Does Low Price- Earnings Multiple Fetch Higher Scrip Returns In India?

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INTRODUCTION

Can price-earnings (P/E) multiple be a basis to determine the level of scrip returns? Do Low P/E stocks bring superior returns than High P/E stocks? Does such behaviour of the P/E and scrip returns change as the holding period duration changes ? In contrast to the past, in recent decades, investment in equities in the Indian capital markets has increased manifold. The erstwhile rule of stock selection has matured from mere intuition based outlay, to research based investment. There is an increased awareness and conscious demand for investment analysis in this regard. Probably, the investors' quest to discover a single, simple measure for stock return appears to have ended with the popular acceptance of the price-earnings (P/E) multiple as the arbiter of what constitutes an expensive or cheap stock. Major business magazines and media outlets frequently quote analysts and market strategists as arguing that a particular stock is either too expensive or too cheap, depending on whether the P/E multiple is above or below the historical or contemporary market trends. Hence, in this study, an attempt is made to identify price-earnings multiple whispers for scrip returns in the Indian context.

REVIEW OF LITERATURE

According to the mispricing view, P/E effect states that stocks with low P/E multiple earn significantly higher returns than stocks with high P/E multiple. Hence, there is an inverse relation between the P/E multiple and stock returns, and an investor could achieve higher returns by investing in the right stock having low P/E multiple. Then, the P/E could be a suitable fundamental variable to explain the cross-section of returns in the stock market [Guler, A. and Mustafa K, Y. (2008)]. Holding low P/E stocks as an investment strategy was also one of the main themes in Dreman (1998).

The first work demonstrating the P/E effect was a paper by Nicholson (1960). His study considering 100 (mainly industrial) stocks over five-year periods from 1939 to 1959 concluded that the purchaser of common stocks may logically seek the greater productivity represented by stocks with low, rather than high price-earnings ratios.

Basu (1977) covered NYSE listed companies from 1957 to 1971 and concluded that stocks with low P/E ratios earned return that beat the returns earned by a naive buy and hold strategy. Similarly, Oppenheimer (1984) examined the investment performance of low P/E stocks on the NYSE and ASE from 1974 to 1980, and concluded on the fact that there exists a negative relationship between the P/E and stock returns.

Levis (1989) was the first to look for anomalies in the UK stock market. He used data for a period of 30 years between1956-1985 and found clearest results for the P/E effect. Fuller, Huberts and Levinson (1993) did their best to disprove the outperformance of low P/E shares by including a wide variety of possible explanatory factors. They also found higher returns for low P/E stocks from 1973-1990. Similarly, Bhargava and Malhotra (2006) sought causal direction between P/E and future earnings or prices and found that future prices rise, and yields decline, with high P/E ratios.

On the other hand, Park (2000) advises that an investor should not take a high P/E ratio as an alarming sign. Likewise, Fisher and Statman (2000) conclude that P/E ratios and dividend yields are not good indicators of future stock prices, especially when we look at returns over short periods (one or two years).

Moreover, the believers of efficient market hypothesis discard the price-earning (P/E) ratio as reflector of the future performance of securities, though empirical literature does not provide conclusive answers to the validity of market efficiency [Campbell and Robert, (1998); Lo, (1996)].

Hence, amidst all these contrary views, in this study, an attempt has been made to examine whether the Price-Earnings

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(P/E) multiple is a good criterion on which to base investment decisions. In other words, the proposition *"that low P/E stocks (value stocks) on an average provide larger return than high P/E stocks (glamour stocks)"* is put to test with reference to the Indian capital market.

OBJECTIVES OF THE STUDY AND METHODOLOGY

Data for 80 companies comprising of 8 different industries listed in the Bombay Stock Exchange (BSE) using judgemental sampling technique were taken up from *Capitaline* database for the time period of 08 years - from January 1st, 2001 to December 31st, 2008, with the following basic objectives :

1) To identify the relationship between price-earnings multiple and scrip returns.

2) To ascertain whether the scrips with low price-earnings multiple earn higher returns than the scrips with high price-earnings multiple.

3) To find out the impact of holding period duration on the price-earnings multiple based scrip returns.

For the sample scrips, Price Earnings (P/E) multiple has been calculated with half year intervals in January and July every year purposively, by dividing the market capitalization of the scrip for the corresponding month by the Profit After Taxes (PAT) in the previous fiscal year (Aras, G.; Yilmaz, M.K. 2008). All the 80 sample scrips were ranked in the ascending order on the basis of their average P/E multiple during January and July (i.e. Lag P/Es) each year and were formed into 8 deciles half-year wise, and each decile was taken to be an equal weighted portfolio. In other words, the first 10 scrips with the lowest P/E value constitute the first portfolio, and the last 10 scrips with the highest P/E value constitute the last portfolio.

The scrip returns were computed individually for multiple holding periods of 6 months, 1 year, 2 years, 3 years and 4 years durations separately, with half year intervals of January and July every year in terms of annualized changes in *average market capitalization*, as it would then take care of adjustments for bonus, rights and stock splits. Consequently, portfolio returns were also calculated for different holding periods. Amongst statistical techniques, Karl Pearson's correlation analysis, regression analysis, R^2 values and paired t tests were used applying SPSS software.

IDENTIFICATION OF THE RELATIONSHIP BETWEEN THE LAG P/E AND SCRIP RETURNS

The Karl Pearson's correlation coefficient between the Lag P/E and different holding period returns are estimated to determine whether a relationship exists between the two variables (Gupta 1994). It reveals that all correlation coefficients, as well as their averages are negatively related (except one or two cases, which are considered negligible). This implies that in general, there is a negative linear relationship between the Lag P/E and scrip returns (Table 1). Besides, it is also to be noted that as the holding period duration increases from 6 months to 4 years, the degree of inverse relationship with the Lag P/E becomes even stronger.

| Table 1 : Correlation Coefficient of Lag P/E and Different Holding Period Returns						
	6 Months Holding Period Return	1 Year Holding Period Return	2 Years Holding Period Return	3 Years Holding Period Return	4 Years Holding Period Return	All Periods (Average)
Correlation Coefficients	-0.246	-0.302	-0.382	-0.438	-0.426	**-0.359**
% of Companies with significant correlation	66.25	68.75	78.75	78.75	76.25	**73.75**
Source: Empirical Research						

SIGNIFICANCE OF THE RELATIONSHIP BETWEEN THE LAG P/E AND SCRIP RETURNS

Further, the researchers refer to the *t* distribution to ascertain the significance of the relationship between the Lag P/Es and the scrip returns. It discloses that the number of companies with significant correlation coefficients between the Lag P/E and scrip returns for respective holding periods is increasing as the holding period duration increases (Table 1). In case of relatively shorter holding periods of 6 months and 1 year, the number of companies having a significant

correlation coefficient between the Lag P/E and scrip returns is lesser and does not exceed the all period average of 73.75% of the sample companies. Whereas, in case of longer holding periods of 2 years, 3 years and 4 years, the number of companies having significant correlation coefficient between the Lag P/E and scrip returns are quite higher and does surpass the all period average of 73.75% of the sample companies. It again implies that the association between the Lag P/E and scrip returns becomes more significant in case of relatively longer holding periods (two to four years) rather than shorter ones (six months to one year). However, the paired t test disclosed that only one pair i.e. 6 months holding period and 3 years holding period have significant differences as to the number of companies having a significant correlation coefficient between the Lag P/E and scrip return.

## NATURE OF THE RELATIONSHIP BETWEEN THE LAG P/E AND SCRIP RETURNS

In consistency with the correlation analysis, the regression analysis also identifies that almost all companies averaging 89.75% have a negative slope (-b) or an inverse causal relationship between the Lag P/E and the scrip returns across all the holding periods. This suggests in case of maximum companies, a decline in Lag P/E causes an increase in scrip return and vice versa for any holding period.

Figure 1 : Significance of Nature of Relationship Between Lag P/E and Scrip Returns
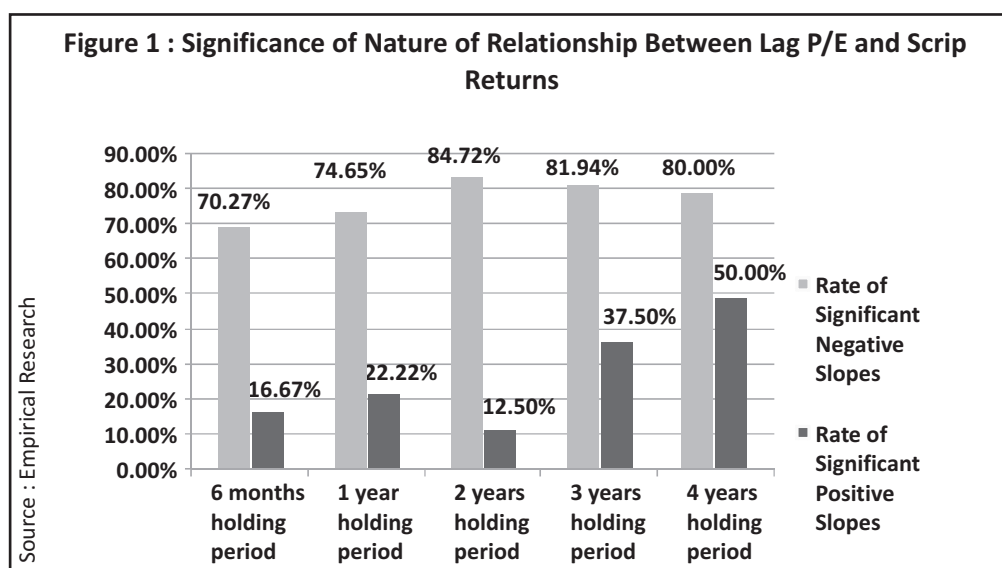
Significance Test of Nature of Relationship between the Lag P/E and Scrip Returns: Further, it is observed in Figure 1 that across all holding periods, the *'rate of significant negative slopes'* (i.e. the proportion of the number of companies with significant negative slope to the total number of companies with negative slopes) is higher and prevailing than the *'rate of significant positive slopes'* (i.e. the proportion of the number of companies with significant positive slope to the total number of companies with positive slopes). Therefore, it is conclusive that in most cases, companies do exhibit an inverse relationship between the Lag P/E and scrip returns, more so superiorly rather than the positive relationship.

R^2 - The Coefficient Of Determination: Next, the researchers applied R^2 analysis and the results show that the linear relationship between the Lag P/E and Scrip Return explains on an average, 19.94% of the scrip return variations. Moreover, for the shortest holding period of 6 months, the variation predictability is the least, at a mere 8.22%, and it amplifies as we move towards fairly longer holding periods continuously and reaches the highest of 29.44% at the longest holding period of 4 years (Figure 2). Consequently, during the relative shorter holding periods of 6 months and 1 year, the R^2 values are lesser than the average R^2 (i.e.19.94%), while during the relatively longer holding periods of 2 years, 3 years and 4 years, the R^2 values are greater than the average R^2.

Comparison of P/E Based Portfolio Returns : To find out the return differentials between low P/E stocks and high P/E stocks, annualized returns of P/E based portfolios are compared in Table 2. Across all holding periods, the portfolio return accelerates as we move from portfolio 8 through portfolio 1, i.e. high P/E portfolios through low P/E

Figure-2 : R^2 Values of the Lag P/E and Scrip Returns

(Source: Empirical research)
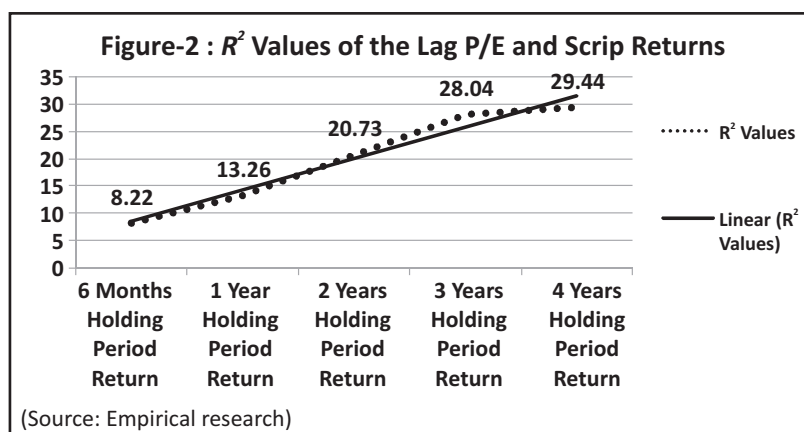
| Table 2 : Comparison Of Mean (Annualised) Returns of P/E Based Portfolios						
P/E Based Portfolios	Mean Annualised Return % of Portfolios held for					
	6 months Holding Period	1 Year Holding Period	2 Years Holding Period	3 Years Holding Period	4 Years Holding Period	All Periods (Average)
Portfolio 1	260.76	181.60	421.12	662.91	878.31	**480.94**
Portfolio 2	59.92	81.92	173.76	262.99	436.18	**202.95**
Portfolio 3	59.48	76.77	166.50	367.79	550.50	**244.21**
Portfolio 4	57.36	65.30	90.96	152.46	489.10	**171.04**
Portfolio 5	50.68	80.18	120.03	135.10	159.18	**109.03**
Portfolio 6	37.96	52.30	68.24	94.11	131.78	**76.88**
Portfolio 7	32.94	47.29	106.19	145.62	116.26	**89.66**
Portfolio 8	49.56	59.19	72.75	94.86	140.12	**83.30**
All Portfolios (Average)	**76.08**	**80.57**	**152.44**	**239.48**	**362.68**	**182.25**
(Source: Empirical Research)						

portfolios. For instance, Portfolio 1 comprising of lowest P/E stocks, earns 878.31% annualized return in a 4 years holding period, which is the highest for any portfolio for the same holding period. Reference to the average annualized return for all periods also confirms the fact that portfolio returns scale up as we move from high P/E portfolios through low P/E portfolios (i.e. from Portfolio 8 through Portfolio 1). For example, Portfolio 1 comprising of lowest P/E stocks, earns an average annualized return of 480.94%, which is more than five times the average annualized return of 83.30%, earned by the Portfolio 8 comprising of highest P/E stocks. In addition to that, it can also be observed that the annualized returns of the low P/E based portfolios (Portfolio 1, 2 and 3; i.e. Portfolios comprising stocks in the Lag P/E rank range of 1 to 30) are greater than the overall average annualized return (i.e. 182.25%), whereas the annualized returns of the high P/E based portfolios (Portfolio 4,5,6,7 and 8; i.e. Portfolios comprising stocks in the Lag P/E rank range of 31 to 80) are lesser than the overall average annualized return. Hence, it can be opined that low P/E stocks fetch higher returns than high P/E stocks.

❁**Paired *t* Test Results of Portfolio Returns:** The paired *t* test further disclosed that for 6 months holding period, Portfolio 3 & 6 showed significant differences as to their annualized returns. Similarly, for 1 year holding period, Portfolio 2 & 8 showed significant differences. Likewise, for 3 years holding period, two pairs of portfolios, i.e. Portfolio 2 & 6 and Portfolio 2 & 8 are identified to have significant differences as to their annualized returns. Again, for 4 years holding period, as many as seven pairs of portfolios, i.e. Portfolio 1 & 5, Portfolio 1 & 6, Portfolio 1 & 7, Portfolio 1 & 8, Portfolio 3 & 6, Portfolio 3 & 7 and Portfolio 3 & 8 are diagnosed to have significant differences as to annualized returns earned by them. However, surprisingly, for 2 years holding period, differences of annualized returns of different P/E based portfolios are found to be insignificant. Therefore, it is imperative that while the P/E based scrip investment is most successful for a comparatively longer period of four-years holding period and is

reasonably successful for other holding periods lesser than four years; it has little success in case of two years holding period.

COMPARISON OF HOLDING PERIOD RETURNS

Meanwhile, it can also be observed that the portfolio annualized returns increase steadily as we move from shorter holding periods through the longer holding periods, i.e. from 6 months holding period through 4 years holding period (Table-2). For instance, for Portfolio 2, the annualized return earned during the 4 years holding period (i.e. the longest holding period) is 436.18%, which is more than seven times the annualized return of 59.92%, earned by the same portfolio during the 6 months holding period (i.e. the shortest holding period). Further reference to the annualized returns of all portfolios authenticate that the annualized returns scale up as the holding period duration increases. For example, the average annualized return earned during 4 years holding period is 362.88%, which is more than four and half times the annualized return of 76.08% , earned during the 6 months holding period. Further, the annualized returns during shorter holding periods (six months to two years) are lesser than the overall average annualized return (i.e. 182.25%), whereas the annualized returns during relatively longer holding periods (three years to four years) are greater than the overall average annualized return (Figure 3).

Figure 3 : Mean Annualized Return % of All P/E Based Portfolios
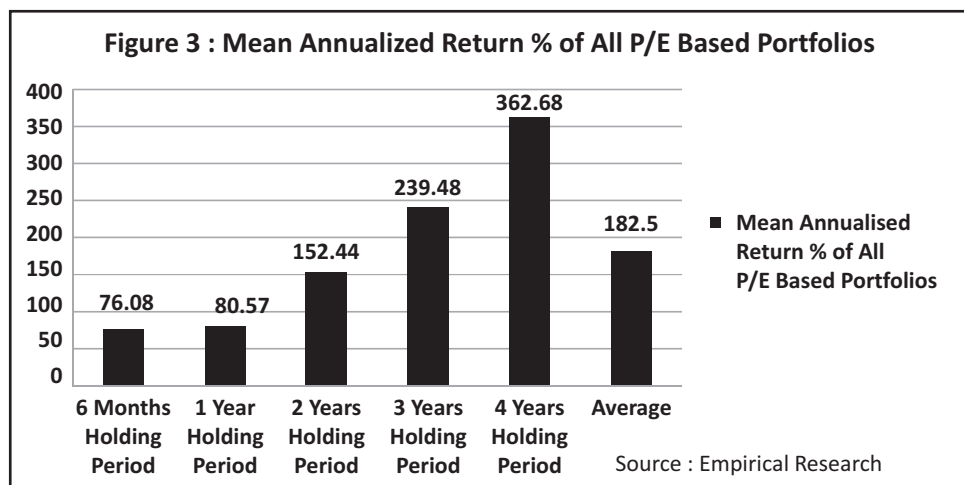
❀**Paired *t* Test Results of Holding Period Returns:** The paired *t* test confirmed that for all the portfolios except

Table 3 : Summarized Paired *t* Test Results Of Holding Period Returns				
	4 Years & 6 Months	4 Years & 1 Year	3 Years & 6 Months	3 Years & 1 Year
Portfolio 1	N	N	N	N
Portfolio 2	Y	N	Y	Y
Portfolio 3	Y	Y	Y	N
Portfolio 4	N	N	Y	N
Portfolio 5	Y	Y	Y	N
Portfolio 6	Y	Y	Y	Y
Portfolio 7	Y	Y	N	N
Portfolio 8	N	N	N	N
*Y stands for significant difference of mean annualised returns of the holding period pairs.				
**N stands for insignificant difference of mean annualised returns of the holding period pairs.				
***Holding period pairs of 4 years & 3 years, 4 years & 2 years, 3 years & 2 years, 2 years & 1 year, 2 years & 6 months; not mentioned in this table does not show significant differences for any portfolio. Source : Empirical Research				

Portfolio 1 & 8, the diagnosed significant differences as to the annualized returns of different holding periods are presented in the Table 3.

Holding period pairs of 4 years & 6 months and 3 years & 6 months showed significant differences in case of maximum five portfolios out of the total eight portfolios. It closely follows the holding period pair of 4 years & 1 year and 3 years and 1 year, which shows significant differences in case of four and two portfolios respectively. Hence, relatively longer holding periods (three to four years) earn higher returns than the shorter ones (six months to one year). Further, since the lowest P/E based Portfolio 1 (which always earned high returns) & highest P/E based Portfolio 8 (which always earned low returns) did not have significant differences as to the annualized returns of different holding periods, in other ways, it reveals that the lowest P/E based Portfolio 1 guarantees higher returns, while the highest P/E based Portfolio 8 pledges poor returns, irrespective of the duration of the holding period taken.

CONCLUSION

To conclude, the researchers found an inverse relationship between the Lag P/E and Scrip Returns, which suggests a decline in P/E results and an increase in subsequent Scrip Returns. This negative relationship levers up as the duration of the holding period increases. The variability of scrip returns is explained by the linear relationship between the lag P/E and scrip returns to a greater extent during holding periods of relatively longer durations (two to four years) rather than shorter holding periods (six months to one year). Further, the annualized returns of the Low P/E based portfolios (Portfolio 1, 2 & 3) are greater than the High P/E based portfolios (Portfolio 4, 5, 6, 7 & 8). The number of portfolio pairs with significant differences in annualized returns increases as the holding period duration increases and is highest in case of the longest four-years holding period. Similarly, the annualized returns of all portfolios during longer holding periods (three years to four years) are higher than the annualized returns during relatively shorter holding periods (six months to two years). Moreover, holding period duration of four or three years, instead of six months or one year, earns significantly higher annualized returns. The lowest P/E based portfolio guarantees higher returns, while the highest P/E based portfolio pledges poor returns, irrespective of the duration of the holding period taken. In brief, low P/E stocks (value stocks) earn higher returns than high P/E stocks (glamour stocks) in India, and more so during relatively longer holding periods (three to four years) rather than shorter ones.

REFERENCES

1. Aras, G; Yilmaz, M,K. (2008), "Price Earnings Ratio, Dividend Yield And Market To Book Ratio To Predict Return On Stock Market: Evidence From Emerging Market." *Journal of Global Business and Technology*, Vol.4, No.1, Spring, pp. 21-30.

2. Basu S (1977), "Investment Performance of Common Stocks in Relation to Their Price-Earning Ratios: A Test of the Efficient Market Hypothsis", *Journal of Finance*, Vol. 32, No. 3, pp. 663-682.

3. Bhargava V, Malhotra D K, (2006), "Do price-earnings ratios drive stock values?" *The Journal of Portfolio Management*, Autumn, Vol. 33, No. 1, pp. 86-93.

4. Campbell, John Y. and Robert J. Shiller (1998), .Valuation Ratios and the Long-Run Stock Market Outlook., *Journal of Portfolio Management*, Vol. 24, No. 2, pp. 11-26.

5. Dreman, D.N. (1998), *Contrarian Investment Strategies: the Next Generation*, Simon & Schuster, New York, pp. 265-98.

6. Fisher, K.L., and Statman, M. (2000), "Cognitive Biases in Market Forecasts." *The Journal of Portfolio Management*, Vol. 27, Fall, pp. 72-81.

7. Fuller, R.J., Huberts, L.C. 7 Levinson, M.J., (1993), "Returns to E/P strategies, Higgeldy Piggeldy Growth, Analysts' Forecast errors, and Omitted risk Factors." *Journal of Portfolio management*, 1993, winter: pp.13-34.

8. Guler Aras And Mustafa Kemal Yilmaz (2008), *"Price-Earnings Ratio, Dividend Yield, And Market-To-Book Ratio To Predict Return On Stock Market: Evidence From The Emerging Markets." Journal of Global Business and Technology*, Volume. 4, Number 1, pp.105-112.

9. Gupta, SP., (1994), *Statistical Methods*, Sultan Chand & Sons, New Delhi, pp. E10.1-61.

10.Levis, M. (1989), "Stock Market Anomalies". *Journal of Banking and Finance*, Volume.13 (SI), pp. 675-96.

11. Lo, A. [Ed.], (1996), *Market Efficiency: Stock Market Behaviour in Theory and Practice*, Edward Elgar Publishing Ltd., London, pp. 326-93.

12. Nicholson, S.F., (1960), "Price-Earning Ratios." *Financial Analysts Journal*, 16(4): pp. 43-45.

13. Oppenheimer, H. (1984), "A Test of Ben Graham's stock Selection criteria." *Financial Analyst Journal*, September- October, pp. 27-36.

14. Park, S., (2000), "What does the P-E ratio Mean?" *The Journal of Investing*, Vol.9, Fall, pp. 45-56.