Price Earning Ratio and Market to Book Ratio

Muhammad Irfan Khan

IQRA UNIVERSITY

2009

Price Earning Ratio and Market to Book Ratio: A Case Study of Pakistani Textile Sector

Muhammad Irfan Khan*

Abstract: *This paper studies the effects of P/E ratio and M/B ratio on stock return of listed firms with Karachi Stock Exchange in the Textile sector of Pakistan. A total of 30 major firms out of 162 in the textile sector listed with the Karachi Stock Exchange for the period of 2001-2006 were selected on the basis of their size in terms of total assets. Firms which have larger size in terms of total assets among 162 firms were selected in this paper. The study reveals that the firms in an exclusive sector exhibit unique attributes that are sector specific and cannot be applied to or judged by combined analysis of the industry. The result shows that coefficients of independent variables are statistically insignificant. This means that stock return is not depending on any of the two independent variables. Besides insignificant coefficients, coefficients of determination are also very low in each case. This means that a very low percentage of change in stock return is explained by these two variables. The data was analyzed by running linear regression. Two independent variables i.e. P/E ratio and M/B ratio were selected to see their effects on stock return. Multiple regression models along with a measure of correlation were used to study the effect of the independent variables on the dependent variable. The results for the study revealed that stock return is independent of the two independent variables studied in this paper.*

1. Introduction

Investors obviously care about stock price movements because this directly affects their wealth in the shape of capital gain. They constantly review the stock market performance as well as the firms listed with the stock exchange. Different approaches have

* *Department of Business Administration, IQRA University Karachi, Pakistan.*

been developed to invest money in shares of growth companies. Among these approaches two of them are P/E ratio and M/B ratio.

The question "whether P/E ratio and M/B ratio separately as well as combine has positive or negative effects on stock return have long been in controversy and discussed in the literature of corporate finance and financial management research (Fama and French, 1992) Kothari et al. (1995) McWillams (1966) and Breen(1968). Various theorists look at this problem with different ideas.

The industries in Pakistan like any other developing countries has its own unique attributes, and here too, the question of the effect of both accounting ratios as stated above have immense importance in corporate management decisions. This study focuses on textile sector only. Firstly because it is the largest sector of the Pakistan's economy, having the largest number of firms in it and secondly because to the best of my knowledge, this sector remained untouched for this study till date.

Year end price earning ratio, dividend per share and the number of outstanding shares of 30 firms were extracted from SBP published report. The stock prices were taken on month end basis.

The organization of the paper is as follows. First section is an introduction to the study. Second section tries to encompass the important literature available on the topic. Third section describes the data and gives a justification for the choice of variables and their proxies from the data available. Fourth section represents the analysis of the data, and my model is described in it. And final section includes the results and conclusion.

2. Literature Review

Since Sharpe (1964), Lintner (1965) and Black (1972) formulated the Capital Asset Pricing Model (CAPM), this model has become one of the most used in financial modeling either by academics as by practioners. However, in the seventies and eighties some

anomalies in the sock market were discovered. In particular, stock return characteristics seem to contradict the CAPM principle that risk beta is able solely to explain the cross-section of expected return. Some the these anomalies are the size effect (Banz 1981), the January effect (Rozeff and Kidney, 1976, and Keim,1990), the price earning ratio effect (Basu 1977, 1983), the book to market ratio effect (stattman 1980; Rosenberg et al, 1985), the momentum effect (Jegadeesh 1990; Jagadeesh and Titman 1993) and the overreaction effect (Debondt and Thaler 1985,1987).

Fama and French (1992) showed that beta could not explain neither alone nor joined with other fundamental variables- the differences between stock returns for NYSE and AMEX stocks during the period 1963-1990. Firm size and book to market ratio were statistically significant instead. By contrast, Kothari et al. (1995) pointed out that beta keep explaining power when is estimated using annual instead of monthly returns.

Common stocks with low prices, low price/earnings (P/E) ratios, and small market values have been found to generate abnormal returns. Fritzmeier (1936) first found that the low priced stocks provided greater returns but varied more in prices than the higher price stocks. Heins and Allison (1966) showed that returns were closely related to the stock prices after controlling P/E ratios, turnover ratios of stocks, and the differences in the exchange listings. Pinches and Simon (1972) examined various portfolios of low price stocks under $5 that were traded over the American Stock Exchange (AMEX). They found that both the annual and holding period returns for most periods and portfolios were higher for the low price stocks than for the higher price ones.

McWillams (1966) and Breen (1968) found that stocks with low P/E ratios experienced greater rates of return based on their cross sectional studies. However, they did not explicitly take risk into consideration. Basu (1977) and Peavy and Goodman (1983) found that the risk-adjusted returns were higher for lower P/E stocks. Furthermore, Peavy and Goodman (1983) showed that the low P/E

stocks provided superior risk-adjusted returns after taking into account firm size, industry effects and infrequent trading.

3. The variable and data

Dependant and independent variables

After trying to encompass the literature available on the subject of this paper, now the variables for this study are being defined. My analysis is restricted to only three variables, two being the independent variables or the potential determinants of the stock returns in Pakistani Textile Industry. First I take stock return as the dependant variable. For independent variable, I take two variables namely P/E ratio and M/B ratio.

Because of certain limitations I have limited this study to these two independent variables. Another reason for selecting lesser variables was to study their effects in isolation and then combine them with other factors in a separate study, so that the significance of individual variable may be checked.

Dependent variable

Actual stock returns

In this study, the actual stock return is calculated as capital gain plus dividend yield. I want to analyze that stock returns are independent of two accounting ratios as stated above. Investors usually invest in a company with having knowledge about its income, cash flows, risk and some other factors.

Independent variable

P/E ratio

The P/E ratio, calculated for this study, as market price of the firm's stock divided by the Earning Per Share(EPS). The Earning Per Share (EPS) is calculated as Net income after tax minus preferred stock, dividend by the number of shares outstanding. Some researchers have also calculated the EPS by taking net income before tax. The test was run first as separately as to see whether it has significant results with dependent variable i.e. stock

return. Multiple regressions were also run with other independent variable to check the model.

The Price-Earning Ratio effect states that firms with low ratio between stock price and stock earning consistently provide higher returns than those with high Price-Earning Ratio. Nicholson (1960) documented this effect for the US stock market. Basu (1977) showed that this effect remains even after the stock returns are adjusted by beta risk for the NYSE during the period 1957-1971. Fama and Frech (1992) concluded that the Earning-Price Ratio is significant when the unique explaining variable for the cross-sections of stock return is, but its significance disappears when book to market ratio is also taken into account for NYSE and AMEX stocks during 1963 -1990.

With the conflicting findings on hand i shall proceed with a null hypothesis, that stock return is independent of the P/E ratio. So my first hypothesis is
Hypothesis 1: A firm's stock return is independent of its P/E ratio.

M/B ratio

The market to book ratio is calculated as market price per share divided by the book value per share. The test was run first as separately as to see whether it has significance with dependent variable i.e. stock return. Multiple regressions were also run with other independent variable to check the model. This ratio effect states that securities with high ratio between its market value and its book or equity value, persistently obtain lower return than those with low ratio. Stattman (1980) and Rosenberg et al.(1985) find this negative relation in US stock market, and Chan et al.(1991) for the Tokyo stock exchange. Fama and French (1992) document that the market to book ratio effect is even stronger than the size effect for a sample of NYSE, AMEX and NASDEQ stocks during the period 1963-1990. Capaul et al. (1993) confirm the M/B effect in Great Britain, France, Germany and Switzerland.

And again for the same reasons i develop a null hypothesis that stock return is independent of the M/B ratio.
Hypothesis 2: A firm's stock return is independent of its M/B ratio.

The data sources
The data used in this study is secondary data and taken from the State Bank of Pakistan's publication "Balance Sheet Analysis of Joint Stock Companies Listed on The Karachi Stock Exchange, 2001- 2006. This document is published by the Statistics Department of State Bank of Pakistan and provides very useful information regarding the financial statements of the KSE listed companies. The study chooses to concentrate on the Textile sector only.

The sample
Initially it was decided to take all listed firms operating in the textile sector, but mostly due to time constraints and secondly because of incomplete data available for some of the firms, it was decided to go for a representative sample that may reflect trends of the industry. Criterion for the sample was simple; first a firm should be listed on KSE for all the years under consideration i.e. 2001 to 2006. Second it should not have incomplete data in any regard in the document published by the SBP. 30 Companies selected on the basis of large total assets in addition to above criteria.

D-Analysis
The model
As discussed earlier it is assumed that stock return is a function of P/E ratio and M/B ratio. To test this hypothesis following model was developed.
$S_r=b_1P+b_2M$
Where
S_r= stock return
b= the coefficients of independent variables
P = price earning ratio
M = market to book ratio

4. Methodology

Model Summary – P/E ratio

Coefficient of Determination (R^2)	0.009
Adjusted (R^2)	-0.027
F statistics	0.249

When P/E ratio is tested separately, it is revealed that there is no evidence that stock return is based on P/E ratio. The Adjusted (R^2) is not significant; meaning that the percentage of total variation of dependent variable can be explained by the independent variable by the ratio equal to -0.027. F statistics also suggests that the result is insignificant.

Analysis of Variance

Variables	P/E Ratio		
	B	**t-test**	**Sig.**
Constant	12.981	3.489	.002
P/E Ratio	-0.151	-.499	0.622

Statistical significance can be viewed by "t" statistics and "Sig" value, which suggest that the result is insignificance. Based on this result, the null hypothesis is not rejected at this time.

Model Summary – M/B ratio

Coefficient of Determination (R^2)	0. 006
Adjusted (R^2)	-0.029
F statistics	0.176

When M/B ratio is tested separately, it is revealed that there is no evidence that stock return is based on M/B ratio. The Adjusted (R^2) is not significant, meaning that the percentage of total variation of dependent variable can be explained by the independent variable by the ratio equal to -0.029 F statistics also suggests that the result is insignificant.

Analysis of Variance

Variables	M/B Ratio		
	B	**t-test**	**Sig.**
Constant	10.076	1.923	0.065
M/B Ratio	0.038	0.419	0.678

Statistical significance can be viewed by "t" statistics and "Sig" value which suggest that the result is insignificance. Based on this result, the null hypothesis is not rejected at this time.

Model Summary – P/E ratio and M/B ratio

Coefficient of Determination (R^2)	0. 018
Adjusted (R^2)	-0.054
F statistics	0.251

Analysis of Variance

Variables	P/E and M/B Ratio		
	B	**t-test**	**Sig.**
Constant	10.932	1.985	0.057
P/E Ratio	0.048	0.51	0.614
M/B Ratio	-0.18	-.575	0.57

When regressed with both the independent variables, the analysis of the results reveals that coefficients of both independent variables are statistically insignificant. Therefore, it is concluded that the data does not provide enough evidence to reject the null hypothesis. So now we can, based on our analysis, state that

1. *Stock return is independent of the Price-Earning Ratio in the listed textile companies in Pakistan.*
2. *Stock return is independent of the Market-Book Ratio in the listed textile companies in Pakistan.*

5. Conclusion

In this paper, two linear regressions equation were estimated to determine the relationship among stock return with P/E ratio and M/B ratio in public limited textile firms of Pakistan. Two independent variables, P/E ratio and M/B ratio were used to measure their effects on stock return.

The result shows that coefficients of independent variables are statistically insignificant. This means that stock return is not depending on any of the two independent variables.
Besides, insignificant coefficients, coefficients of determination are also very low in each case. This means that a very low percentage of change in stock return is explained by these two variables. Thus it opens the doors of further study that may require more variables and other analysis technique.

References

Banz, R. W. (1981) The relationship between return and market value of common stocks. *Journal of Financial Economics, 9:3-18.*

Basu, S. (1977) Investment performance of common stocks in relation to their pirce-earings ratio: A test of the efficient market hypothesis. *Journal of Finance, 32: 663-682.*

Black, F. (1972) Capital market equilibrium with restricted borrowing. *Journal of Business, 45:444 - 455.*

Breen, W. (1968) Low Price-Earning Ratios and Industry Relatives. *Financial Analyst Journal, 24:125 - 127.*

Capaul et al. (1993) International value and growth stock returns. *Financial Analysts Journal, 49:27 - 36.*

David A. Goodman, and John W. Peavy (1983) Industry Relative Price-Earnings Ratios as Indicators of Investment Returns. *Financial Analysts Journal, 39(4):60-66.*

DeBondt, W. F. M., and R.H. Thaler. (1985). Does the stock market overract. *Journal of Finance, 40:793-805.*

Donald B. Keim. (1990) A New Look at the Effects of Firm Size and E/P Ratio on Stock Returns. *Financial Analysts Journal, 46(2):56-67.*

Fama, E. F. and K.R. French (1992) The cross-section of expected stock returns. *Journal of Finance, 47:427-465.*

Fritzmeier, L. H. (1936) Relative Price Fluctuations of Industrial Stocks in Different Price Groups. *Journal of Business, 9:133-154.*

Heins, A. J., and S. L. Allison (1966) Some factors Affecting Stock Price Variability. *Journal of Business,39:19-23.*

Jagadeesh N. (1990) Evidence of predictable behavior of security returns. *Journal of Finance, 45:881-898.*

Jagadeesh, N., and S. Titman (1993) Returns to buying winners and selling losers: Implications for stock market efficiency. *Journal of Finance, 48:65-92.*

Kothari et al. (1995) Another look at the cross-section of expected stock returns. *Journal of Finance, 50:185-224.*

Linter, J. (1965) The valuation of risk assets and the selection of risky investments in stock portfolis and capital budgets. *Review of Econimics and Statistics, 47:13-37.*

McWilliams, J. D. (1966) Price, Earning and P-E Ratios. *Financial Analyst Journal, 22:137-142.*

Pinches, G. E., and G. M. Simon (1972) An Analysis of Portfolio Accumulation Strategies Employing Low-Priced Common Stocks. *Jounal of Financial and Quantitative Analysis, 7:*1*773-1796.*

Rozeff, M. S., and W.R. Kinney (1976) Capital market seasonality: The case of stock returns. *Journal of Financial Economics, 3:379-402.*

Stattman D. (1980) Book values and expected stock returns. Doctoral dissertation, University of Chicago.

Sharp, W. F. (1964) Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance, 19:425-442.*

Rosernberg et al. (1985) Persuasive evidence of market inefficiency. *Journal of Portfolio Management, 11:9-17.*