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RISK-REUTM PREMIA IN INDIAN STOCK MARKETS IN TERMS OF BENJAMIN GRAHAM CRITERIA

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ABSTRACT :

　　　There are various value stocks picking methods and various studies on value investing in past. Still there is disbelieve related to effectiveness of value investing. Various studies on value investing inferred that value investing resulted higher returns than market average. The Graham stock selection criteria is widely appreciated and acknowledged across the globe. This methodological framework for stock investing is well lived and demonstrated by the equally agile and legend investor Warren Buffet for sustained wealth creation.

　　　The study tested the Benjamin Graham stock selection criteria from 2010 to 2018 and compared the portfolios return with the market benchmark NSE 50 and NSE 500. In the study, in Graham portfolio returns out of 8 year in 5 years are better than market benchmark (NSE 50) average returns and out of 8 years in 5 years have beaten the market benchmark (NSE 500) average returns. Unsystematic risk (standard deviation) and systematic risk (beta) both in Graham are less in comparison to market benchmark. In terms of value premium measure viz., Information ratio, Omega ratio, and Jensen's alpha of Graham criterion demonstrated superior returns than the market benchmark (NSE 50 and NSE 500). On the whole, the study results documented a superiority of the Benjamin Graham measure over the market benchmark both in terms of return generation as well as risk – reward trade off in Indian stock market during the study period, January 2010 through December 2018.

KEYWORDS : *value investing, criteria, value premium, NSE 50 & NSE 500 index.*

INTRODUCTION

　　　Value investing that is a stock investing perspective pioneer by Benjamin Graham (father of value investing), epitomized the ideas of investing from his trading experience in the stock market. Value investing is a long term perspective approach based on believes that in long run investment results in superior returns. There are various value stocks picking methods and various studies on value investing in past. Still there is disbelieve related to effectiveness of value investing. Various studies on value investing inferred that value investing resulted higher returns than market average.

　　　Benjamin Graham's investing philosophy weighted to investing in that stocks which intrinsic value are exceeds than their market prices. The study tested the Benjamin Graham stock selection criteria from 2010 to 2018 and compared the portfolios return with the market benchmark NSE 50 and NSE 500. Benjamin Graham's criteria include P/E ratio, P/B ratio, and Dividend Yield (these three ratios indicate that any stocks have high intrinsic value than their price) used for construct the portfolio.

　　　The study measure the risk of the portfolio using Standard deviation, Beta. And value premium measure ratio, viz., Information ratio, Omega ratio, and Jesnsen's Alpha. The study resulted that the

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Benjamin Graham investing strategies perform better than market average in Indian stock market during the period 2010-2018.

REVIEW OF LITERATURE

Value investing that is a stock investing perspective pioneer by Benjamin Graham (known as father of value investing). Hemwachirawarakorn & Intara (2008) tested value investing for period 2003-2007 in Thailand and discovered that it produced adequate higher returns in comparison to average market returns. Consistently higher returns on investment can be attained by following value investing approach of selected stocks of low price earnings ratio is suggested by Truong (2009).

Benjamin Graham's investing philosophy weighted to investing in that stocks which intrinsic value are exceeds than their market prices. Graham set criteria for picking undervalued stocks and asserted that the stocks which go through the criteria were yielding average returns above than the market returns (Graham 1934). Graham & Zweig (2003) also suggested that picking undervalued stocks required combining the criteria in stock picking screening rules. Oppenheimer (1984) tested the Graham's criteria from year 1974-1981 to construct the portfolios and resulted that returns were higher than the market.

Chang (2012) tested the Graham's criteria into Thailand and Malaysia and resulted superior portfolio performance in comparison to respective stock market. Basu (1977) implemented the test using Sharpe, Treynor, and Jensen's alpha measures, result imply that the low P/E ratio portfolio averagely outer perform than the random portfolios which have equivalent risk. And similar results were found by Chan, Hamao, & Lakonishok (1991) and Athanassakos (2011). Pederson (2013) provided indication that value investing strategy help to investors in attain return premia.

Fama and French (1992) identified Value Premium for the period post-1963 in U.S. stocks return, stocks which have high book value of equity/ market value equity have excess average returns in comparison to stocks which have low book to market ratios. Davis, Fama, and French (2000) extended the test back to the year 1926, and evidence in earlier period that Value Premium exists in average returns.

Vassalou & Xing (2004) and Kapadia (2011) both contended that value premium is originate from the excessive fundamental risk integrated with the basic companies. Sareewiwathana and Janin (2017) tested the Graham investing strategy by using Sharpe ratio and Standard deviation and resulted that strategy outer perform the market. Ye (2013) tested the Benjamin Graham investing strategy in Shanghai Stock Exchange and resulted that investing strategy perform better than market average returns except in year 2006 due to new policy enforcement by Chinese government.

Data and Research Methodology

The researcher selects the stocks from NSE 500 a share index of National Stock Exchange from year January 2010 to December 2018. All of the data used in this research collected from the PROWESS data base of CMIE. Select two indices of NSE for comparison NSE 500 and NSE 50. The stock returns taken on weekly basis from Yahoo finance.

Stock Selection Criteria of Benjamin Graham:
P/E ratio less than 10
P/B ratio less than 1
Dividend Yield above 3%

According to Benjamin Graham investment philosophy, stocks which have intrinsic value far exceeds their prices are best for investment. Following are the indicators which show that intrinsic value of stock is exceeds their prices:
- Price to Earnings (P/E) ratio
- Price to Book value (P/B) ratio
- Dividend Yield ratio

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FILTER -
Picking stocks using Benjamin Graham's three stock selection criteria: P/E, P/B, and Dividend Yield.
Step 1:
        In the beginning of each year, from 2010 to 2018, construct a portfolio with stocks that fulfils the above three criteria. Invest in each stock.
Step 2:
        Calculate the return in the year-end and compare it with market returns.
Step 3:
        Repeat the same process in next year and make a new portfolio and invest in each stock and compare returns in the year end. Same process follows in other years also.

Return Measurement:
Return = LN (Current year return/Previous year return)

Risk Measurement:

Standard Deviation= $\sqrt{\sum_{i=1}^{N}(r - ERR)^2 \times P}$

Beta= Covariance (Portfolio Returns: Market Returns)/ Variance (Market Returns)

Value Premium measure:
Jensen's Alpha = Portfolio Return- [Risk free rate + Portfolio Beta (Market Return- Risk free rate)]
Excess Return= Portfolio Return – Risk free rate of return
Risk free rate of return is taken of 91-days treasury bills.
Source: https://www.rbi.org.in/Scripts/BS_NSDPDisplay.aspx
Information Ratio= Mean of Portfolio Return- Benchmark Return**/** Tracking Error
Tracking Error= Standard Deviation of Portfolio Return – Benchmark Return
Omega Ratio= ∑ Returns above Threshold – Threshold Return/
        ∑ Return below Threshold – Threshold Return
Here, Threshold Return is the risk free rate of 91-days Treasury Bills.

Table1: Portfolio's returns compared to the market return

YEAR	NO. OF STOCKS	NSE 50 R	NSE 500 R	PORTFOLIO RETURN
2011	10	-0.47923	-0.54509	-0.47293
2012	38	0.41694	0.480458	0.291771
2013	21	0.098769	0.032913	0.215504
2014	39	0.568706	0.654258	0.299494
2015	8	-0.03733	0.031204	0.460459
2016	17	0.150832	0.064167	0.459243
2017	11	0.480066	0.573717	0.547747
2018	5	0.054532	-0.0828	0.545201
AVERAGE		**0.156661**	**0.151103**	**0.293311**

        Average return of portfolios in comparison to NSE 50 Index return is **87.23% above** and in comparison to NSE 500 Index return it is **94.11% above.** In 5 years out of 8 years portfolio return is higher than NSE 50 Index return and in 4 years higher than NSE 500 Index return.

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Table 2: Risk Measure of Portfolio.

YEAR	FILTER 1				
	σ OF PORTFOLIO RETURN	σ OF NSE 50 INDEX RETURN	σ OF NSE 500 INDEX RETURN	Portfolio BETA(NSE 50)	Portfolio BETA (NSE 500)
2011	2.702812916	3.051940686	2.853918	0.583953	0.67091
2012	1.637910128	1.883846724	1.888039	0.558033	0.60393
2013	2.603480523	2.417016372	2.341935	0.737027	0.820496
2014	2.104443383	1.71121835	1.808329	0.421309	0.508416
2015	2.536171484	2.375514847	2.303055	0.754781	0.722379
2016	3.119858587	2.33241796	2.296141	0.79106	0.143064
2017	2.277777912	1.293809152	1.337309	0.785984	0.982954
2018	3.294022087	1.840116884	1.935175	-0.05423	0.010396
AVERAGE	**2.534559627**	**2.113235122**	**2.095487**	**0.57224**	**0.557818**

The returns variability (risk) was noticed higher, 2.534559627 compared to the market benchmark (NSE 50 (2.113235122), and NSE 500 (2.095487) in commensurate with the returns generated in Table (2) in terms of stock selection criteria of Benjamin Graham.

The systematic risk (Beta) was noticed higher, 0.57224 and 0.557818 compared to the market benchmark Beta (NSE 50 (1.0) and NSE 500 (1.0)) in commensurate with the returns generated in Table (2) in terms of stock selection criteria of Benjamin Graham. Thus, the Table (2) concluded that the portfolio have high variability (unsystematic risk) and lower Beta (systematic risk).

Table (3): Value Premium for selected measure

YEAR	Filter 1				
	Information Ratio NSE 50	Information Ratio NSE 500	Omega Ratio	Jensen's alpha NSE 50	Jensen's alpha NSE 500
2011					
PORTFOLIO	0.128365	0.16483	1.409702	0.591894	0.644629
NSE 50			0.604011	0.0	0.0
NSE 500			0.545884	0.0	0.0
2012					
PORTFOLIO	0.033111	-0.0141	1.580806	0.251704	0.162343
NSE 50			1.430577	0.0	0.0
NSE 500			1.542332	0.0	0.0
2013					
PORTFOLIO	0.12193	0.107655	1.404843	0.022714	-0.06205
NSE 50			0.940073	0.0	0.0
NSE 500			0.877049	0.0	0.0
2014					
PORTFOLIO	0.270376	0.216727	1.407853	0.028811	-0.08257
NSE 50			1.905175	0.0	0.0
NSE 500			2.044223	0.0	0.0
2015					

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PORTFOLIO	-0.12235	-0.17092	1.23263	-0.05775	-0.62868
NSE 50			0.825993	0.0	0.0
NSE 500			0.882886	0.0	0.0
2016					
PORTFOLIO	0.059572	0.10394	1.054758	-0.33735	0.008937
NSE 50			0.989785	0.0	0.0
NSE 500			0.894302	0.0	0.0
2017					
PORTFOLIO	-0.08452	-0.13845	1.238739	0.242048	-0.06784
NSE 50			2.064854	0.0	0.0
NSE 500			2.468812	0.0	0.0
2018					
PORTFOLIO	0.00268	0.034786	0.561194	0.422202	0.417503
NSE 50			0.90595	0.0	0.0
NSE 500			0.743991	0.0	0.0
AVERAGE					
PORTFOLIO	**0.051145**	**0.038059**	**1.236316**	**0.145535**	**0.049034**
NSE 50			**1.208302**	**0.0**	**0.0**
NSE 500			**1.249935**	**0.0**	**0.0**

The information ratio of portfolio out of 8 years in 4 years better than average information ratio (NSE 50) and in 4 years better than average information ratio (NSE 500).

The omega ratio noticed higher, 1.236316 compared to omega ratio of NSE 50 (1.208302) and lower in comparison to omega ratio NSE 500 (1.249935) in commensurate with the returns generated in Table (3) in terms of stock selection criteria of Benjamin Graham. The omega ratio of the portfolio out of 8 years in 5 years higher than average of omega ratio.

The average of Jensen's alpha of the portfolios (0.145535) and (0.049034) in respect to NSE 50 and NSE 500 were higher and positive than market benchmark NSE 50 and NSE 500 in commensurate with the returns generated in Table (3) in terms of stock selection criteria of Benjamin Graham. The Table (3) concluded that out of 8 years in 4 years Jensen's Alpha of the portfolio (NSE 50) is higher than the average Jensen's Alpha of the portfolios (NSE 50) and out of 8 years in 3 years Jensen's Alpha of the portfolio (NSE 500) is higher than the average Jensen's Alpha of the portfolios (NSE 500).

FINDINGS AND CONCLUSIONS:

Value investing is a long term perspective approach based on believes that in long run investment results in superior returns. There are various value stocks picking methods and various studies on value investing in past. Still there is disbelieve related to effectiveness of value investing. Various studies on value investing inferred that value investing resulted higher returns than market average.

The study employed Benjamin Graham investing criteria for the period January 2010 to December 2018. In the study, portfolio returns out of 8 years in 5 years better than market benchmark (NSE 50) average returns and out of 8 years in 5 years portfolio returns are superior to market benchmark (NSE 500) average returns.

Unsystematic risk (standard deviation) and systematic risk (beta) both in portfolio were less in comparison to market benchmark. Value premium measure; Information ratio, Omega ratio and Jensen's alpha of the portfolio demonstrate that portfolio performed better than market benchmark (NSE 50 and NSE 500).

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The study concluded on the basis of above results that investor can invest in Indian stock market according to Benjamin Graham Stock investing criteria for superior returns in long run because Benjamin Graham's criteria superior to market benchmark over the both in terms of return generation as well as risk – reward trade off in Indian stock market during the study period, January 2010 through December.

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