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Research Article

Determinants of Earning Yield and Its Impact on Equity Market Returns- KSE 2010-2020

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Abstract

Despite of the extensive research being done in developed markets, the empirical studies on Pakistan's equity market are limited. The purpose of this study was to identify the determinants of earning yield and their impact on the Pakistani stock market return (KSE-100 index). Taking earning yield as a dependent variable, six out of ten variables were identified as significant, explaining only 10% of the variation in stock return. With the inculcation of industry effect, the explanatory power however, increased to 20%. The model suggests that earning yield cannot be used to predict stock market returns in volatile markets like Pakistan.

Keywords: Earning Yield, Equity Market, KSE, Debt-to-Equity Ratio, Dividend Payout, T-Bill Rate, Return on Equity, Volatility of Returns, Sales Growth Rate.

Theoretical Background

Advancement in financial literature began in mid and late 1960s with the development of two major theories. Fama (1970) stated that a market is efficient as the asset prices fully reflect the information available. This theory is known as the efficient market hypothesis[1]. The second trend is known as Modern Portfolio Theory (MPT), also embodied in the CAPM[2], which established a linear relationship between risk and return of a stock. With the passage of time, however, and subsequent research the CAPM received a lot of criticism due to its certain strict assumptions. Basu (1977) studied the impact of taxation of dividends and capital gains and concluded that low price –earnings portfolios earn superior returns and investors can formulate better portfolio with the help of the

ratio. There is still no consensus among the research community about the measure that may help to forecast future returns. Fama and French (1992) concluded that measures such as size and market to book ratio were a much better predictor of average stock returns during the period from 1963 to 1990, than beta[3].The literature exploring the role of P/E ratio is rich but not much work has been done on emerging markets about the determinants of P/E ratio and its role in explaining equity market returns. The purpose of this paper is to identify the determinants of P/E ratio and to determine the extent to which those determinants can help predict the equity market returns. This study will be helpful for financial analysts, professional, trader and market strategists in making optimal financial decisions and optimum resource allocation.

1. This theory lead to the argument that financial statements were of a little importance to the investors. Canning (1929) argued that the net income figure is not more than the end result of an accountant applying procedures. B.Canning, *The Economics of Accountancy.* (New York: Ronald Press, 1929), p.98]

2. Developed by Sharp in 1960, this model describes the relationship between risk and return; in this model, a security's expected (required) return is risk-free rate plus a premium based on systematic risk of the security given as ,

$$R_i = Rf + \beta\,(Rm - Rf\,) + e_i$$

3. Beta (symbolized as β) is a measure of systematic (un-diversifiable) risk of a firm.

The Price-Earnings Ratio

P/E ratio is often cited as a 'multiple', 'price multiple' or 'earnings multiple'. This is because the ratio indicates how the amount investors would pay per dollar of earnings. For example, if the multiple is $15, it shows that the investors are willing to pay $15 for every $1 of earning. A high P/E ratio might suggest that the investors are willing to pay more in proportion to the amount what they are getting in return from the company. It also suggests that investors are expecting the company to have a high earnings growth rate. If there are a lot of investors thinking in the same manner, this may lead to the over pricing of the stock as well. An alternative for P/E ratio is used by the researchers (Reilly; 1986, Cho;1994, Zarowin; 1990, Beaver and Morse;1978 and Litzenberger and Rao;1971) known as the Earning Yield. This ratio is the inverse of price to earnings ratio. It is preferred for analysis because this ratio exhibits a linear relationship with the growth and earnings figure as well as various macroeconomic variables. Therefore, in order to explain the results in a better manner, earning yield is be used as a dependent variable in this study.

Determinants of the Ratio

Determinants refer to the factors or variables that directly or indirectly influence the earning yield. These variables can be classified into two categories. The macroeconomic variables are those which cannot be controlled by the firm such as inflation, discount rate, Treasury bill rates etc. The second category includes the variables that can be altered by the firm, called the company specific variables, such as discount rate, growth, dividend yield etc.

Previous Studies

Zeytinoglu.et.al (2012) studied the impact of market ratios on the equity market returns by using market based ratios such as earning per share, market-to-book ratio and price earnings ratio of six insurance companies of Istanbul Stock Exchange from 2000-2009. In the end result they affirmed that market ratios do impact the stock

returns not only in that period but also a period ahead. The changes explained in the current returns were only 6% whereas, the predictability multiplies manifold (up to 63%) in one period ahead returns.

Sun (2012) investigated the different anomalies that contradict the efficient market hypothesis. He selected price to book ratio, firm size and the price earnings ratio as independent variable and stock returns of Australian equity market as a dependent variable taking 54 different observations of 153 firms belonging to various industries like energy, material, industry, consumer discretionary, consumer staples, financial, healthcare, information technology, telecommunications and utilities, and found that the firm size proved to be of little help in forecasting the equity return both in the long and short term.

In 2011 Adel and Hashemi conducted a study to determine the optimum level of price earnings ratio regarding the factors of return and risk in the Iran Stock exchange of 107 firms from 2003 to 2008 and concluded that the relationship between P/E ratio and risk and P/E ratio and return was significant.

Kheradyar, Mat and Ibrahim (2011) tested the predictability of the Malaysian stock market returns using the financial ratios of 100 firms from January 2000 to December 2009. Out of the three selected ratios the book to market ratio had the greater predictive power as compared to the dividend yield and earning yields. Moreover, dividends yield had more predictive power than earnings yield. These results were found to be consistent with the U.S stock market (Fama and French, 1992; 1995).They concluded that the financial ratios can enhance the predictability of equity market returns if they were combined together in multiple regression models (adjusted R^2 is increased) as each financial ratio was complementary and unique and guides in a specific direction which can be a good predictive tool for the investors and financial analysts.

Cohen's 2010 paper tested the hypothesis that whether small price multipliers help predict the abnormal stock returns in the future or not. Using NASDAQ-100 index, price multipliers (PEG, forward P/E and trailing P/E) of the stock index were measured in the month of May 2010 to June 2010 and their relationship were studied with the returns in the same stock in the following two months. He posited that all the three multipliers used failed to outperform the index. It was suggested that without considering the size of the firm and win win portfolio cannot be created. However, if firm with large capitalization were studied, a higher value of the forward P/E ratio did significantly outperform the NASDAQ-100.

Vorek (2009) conducted a study to explain whether the price earnings ratio predicts the rise and fall in the stock market or not and whether the earning multiple predict the bearish trend in the stock market. The study discussed different theories presented in the literature and tried to establish the relationship between stock price and earnings per share. It further discussed following parameters which impact the P/E ratio, the growth rate of the firm, size of the business, discount factor, different constructs of P/E ratio (current P/E, normal P/E which converts Gordon dividend model into profit model, Sharp's P/E ratio, historic P/E regression P/E and finally the P/E of the comparable companies). To test the hypothesis the sample was taken from S&P index and the P/E ratio from a period of 1964 to 2009 and highlighted about five significant downturns in the market during that range. The analysis reported a negative correlation between the earnings multiple and the yield of stock thus, P/E ratio proved to be a weak measure in predicting the future downturn in the stock market. Especially in long horizon the ratio failed to predict the fall in the stock market.

Truong (2009) pointed out that misjudgment of the investors about the past performance and the fact that the market adjusts itself to the new information takes the stocks with low price earnings ratio ahead of the higher

price earnings stocks. He tested the performance of investment in the stocks with low price to earnings ratio in New Zealand 1997 to 2007. Truong suggested that investors should know that low price earning based portfolios can also be the ones that were not diversified and the selection of the cut-off level of the multiple should be at the same time based on both the average multiple of the market and the number of stock the investor wants to had in his or her portfolio.

Somoye, Akintoye and Oseni (2009) conducted a study on the determinants of the price of equity in the stock market. They tested the relationship of various variables with the stock prices. Four different types of hypothesis were formulated (1) the EPS affect the stock market prices significantly, (2) national gross product affect the stock market prices significantly, (3) lending interest rates affect the equity market prices significantly and (4) the forex rate affects the equity prices significantly. The five factors were labeled as five fundamental external or country factors of the firm. The methodology of Al-Tamimi (2007) was adopted in the study. The two variables used by Al-Tamimi (consumer price index and money supply) were replaced by inflation rate and foreign exchange rate. Stock return was taken as independent variable and earning per share, dividend per share, interest rate, oil price, inflation rate and foreign exchange rate were taken as independent variables. Regression analysis, multicollinearity test and correlation analysis were used to study the variables. A sample of 130 companies was taken whose shares were traded in the capital market of Nigeria. The period covered a time frame of seven years, i-e, 2001-2007. The study found a strong correlation among the independent variables. The correlation coefficient showed no significant relationship between EPS and DPS, a strong correlation between crude oil price and GDP, inflation rate (INFL) and interest rate (INT), foreign exchange rate and GDP.

Tirpathi (2008) conducted a study with an objective to test whether the investment strategies that were based on the selected fundamental variables of the company led to extra returns, whether inclusion and exclusion of variables better explains the cross-sectional variations in the average Indian stock market return or not. The Fama and French methodology (2000) and Chan, Lakonishok and Hamao (1991) methodology were applied on a sample of 455 Indian companies listed in S&P CNX 500 index from June 1997 to June 2007. Result indicated price to earnings ratio and market capitalization to have a significant and negative relationship with the equity market returns whereas on the other hand debt to equity ratio and book to market ratio showed a significant and positive relationship with the equity market returns. Furthermore, the study revealed that those investors that considered these variables in the formation of portfolio produced the extra returns over the period of study.

Kelly et.al (2008) examined the fact that the portfolios with low price earnings ratio outperform the other class of portfolios. The study also investigated the role of business failure models alter the result or not. In such models the probability of failure or was assigned to the firms over a specific time period and then different factors were examined to see their role in the firms' failure. The firms that were identified by the model to fail over specific time horizon were excluded and analysis of the remaining data was performed. The study examined Australian industrial stock of 1310 firms over the period of nine years (January 1998- December 2006). The result were found consistent to that of Basu (1977) that high price earnings ratio portfolios failed to outperform the low P/E ratio portfolios producing a return of 11.25% per year as compared to that provided by the risk. It was also found that the returns of the stocks increased to 12% after the business failure model was applied. Kelly suggested that application of the failure filter can lead to more superior returns of the low price-earning stocks.

Aga and Cocman (2006) studied the relationship between the P/E ratio, Consumer Price Index (CPI) and industrial price index (IPI) and the behavior of the stock price using an index of 20 firms from Istanbul Stock Exchange. Three different models were used. The first model tested IPI and CPI as independent variables. Second model was GARCH model which simultaneously tested volatility and returns. The third and the last model explicitly studied the relationship between price earnings ratio and the stock returns. The study showed the presence of a strong relationship between the earnings multiple and stock market return but a very weak and negative relationship among the other two independent variables, CPI and IPI, and stock return.

Dudneyet.al (2004) examined the various factors that impact the P/E ratio. They have used the reciprocal of the P/E ratio, that is the Earning price ratio as a dependent variable as the P/E ratio has the disadvantage that it can lead to infinity if the earnings are zero whereas, the earning price ratio is linearly related to the interest rate. Earning price ratio is taken as the dependent variable and lagged earning price ratio, dividend payout, two different measures of growth, treasury bond yield with one year maturity, changes in term structure and corporate bond rating spread, debt to asset ratio, changes in the marginal tax rate, capital gain to marginal tax rate, consumer sentiment index and volume to population ratio were taken as the independent variables. The sample period was 1946 - 1999 which incorporated quarterly data from S&P 500 index. Leverage, dividend payout, treasury yield of one year and term structure are found to have the highest impact of earning price ratio. Change in the default risk is found negatively related to the dependent variable. Leverage is found to have positive and significant relationship and investor optimism measure has negative signs. The change in the marginal tax rate is also found negatively related to earning price ratio. It was concluded that investor sentiments and tax rates are the prominent and significant determinants of earnings to price ratio. The other variables of debt to asset, dividend payout, yield curve slope, interest rates in the short term and the growth variables are also significant.

Keith's 2002 paper investigated the relationship between the stock market returns and beta, size, leverage, book to market equity and earning price ratio of 100 firms listed at the Hong Kong stock market from July 1984 to June 1997. Book to market equity, earning price ratio and size were found successful in capturing the variation in the stock market monthly returns over the sample data period whereas Beta was insignificant. The impact of leverage was found to influence the market returns but not as strongly as the other independent variables.

A 2000 study by Philip and Beverly was unique in a way that it studied the impact of corporate social responsibility perception on the price earning ratio differences. The data sample comprised of 141 companies which were selected from the Fortune magazine survey of corporate reputation. The dependent variable was P/E ratio and independent variables included growth in earning per share (projected to 5 years), investment risk and Fortune magazine's dimensions of the corporate reputation. Along with the five year EPS, betas and growth projections, the study also used different dimensions of reputation survey in order to be able to explain the variations in the price earning multiple. The results showed the independent variables had a high explanatory power. It further established that the companies with higher corporate social responsibility (CSR) had slightly higher Price earnings ratio compared to the other firms who don't diligently follow CSR practices.

Aydogan and Gursoy (2000) investigated the ability of book-to-market and P/E ratios in order to predict the equity market returns for the equity markets of emerging countries. They obtained average monthly P/E and price-to-book ratio plus the data about the exchange rates and market indices for the sample period. By working with the E/P ratio the study discarded all the negative values and they grouped the two ratios into quintiles and then associated them with 3, 6 and 12 month ahead returns. They took a sample of 19 emerging markets from the

period of 1986 to 1999. They applied different econometric tests (Pearson correlation, regression) on the panel data they collected. The results supported the view that the two ratios were a good predictor of the future returns especially in the long run and they can be used for market timing decisions. Their predictability in short run was not very promising though. However, the model had a low explanatory power .

White (2000) attempted to study the various determinants of P/E ratio in order to indicate irrational pricing of stocks in the given macroeconomic conditions from 1926 -1997. The independent variables include treasury bond yield of 20 years maturity or more, dividend payout ratio reported quarterly, dividend yield, earnings growth, inverse of 10 year treasury bond yield, inflation rate, the real GDP growth rate, M2 money supply, stock returns, standard deviation of index's monthly returns and 52 week maturity treasury bill rate as representative of money market interest rate. Multivariate regression analysis showed that seven variables were significant in explaining the variation in P/E ratio, namely growth, dividend and dividend on stock, stock returns, stock volatility, inflation and ten year Treasury bond yield. Dividend yield and dividend payout were the most powerful explanatory variables.

Kane et.al (1996) tested the impact of market volatility, inflation rate, the real interest rate and business cycle on earnings multiple. The sample date was taken from Standard and Poor's Corporation. This study used monthly data series of S&P500 and employed ARCH-M model. The study tested the relationship between volatility and P/E ratio by using regression analysis. The results showed a very strong univariate (one variable) relationship. The multivariate relationship was tested using lagged P/E, inflation rate, market volatility, default bond premium, index's dividend yield and industrial production. Results showed that the percentage change in volatility of future market returns decreases the price earning multiple over time. Lower levels of volatility and inflation led to a higher earnings multiple.

Richard et.al.(1991) studied different factors affecting price earnings ratio and subsequently the equity market values of the Japanese firms. The paper classified the factors affecting the P/E ratio in the following way. The first category was dividend growth model related proxies which include earnings growth, dividend growth, and risk and dividend payout. The second category was by the name of additional variables including the land holdings, accounting reserves, ownership structure and foreign investment. The last category included the detail about the factors which had not been examined in the study. That were discount rate, changes in the accounting procedure and reporting requirements of financial statements. The industrial financial data was taken for the period 1975 to 1989. The methodology of simple linear regression is adopted along with statistical measures of descriptive statistics to explain the irregularities in the data. The results showed that land investments and dividend payout were positively affecting the changes in P/E ratio. Risk and earnings growth were significant and showed direct relation with P/E. Dividend per share showed negative relationship with the dependent variable. The ownership related proxies and the reserves were found insignificant. It was summarized that the factors that were found to affect the price earnings ratio and market value are related to increase in earnings.

Foster (1970) investigated the factors that need to be weighted in order to develop an appropriate model for valuation for the individual stock. The study was divided into two parts. Firstly it he tried to develop the relationship between the formula of present value and the P/E ratio and secondly it figured out the significance of the price earning multiple considerations while taking an investment decision. The study argued that the developed formula was useful for the investment managers as it defines the value of equity in a correct conceptual

manner staying within the framework of P/E ratio. It further explained that the formula enabled the investor to incorporate different values for growth, time period and rate of return to figure out the correct price to earnings ratio. Foster concluded that present value theory and price earnings ratio, are two concepts that are consistent with each other.

Irfan and Nishat identified the multiple and joint factors that influenced the stock prices in Karachi Stock Exchange from 1981 to 2000. They took prices at KSE as dependent variable and payout ratio, leverage, size of the firm and dividend yield as independent variables. The results of step wise regression showed that all these independent variables explained one-fourth variation in the dependent variable. The asset growth and earnings volatility did not explain the variation in the price volatility. Payout ratio, dividend yield, leverage and size showed the highest impact whereas size of the firm showed the lowest. The explanatory power of the significant variables was 25.9% which was low but consistent with the other markets of less developed nations Singapore and Malaysia (Ariff et al 1994).

Craig, Johnson and Joy (1987) examined the link between a company's P/E ratio and different methods of accounting such as method of accounting depreciation (straight line or accelerated), the method of accounting inventory (FIFO versus LIFO), method of accounting tax credit (flow through or deferred) and some financial variables (beta, firm size, growth and dividend). A sample of 117 industrial firms having fiscal year ending on 31st December was taken for a period of six years from 1970-1975. The results of the regression showed that among the financial variables, the dividend payout and the firm size were the most important ones. Among the accounting variables, tax credit method and the inventory method showed significant relationship with P/E ratio. The companies that used FIFO method for inventory and flow through method for tax credit recordings had lower P/E ratio as compared to firms using LIFO and deferred method for tax credit. Depreciation however was found to have no relationship with P/E ratio. They concluded that the accounting methods do related to the P/E ratio and the analysts can improve their work by taking into consideration the accounting methods used by the firm.
Beaver and Morse in 1978 used portfolio approach to examine the price earnings ratio behavior and the ability of risk and earnings growth to explain the differences in P/E ratio across the stocks. The sample data was selected on the basis of following characteristics, (1) consecutive five year data (2) financial year ending on 31st of December. The sample period ranged from 1956 to 1974. Price earnings ratio for each stock was calculated and then ranked in 25 portfolios. Methodology involved the measures of correlation, measures of dispersion and regression analysis. In the end it was concluded that growth had no effect on the earnings multiple for more than two years. Variables of growth and risk explained very little of the P/E ratio differences that persist as long as up to 14 years.

A study about the relationship between the methods of depreciation (straight line or accelerated) was conducted by Beaver and Dukes (1963). They used a sample of 123 firms for a period of eighteen years, that is, 1950-1967 and reached a conclusion that the firms that used accelerated depreciation methods had on average a larger P/E ratio. They also concluded that beta and growth related proxies were weak in explaining E/P differences.

Little evidence is available on relationship between the ownership and equity market return. Constand (1991) tests it as one of the independent variable to check its effect on price earnings ratio but the results showed no significant relationship with the earnings multiple. By studying the ownership structure we can increase our understanding of how various investors impact the stock prices in terms of volatility and the returns. There is also an emerging field of behavioral finance which is gaining importance. Previous studies show that individual investors are not as sophisticated and risks taking as the institutional investors are (Dennis et al. 2002). It is

therefore due to this fact that when there are times of financial downturn the individual investors react very strongly and sell the stocks which leads to a plunge in the equity prices. On the other hand it is also studied that although the institutional investors are more objective but they don't have longer investment period. They usually sometimes also display a herd mentality, selling in times when the peers are selling, again leading to a decline in the market. The risk averse managers also follow the mob in the times of downturn even if they are not sure about going that way (Dennis et al; 2002). Studies on the foreign investors have shown that foreign investors lay a positive impact on the stock returns (Kang and Stulz; 1997,Mitsusadaand Hachiya; 2009) and inverse, that is, negative impact on the return volatility. This is considerably due to the fact that foreign investors are more equipped with the market information which allows them to exploit the market in times of under and overpricing. As a result, they drive the financial markets towards stability and efficiency. Institutions are more informed and make the process of adjustment of the stock prices faster (Bohl and Brzeszczynski ;2006)

The studies have found a negative relation between the stock market returns and individual ownership and a positive relationship among the volatility and stock returns. (Saurabjoshi et al; 2009). The studies argue this behavior by the concept of 'bounded rationality', that is, the individuals base their decision on the return statistics and the sales volume and they reach towards the downturns very rapidly causing the higher volatility in the market prices. The individual investors are also called the 'noise traders' because instead of looking at the stock fundamentals they react to the market news.

A study conducted by Sias (1996) establishes that institutional investors are linked with the riskier securities. He argues that increase in institutional investment leads to more volatile market. Odegaard argues that the foreign investors are also the institutional investors therefore they have the similar impact as the institutions have.(Ødegaard (2009)). Badrianath and fellow researchers (1995) found that the stock with high institutional ownership outperform the stock with lower levels of institutional ownership. Confirming the findings of Sias (2006) Boyer and Zheng (2009) claimed a positive relationship between the invest groups and equity market returns due to the following facts 1) investor group moves the changing stock prices with the help of the un-informed traders and 2) they have superior information compared to the other traders to affect the stock prices. Based on the studied literature and previous studies we expect an inverse relationship between the individual ownership and the earnings yield and inverse relationship between the institutional ownership, investment company ownership, foreign ownership and earning multiple.

Reinganum (1981), Levis (1989), Aggareal, Hiraki and Rao (1988), Chou and Jhonson (1990) evaluated the NYSE, London Stock Exchange and Taiwan Stock Exchange respectively and found the results consistent with Basu's. Studying the Istanbul Stock Exchange. However some studies like that of Gillian (1990) for New Zealand stock exchange and Kim ,Chung and Pyun (1992) for Korea found no significant link between the P/E ratio and the market returns. Some of the studies suggest that rather than concentrating on valuation ratios like P/E ratio, market to book ratio, dividend yield etc one should focus more on solvency risk while formulating the portfolio(Erb, Campbell and Viskanta; 1995) and selection of the country and the stocks both.(Achour et. al. (1998))

Data and Methodology

This study is based on the hundred firms belonging to 17 different non-financial sectors of the KSE-100 index from 2010 to 2020.The data is all collected from the secondary sources, mainly from the KSE's website and

balance sheet analysis published by the State Bank of Pakistan from 2000-2010. The data includes the after tax earnings per share, the dividend payment, number of shares (ordinary share capital /10), debt to equity ratio, return on equity and the sales growth rate. Month end market prices from July 2010 to June 2020 were collected from the other financial websites [1]. These values were used to calculate the price earnings ratio, earnings to price ratio, dividend payout and volatility of returns. For the value of the ownership structure another website was accessed which publishes the financial news, statistics and data for the Pakistani Market [2]. Finally for the Treasury bill rates, weighted average of 12 months is collected for the analysis from the *Handbook of Statistics* on Pakistan published by State Bank of Pakistan [3]. The data is given as the weighted average yield (%age) for 3-month, 6-months and 12-months. Exhibit 1 is showing the details of the variables of the study.

Exhibit 1: VARIABLES

Dependent Variable	
EP	Earning Yield: Calculated by dividing after tax EPS to month end market price per share
Independent Variables	
Company specific	
D/E	Debt-to-Equity Ratio. Calculated by dividing total debt to shareholder's equity.
DPO	Dividend Payout. Calculated by dividing annual dividend per share to after tax EPS.
GRO	Sales Growth Rate. (Annual sales growth rate this year-growth rate last year/ growth rate last year)
VOL	Volatility of Returns: Annual standard deviation of KSE-100 index for past 36 months.
ROE	Return on Equity. Calculated by dividing net profit before tax to shareholder's equity
IND	Share of Individual Ownership held by the firm in percentages.
INV	Share of Investment Ownership held by the firm in percentages.
INST	Share of Institutional Ownership held by the firm in percentages.
FOR	Share of Foreign Ownership held by the firms in percentages.
Macroeconomic	
TBL	T-Bill Rate: annualized 12-month Treasury bill rate taken as the proxy of the market interest rate.

Variables	Expected Relationship
1. Debt To Equity Ratio	Inverse
2. Dividend Payout	Inverse
3. Growth Rate	Inverse
4. Volatility Of Return	Direct
5. Return On Equity	Direct
6. Treasury Bill Rate	Direct

The expected relationship between the variables and the earnings yield is outlined in exhibit 2. The model is described below,

7.	Ownership Structure	
	• Individual	Inverse
	• Institution	Direct
	• Investment	Direct
	• Foreign Ownership	Direct

Exhibit 2

$$EP_{i,t} = \beta_0 + \beta_1 (D/E)_{i,t} + \beta_2 (DPO)_{i,t} + \beta_3 (GRO)_{i,t} + \beta_4 (INST)_{i,t} + \beta_5 (IND)_{i,t} + \beta_6 (INV)_{i,t} + \beta_7 (FOR)_{i,t} + \beta_8 (VOL)_{i,t} + \beta_9 (ROE)_{i,t} + \beta_{10} (TBL)_{i,t}$$

Stepwise regression is conducted to minimize the problem of co linearity and maximize the adjusted coefficient of the model. Fixed Effect Model or Least-Square Dummy Variable (LSDV) Regression Model is used to test the industry effect. This model assumes that the coefficient don't vary across time and industry but the intercept for each industry maybe different due to several reasons. The alphabet 'i' with the intercept term represents that the intercept of each industry is different. The intercept of each industry varies but the time factor is invariant in this regression model.

To run this model the technique of dummy variables (differential intercept dummies) is introduced in the study so the model is written as,

$$EP_{i,t} = \alpha_1 + \alpha_2 D_{2i} + \alpha_3 D_{3i} + \alpha_4 D_{4i} + \alpha_5 D_{5i} + \alpha_6 D_{6i} + \alpha_7 D_{7i} + \alpha_8 D_{8i} + \alpha_9 D_{9i} + \alpha_{10} D_{10i} + \alpha_{11} D_{11i} + \alpha_{12} D_{12i} + \alpha_{13} D_{13i} + \alpha_{14} D_{14i} + \alpha_{15} D_{15i} + \alpha_{16} D_{16i} + \alpha_{17} D_{17i} + \beta_1 (D/E)_{i,t} + \beta_2 (DPO)_{i,t} + \beta_3 (GRO)_{i,t} + \beta_4 (INST)_{i,t} + \beta_5 (IND)_{i,t} + \beta_6 (INV)_{i,t} + \beta_7 (FOR)_{i,t} + \beta_8 (VOL)_{i,t} + \beta_9 (ROE)_{i,t} + \beta_{10} (TBL)_{i,t}$$

In this study no dummy is used for Automobile and Accessories Sector as it is taken as the base industry. In the above model D = 1 if the observation belongs to a particular sector, otherwise = 0. To avoid dummy variable trap, 16 dummy variables are created. In the model above, α1 represents the intercept of Automobile and Accessories sector and α2,α3,α4,α5α6,α7α8,α9α10,α11α12,α13α14,α15,α16 andα17are the differential intercepts of Automobile Assemblers, Cable, Cement, Chemical, Fertilizer, Food and Personal Care, Glass and Ceramics, Jute, Leather, Oil and Gas Exploration, Paper And Board, Refinery, Sugar, Telecommunication, Textile and Tobacco Sector respectively. These differential intercepts tell how much they differ from the intercept of the textile sector.

Results and Findings

Summary statistics of the entire sample are given in Exhibit 3. On average, there is an increase in all the variables from 2010- 2020. The greatest increase is observed in ROE and growth, that is, approximately close to 3000% and 2000% respectively. It is the indication that the firms have observed an increase in terms of profit during the decade. The higher deviation on these two variables from the mean indicates the volatile stock market of Pakistan. However, this may also be due to the fact that different firms have different levels of profitability as our data covers a wide range of industries. The asymmetrical data distribution indicated by skewness, shows positively skewed data (median and mode lower than the mean) for all variables except the T-bill rate, which is showing the opposite trend. Individual ownership and Treasury bill rate show a peaked distribution as indicated by the kurtosis. Other variables are showing a flatter (platykurtic) distribution.

Exhibit 4 shows the results of the correlation analysis. It is shown that sales growth rate, ROE, individual ownership, investment ownership and Treasury bill rates are positively correlated to the earning price ratio (dependent variable) with 0.1709, 0.1927, 0.07, 0.029 and 0.060 values respectively. However, as the values are

lower than 1 it shows a weak positive correlation. The sales growth rate and return on equity show a comparatively stronger correlation compared to the other three variables.

The results show that foreign ownership, institutional ownership, volatility of returns, debt to equity ratio and dividend payout ratio are negatively correlated to the earning price ratio with a correlation of -0.0610, -0.0468, -0.0123, -0.0211and -0.1614 respectively. The dividend payout ratio shows a higher negative correlation compared to the other variables but still the correlation is very weak. It can be argued that these lower values of the correlation coefficients are due to the lower explanatory power of the selected independent variable in predicting the variations in the dependent variable.

Exhibit 3.Descriptive Statistics-Overall sample

	Mean	Median	St.dev	Kurtosis	Skewness	Min	Max
E/P	0.182	0.144	0.158	12.058	3.013	0.02	1.107
D/E	1.473	1.161	1.38	16.392	2.535	-5.73	13.25
DPO	0.34	0.248	0.532	104.113	8.441	0	7.583
GRO	18.897	15.8	27.934	0.029	0.634	-73.154	154.66
VOL	0.207	0.132	1.419	524.608	22.879	0.054	32.68
ROE	26.745	22.9	18.282	0.738	0.954	0	93.3
IND	0.4356	0.3811	0.3047	-1.2408	0.3104	0	1
INST	0.1043	0.0596	0.1188	2.0686	1.4546	0	0.6589
INV	0.2305	0.1548	0.2231	0.5195	1.1976	0	0.8704
FOR	0.1629	0	0.2759	0.4939	1.4344	0	0.95
TBL	8.1018	8.7907	3.8063	-1.1192	-0.5947	2.1867	12.3809

Exhibit 4: Correlation

	E/P	*D/E*	*DPO*	*GRO*	*VOL*	*ROE*	*IND*	*INST*	*INV*	*FOR*	*TBL*
E/P	1										
D/E ratio	-0.02117	1									
DPS/EPS	-0.16142	-0.09317	1								
Growth ra	0.170937	0.0189	0.024235	1							
volatility of	-0.01235	0.064958	-0.01571	-0.0336	1						
ROE	0.192706	-0.03119	0.016501	0.20222	-0.02659	1					
individuals	0.07433	0.200205	-0.19064	0.010111	-0.00808	-0.3893	1				
institutions	-0.04685	-0.02294	0.045014	0.000783	-0.03728	-0.01008	-0.14284	1			
investment	0.02984	-0.11802	0.074306	0.007528	0.076657	-0.02936	-0.34979	-0.065	1		
foreign inv	-0.06104	-0.04673	0.098519	0.010362	-0.02571	0.302524	-0.54892	-0.15655	-0.30648	1	
12-month	0.060482	0.019248	0.017875	-0.0167	0.008954	-0.12034	-0.01129	-0.04277	0.044664	0.00063	1

Exhibit 5 shows the results of regression analysis run in three steps. In the first step analysis was performed on company specific variables excluding the ownership variables. It resulted in an R^2 of 8.4% (adjusted R^2 7.57%) and significance-F value of 8.42E-09. It means that the selected variables namely, debt to equity ratio, dividend payout, volatility of returns, return on equity and sales growth rate explain about 7.6% changes in the earning multiple. Results show that out of the five dependent variables only three were significant namely the dividend

payout ratio, the sales growth rate and the return on equity. The volatility of returns and debt-to-equity ratio were insignificant. Sales growth rate is significantly positively related with the earning yield indicating that rate of return on high growth companies is on higher side. Similarly if profitability is high, the market responds to the information and yield of investor also increases. Dividend payout ratio is significantly negatively affecting earning yield. It points to the fact that firms having high dividend paying stock have less investment opportunities. Debt to equity ratio and volatility are not positively related to market returns however, their return affect is insignificant.

In the next step regression analysis was again run, this time with the inclusion of the four ownership variables in order to refine the model. It resulted in a slight increase of R2 to 11.1% (adjusted R^2 to 9.5%) and the significance F value to 8.64E-10.Foreign ownership and institutional ownership variables had no significant impact on earning yield. However, individual ownership and presence of investment companies improve the yield of companies.

Final regression was run including all the dependent variables. This step increase the strength of the model (significant F) and its explanatory power (R^2) to 2.48E-10 and 11.9% respectively compared to the last two regression models. In the final model, out of the 10 variables, 6 are significant and 4 are insignificant. The dividend payout, sales growth rate, returns on equity, individual ownership, investment company ownership and Treasury bill rates are significant. There is no change in behavior of company specific variables due to addition of other dimensions of decision making.

The results of Least-Square Dummy Variable (LSDV) Regression model are shown in Exhibit 6. Automobile and Accessories industry is taken as base to compare with the rest of the sectors. The explanatory power of the model is improved from 10.23% to 20.49% when industry effect is incorporated. Dividend payout, growth rate, return on equity, debt to equity ratio and Treasury bill rate show p-valueless than 0.05 suggesting that these are significant at 95% confidence interval. Volatility, individual, investment foreign and institutional ownership give p-value of 0.351, 0.070, 0.259 and 0.938 respectively suggesting insignificant results at 95% confidence interval. P-value for Jute, sugar, textile and tobacco industries is 0.046, 0.003, 0.014 and 0.035 respectively suggesting significance at 95% confidence interval. P-value of automobile assemblers, cable, cement chemical, fertilizer, food and personal care, glass, leather and tanneries, oil and gas exploration, paper, refinery and telecommunication sector are 0.82, 0.250, 0.802, 0.083, 0.072, 0.297, 0.970, 0.046, 0.897, 0.214, 0.241, 0.463 and 0.964 respectively and are not significant at 95% confidence interval. These suggest similar intercept for these sectors as compared to Automobile and Assemblers Industry. Slope coefficient of all the sectors except Cement, Jute, Sugar, Telecom and Textile Sector are negative. P values of Jute, Sugar, Textile and Tobacco Sector are different from P-value of base sector industry i.e. result of automobile and accessories' sector. The F-statistics show that the model is statistically fit.

Exhibit 5 Regression Results

1.FIVE COMPANY SPECIFIC VARIABLES

Regression Statistics	
Multiple R	0.2908
R Square	0.0846
Adjusted R Square	0.0758
Observations	527

ANOVA

	Significance F
Regression	8.417E-09

	Coefficients	*t Stat*	*P-value*
Intercept	0.1522	10.2524	0.0000
D/E ratio	-0.0039	-0.8140	0.4160
DPS/EPS	-0.0507	-4.0566	0.0001
Growth rate	0.0008	3.3167	0.0010
Volatility of Returns	-0.0004	-0.0862	0.9314
ROE	0.0014	3.8662	0.0001

2.COMPANY SPECIFIC AND OWNERSHIP VARIABLES

Regression Statistics	
Multiple R	0.3325
R Square	0.1106
Adjusted R Square	0.0951
Observations	527

ANOVA

	Significance F
Regression	8.638E-10

	Coefficients	*t Stat*	*P-value*
Intercept	0.0644	1.5642	0.1184
D/E ratio	-0.0063	-1.2955	0.1957
DPS/EPS	-0.0432	-3.4288	0.0007
Growth rate	0.0007	2.8537	0.0045
Volatility of Returns	-0.0008	-0.1758	0.8605
ROE	0.0021	5.1589	0.0000
Individuals	0.1110	2.6619	0.0080
Institutions	0.0057	0.0881	0.9298
Investment	0.0891	1.9520	0.0515
Foreign Investors	0.0181	0.4302	0.6672

3. COMPANY SPECIFIC AND MACROECONOMIC VARIABLES

Regression Statistics	
Multiple R	0.34553622
R Square	0.11939528
Adjusted R Square	0.1023293
Observations	527

ANOVA

	Significance F
Regression	2.48E-10

	Coefficients	*t Stat*	*P-value*
Intercept	0.0275	0.6235	0.5332
D/E ratio	-0.0067	-1.3698	0.1713
DPS/EPS	-0.0435	-3.4636	0.0006
Growth rate	0.0007	2.8328	0.0048
volatility of returns	-0.0008	-0.1763	0.8601
ROE	0.0023	5.4374	0.0000
individuals	0.1150	2.7674	0.0059
institutions	0.0127	0.1979	0.8432
investment compani	0.0884	1.9455	0.0523
foreign investors	0.0183	0.4362	0.6629
12-month	0.0039	2.2729	0.0234

Exhibit 6

Variable	Coefficient	t-Statistic	Prob.
C	0.037	0.596	**0.551**
GR	0.001	2.269	**0.024**
ROE	0.003	6.795	**0**
DPS_EPS	-0.03	-2.433	**0.015**
DER	-0.01	-2.104	**0.036**
VOLATILITY	-0.004	-0.904	0.366
TB	0.004	2.366	**0.018**
INDIVIDUALS	0.053	0.934	0.351
INSTITUTIONS	-0.006	-0.078	0.938
INVCOMP	0.101	1.813	0.07
FOREIGN	0.059	1.131	0.259
AUTOMOBILE	-0.066	-1.741	0.082
CABLE	-0.045	-1.151	0.25
CEMENT	0.009	0.251	0.802
CHEMICALS	-0.059	-1.735	0.083
FERTILIZERS	-0.09	-1.805	0.072
FOOD	-0.04	-1.045	0.297
GLASS	-0.002	-0.038	0.97
JUTE	0.097	2.003	**0.046**
LEATHER	-0.006	-0.13	0.897
OIL	-0.054	-1.244	0.214
PAPER	-0.051	-1.174	0.241
REFINARY	-0.044	-0.735	0.463
SUGAR	0.109	2.984	**0.003**
TELECOM	0.002	0.045	0.964
TEXTILE	0.089	2.479	**0.014**
TOBACCO	-0.135	-2.118	**0.035**

Conclusion

The aim of this study was to identify the determinants of Earnings yield and its impact on the Equity market returns of KSE-100 index from 2010-2020. The sample data comprised of 100 non-financial firms belonging to 17 different sectors, listed at KSE-100 index. The collected data is analyzed using regression analysis and statistical measures of correlation and descriptive statistics along with the fixed effect model. Results show that out of the ten variables selected for the analysis, six are found to be significantly related to the dependent variable The dividend payout, sales growth rate, returns on equity, individual ownership, investment company ownership and Treasury bill rates are significant whereas debt-to-equity ratio, foreign ownership, volatility of returns and institutional ownership are found to be insignificant in relation to the dependent variable. The model's explanatory power is weak as compared to the results of the other developed markets which is likely due to the fact that the institutions in those market are more analytically inclined and their economic conditions are also

stable which leads to the basic factor influencing 60 per cent of the stock prices. In terms of ownership, Pakistani firms are dominated by the individual owners which points to the fact that firms family oriented and boards are strictly controlled. The lower percentage ownership of the foreign investors is justifiable due to the instable economic and political conditions leading to increase in the market volatility. The explanatory power of the model is improved from 10.23% to 20.49% when industry effect is incorporated. Dividend payout, growth rate, return on equity, debt to equity ratio and Treasury bill rate are significant and Volatility, Individual, Investment Foreign And Institutional Ownership suggest insignificant results..The results similar to the study conducted by Irfan (2009) on 30 textile firms listed at KSE and concluded that P/E ratio and Market-to-book ratio do not have any impact on the equity market returns.

In order to further improve the study other company specific variables and macroeconomic variables can be tested in order to identify which other variables impact the equity prices. The time horizon can be increased to further validate the findings. In the end, however it is suggested that the P/E ratio alone should not be taken as a means to evaluate any company and making decisions. The denominator in the formula, that is, the earnings figure is manipulative. The results are only going to be as good as the earning's figure.

References

1. www.zhv.com
   www.kse.gov.pk
   www.brecorder.com

2. [2] www.pkfinance.com
3. [3] www.sbp.org.pk
   (http://www.sbp.org.pk/departments/stats/PakEconomy_HandBook/index.htm)
4. Achour D., Harvey C. R., Hopkins G., Lang C. (1998). "Stock Selection in Emerging Markets: Portfolio Strategies for Malaysia, Mexico, and South Africa. *Emerging Markets Quarterly*, 38-91
5. Adel Afkhami. A., Hashemi. H. M. (2011). Determining Optimum P/E Ratio Regarding the Risk and Return in Iran Stock Exchange Using Goal Programming. International Conference on Information and Finance, 21, IACSIT Press, Singapore.
6. Aga,M., Kocaman, B., (2006). An Empirical Investigation Of The Relationship Between Inflation, P/E Ratios And Stock Price Behaviors Using A New Series Called Index-20 For Istanbul Stock Exchange'. *International Research Journal of Finance and Economics*, 6, Euro Journals Publishing.
7. Aggarwal, R., T, Hiraki., R. Rao. (1988). Earning/Price Ratios, Size and Seasonal Anomalies in The Japanese Securities Market. *Working Pape*r, John Carroll University, University Heights, Ohio.
8. Ariff, M., Shamsher M., and Annuar M. N. (1994). Finding the Factors Associated with
9. Stock Price Volatility: A Comparative Study of Developed and Developing Share Markets in D. Ghosh and Khaksari (eds.) Managerial Finance in the Corporate Economy, Routlege, London, UK.
10. Aydogan, K., Gürsoy.G. (2000).P/E and Price-to-Book Ratios as Predictors of Stock Returns in Emerging Equity Markets. *Emerging Markets Quarterly*, 4(4), 60-67.
11. Basu, S. (1977). Investment performance of common stocks in relation to their Price-Earnings Ratio: A Test of the Efficient Market Hypothesis. *Journal of Finance, 32, 663-682.*

12. Badrinath, S.G., Jayant Kale ., Thomas Noe. (1995). Of Shepherds, Sheep and the Cross-Autocorrelations In Equity Returns. *Review of Financial Studies* 8:401-430
13. Beaver, W., and Morse, D. (1978). What Determines Price-Earnings Ratios? *Financial Analysts Journal*, 34(4), 65-76.
14. Bohl, Martin and Janusz Brzeszczynski. (2006). Do institutional investors destabilize stock prices? Evidence from an emerging market." *Journal of International Financial Markets, Institutions & Money,* 16, 370-383
15. Chan, L., Hamao, Y., and Lakonishok, J. (1991).Fundamentals and Stock Returns in Japan", *Journal of Finance*, (46), 1739-1764.
16. Cho,Youn Jang. (1994). Determinants of Earnings Price Ratio: A Reexamination. *Review of Financial Economics*, 3(2), 105-120.
17. Craig, D., Johnson.G., Joy.(1987). Accounting methods and P/E Ratios. *Financial Analyst Journal, 43(2), 41-45.*
18. Fama E.F. & French K.R. (2000).Characteristics, Covariances and Average Returns, 1929 to 1997, *Journal of Finance*, 55(1), 389-406.
19. Dennis, Patrick and Deon Strickland. (2002). Who Blinks in Volatile Markets: Individuals or Institutions? *Journal of Finance* 57: 1923-1949
20. Dudney, D ., Jirasakulddech B., Zorn, T .(2004).P/E Movements: Some New Results" Version Dated January 9, 2004. Preliminary draft.
21. E. F. Fama, and K. French. (1992). The Cross-Section of Expected Stock Returns," *Journal of Finance*, 47,427-465.
22. E. F. Fama, and K. French. (1995). Size and Book-To-Market Factors in Earnings and Returns, *Journal of Finance*, 50(1), 131-155.
23. Erb, B.C., R. Campbell ., Viskanta. E.T. (1995). Country Risk and Global Equity Selection. *Journal of Portfolio Management*,21, 74-81.
24. Foster. M. E. (1970). Price-Earning Ratio and Corporate Growth. *Financial Analyst Journal*, 26(1), 96-99
25. Gillan, S. (1990). An Investigation into CAPM Anomalies in New Zealand. The Small Firm and Price Earnings Ratio Effects. *Asia Pacific Journal of Management*, 7, 63-78
26. Irfan. M. K. (2009). Price Earning Ratio and Market to Book Ratio. *IUB Journal of Social Sciences and Humanities*, 7(2). Available online at http://mpra.ub.unimuenchen.de/23969/MPRA Paper No. 23969,
27. K.S.Keith. (2002). The Relationship between Size, Book-To-Market Equity Ratio, Earnings-Price Ratio, and Return for the Hong Kong Stock Market. *Global Finance Journal* ,13,163-179.
28. Kang, J. K., R.M. Stulz. (1997). Why is there a home bias? An Analysis of Foreign Portfolio Equity Ownership In Japan. *Journal of Financial Economics* 46, 3-28.
29. Kane, Alan., Marcus, J., Noh, J. (1996).The P/E Multiple and Market Volatility. *Financial Analysts Journal*, 52, (4), 16-24.
30. Kelly. S., McClean.J., McNamara. R. (2008). Available at http://epublications.bond.edu.au/business_pubs/322. Accessed: 31st October, 2012
31. Kim, Y.G. , K.H. Chung., C.S. Pyun. (1992). Size, Price-Earnings Ratio, And Seasonal Anomalies In Korean Stock Market, In S.G. Rhee And R.P. Chang (Editors), Pacific-Basin Capital Markets Research, 3.

32. Levis, M. (1989). Market Size, PE Ratios, Dividend Yield and Share Prices: The UK Evidence in R.C. Guimaraes, B.G. Kingsman And S.J. Taylor (Editors). A Reappraisal of the Efficiency of Financial Markets (Springer-Verlag).
33. Mitsusada and Hachiya. (2009). Ownership Structure And Equity Returns In Japan- Effectiveness Of Market-Oriented Corporate Governance, *Securities Analyst Journal*, 47(1).
34. Ødegaard, Bernt Arne. (2009). Who Moves Stock Prices? Monthly evidence. Working paper.
35. Richard L. constand. L. R., Freitad. P. L., Sullivan.J.M. (1991). Factors Affecting Price Earnings Ratios and Market Values of Japanese Firms' Financial Management, 20 (4), 68-79.
36. Litzenberger, R.H., and C.U, Rao.(1971). Estimates of the Marginal Rate of Time Preference and Average Risk Aversion of Investors in Electric Utility Shares: 1960-1966. Bell Journal of Economic and Management Science, 265-277.
37. Reilly, Frank K., Frank T. Griggs, and Wenchi Wong (1983). Determinants of the Aggregate Stock Market Earnings Multiple. *Journal of Portfolio Management*, 1(1),36-45.
38. Reinganum, M. (1981). A Misspecification of Capital Asset Pricing: Empirical Anomalies Based On Earnings Yields and Market Values. *Journal Of Financial Economics*, 9, 19-46.
39. S. Kheradyar. S., Ibrahim. I., Nor. M. F. (2011). Stock Predictability with Financial Ratios. *International Journal Of Trade, Economics And Finance*, 2(5).
40. Sharp, W. (1964). Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk. *Journal of Finance*, 19, 425-442.
41. Sias, Richard. (1996). Volatility and the institutional investor. *Financial Analysts Journal*, 52, 13-20.
42. Sias, Richard, and Laura Starks, and Sheridan Titman. (2006). Changes in Institutional Ownership and Stock Returns; Assessment and Methodology. *Journal of Business*, 79, 2869-2910.
43. Somoye, R. O. C., I. R Akintoye, and J.E Oseni. (2009). Determinants of Equity Prices in the Stock Markets. *International Research Journal of Finance and Economics*, 30, 177-189.
44. Sun. L. (2012). Information Content Of PE Ratio, Price-To-Book Ratio And Firm Size In Predicting Equity Returns. International Conference on Innovation and Information Management (ICIIM 2012), 36, IACSIT press, Singapore
45. Tripathi, V. (2008). Company Fundamentals and Equity Returns in India.Available at: http://ssrn.com/abstract=1247717
46. Truong. C. (2009).Value Investing Using Price Earnings Ratio in New Zealand. *Business Review*, 1. University of Auckland
47. Vorek, M. (2009). Does High Price Earnings Ratio Predict Future Falls of Stock Price? from http://www.icabr.com/fullpapers/Vorek%20Mari%E1n.pdf.
48. White, C. Barry. (2000). What P/E Will the U.S. Stock Market Support? *Financial Analysts Journal*, 56(6), 30-38.
49. World economic and financial surveys, World Economic Outlook: Growth Resuming, Dangers Remain, April 2012, IMF
50. Zarowin, P. (1990). What Determines Earnings-Price Ratios: Revisited. *Journal of Accounting, Auditing & Finance*, 5(3), 439-457.

51. Zeytinoglu. E., Akarim.D.Y , Celik.S. (2012). Impact of Market Based Ratios On Stock Returns: The Evidence From Insurance Sector In Turkey. *International Research Journal of Finance and Economics* (2012), 84, 1450-