined to decline profits (GOP, 2009). The stander KSE100 share increase 33 percent, in line with having greater recovery in equity markets. At the end of 2009, dividend ratio to equity is same, which is 11 percent. Corporate sector dividend payout has been growing by 8.60 percent as compared to 8.83 percent in 2008. Earnings per share after tax which was Rs. 2.60 per share in 2008 has increased to Rs. 2.90 per share in 2009 (BSA, 2009). These financial ratios show the strength of a company. This strength attracts the investors if it has high earning and high total assets. They can invest in those stocks which have high growth and earn the abnormal returns.

For last few decades financial analysts trying to explore suitable models to value shares. Valuation of stock can be determined by many ways, two most important models among analysts are the Dividend Discount Model and the Earnings Multiplier model. Some literatures in finance suggest that the Dividend Discount Model is very important approach employed by the fundamentalists. The DDM assumes that the best estimate of the current value of a company's common stock is the PV of the estimated dividend by future dividends paid by company to its shareholders. Some scholars, analysts, and investors suggest that this DDM approach has limited usefulness. According to MM (1961) argued that, DDM have some strict assumptions, under this strict assumptions, dividend is insignificant to the firm's value. Therefore, no one can forecast dividends with great accuracy. Technically, we can call this model an estimate of all future dividends from now to infinity, which is an impossible. Finally, many investors prefer capital gain and as compare to dividends, some investors, focusing solely on dividend is less desirable.

Hence in the light of above restrictions and objections, the earnings multiplier or price earning model remains an important method to valuation. It is not as much sophisticated as DDM, less formal, more intuitive model and easy to use. In fact price earnings model help investors to understand DDM. Basu (1977) suggest that dividend is carried out of earning, investors must estimate the growth in earnings before going to estimate the growth in dividends.

Karachi Stock Exchange (KSE) is the only emerging market in Pakistan in which it has great volatility after liberalization (Harvey and Bekaert, 1997). KSE is small in size but it has huge trading volume. This huge trading is

*Corresponding Author: Hamid Mahmood, Department of Business & Economics, Foundation University Islamabad, Pakistan.
Phone # 00923445519097 Email: hamid.furc@gmail.com

due to two reasons; one is that the macroeconomic development and high political instability. The other reason is the high involvement of short run investors.

Price earnings ratio shows the relationship between stock price and Earning Per Share (EPS). Investors mostly check their earnings ratio for future investment (Bhayo et al., 2011). They also suggest that the companies having high growth, resultantly their earnings are also high and those companies which have low growth rate, in response to that, their earnings are also low. Firms having same size, same their earnings, and relating to same industry may have different in their price earnings ratios. Pratt (2001) suggests that these differences may happen between them because of investor's expectations about future earnings.

Dividend policy always remains the controversial issue for the researchers and investors. A big question regarding dividend is whether dividend paid by a firm has any impact on the stock market or not? Another question relevant to dividends is whether it affects the stock prices in the long run? This issue needs to be resolved. Basically dividend is the profit of shareholders; it present as distribution of business profit to its owners. Dividends are important for both investors and managers (Khan et al., 2011). Dividend is the source of income as well as the measurement of company performance for the investor. Dividend yields show how much a company pays its dividend each year to its shareholders. Dividend is usually paid in cash, paid in stocks and in the form of other assets. Dividend payout is different in different countries. According to Lilley (2000), only in New Zealand 95 percent of the companies declare their dividend each year, and only 20 percent companies in US declare their dividend each year (Chen and Dhiensiri, (2009)). In year 2005 and 2007, only 45 percent companies paid dividend in the form of cash and stock dividend and in the form of bonus shares in Jakarta Stock Exchange (JSX Statistics 2007).

According to previous literatures there is still a contradiction between these relationships and also on impact of these variables in explaining the variation in stock prices. The literature mostly explains the impact of stock market prices with dividend yield and stock market price with price earnings ratio for Pakistani listed firms.

Objective of the Study

The main objectives of this study are stated as follows.

- To analyze the impact of dividend yields ratio, price earnings ratio and size of a firm on its stock prices using panel data methodology.
- To analyze the relationship between dividend yields ratio, price earnings ratio, size of a firms and stock prices using correlation coefficients.
- To help the investors and portfolio managers in their decision making.

Hypothesis of the Study

Keeping in view the objectives of the study, following research hypotheses are tested in this study.

H 1: It is expected that price earning ratio of a firm has significant positive impact on the stock prices.

H 2: It is expected that the size of a firm has significant positive impact on the stock prices of that firm.

H 3: It is expected that the dividend yield has significant positive impact on the stock prices of the firm

REVIEW OF LITERATURE

From the past several years finance scholars have engaged themselves to explore the importance in determining the impact and relationship of P/E ratio and dividend yields ratio with stock performance. Many researchers have given different opinions regarding this impact. Researchers have also been engaged to find out the elements that affect the financial ratios. Having a lot of studies, there is still a gap to identify the impact of financial ratio on firm's stock prices. This topic is still open for discussion and investigation. Many scholars addressed the market behavior some of them discussed on stock price volatility with financial ratios. We have identified some area of study which is discussed one by one.

Dividend Yields and Stock Returns

Previous studies on dividend yields provided strong evidence for the presence of relationship between dividend yields and stock market prices, but this relation is still controversial and open for scholars' discussion so as to explore its new dimensions.

The impact of dividend policy on stock prices was traced by Kanwal et al., (2011). In this study EPS, Profit after taxes and ROE were used as control variable. Sample was based on 55 firms listed on KSE during period 2001 to 2010. They used Fixed Effect and Random Effect Model in there methodology. Result of their study indicated that EPS had significant impact on Stock Prices in Fixed and Random Effect Model. Moreover, they indicated that

DY was positively related to stock prices and Retention Ratio was negatively related to Stock Prices. They further explained that investors wanted dividends as it provided the clue about the future prospects of the company.

One more paper investigated that how corporate dividend policy affected the stock prices in Pakistan. For the relationship between the variables, Naziret al., (2010) used control variable with the sample of 73 firms listed on Karachi stock exchange from the period 2003 to 2008. By using regression model they suggested that DY and payout ratio were significant impact on market price. Furthermore, they included that the size and leverage are negative association and have insignificant impact on stock prices.

The impact of dividend policy on market prices with reference to Pakistan was analyzed by Nishat and Irfan (2003). They took a sample of 160 KSE listed firms, from time span 1981 to 2000. They used the cross sectional regression method to analyze the co-movement between the stock price and dividends, by controlling some variables like total assets, assets growth, leverage and earning volatility. The study revealed that dividend affects the stock price. They also found that dividend yields were increased during the period 1991 to 2000. Size and leverage had significant impact on stock price volatility.

Raymond (2002) tried to explore that the dividend yields and stock returns had ability to predict PE ratio of real estate stock. The researcher used four major real estate stocks of Hong Kong. The research period of this study was from 1991 to 2000 and used only positive P/E ratio. They used the multiple regression method. The result suggested that positive P/E ratio affect the stock market through high growth and slow growth in dividends and also indicated that variation in dividend yields had tendency to increase the variation of earnings prices.

Price Earnings Ratio and Stock Returns

There are relatively few empirical investigations that analyze the impact of price earnings ratio on stock prices.

Many researchers suggested that PE indicates the future market return. So it can easily be judged that someone can predict future stock returns through PE ratio. Similarly Tez et al., (2011) used PE ratio as indicator of future market. The objective of the study was to check that either price earnings ratio had ability to forecast future returns. They used Kuala Lumpur Composite Index (KLCI) with time spans of 16 years from 1994 to 2010. They used simple linear regression model. They found that price earning had potential to forecast the future stock returns. They also found that price earnings ratio did not confirm the concept that high PE Ratio could fall the stock market return. A linear positive slope was existed among the returns and PE ratio.

Zare et al., (2011) found the factors which affects earnings per share. They used the samples of 110 listed firms of Tehran Stock Exchange from the period 2004 to 2010. With the help of multiple regression methodology, they suggested that earning per share and equity returns had stronger relationship with future earning changes. Furthermore, they stated that higher MBV and higher dividend factor made the relationship with future earnings stronger. This study concluded that EPS took decisions for investors and portfolio managers to predict future earnings more in Iran's capital market.

Dividend Yields, Price Earnings Ratio and Stock Returns

To investigated causality among price earnings ratio and cost of equity capital. A study was conducted by Rehman et al., (2010). The samples of 50 firms were selected listed on KSE from 2001 to 2006. The methodology they have adopted was Fixed Effect model and Hausman test. The result revealed that there was negative relation between price earnings ratio and equity. The control variable MR influenced a positive relation with equity. They used limitation that time duration of study was based on only 6 years which could be enhanced along with lagged effect can also be checked and ROE and Growth would be linked to the cost of equity.

Khan and Irfan (2009) explored the effects of financial ratios on stock returns by using 30 core firms in the textile sector of KSE from 2001 to 2006. These core companies were selected on the basis of their firm size. Analysis of variance was applied along with multiple regression and correlation methods which were used to check the association among dependent and independents variables. The results revealed that stock return is independent of price earnings ratio and book to market ratio. Very low R^2 in each case means that there was very low percentage of change in stock return by independent variables.

The impact of firm size on stock price during the earnings announcement was examined by Fan-fah et al., (2008). The time period they used from 1988 to 1997 from Kuala Lumpur Stock exchange (KLSE). They used multiple regressions model. Analysis of the result indicated the negative correlation between the firm's size and its earning which also supported the argument that the abnormal returns are simply explained by the earnings announcements. They also explained that the large firm's share price has at least 8 percent less valuation as compared with smaller firms, although the difference was insignificant.

To achieve a better understanding of the P/E ratio by examining the relationship between stock performance and P/E ratios, a study was conducted by Huang et al., (2007). They used firms that were listed in NYSE between the time periods from 1982 to 2002. Simple regression methodology was adopted through which results indicated that long run growth rate, dividend ratio, and size of firms were all positively relationship with price earnings ratios. These results also showed stronger return reversals for the bottom P/E portfolio than for the top P/E portfolio.

Long run relationship among stock returns, price earnings ratio and bond yields was found by the research work carried out by Durre and Giot (2005) with the help of co-integration methodology. The core objective of the study was to explore the association among stock prices, government bond and price earnings. The time period they used was 30 years from 1973 to 2003. The results showed that there was long term relation among PE, stock prices and govt. bonds.

Estrada (2004) explained the behavior of price earnings ratio. He also tried to explore that price earnings ratio by growth was used for valuation or not? Most of researchers accepted this method for valuation or adjustment. He tried to fill this gap and proposed a new valuation tool to cover the both method of valuation through risk and growth. Researcher concluded that PERG should be helpful to adjust the PE. It was also performed for the adjustment of risk in both PE and PEG.

To elaborate the relationship between dividends, price earnings and changes in the future earnings was conducted by Amiri et al., (2011). They took samples of 100 firms listed on Tehran stock exchange during the time spans from 2005 to 2010. They used simple correlation and regression methods to test the relationship. The results described that all independent variables have positive linear relationship with future earnings changes. There were positive correlations among dividends, EPS and future returns with high M/B ratio and low cash flow.

Long run relationship between stock prices, P/E, dividend yields and size of firms was presented by (Mwalla et al., 2010). The study also explored causality between the variables under study. They took the sample of 24 Jordanian companies which were listed in Amman Stock Exchange. Data set of 26 years, from 1980 to 2006 was used and the methodology which they adopted was vector error correction model. The results revealed that the Jordan Stock Market (JSM) faced informational lack of efficiencies and business managers and investors started their investment by utilizing price earning and size anomalies to earn abnormal returns.

In examining the significant relationship between dividend yields ratio, price earning ratio, size of firms with stock prices. None of them gives the clear idea about their relationship. Some of them described the PE as a predictor of future return and while other suggested the PE ratio have negative impact on stock returns. All the given literature was mostly about the stock price volatility with their desire variables. Few of them have checked long run impact with stock returns. After reviewing the existing literature we have identified the gaps specifically with reference to Pakistani stock markets. In this study our objective is to address these issues related to the listed Pakistani firms.

MATERIALS AND METHODS

Panel data methodology using fixed effect model has been used in the study to examine this impact. In this section sample, dataset, the time span of the study, measurement of variables and model specification has been discussed in detail.

Sample and Data

The sample of the study is based on non-financial firms listed at Karachi Stock Exchange. Non-financial firms have been chosen because these firms have high speed of adjustment and low payout ratio. On the other side financial firm including banking sectors or financial services sectors have low speed of adjustment. Furthermore, non-financial firms from manufacturing sectors have low volatility as compared to financial sector firms. Data is collected for samples of 111 non-financial firms listed at Karachi Stock Exchange. The dataset covers a period of twelve years from the period 1998 to 2009. Only those firms were selected which continuously paid dividend and performed operations during said time period. The data was collected from Securities Exchange Commission of Pakistan, Karachi Stock Exchange, Business recorder website and BSA published by SBP.

Model Specification

Panel data methodology has been used to analyze the impact of price earning ratio, dividend yield and size of the firm on stock prices. Panel data analysis is considered as an appropriate estimation for heterogeneous data. It controls heterogeneity which usually arises due to number of factors. Whereas, it has been usually neglected by cross sectional or time series analysis which then lead to biased estimation.

Using Hausman test result the decision was made to use the fixed effect model in this study hence the results presented in next chapter are based on the fixed effect model.

The Empirical Model

Following is the empirical model that has been derived from the hypotheses section

$$\text{Ln MPS}_{it} = \beta_0 + \beta_1 (\text{PE}_{it}) + \beta_2 (\text{SZ}_{it}) + \beta_3 (\text{DY}_{it}) + \eta_i + \lambda_t + \varepsilon_{it} \text{ ---(4)}$$

Where, LnMPS is natural log of market price of firm. PE ratio is Price Earning Ratio of firm, SZ is the Size of firm and DY is the dividend yield ratio of the firm. η_i measures the specific characteristics of each firm called unobservable heterogeneity, whereas λ_t is a parameter for time dummy variables which is equal for all firms in each year but changes over time and ε is the error term.

This equation is modeled to analyze the impact of firm’s ratio over stock market prices. For this sake, dividend yields ratio (DY), price earnings ratio (PE) and total assets that measure the size of firms (SZ) are taken as independent variables whereas stock market prices (LnMPS) is dependent variable.

RESULTS AND DISCUSSION

Several findings and implication are derived from the models.

Descriptive Analysis

Descriptive statistics for all of the variables are mentioned hereunder in Table 1. These statistics includes values of mean, median, maximum, minimum and stander deviation. The average market price of shares (Ln of Market price) at KSE for sample firms during twelve years study period (1998 to 2009) is 3.8percent and standard deviation is 1.2percent. The highest market price (Ln of Market price) achieved during sample period is 7.86 percent and minimum price in the same period is -0.22 percent. The average dividend yields ratio is 0.129 with a considerable volatility of 0.323. The averages price earning ratio is 8.829 with a variability of 23.1 and similarly average total assets value (Ln of total assets) is 7.57 with the variability 1.568.

Table: 1 Descriptive Statistics

	MPS	DY	PE	SZ
Mean	3.8827	0.12906	8.82965	7.58038
Median	3.81054	0.06166	5.98214	7.47884
Max.	7.86327	5.87172	387.6	12.1405
Min.	-0.2231	0	-216.4	0.87547
Std. Dev.	1.21228	0.32322	23.1049	1.56895

Significant at 5 percent

Correlation Analysis

The table 2 shows the Pearson’s correlation coefficients among stock market prices, PE ratio, dividend yield and size of the firm.

Table: 2 Pearson Correlation Coefficients

		MPS	PE	DY	SZ
MPS	Pearson Correlation	1			
	Sig. (2-tailed)				
PE	Pearson Correlation	.163**	1		
	Sig. (2-tailed)	.000			
DY	Pearson Correlation	-.357**	-.071**	1	
	Sig. (2-tailed)	.000	.010		
SZ	Pearson Correlation	.328**	-.003	-.055*	1
	Sig. (2-tailed)	.000	.920	.047	
** Correlation is significant at the 0.01 level (2-tailed).					
* Correlation is significant at the 0.05 level (2-tailed).					

Price earning has significant positive correlation with stock prices which means that increase in PE ratio results in increase in stock prices. However, Dividend yields ratio is negatively correlated with stock prices which mean that increase in dividend yield results in decreasing stock prices and vice versa. Size of a firm has significant positive correlation with the stock prices which means increase in the size of the firm also increase the market price of share. SZ variable has negative associated with DY significant at 5% level. It means that larger firms which have high growth will have more investment opportunities as compared to smaller firm so they pay fewer dividends to the

stockholders. Due to high growth of firms they made heavy investments, new investors make more investments in the company which leads to more stock price volatility.

Regression Analysis

This section provides the regression results by using panel data estimation for the hypotheses developed in previous section. By applying fixed effect model following are the results that are obtained. In table 3 we estimate the regression results using fixed effect setting in which all variables are significantly affecting the dependent variable. Accordingly there is significant impact of dividend yield, price earnings ratio, and size of firm on stock prices. The results are also estimated through common coefficient setting and found to be quite similar with the fixed effect estimation. The results of Hausman test and common coefficient are on Appendix.

Table: 3 Regression Results using Fixed Effect Model

Variables	Coefficient	Std. Error	t- Statistics	Prob
TC	-1.956	0.2138	-9.148	0.0000
PE	0.0036	0.0008	4.7384	0.0000
SZ	0.7759	0.0279	27.805	0.0000
DY	-0.582	0.0765	-7.605	0.0000
R-squared	0.773592	Probability	0.000000	
Adj. R-squared	0.75257	F-statistic	36.79865	

Significant at 5 percent

In the above table, dividend yield, price earnings ratio and total assets are significant because their probabilities are less than 1 percent and t-statistics is greater than 2. Price Earning Ratio and Size has significant positive impact on market prices of firm however, dividend yield is negatively associated with market prices. Adjusted R-squared is 75.257 percent which explains that there is 75.257 percent variation in market prices is due to these independent variables including price earning ratio, dividend yield and size of the firm. Hence, there is significant impact of price earnings ratio, size and dividend yield ratio of firms on their stock prices.

Price earning has significant positive impact on stock prices hence, we accept our research hypothesis that price earning has significant positive impact on stock prices. It means that when earning of a firm increases, it leads to increase in the growth of firm. Furthermore, due to increase in growth, investors invest in those firms that have high growth. Increase in the demand of the shares for such firms lead to increase in market price of a firm.

In this study, the size of a firm also found to have positive impact on stock prices which implies that when total asset of firm (proxy for size) increases, the market prices of such firms also increase. Therefore, we accept our other research hypothesis that size of firm has significant positive impact on stock prices. The size of a firm also found to have a significant positive impact on the market prices in number of studies which include Nazir et al (2010).

Dividend yield ratio has negative impact on stock prices which mean that if dividend yield decreases, it results in increasing the market prices of firm and vice versa. The result regarding dividend yield indicates that larger firms which have high growth will have more investment opportunities as compared to smaller firm so they pay fewer dividends to the stockholders. Heaney and Pavlov (2004), also found the negative impact of dividend yield ratio on firm stock prices.

Based on the above results of PE ratio and Size, we found significant positive impact and hereby suggest that investors should consider these two measures before investing in the stocks of the firm because both of them significantly affect the prices of firm. The findings of the study also indicate that investors can apply investment criteria that utilize price earnings ratio and size anomalies to earn abnormal returns.

CONCLUSION

The purpose of this study is to analyze the impact of price earnings ratio, size and dividend yield ratio of a firm on its stock prices. The results support our hypothesis that there exists significant impact of price earnings ratio, size and dividend yield ratio of firms on their stock price. Price earnings ratio and size of firms has significant positively impact on stock price. However dividend yield ratio found to have negative impact on the stock prices.

The finding of this study implies that investors can apply investment criteria that utilize price earnings ratio and size of firms' anomalies to earn abnormal returns, because both have significantly positive relation with stock prices. The country like Pakistan with unsecure investor, the investment in the firm with high PE ratio and largest size has significant impact on their stock prices. Furthermore, firms should also consider this impact while devising their policies in order to create value for the shareholders because relationship in price earning, size and dividend yield has significant impact on the market value which increases wealth for the shareholders. PE ratios has positive

impact on stock price which show that it might work as an indicator of economic recessions and unfavorable market conditions in the future. These results could have been helpful in more refinement of the study and literature of price earnings ratios and dividend yields ratio to indicate future stock market performance in the under developed markets.

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APPENDIX

Hausman Test

Correlated Random Effects - Hausman Test			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	122.789084	3	0.000

Common Coefficient Method

Variables	Coefficient	Std. Error	t- Statistics	Prob
C	2.1595	0.144767	14.91703	0
DY	-1.237572	0.089956	-13.75746	0
PE	0.007375	0.001257	5.86673	0
SZ	0.239746	0.018492	12.9648	0
R-squared	0.24241	Probability	0.000000	
Adj. R-squared	0.240697	F-statistic	141.5353	

Note: The above table 4.4 use the variables DY dividend yields, PE represent price earnings ratio and SZ denotes size of a firms. The sources of these variables are balance sheet analysis and business recorder.