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## PERFORMANCE ANALYSIS OF VALUE STOCKS & EVIDENCE OF VALUE PREMIUM: A STUDY ON INDIAN EQUITY MARKET

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### ABSTRACT

*The superiority of value stocks over growth stocks and presence of value premium has been analyzed by many academicians in equity management, but most of the research on value and growth phenomena is based on the data from US stock markets. Superiority of value stocks over growth stocks has also been indicated in Non-US markets (Louis K.C. Chan and Josef Lakonishok (2004) & by Peter Oertmann (1999) who investigated 18 stock markets and indicated that value investment strategies have outperformed all equity markets. Satneet K. Sabharwal & Timothy Falcon Crack (2005) have found inconsistent results from other markets. The present study examines the performance of value stocks in Indian equity market and the evidence provides that investing in value stocks has not been much fruitful here however low price-earnings ratio stocks give better and consistent returns.*

### JEL CLASSIFICATION

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### KEYWORDS

Value stocks, value premium, performance consistency.

### INTRODUCTION

Classification of investment avenues is pervasive in financial markets and these are classified into broad categories such as; large stocks, small stocks, venture capital, government bonds, value stocks and high growth stocks (Bernstein, 1995; Swensen, 2000). The asset classes are known as 'styles' and the process is known as 'style investment'. Although style investing has been introduced as a new concept in the 1980s, the categorization of assets into different groups has taken place already for a long time. One style which emerged 75 years back was given in 'Security Analysis' book written by Benjamin Graham and David L. Dodd. They witnessed the five year span of the market – the run-up to the best and worst time of the markets from 1929 peak and crash of October 1929. They laid out a plan for how the investors in any environment might sort hundreds and thousands of common stocks, preference shares and debentures to identify the worthy investments. They applied their approach to the U.S. stock and bond markets and to the global capital markets. The theory they invented was known as "value investing" in their book Security Analysis in 1934 which is based on the assumption that two values are attached to a stock: Market Price and Business Value. Value investing is the practice of investing in securities or assets less than they are worth. The most exceptional concept invented in 1934 is still applicable today as these lessons are timeless. In late 1970s Banz documented the superior performance of securities on the basis of 'common characteristics' and discovered the "small firm" effect. At the end of 1970s market efficiency as explained by Fama (1970) was questioned and academic research started questioning the consistency of stock returns with EMH and it appeared that the EMH could not account for certain classes of stocks with similar characteristics. Several academic studies found that there were categories of stocks that had similar characteristics and performance patterns. Moreover, the returns of these stock categories performed differently than other categories of stocks. That is, the returns of stocks within category were highly correlated and the returns between categories of stocks were relatively uncorrelated. The first such study was by James L. Farrell Jr. (1975) who called these categories of stocks "clusters". He found that for stocks there were at least four such categories or clusters – growth, cyclical, stable, and energy. In the latter half of the 1970s, there were studies that suggested even a simpler categorization by size (as measured by total capitalization) which produced different performance patterns.

Value stocks investors seek to invest in undervalued stocks i.e. below their "intrinsic value" and wait for that value to be recognized by other investors. They put more weight on judgements about the extent that they think that stock is mispriced in the market; buy if underpriced and sell if overpriced. They look for 'margin of safety' i.e. the gap between the price of investment and its underlying value stocks and ideally require the market price well below the company's intrinsic value by nearly 33%. So, value investing is buying, with a sufficient margin of safety, a part of capital of a company whose market price is below the company's "real" value, or "intrinsic value" - selling the stock when the market price reaches the intrinsic value. Value investing originated in 1920s at a time when investors were guided mostly by speculation and insider information (Graham & Dodd). Investing in the companies trading below their true value is the underlying principle of value investing. Several strategies exist for value investing including investing in companies with high valuation ratios such as book-to-market ratio, earnings-to-price ratio and in companies with high dividend yields. Prior evidence on value investing suggests that value stocks generate higher returns than growth stocks. Chan & Chen (1991) have called these stocks as "fallen angels" whose earnings-to-assets are low. Lakonishok (1994) has defined value strategies as buying shares having low prices as compared to the indicators of fundamental value such as earnings, dividends or cash flow. The academic studies on value & growth investing have had a strong impact on investment management and 'value' and 'growth' investing are two widely recognized distinctive disciplines adopted by investors and professional managers. The current study investigates performance of value stocks in Indian stock market and found that the stocks are not able to generate superior returns even in down markets and the returns generated by these stocks are not consistent.

### LITERATURE REVIEW

After the crash of October 1929, the great depression started and growth stock investing disappeared. In the 1930s and 1940s, the value stock approach started to gain attention. Though Warren Buffet is the best known proponent of value investing actually, it was his 'guru' Benjamin Graham (1894-1976) who pioneered the concept of value investing and positioned it as an investment style best suited for risk-averse investors in his 1934 classic - Security Analysis. Graham's investment philosophy was to buy good assets cheaply, when they are out of favour. Or, as Warren Buffet puts it, 'finding an outstanding company at a sensible price.' Graham and Dodd (1934) advocated to stay away from growth stocks. The capital asset pricing model (CAPM) of Sharpe (1964) and Lintner (1965) was the most widely recognized explanation of stock prices and expected returns.

The Sharpe – Lintner CAPM equation describes the individual asset return based on market portfolio and estimation of beta. The notions of value and growth were introduced in the academic finance by Rosenberg (1985). In the early 1980s the evidences of stocks with high EP or BM ratios outperforming the stocks with low EP or BM ratios was regarded as pricing anomaly but in the mean time explanations were developed explaining the exceptional returns of value stocks and figured 'value premium'. The perspectives of different authors for the value puzzle were different. De Bondt & Thaler (1985) and Lakonishok, Shleifer & Vishny (1994) regarded value premium due to market overreaction and mispricing of stocks. Davis (1995) brings survivorship bias into discussion and finally the higher returns of value stocks are attributed to the systematic risk of such investments. The performance of these strategies is based upon the performance of the variables forming these strategies. Fama & French (1992) in their study combined the two variables size and book-to-market equity to capture the cross sectional variation in the average stock returns. They have found the evidence from the portfolios formed, that size has strong correlation with the average returns and size and book-to-market effects dominate all other firm-specific variables in explaining the cross-section of average returns, with average returns on small stocks higher than those on big stocks (the size effect) and average returns on high book-to-market stocks higher than those of low book-to-market stocks (the book-to-market effect). They find that the small caps outperformed the large caps by 0.74% on average per month over the period 1963 to 1990. Those studies demonstrate that small caps earn higher average returns than is predicted by the capital asset pricing model. Lakonishok et al. (1994) defined value strategies as buying shares having low prices compared to the indicators of fundamental value such as earnings, book value, dividends or cash flow. They classified stocks into "value" or "glamour" on the basis of past growth in sales and expected future growth as implied by the current Earnings-to-Price ratio. Fama and French (1996) define 'anomalies' as the patterns in average returns that are not explained by the CAPM. These are related to firm characteristics like size, earnings/price, cash flow/price, book-to-market equity, past sales growth, long-term past return, and short-term past return. They argue that many of the CAPM average-return anomalies are related and, except for continuation of short-term returns, they are largely captured by the three-factor model (Fama and French (1993)). Fama and French (1998) find international evidence stating that for the period 1975-1995, the value premium which is the difference between the high BE/ME and low BE/ME stocks is 7.68% per year and the value stocks outperform growth (glamour) stocks in twelve of the thirteen major (developed) markets. They also allow for another out-of-sample test of value premium on sixteen emerging markets and find the same result. With respect to size effect, they find that like US stocks returns, small stocks in emerging markets have higher average return than big stocks. Arshanapalli, Coggin, and Doukas (1998) show that the value-growth spreads on international stock markets substantially vary from year to year with respect to both signs and magnitudes. Reasons for such a cyclical behavior of value premiums are still unexplored. Nai-fu Chen and Feng Zhang (1998) in their study have found that the value effect is strong and persistent in US, somewhat less in Japan, Hong Kong and Malaysia and undetectable in Taiwan and Thailand and the reason for these differences is different market growth rates. Using three variables DIV, LEV & SEP; they have concluded that the higher returns of value stocks are compensated for higher risk. Further they concluded that value stocks give higher returns because these are the firms which are in distress, have high financial leverage and face earnings uncertainty in future. Peter Oertmann (1999) in his study has investigated 18 stock markets over three global regions from January 1980 to June 1999. The results indicate that value premiums reveal a time variation similar to the movements of global economic risk premiums. Over these 20 years; value stocks have outperformed all equity markets. Value-growth return spreads are driven by expected business conditions and the market climate and there is low correlation between value premiums across international stock markets that call for country specific style management. Though lots of attention has been concentrated for many years on the phenomenon of the value premium at the portfolio level, only recently the focus has been shifted at the stock level. The first author to recommend an analysis of the distribution of returns of value stocks over different holding periods was Piotroski (2000), who documented that, although value stocks over perform the market as a whole, most of them actually underperform the market over all reasonable holding periods, with the percentage of over performance reaching less than 43% on the US sample. The same result was obtained for both value and growth stocks by Bird and Casavecchia (2005), where they highlighted that a typical value stock underperform the market, and they evidenced that the value premium is determined by just a small number of stellar stocks that "drag" the overall performance of the style considered. Asness (1997) was one of the first to put forward an explanation for this underperformance. In his paper, he suggested that the normal valuation metrics such as sales-to-price, cash-flow-to-price, earnings-yield, and book-to-market used to identify value and growth stocks are "raw" measures in establishing when a reversion in these stocks could take place. Indeed, the value of the market-based ratio provides an indication of the level of the market expectations in relation to the company's future performance but it does not signal if and when the value (growth) stock will benefit (suffer) from a reversion in these expectations in the future. Benjamin Graham (1965) was correct in suggesting that while the stock market in the short run may be a voting mechanism, in the long run it is a weighing mechanism. True value will win out in the end. And before the fact, there is no way in which investors can reliably exploit any anomalies or patterns that might exist. Satneet K. Sabharwal, Timothy Falcon Crack (2005) also inconsistent with the previous research of other markets have found that growth beats value in Indian stock market. They have analyzed 792 BSE stocks from January 1990 to August 2004. Their first major finding is strong negative relation between D/P deciles and size-beta-adjusted abnormal returns and strong positive relation between P/E deciles and size-beta-adjusted abnormal returns. Second major finding is that stock returns increase with market capitalization. Most of the empirical research in the value-growth phenomena is based on the stock market data from the United States, but many new researches are coming up which will benefit the investors around the world to benefit from the superior returns of value-investing strategies.

## RESEARCH METHODOLOGY

The Definition of value stocks has undergone a significant evolution. Value stocks have one or more of the following characteristics: Low market price to book ratio (B/M effect), Low price to earnings ratio (Cash flow effect), High dividend yield, Low market price relative to historical price (Contrarian), Low price to sales multiple, Discount valuation relative to industry peers, Lower PEG ratio than comparable industry peers, High return on equity

Based on the most of academic research, the current study has chosen the following three attributes to explain the value puzzle.

- Low price-to-earnings ratio stocks;
- Low price-to-book ratio stocks;
- High dividend yield stocks

### OBJECTIVES

1. Measuring the performance of value stocks in Indian stock market
2. Identifying the presence of value premium in context to Indian stock market
3. Measuring performance consistency of value stocks

### TESTABLE HYPOTHESIS

To measure if the returns generated by value investment strategies are statistically indifferent

$$H_0 : \mu_1 = \mu_2 = \mu_3$$

$$H_1 : \mu_1 \neq \mu_2 \neq \mu_3$$

### DATA INPUTS

Value Investment style has been identified as purchasing the stocks with Low P/B, Low P/E and High Dividend Yield stocks. Present study has considered the stocks listed in S&P CNX 500 NSE INDEX. On the basis of data availability and trading frequency, number of companies in sample consisted of 240 companies. The study period was from July 1999 to July 2009, but it has been extended up to Sep 2010. 45 quartiles for the entire period with 180 observations have been analyzed. 30 Days Average Returns are used from Prowess Database of CMIE, Mumbai. Quarterly values are considered for the value weighted returns for Low P/B, Low P/E & DY based stocks. 240 stocks chosen from 500 stocks of the Index are divided into four equal sized quartiles arranged from lowest to highest values for the first two parameters and from highest to lowest for DY. First quartile of P/B & P/E and last quartile of DY represents Value stocks and the average returns of the quartiles are considered for the analysis of value stocks. The quartiles are revised every quarter on the basis of *value* metrics.

### METHODOLOGY



Performance Analysis of Value Stocks has been analyzed on two frameworks;

- Risk & Return Analysis: To calculate risk & return analysis of value stocks; Average Returns & Standard Deviation are calculated. Average Returns are calculated for quartiles (sorted on the basis of value metrics) constructed for each quarter, standard deviation is also calculated for each quartile and in each quarter.
- Performance Outcomes have been measured by Standard Error & Sharpe Ratio. Standard Error estimate is measured as smaller the estimate; the more dependable estimate is.

$$\text{Standard Error} = \frac{S.D.}{\sqrt{n}}$$

Standard Error of the mean is the standard deviation of sample mean over population mean. As long as the estimator is unbiased, the standard deviation of the error is same as that of the estimate itself. Smaller standard error estimates less sampling error.

**DEFINING STYLE PERFORMANCE CONSISTENCY**

Performance consistency of value stocks has been measured with the help of Ex-post Tracking Error. It is the difference between the stock's returns corresponding to the benchmark index i.e. the volatility of excess returns.

$$\text{Tracking Error} = \sigma \text{ E.R. } (R_m - R_t)$$

(volatility of excess returns)

Information ratio has been used to measure the efficiency and consistency of stocks. It is measured as follows;

$$\text{Information ratio} = \frac{\text{Excess Returns (versus benchmark)}}{\text{Tracking error (volatility of excess returns)}}$$

ANOVA has been applied to measure the comparative performance of three value stock strategies and F value & P value are calculated.

**STUDY RESULTS**

**MEAN RETURNS OF VALUE STOCKS**

The results are not consistent with the studies done on other International markets where value stocks have shown better performance and there is large evidence of presence of value premium. Fama & French (1998) find that value beats growth in 12 out of 13 developed countries. They also took emerging markets like India but the results for India were weak with t-statistics almost zero and they also state that they do not have enough data to conclude the presence of value premium. Claessens (1995) look at 19 emerging markets including India using identical data but different estimation techniques and report statistically significant relationship between returns and P/E and size respectively. The results have shown that high value attributes stocks have shown lowest performance where and as we move towards low value stocks, the performance is improving.

**TABLE I: MEAN RETURNS OF VALUE STOCKS FOR ALL YEARS**

QUARTILE	STOCKS	FEATURES	MEAN RETURNS OF STOCKS	AVERAGE RETURN
I	VALUE	LOW P/B	0.01	0.03
		LOW P/E	0.06	
		HIGH DY	0.03	
II	UPPER MIDDLE VALUE	ML P/B	0.05	0.04
		ML P/E	0.02	
		MH DY	0.06	
III	LOWER MIDDLE VALUE	MH P/B	0.10	0.1
		MH P/E	0.10	
		ML DY	0.10	
IV	LOWEST VALUE	HIGH P/B	0.15	0.14
		HIGH P/E	0.14	
		LOW DY	0.14	

Table I presents the Mean Returns of the Value stocks for the entire study period. The average returns for high value stocks is 0.03 whereas the average returns is rising to the low value quartiles with highest return of 0.14 for lowest values stocks. It can be analyzed from the above table that the performance of value stocks in the Indian stock market is not consistent with the prior research conducted on other stock markets and the stocks with higher value attributes have performed poorly in the entire study period.

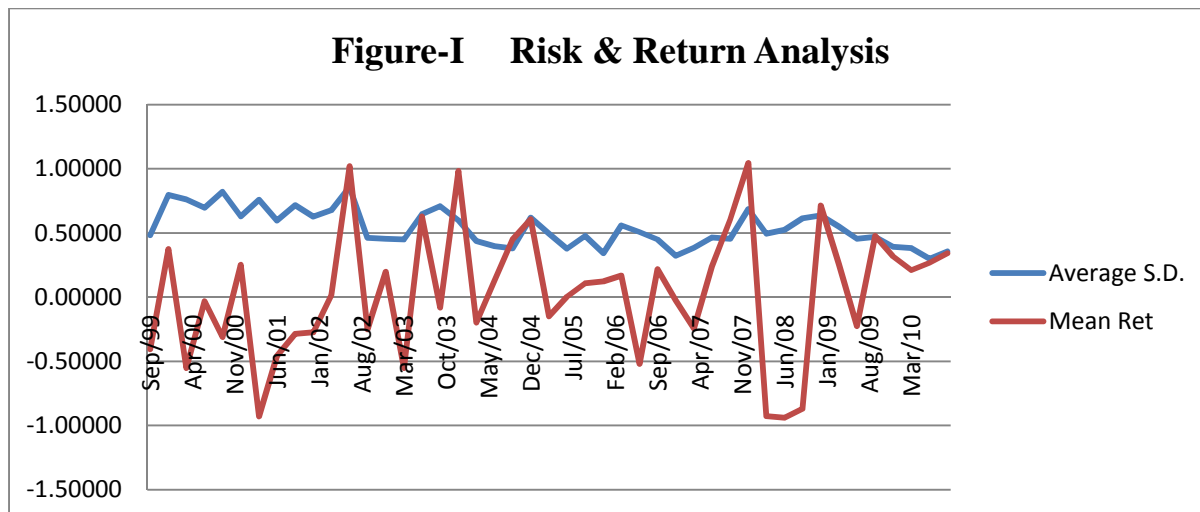
**RISK & RETURN ANALYSIS OF VALUE STOCKS**

Return analysis of value stocks is done by calculating mean returns for all quarters and risk analysis was done by calculating standard deviation.

**TABLE II: RISK & RETURN ANALYSIS OF VALUE STOCKS: STANDARD DEVIATION & MEAN RETURNS**

Date	Average S.D.	Mean Ret	Date	Average S.D.	Mean Ret
Sep-99	0.483	-0.407	Mar-05	0.493	-0.149
Dec-99	0.796	0.374	Jun-05	0.377	0.002
Mar-00	0.760	-0.552	Sep-05	0.476	0.109
Jun-00	0.697	-0.033	Dec-05	0.342	0.122
Sep-00	0.822	-0.310	Mar-06	0.560	0.168
Dec-00	0.629	0.253	Jun-06	0.507	-0.520
Mar-01	0.758	-0.930	Sep-06	0.448	0.218
Jun-01	0.598	-0.459	Dec-06	0.321	-0.027
Sep-01	0.716	-0.287	Mar-07	0.385	-0.243
Dec-01	0.627	-0.273	Jun-07	0.465	0.239
Mar-02	0.677	0.015	Sep-07	0.455	0.605
Jun-02	0.858	1.020	Dec-07	0.686	1.045
Sep-02	0.462	-0.252	Mar-08	0.493	-0.927
Dec-02	0.453	0.198	Jun-08	0.525	-0.939
Mar-03	0.450	-0.553	Sep-08	0.613	-0.870
Jun-03	0.647	0.630	Dec-08	0.637	0.713
Sep-03	0.710	-0.082	Mar-09	0.550	0.255
Dec-03	0.599	0.983	Jun-09	0.453	-0.226
Mar-04	0.437	-0.200	Sep-09	0.470	0.477
Jun-04	0.397	0.129	Dec-09	0.393	0.318
Sep-04	0.380	0.450	Mar-10	0.382	0.209
Dec-04	0.620	0.607	Jun-10	0.299	0.268
			Sep-10	0.356	0.341

Table II shows the risk & return results for value stocks. From the observations it can be analyzed that value stocks have shown negative average returns in 20 out of total 45 observation of the study period. These stocks have performed poorly for the years; 2000, 2001, 2006 & 2008. In the entire period the returns have been proved to be highly volatile. The volatility of value stocks is high in as it can be depicted from Table III that standard deviation was highest at 0.858 in 2002 June although with higher returns of 1.020. In year 1999, 2000, 2001 & 2003 risk has been higher in value stock investments. The risk on these stocks declined in 2004 to 0.397 & 0.380 in second & third quarter but these stocks are volatile in the entire study period. Risk on these stocks was lowest in June 2010 with standard deviation of 0.299. The stocks have shown negative returns in 20 out of 45 observations.



But it can be depicted from Figure I that on an average high returns on value stocks are backed by high volatility. Standard deviations have been higher for the quarters when the returns are more.

**PERFORMANCE OUTCOMES**

Performance outcomes of value stocks have been measured by Sharpe Ratio and Standard Error. Table III exhibits the performance outcomes of value stocks during the entire study period. Standard Error is a good proxy for the Sharpe Ratio.

**TABLE: III PERFORMANCE OUTCOMES OF VALUE STOCKS: STANDARD ERROR & SHARPE RATIO**

Time Period	Mean SE	Mean Sp	Time Period	Mean SE	Mean Sp
Sep-99	0.085	-8.007	Mar-05	0.063	-5.953
Dec-99	0.104	-6.043	Jun-05	0.049	-7.773
Mar-00	0.098	-8.303	Sep-05	0.062	-6.940
Jun-00	0.110	-7.386	Dec-05	0.043	-10.940
Sep-00	0.106	-8.353	Mar-06	0.313	-7.747
Dec-00	0.080	-8.737	Jun-06	0.065	-10.463
Mar-01	0.097	-7.183	Sep-06	0.058	-10.600
Jun-01	0.076	-6.603	Dec-06	0.041	-15.230
Sep-01	0.093	-4.500	Mar-07	0.050	-13.437
Dec-01	0.080	-3.427	Jun-07	0.059	-9.437
Mar-02	0.087	-3.027	Sep-07	0.059	-7.250
Jun-02	0.111	-0.880	Dec-07	0.088	-2.843
Sep-02	0.060	-4.183	Mar-08	0.064	-4.470
Dec-02	0.059	-2.227	Jun-08	0.068	-5.363
Mar-03	0.058	-3.737	Sep-08	0.079	-3.373
Jun-03	0.083	-0.480	Dec-08	0.082	1.063
Sep-03	0.092	-1.437	Mar-09	0.068	0.226
Dec-03	0.078	0.132	Jun-09	0.058	-0.917
Mar-04	0.057	-2.640	Sep-09	0.060	0.735
Jun-04	0.051	-2.883	Dec-09	0.050	0.684
Sep-04	0.050	-3.157	Mar-10	0.049	0.161
Dec-04	0.080	-2.637	Jun-10	0.037	0.491
			Sep-10	0.046	0.536

Sharpe ratio is positive in eight out of forty five observations. It has been higher in the month of December, 2008 at 1.06333 and the ratio is consistently positive in all quarters from September 2009 till September 2010. The strategies have performed poorly in the months from December 2005 to September 2007 when it reached to the lowest of -15.23000 in December 2006. The ratio is consistently negative for six years i.e. from September 2009 to September 2005, excluding the quarter of December 2003. Standard Error of value stocks is highest in the month of March 2006 at 0.31267 and slightly higher in the quarters of December 1999, June 2000, September 2000 and June 2002 in comparison to other quarters. However it is lowest at 0.03733 in the month of June 2010 and is comparatively lower during March 2010, September 2010 and December 2006.

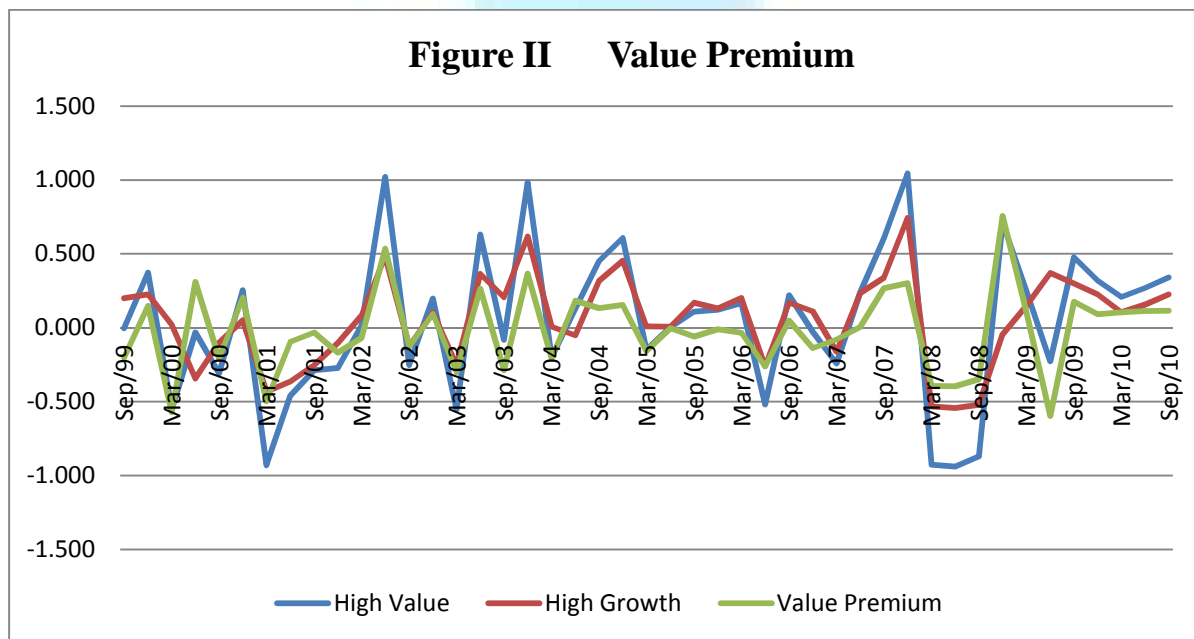
**VALUE PREMIUM**

Value Premium or the difference in returns of value and growth stocks has been identified and exploited by many financial market practitioners since Graham & Dodd (1934). U.S. evidence presented by Basu (1977), Fama & French (1992, 1993, 1995 & 1996) & Lakonishok (1994) report that the value stocks outperform growth stocks. This pattern seems to exist in other markets too as evidenced by Nai-fu Chen and Feng Zhang (1998) in Japan, Hong Kong & Malaysia & Peter Oertmann (1999) in 18 stock markets over three global regions. Although empirical research in value-growth phenomena is based upon markets based on US but new researches are coming up which have analyzed the performance of two strategies in other regions of the world. The results of current study conducted on Indian stock market over the span of 11 years from 1999 to 2010 have shown somewhat different results regarding value premium.

TABLE IV: VALUE PREMIUM

Date	High Value	High Growth	Value Premium	Date	High Value	High Growth	Value Premium
Sep-99	-0.004	0.199	-0.203	Mar-05	-0.149	0.009	-0.158
Dec-99	0.374	0.226	0.148	Jun-05	0.002	0.007	-0.004
Mar-00	-0.552	0.020	-0.572	Sep-05	0.109	0.170	-0.061
Jun-00	-0.033	-0.344	0.311	Dec-05	0.122	0.131	-0.009
Sep-00	-0.310	-0.102	-0.208	Mar-06	0.168	0.203	-0.035
Dec-00	0.253	0.050	0.204	Jun-06	-0.520	-0.258	-0.262
Mar-01	-0.930	-0.433	-0.497	Sep-06	0.218	0.169	0.049
Jun-01	-0.459	-0.364	-0.096	Dec-06	-0.027	0.112	-0.139
Sep-01	-0.287	-0.254	-0.033	Mar-07	-0.243	-0.162	-0.080
Dec-01	-0.273	-0.104	-0.169	Jun-07	0.239	0.235	0.004
Mar-02	0.015	0.083	-0.068	Sep-07	0.605	0.339	0.266
Jun-02	1.020	0.484	0.536	Dec-07	1.045	0.743	0.302
Sep-02	-0.252	-0.126	-0.126	Mar-08	-0.927	-0.532	-0.394
Dec-02	0.198	0.105	0.093	Jun-08	-0.939	-0.542	-0.397
Mar-03	-0.553	-0.253	-0.300	Sep-08	-0.870	-0.521	-0.349
Jun-03	0.630	0.365	0.265	Dec-08	0.713	-0.044	0.757
Sep-03	-0.082	0.205	-0.287	Mar-09	0.255	0.147	0.108
Dec-03	0.983	0.617	0.366	Jun-09	-0.226	0.371	-0.597
Mar-04	-0.200	0.007	-0.207	Sep-09	0.477	0.300	0.176
Jun-04	0.129	-0.052	0.182	Dec-09	0.318	0.226	0.092
Sep-04	0.450	0.317	0.133	Mar-10	0.209	0.104	0.105
Dec-04	0.607	0.452	0.154	Jun-10	0.268	0.156	0.113
				Sep-10	0.341	0.226	0.116

From table IV it can be depicted that value premium is positive in only 21 observations from total 45 observations. Value premium is also not consistent except for last five quarters of the study period. However it was highest at 0.757 in the month of December 2008.



From Figure II it can be observed that value premium has been highly volatile and the superior performance of value stocks is mainly for the period of June 2002, December 2003, September 2004, September 2007 & December 2008. It is thus analyzed that existence of value premium in Indian equity market is not as consistent as in other markets of the world and in the entire study period premium has been positive in less than half of the quarters.

**PERFORMANCE CONSISTENCY OF VALUE STOCKS**

Performance consistency of Value Stocks has been analyzed with the help of two measures; Information Ratio and Tracking Error. Information ratio has been calculated from the Tracking error (volatility of excess returns) of the excess returns of value stocks.

TABLE V: TRACKING ERROR & INFORMATION RATIO (IR)

Value Strategies	T.E. (Sp-i)	IR
P/B ↓	0.5450	0.0257
P/E ↓	0.5246	0.1104
Div Y ↑	0.4438	0.0595
<b>Overall Value Stocks</b>	<b>0.5011</b>	<b>0.0655</b>

Table V depicts that the volatility of excess returns (Tracking Error) is lowest in High Dividend Yield Stocks, but the Information ratio of Low P/E stocks have been proved to be better and so it is better investment strategy in value stocks. It depicts both the efficiency and consistency of returns measured at the span of 10 years time period. However, the ratio has not been able to reach atleast to 0.5, considered to be good in any of the value stock strategies. The results could be better analyzed from the following figure.

FIGURE III: TRACKING ERROR AND INFORMATION RATIO OF VALUE STRATEGIES

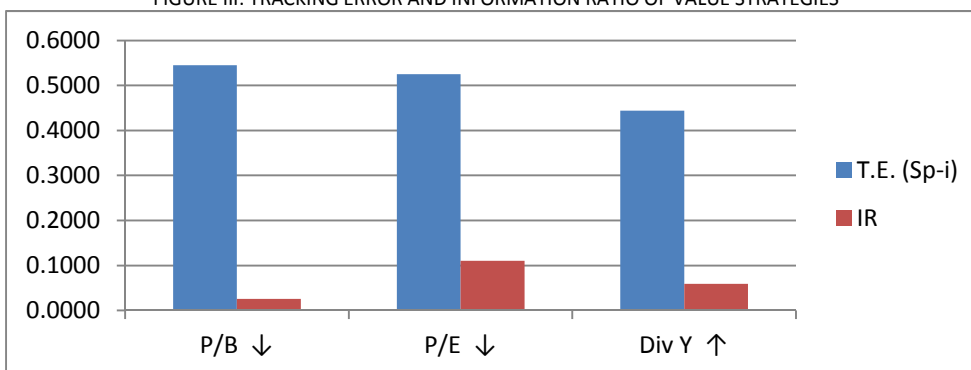


Figure III shows the performance consistency of value stocks and depicts that it is better to invest in stocks with Low P/E ratio in context to the Indian stock market. Although tracking error is higher than high dividend yield stocks, but Information ratio of low P/E stocks is higher than both high dividend yield and low P/B ratio stocks.

**TESTING HYPOTHESIS**

**TABLE 4  
ANOVA**

Groups	Count	Sum	Average	Variance
P/B ↓	45	0.666	0.0148	0.297049
P/E ↓	45	2.642	0.058711	0.275393
Div Y ↑	45	1.223	0.027178	0.197122

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.046136	2	0.023068	0.089927	0.9140543	3.064760677
Within Groups	33.86085	132	0.256522			
<b>Total</b>	<b>33.90699</b>	<b>134</b>				

The above results show that the average returns earned by Low P/E stocks is higher than Low P/B and High dividend yield value strategies. F- value is calculated as 0.089927 which is lower than critical value of 0.5, the critical F= 3.06476 and P-value calculated as 0.91405 is greater than the significance level (0.5). So we can say that we cannot reject the null hypothesis and conclude that the returns generated by the three strategies of value stocks are statistically indifferent.

**CONCLUSION**

The mean returns of value stocks have been lower for high value attributes stocks and returns are rising as we move from higher to low value stocks. Higher returns of value stocks are backed by higher volatility in Indian equity market during the entire study period. Performance outcomes of these stocks depicted through Sharpe ratio and Standard error are also not good and these stocks have shown positive ratio in only eight out of forty five observations. Existence of value premium is inconsistent from other markets in the world and it is positive in less than half of the quarters of entire study period. The results for performance consistency of value are weak, but from the results we can analyze investing in low P/E stocks gives consistent returns in Indian equity market. Further the study concludes that returns generated by the three strategies of value stocks are statistically indifferent.

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