# Earnings to Price Yield and Stock Market Returns -An Empirical Analysis of Indian Stock Market

[1]*Dr. Kiranpreet kaur*

[1] **Assistant Professor, Shree Atam Vallabh Jain College, Ludhiana, India, Email: mpbatra85@gmail.com**

**ABSTRACT**

*Using the data on stocks listed on Bombay Stock exchange for the period spanning from 1999 to 2013, the present study intends to examine the relevance of stock selection based on earnings to price yield rule of Benjamin Graham in Indian capital market. This valuation metric is aimed at buying the securities whose earnings to price yield is at least twice the AAA bond yield. The securities so selected have been held for the period of 12 months, 24 months holding periods. The returns derived from the stocks meeting the criterion are analyzed using one sample T-test, Wilcoxon signed rank test and capital asset pricing model (CAPM). The results revealed that the portfolio selected on the basis of this criterion provided significantly positive mean market adjusted returns in majority of the years in case of both the holding periods. The significant abnormal returns derived through CAPM model, however, cannot be considered conclusive due to less explanatory power of the model. Nevertheless, the portfolio showed lessor volatility than the market portfolio thereby implying that the fund managers can use it as an investment tool for risk management due to lessor risk and positive market adjusted returns.*

***Keywords:*** *Value investing, Benjamin Graham, earnings to price yield, one sample t-test, Wilcoxon signed rank test, capital asset pricing model,* ***JEL Code Classification****: G11, G12, G32*

## INTRODUCTION

The basic aim of any investment is to maximize its return and to minimize the risk involved. In order to maximize the returns of the investors, Graham and Dodd (1934) introduced an approach towards investing, whereby the securities that have higher intrinsic value than their market price are bought and held by the investors. The basic premise of value investing is to invest in stocks that are trading below their true value (or intrinsic value). The difference between the stock's intrinsic value and the market value is called as margin of safety. The investor is suggested to invest in the stocks which have significant gap in its market price and the intrinsic value so that the margin of safety can protect him in the event of a huge downturn. According to Graham and Dodd (1934), "A company's intrinsic value is assessed through the earnings potential of the company and the stock having earnings yield at least twice the AAA bond yield is considered as value stock."

The earnings yield is the inverse of the most commonly followed valuation metric price to earnings (P/E) ratio. It is calculated by dividing the most recent 12-month period earnings per share by the current market price per share. The price to earnings ratio is also called as 'multiple' for the reason that it denotes how much an investor is prepared to pay for ₹1 of its earnings. A stock is trading at a P/E of 5 means that the investor is ready to pay ₹5 for ₹1 of its earnings. Thus, a high P/E ratio is the indication of high earnings growth expected out of stock in future. Therefore, this valuation metric establishes the relationship between the actual recent earnings based performance of the company with its future market performance.

Graham and Dodd (1934) questioned the ability of the firms to sustain same growth in earnings in future, so they have hypothesized that firms which have and are currently experiencing high (low) earnings growth are unlikely to able to sustain it to the extent expected by the market e.g. a high price to earnings multiple is indicative of the market's expectation of high future earnings growth. When this earnings growth reverts towards industry/ economy mean, then this will result in the revision of earnings' expectations, a fall in firm's price to earnings multiple and so a downward correction in its stock price (Bird and Gerlach, 2003). Therefore, it is prudent to concentrate on portfolio of stocks whose prices are depressed while depicting excellent value at the same time. These securities must portray excellent value at present in order to create a buffer against future market volatility. Thus, regardless of market volatility, the value of such a portfolio remains intact in short term. Most importantly, over the long term there is strong potential for this portfolio to increase (Ahmed, 2008). Graham recommended that the yield on the earnings should be at least twice the AAA bond yield (Graham, 1949). This requirement meant that the qualifying stock's P/E could be no more than 1/2r, where r is the AAA corporate bond rate, measured in decimals. If AAA corporate bond rate were 10%, the P/E could be no more than 5 [1/ (2*0.1)]. This relationship had to be true in order to compensate the risk that that the earnings might fall (Au, 2004). Therefore, the higher earnings yield of stocks designate them to be undervalued relative to bonds.

Seeing the great depression of 1929, Graham strongly believed that the stocks are riskier than the bonds due to the fact that at the time of liquidation of the company, the bondholders are first in the queue to get back the money and the shareholders are at last (Anderson, 2012). So in order to ensure the wide margin of safety to investors, Graham recommended that the stocks should have at least double the yield on bonds to protect the investors against the loss or unease in the event of some future decline in net earnings (Graham, 1949).

The present study makes an attempt to examine the profitability of value stocks i.e., the stocks having earnings to price yield at least twice the AAA bond yield, in Indian stock market.

## ITERATURE REVIEW

After the death of Benjamin Graham in 1976, the investor community and the researchers brought the value investing theories into practice. This section presents an overview of the studies conducted around the globe examining the performance of high earnings to price yield stocks.

Basu (1977) investigated whether stocks with high earnings to price yield (value stocks) earned excess returns when compared to stocks with low earnings to price yield which were traded on New York Stock Exchange (NYSE) and observed that the portfolios built from high earnings to price yield stocks earned higher return than those built from low earnings yield. Further, Capaul et al. (1993) analyzed the returns obtained from portfolios formed of stocks with high earnings yield for 6 countries i.e. France, Germany, Switzerland, the United Kingdom (UK), Japan and the United States (US). They observed that value stocks outperformed its counterparts (stocks having low earnings yield) on an average in each country during the period studied, both absolutely and after adjustment for risk. Thereafter, Brouwer et al. (1996) analyzed the performance of value strategies for 4 European countries (i.e. France, Germany, Netherlands and U.K) on the basis of earnings to price valuation metric and noted that the annual returns for the value portfolios outperformed the annual returns for the glamour portfolios

Bauman and Miller (1997) observed the performance of stocks having high earnings to price ratio and listed on NYSE, AMEX and NASDAQ stock exchanges. The results revealed that the value stocks with relatively high earnings to price evinced favorable investment performance as they outperformed growth portfolio on the basis of total as well as risk adjusted return basis. Further, Bauman et al. (1998) examined the differences in investment performance between high and low earnings to price yield stocks in 20 established markets represented in the Morgan Stanley Capital International (MSCI) Europe, Australia and Far East (EAFE) index as well as

Canada. They found that value stocks outperformed growth stocks on a total return as well as risk adjusted basis in maximum number of years and in majority of the national markets. In addition, Dhatt et al. (1999) investigated whether an exploitable value premium existed for stocks in the Russell 2000 Index, the commonly used U.S. small cap benchmark and they found that the high earnings to price yield stocks outperformed low yield stocks by 5.28-8.40% per year and had lower standard deviation and lower coefficient of variation than the growth stocks.

Anderson et al. (2003) examined the presence of value premium in Mongolia and found the outperformance of value stocks over its counterparts. Dunis and Reilly (2004) examined the performance of value strategies in UK stock market for the period Dec 2000 to Dec 2002 and observed that high earnings to price yield stocks produced higher Sharpe ratio than the market. Thereafter, Ding et al. (2005) examined the performance of value and growth portfolios in seven East Asian countries before the onslaught of 1997 Asian financial crisis. The seven countries covered were Indonesia, Japan, Thailand, Taiwan, Hong Kong, Malaysia and Singapore. The results revealed that the positive value premium was found in all the countries, except Indonesia, Taiwan and Thailand. Anderson and Brooks (2006) examined the presence of value premium in UK stock market using price to earnings ratio (P/E) as valuation measure. The results showed that the difference in average annual returns between value stocks and its counterparts was 6% using traditional P/E ratio. Brown et al. (2008) investigated the presence of returns in value strategies in four Asian markets- Hong Kong, Korea, Singapore and Taiwan. The results indicated that the presence of significant value premium was observed in Hong Kong, Korea and Taiwan.

Gharghori et al. (2013) evaluated the performance of high earnings to price stocks over low earnings to price stocks in Australian stock market. The results confirmed the presence of strong value effect in Australia. In addition, Penman (2013) examined the performance of high earnings to price stocks over their counterparts in US stock market. The results indicated the higher performance witnessed by value stocks followed by higher risk. Furthermore, Rasul (2013) also observed higher return and lesser risk witnessed by high earnings to price stocks in Dhaka stock exchange. Furthermore, Sareewiwatthana (2014) examined the performance of high earnings to price stocks in Thailand stock market and found the presence of value premium yielded by such stocks.

The above literature suggests that the investment analysts have used earnings yield and its inverse (price to earnings ratio) to determine whether the stock is undervalued or overvalued. The literal principle of Benjamin Graham has negligible exploration. Moreover, most of the studies examining the performance of stocks having high earnings to price relate to U.S. and other mature markets. For an emerging market like India, such evidence is inadequate and more recent in origin. Moreover, against this background, the present study aims to enrich the literature on value investing strategies through examining the profitability of stocks having earnings to price yield at least twice the AAA bond yield in Indian stock market.

Given below are the objectives of the study:

- To analyze the market adjusted performance of stocks having earnings to price yield at least twice the AAA bond yield.
- To analyze the risk and volatility of these stocks.
- To determine the abnormal performance, if any of these stocks.

**Data and their sources**

Universe of the study comprises of the stocks listed at Bombay Stock Exchange, being the oldest stock exchange in the country and contains the largest number of listed companies in India. The time period of the study has been 15 years i.e. 1999-2013. In order to select the final sample of stocks, following filters are applied:

- The companies having inadequate size are eliminated.[2]
- The financial companies are not included in the study.[3]

After applying the above filters, the stocks having earnings to price yield at least twice the AAA bond yield are selected. The final number of stocks meeting the criterion ranged from 4 to 117 across the period of 15 years (see Table 1). In order to calculate the earnings to price yield of a stock, every year the data regarding earnings per share have been collected for the financial year ending on 31st march of particular year. However, the portfolio of the stocks meeting the said criterion has been formed at the end of 30th June every year, in order to avoid the look ahead bias in the study. The data regarding the said variables has been culled out from PROWESS, database maintained by Centre for Monitoring Indian Economy (CMIE) and the website of BSE (www.bseindia.com).

It is important to note that the earnings yield has been compared with AAA rated bonds. AAA rating is the highest rating assigned to an instrument and such assets are deemed least likely to default (Marshall, 2009). Instruments with the AAA rating (by CRISIL) are considered to have the highest degree of safety regarding timely servicing of financial obligations and an issuer of such security has very strong capacity to meet up its financial commitments[4]. However,

[2] *Benjamin graham has recommended that the companies should have adequate size i.e. the industrial companies having lessor than 100 million dollars of total sales and public utility companies having lessor than 50 million dollars of total assets are eliminated from the sample (Graham, 1949).*
[3] *The financial companies are not included in the study because the economic meanings of accounting numbers used in the study may differ between financial and non-financial firms.*

during the subprime mortgage crisis of 2007 in the U.S, the bonds or securities which were rated as AAA were downgraded to CCC by rating agencies on account of lack of the issuer's ability to meet its financial commitment (Olofsson, 2008). Therefore, instead of taking AAA bond yield, the yield on government security has been taken as they carry least risk of default and, hence, are called risk-free gilt-edged instruments[5]. Rate of returns on 91-days Treasury Bills has been used as a proxy for risk free return (Tripathi, 2009).

## METHODOLOGICAL FRAMEWORK AND HYPOTHESIS TESTING

While measuring the returns of portfolio we include the capital appreciation component as well as the dividends distributed by the stocks because the total return available to an investor in the stock market is the summation of capital appreciation and dividend income. The raw returns have been computed for 12 month, 24 month holding period[6] using the following formula:

$$R_{jt} = \left( \frac{P_{jt} - P_{jt-1}}{P_{jt-1}} \right) + \left( \frac{d}{P_{jt-1}} \right) \qquad (1)$$

Where,

$R_{jt}$= Monthly rate of return for share j in month t.
$p_{jt}$ = Adjusted closing price of share j at the end of month t.
$p_{jt-1}$ = Adjusted closing price of share j at the end of month t.
$d_{jt}$ = Cash dividend received of $j^{th}$ share during month t taken from ex- dividend date.
Then, annual stock returns (12 months holding period) are calculated as:

$$AR_{jt} = \sum_{t=1}^{12} R_{jt} \qquad (2)$$

Where, $AR_{jt}$= the annual return of each share j at the end of each year t (t= 1996, 1997,…., 2010)

In case of 24 months holding period, the annualized rate of return is computed using the following formula:

$$AR_{jt} = \left[ 1 + \sum_{t=1}^{24} R_{jt} \right]^{1/2} - 1 \qquad (3)$$

Monthly return on market portfolio (proxied by BSE SENSEX) has been calculated using equation (1) except that in place of closing adjusted share prices, closing Index Values have been taken. Similarly, The annual return of the market portfolio in case of 12 months holding period, 24 months holding period has been calculated using equations (2) and (3) respectively. In order to calculate the market adjusted returns, the market returns are deducted from raw returns. If any stock which has been a part of the portfolio lacks further information regarding closing prices, then the last available price is used to calculate the return. However, if any stock gets delistedduring the holding period, then that stock is included in the study in order to avoid the survivorship bias and is assigned the return of -100%, if no information regarding the amount received on delisting is available.

In order to analyze the performance of stocks arrived at after meeting different principles, we have made use of following analytical tools:

**One sample t-test:** One-Sample T-Test compares the mean score of a sample to a known value, usually, known as population mean. The portfolio of stocks, meeting the rule of market price lessor than two-third of the tangible book value per share, is said to outperform the market, if it provides positive as well as significant market adjusted returns. The null hypothesis to study the significance of market adjusted returns is:

H0: Market adjusted returns=0

However, the rejection of null hypothesis (significant F-statistic) implies that the average market adjusted returns could be significantly greater or lessor than zero (Hussein, 2005). This test assumes that the data to be analyzed should be normally distributed. However, lack of fulfillment of this assumption leads to application of Wilcoxon signed rank test to examine the significance of market adjusted returns.

**One Sample Wilcoxon Signed Rank Test-** This test is the nonparametric equivalent of one sample t-test with the null hypothesis that the median value of the market adjusted returns of the stocks in the sample is equal to zero (Hussein, 2005).

Further, to assess the volatility and the abnormal returns generated, if any, we use capital asset pricing model.

**Capital asset pricing model:** CAPM suggests that high expected returns are associated with high levels of risk. In simple words, it postulates that the expected return on an asset above the risk-free rate is linearly related to the non-diversifiable risk as measured by the asset's beta (Michailidis et al., 2006). Beta measures the sensitivity of the asset's return to variation in the market return (Fama and French, 2004). The beta coefficient is estimated for the portfolio using monthly returns during the period of June 1996 to June 2010 by following time series equation:

$$R_{pt} - R_{ft} = \quad_p + \quad_p (R_{mt} - R_{ft}) + e_{pt}$$

Where,
$R_{pt}$ is the return of portfolio p at time t,
$R_{ft}$ is the rate of return on a risk-free asset,
$_p$ is the intercept term, is the rate of return on the market index,
$R_{mt}$ is the coefficient loading for the excess return of the market portfolio over the risk-free rate, and

[4] *http://www.crisil.com/ratings/credit-rating-scale.html*
[5] *http://www.rbi.org.in/Scripts/FAQView.aspx?Id=79*
[6] *Each security was held, according to Graham's advice, for either two years or until 50 per cent price appreciation occurred-whichever came first (Graham, 1934).*

$e_{pt}$ is the error term for portfolio p at time t.

The intercept, $_p$ (which is also known as Jensen alpha), is the difference between the estimated expected return by time series average and the expected return predicted by CAPM. If an asset's return is even higher than the risk adjusted return, that asset is said to have positive alpha or abnormal returns. Thus, Jensen alpha will determine the abnormal return (if any) obtained through stocks.

Therefore to assess the volatility of the given portfolio, abnormal returns generated, if any, we test the following hypothesis:

$H_0$: $_p = 0$

$H_0$ $_p = 0$

## ESULTS AND DISCUSSION

In order to test the above hypothesis, the stocks having earnings to price ratio of at least twice the 91 days Treasury bill rate (taken as proxy for AAA bond yield in present study) are screened on 30th June every year, from 1999 to 2013. The stocks so arrived have been held for the period of 12 months as well as 24 months. The Table 1 reports the results of one sample t-test and one sample Wilcoxon signed rank test[7] employed to examine the significance of returns in case of 12 months, 24 months holding period.

From Table 1 we note that, the number of stocks meeting the criterion of earnings to price at least twice the 91 days Treasury bill yield ranges from 4 to 117 across the period of 15 years. The stocks so arrived have been providing positive market adjusted

TABLE 1: RESULTS OF THE SIGNIFICANCE OF MARKET ADJUSTED RETURNS OF STOCKS HAVING EARNINGS YIELD AT LEAST TWICE THE AAA BOND YIELD

| Year | No. of stocks | 12 Months Holding Period | | | | 24 Months Holding Period | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean (Annual) | Std. Dev. | t-value | p-value | Mean (Annualized) | Std. Dev. | t-value | p-value |
| 1999 | 4 | -56.6528 (16.402) | 32.80548 | - | .041** | -35.9683 (17.73635) | 35.47269 | - | .144 |
| 2000 | 16 | -10.8569 (7.9150) | 31.66028 | -1.372 | .190 | -5.4154 (7.18617) | 28.74470 | -.754 | .463 |
| 2001 | 27 | 2.8141 (7.6588) | 39.79658 | .367 | .716 | -5.5279 (5.58296) | 29.00992 | -.990 | .331 |
| 2002 | 18 | 32.0802 (22.5189) | 95.53962 | 1.425 | .172 | 6.9592 (9.83371) | 41.72090 | .708 | .489 |
| 2003 | 32 | 8.9804 (9.1997) | 52.04169 | .976 | .337 | 38.0899 (4.85290) | 27.45214 | 7.849 | .000*** |
| 2004 | 53 | 72.1239 (7.81996) | 56.93013 | 9.223 | .000*** | 36.2971 (3.44224) | 25.05987 | 10.545 | .000*** |
| 2005 | 30 | 27.1575 (6.8836) | 37.70336 | 3.945 | .000*** | 15.6825 (4.24542) | 23.25311 | 3.694 | .001*** |
| 2006 | 51 | 14.0812 (5.47815) | 39.12184 | 2.570 | .013** | 12.4759 (2.75717) | 19.69012 | 4.525 | .000*** |
| 2007 | 68 | 34.6917 (7.04117) | 58.06299 | 4.927 | .000*** | 5.6487 (3.20354) | 26.41710 | 1.763 | .082* |
| 2008 | 46 | -13.4622 (7.40510) | 50.22380 | -1.818 | .076* | -8.4204 (3.80947) | 25.83708 | -2.210 | .032** |
| 2009 | 23 | .0472 (7.7254) | 37.04970 | .006 | .995 | 9.5775 (5.75630) | 27.60627 | 1.664 | .110 |
| 2010 | 21 | 11.0801 (15.015) | 68.80814 | .738 | .469 | 8.9806 (7.20296) | 33.00812 | 1.247 | .227 |
| 2011 | 30 | 27.0269 (12.1411) | 66.49993 | 2.226 | .034** | 24.3016 (4.66443) | 25.54813 | 5.210 | .000*** |
| 2012 | 117 | 41.4789 (3.4967) | 37.82360 | 11.862 | .000*** | 9.6900 (2.30211) | 24.90116 | 4.209 | .000*** |
| 2013 | 68 | -10.5522 (4.6929) | 38.69873 | -2.249 | .028** | -8.6279 (3.36839) | 27.77644 | -2.561 | .013** |
| **Across the period** | **604** | **21.2181 (2.24722)** | **55.22851** | **9.442** | **.000*** ** | **9.3983 (1.22348)** | **30.06865** | **7.682** | **.000*** ** |

**Note:**
**1. *, **, *** denotes p-values significant at 10, 5 and 1 percent level respectively**
**2.Standard error of mean has been reported in parenthesis.**
**3.Italicized values represent the p-values of Wilcoxon signed rank test**

return in 11 out of 15 year period in case of 12 months holding period. However, the positive market adjusted returns have not been significant in all 11 years due to larger standard deviation of returns from the mean. The positive mean market adjusted reruns have been significant at 1% level of significance for the year; 2004, 2005, 2007 and 2012. For the years 2006 and 2011, the positive mean market adjusted return has been significant at 5% level of significance. However, the criterion provides significantly negative market adjusted returns only in 3 years i.e. 1999, 2008 and 2013. Further, across the period of 15 years, the stocks selected on the basis of earnings to price ratio of at least twice the risk free yield, provides mean market adjusted return of 21.21%, which is significant at 1% level of significance. Thus, the stocks selected on the basis of this principle enable an investor to acquire positive market adjusted returns in 11 years out of 15 years period and significantly positive returns in 6 years when the stocks have been held for the period of 12 months each year.

Also, it is evident from Table 1 that when we extend the holding period of the stocks from 12 months to 24 months, the criterion provides us positive mean market adjusted returns in 10 years out of 15 year period. Out of those 10 years, the market adjusted returns have been significantly positive in 2003, 2004, 2005, 2006, 2007, 2011 and 2012. Thus in 7 years, the market adjusted returns have been significantly positive when the holding period has been extended from 12 months to 24 months period. However, in 3 years (1996, 2005 and 2010) the returns remain significantly negative even after extending the holding period to 24 months. Overall, across the period of 15 years, the stock selection based on first rule of Graham helps an investor to reap the mean market adjusted annualized rate of return of 9.39%, which is significant at 1% level of significance. Thus, an investor can acquire significantly higher returns than the market by relying on the principle of earnings yield being twice the risk free yield. Hence, the applicability of this principle cannot be ignored in the present day scenario in Indian stock market.

Further, to examine the risk and volatility through capital asset pricing model, the monthly data of returns in excess of risk free rate is regressed against market returns in excess of risk free rate for the period of 15 years. The foremost condition for applying the time series regression is that the data should be stationary i.e. there should be no unit root in the data. Therefore, we used Augmented Dickey-Fuller test statistic, Phillips-Perron test statistic to examine if there is any unit root in the data. The table 2 shows the results of unit root test to examine the stationary of the portfolio, market returns.

As evident from the above table 2 that the T-statistic for Phillips-Perron test is significant at 1% level of significance in case of portfolio, market returns in excess of risk free rate. Also, T-statistic for Augmented Dickey-Fuller test is significant at 1 % as well as 5% level of significance in case of excess portfolio returns, excess market returns respectively. Thus, we reject the null hypothesis that the time series data has unit root. Therefore, we conclude that series is stationary. Further, the results of CAPM as applied using time series regression have

**TABLE 2: THE RESULTS OF UNIT ROOT TEST TO EXAMINE THE STATIONARITY OF THE PORTFOLIO, MARKET RETURNS**

| Augmented Dickey-Fuller test statistic | | 12 months holding period | | | | 24 months holding period | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Portfolio returns in excess of risk free rate | | Market returns in excess of risk free rate | | Portfolio returns in excess of risk free rate | | Market returns in excess of risk free rate | |
| | | t-stats | p-value | t-stats | p-value | t-stats | p-value | t-stats | p-value |
| | | -11.209 | 0.000*** | -12.297 | 0.000*** | -3.918 | 0.002*** | -3.373 | 0.0126** |
| Test critical values: | 1% level | -3.466 | | -3.466 | | -3.448 | | -3.448 | |
| | 5% level | -2.877 | | -2.877 | | -2.869 | | -2.869 | |
| | 10% level | -2.575 | | -2.575 | | -2.571 | | -2.571 | |
| Phillips-Perron test statistic | | -11.182 | 0.000*** | -12.368 | 0.000*** | -16.521 | 0.000*** | -18.498 | 0.000*** |
| Test critical values: | 1% level | -3.466 | | -3.466 | | -3.448 | | -3.448 | |
| | 5% level | -2.877 | | -2.877 | | -2.869 | | -2.869 | |
| | 10% level | -2.575 | | -2.575 | | -2.571 | | -2.571 | |

Note:
1. *, **, *** denotes p-values significant at 10, 5 and 1 percent level respectively
2. Standard error of mean has been reported in parenthesis.

been stated in table 3 below:

**TABLE 3: THE RESULTS OF CAPITAL ASSET PRICING MODEL**

| Results of CAPM | | 12 months holding period | | 24 months holding period | |
|---|---|---|---|---|---|
| | | | Null hypothesis | | Null hypothesis |
| R-squared | | 0.045 | | 0.041 | |
| ANOVA | F-VALUE | 8.8332 | | 15.368 | |
| | P-VALUE | 0.004*** | Rejected | 0.000*** | Rejected |
| Constant | COEFFICIENT | 1.490 (0.831) | | 1.458 (0.602) | |
| | T-VALUE | 1.793 | | 2.421 | |
| | P-VALUE | 0.075* | Rejected | 0.016** | Rejected |
| Beta | COEFFICIENT | .303 (0.105) | | .301 (.077) | |
| | T-VALUE | 2.887 | | 3.920 | |
| | P-VALUE | .004*** | Rejected | 0.000*** | Rejected |
| DW statistics | | 1.91 | | 1.941 | |

**Note:**
**1. *, **, *** denotes p-values significant at 10, 5 and 1 percent level respectively**
**2. Standard error of mean has been reported in parenthesis.**

From table 3 we note that results of ANOVA shows that p-value is significant in both the holding periods, hence overall model is fit. Also, the Durbin Watson is 1.91, 1.94 in case of 12, 24 months holding period suggesting that there is no autocorrelation in the data. According to CAPM, beta is the only relevant measure of a stock's risk. It measures a stock's relative volatility i.e. it shows how much the price of a particular stock jumps up and down compared with how much the stock market as a whole jumps up and down[8]. It can be seen that the value of beta is 0.303 and 0.301 in cases of 12 months and 24 months holding period respectively. It shows that 1% increase or decrease in market portfolio will result in about 0.3% increase or decrease in our portfolio in cases of both the holding periods. Also, the beta is significant at 1% level of significance in both sets of holding periods. Thus, we reject the null hypothesis of zero beta value. Beta is the significant factor explaining the variation in portfolio's returns. Also, the beta value lessor than one, suggests that the portfolio under study is lessor volatile or risky than the market.

The capital asset pricing model helps us to determine the expected returns of the portfolio by adequately reckoning the systematic risk factor i.e. beta in the model and then compares the actual returns with the expected return of the portfolio to determine the presence of abnormal returns (alpha). The Jensen alpha (as discussed above) explains the difference between the portfolio's actual return and expected return, is significant at 10% and 5% level of significance in 12 months and 24 months holding period respectively thereby implying the presence of the abnormal returns in the given portfolio. But the R-square that gives the proportion of variance explained by the regression model or the market factor is very small i.e. 4.5% in the case of 12 months holding period, 4.1% in the case of 24 months holding period. Thus, it implies that the addition of more variables could increase the explanatory power of the model. Thus, the significant value of alpha so derived from the model cannot be considered as conclusive evidence of presence of abnormal returns due to low explanatory power of the model.

## ONCLUDING OBSERVATIONS

In order to maximize the returns of investors, Graham and Dodd (1934) developed a few sound principles for analyzing a company's fundamentals and its future scenario which revolutionized the investment theory with concepts of security analysis, fundamental analysis and value investing theory. The present study has made an attempt to examine the relevance of stock selection based on Benjamin Graham's principle of buying a stock having earnings to price yield at least twice the AAA bond yield in Indian stock market using the data on stocks listed on Bombay Stock exchange for the period of 15 years spanning from 1999 to 2013. The results indicate that the portfolio selected on the basis of this criterion provides significantly positive market adjusted returns in majority of the years in case of both the holding periods. Also, the portfolio shows relatively less volatility than the market portfolio in both the holding periods. Therefore, the stock selection based on earnings to price yield rule can help the

[8] *http://www.investopedia.com/articles/06/CAPM.asp#ixzz1YOQpv88a.*

vast range of investors, fund managers, portfolio managers, financial analysts, hedge fund managers etc. The main objective of the mutual fund managers is that their fund outperforms the market. They can, therefore, consider this criterion for fund making in equity based mutual funds as it can help them to outperform the market in long run. The investors thereby can investment in the mutual fund generating them higher returns at lower risks. Moreover, holding the portfolio for the long term provides a cushion of time to absorb market fluctuations and also enables the investors to get tax benefits. Likewise, the hedge fund managers can also use it as a tool for risk management due to comparatively less volatility of high earnings to price yield stocks.

However, we cannot safely infer the presence of abnormal returns in excess of what capital asset pricing model suggests, due to lack of power of the independent variable i.e. market factor in explaining the overall portfolio returns. Therefore, the further research invites adding more variables to the pricing model in order to improve the explanatory power of the model and then examining the presence of abnormal returns. Moreover, the research could be conducted adding other stock selection rules with earnings to price yield rule in order to monitor whether the performance improves or not.

## REFERENCES


1. Ahmed, I. (2008). Value Investing on the Bombay (Mumbai) Stock Exchange- Post Sell Off 1997. <http://papers.ssrn.com/sol3/papers.cfm?abstract_id =1307867> Accessed 2010 May, 15.
2. Anderson, J. H., Korsun, G. and Murrell, P. (2003). Glamour and Value in the Land of Chingis Khan. Journal of Comparative Economics 31 (1): 34-57.
3. Anderson, K. (2012). The Essential P/E: Understanding the Stock Market through the Price-Earnings. Harriman house ltd., Great Britain.
4. Anderson, K. and Brooks, C. (2006). The Long-Term Price-Earnings Ratio. Journal of Business Finance & Accounting 33 (7-8): 1063–1086.
5. Au, T. P. (2004). A Modern Approach to Graham and Dodd Investing. John Wiley & Sons, New Jersey.
6. Basu, S. (1977). The Investment Performance of Common Stocks in Relation to Their Price-Earnings Ratios: A Test of the Efficient Market Hypothesis. Journal of Finance 32 (3): 663-82.
7. Bauman, S. W., and Miller, R. E. (1997). Investor Expectations and the Performance of Value Stocks versus Growth Stocks. Journal of Portfolio Management 23 (3): 57-68.
8. Bauman, W. C., Conover, C. M. and Miller, R. E. (1998). Growth versus Value and Large Cap versus Small Cap Stocks in International Markets. Financial Analysts Journal 54 (2): 75-89.
9. Bird, R. H. and Gerlach, R. H. (2003). The Good and the Bad of Value Investing: Applying a Bayesian Approach to Develop Enhancement Models. <http://ssrn.com/abstract=391686> Accessed 2010 Feb, 2).
10. Brouwer, I., Put, J. V. and Veld, C. H. (1996). Contrarian Investment Strategies in a European Context. <http://papers.ssrn.com/sol3/papers.cfm?abs tract_id=41003> Accessed 2010 March, 3.
11. Brown, S., Rhee, S. G. and Zhang, L. (2008). The Return to Value in Asian Stock Markets. Emerging Markets Review 9 (3): 194-205.
12. Dhatt, M. S., Kim, Y. H. and Mukherji, S. (1999). The Value Premium for Small-Capitalization Stocks. Financial Analysts Journal 55 (5): 60-68.
13. Ding, D. K., Chua, J. L. and Fetherston, T. A. (2005). The Performance of Value and Growth Portfolios in East Asia before the Asian Financial Crisis. Pacific-Basin Finance Journal 13 (2): 185-199.
14. Dunis, C. L. and Reilly, D. M. (2004). Alternative Valuation Techniques for Predicting UK Stock Returns. <http://www.ljmu.ac.uk/AFE/AFE_docs/A RTc ddr_0204.pdf> Accessed 2010, March, 24.
15. Fama, E.F. and French, K. R. (2004). The Capital Asset Pricing Model: Theory and Evidence. Journal of Economic Perspectives 18 (3): 25-46.
16. Gharghori, P., Stryjkowski, S. and Veeraraghavan, M. (2013). Value versus Growth: Australian Evidence. Accounting and Finance 53 (2): 393-417.
17. Graham, B. (1949). The Intelligent Investor. Harper Collins Publishers, USA.
18. Graham, B. and Dodd, D. (1934). Security Analysis. McGraw-Hill, USA.
19. Hussein, K. A. (2005). Islamic Investment: Evidence from Dow Jones and FTSE Indices. <http://kantakji.com/media/7927/khaled_a_hussein_1.pdf> Accessed 2014 Feb, 2.
20. Michailidis, G., Tsopoglou, S., Papanastasiou, D. and Mariola, E. (2006). Testing the Capital Asset Pricing Model (CAPM): The Case of the Emerging Greek Securities Market. International Research Journal of Finance and Economics (4): 78-91.
21. Olofsson, S. (2008). The Subprime Crisis from the Inside. <http://www.er.ethz.ch/ publications/StefanOlofsson_MasterThesis_Subprime-crisis_2.pdf> Accessed 2012 June, 23.
22. Penman, S. (2013). The Value Trap: Value Buys Risky Growth. <http://www8.gsb.columbia.edu/ceasa/sites/ceasa/files/files/Value%20vs%20Growth%20November%202013.pdf> Accessed 2016 Nov, 26.
23. Rasul, M.S. (2013). Value Versus Growth on the Dhaka Stock Exchange: Risk- Return Relationship. International Journal of Economics, Finance and Management 2 (6): 439-452.
24. Sareewiwatthana, P. (2014). PE Growth and Risk: Evidence from Value Investing in Thailand. <http://file.scirp.org/pdf/TI_2014051514162768.pdf> Accessed 2016 Nov, 26.
25. Tripathi, V. (2009). Company Fundamentals and Equity Returns in India. International Research Journal of Finance and Economics 29: 188-225.