Behaviour of Value Stocks versus Growth Stocks: An Evidence for Indian Stock Market

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ABSTRACT

In this paper, we examine whether value stocks are able to outperform growth stocks in terms of producing significant returns. We also evaluate the ability of one factor CAPM and two factor model of capturing average returns on portfolios. We find from the results that there is a strong value effect in Indian stock market particularly when one forms portfolio based on PB and PE ratios. On the other hand, weak negative value effect is found in portfolios based on EPS and DY. The empirical results show that both CAPM and two factor model do not explain the average returns on portfolios.

Introduction

Value is one of the company characteristics being looked by the investors for developing profitable investment strategy. Value stocks are those stocks with low price-to-book ratios while growth stocks are the stocks that have high price-to-book ratios. Recent researches in finance show that value stocks tend to outperform growth stocks by providing significant returns. According to prior researches, value of companies is quantified using certain financial variables namely book-to-market ratio (BE/ME), price-to-earnings ratio (P/E), earning per ratio (EPS), and dividend yield ratio (DY) etc. Basu (1983) finds that stocks with high earning-to-ratio (E/P) provide higher returns than stocks with low E/P ratio. The study also shows evidence that small size stocks, in terms of market capitalization, appear to have yielded higher returns than big stocks. However, the author also finds that size effect disappears when E/P effect is controlled for. Chan, Hamao, and Lakonishok (1991) experiment a cross-sectional relationship between securities returns and company fundamentals of earnings yield, size, BE/ME, and cash yield for Japanese market and they find BE/ME and cash flow yield to be economically and statistically important variables while small stocks outperform big stocks, thus indicating size effect. Chan, Karceski, and Lakonishok (1998) find that stock returns are related with size, prior return, book-to-market ratio, and dividend yield ratio etc. They also find that factors stated above are able to capture the stock returns. Chui and Wei (1998) demonstrate relation between stock returns market beta and size, BE/ME and for five Asia Pacific countries such as Hong Kong, Malaysia, Taiwan, Korea, and Thailand and their study finds that there is no relation between market beta and

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stock returns for all the markets while there is a strong size effect in all the markets except Taiwan. Hong Kong, Korea, and Malaysia have a strong BE/ME effects. Fama-French (1993) reveal that there three common risk factors associated with stock returns namely market, size, and value (BE/ME) and these three factors are able to capture average returns on portfolios. Fama-French (1995) record empirical evidence that stocks with high BE/ME are inclined to be distressed in terms of profitability while stocks of low BE/ME tend to have high profitability. Tim Laughran (1997) argue that BE/ME effect is a manifestation of low return yielding stocks that are newly listed and of small and growth stocks. They also find that value stocks outperform growth stocks when value weighted returns are computed on portfolios. Fama-French (1998) bring out international evidence on value effect. Their findings include that value stocks outperform growth stocks by producing a significantly higher returns. Another important finding is such that CAPM is unable to explain the average returns on portfolios while two factor model which is developed by including a value factor (distress factor) in addition to market factor could capture the average returns on stocks. Fama-French (2005) prove that stock returns show a strong size and value premiums in US market and these premiums are not captured by CAPM. Fama-French (2012) test size, value, and momentum effects in stock returns for the equity markets of North America, Europe, Japan, and Asia pacific markets. Strong momentum effects are observed in all regions excepting Japan, while value effect is found in the most of the markets. Next, we also review empirical works that are carried out in Indian market in addition to the above review being done on research works undertaken in developed markets. Connor, Gregory and Sehgal, Sanjay (2001) bring revelations that equity stocks of Indian stock market provide significant excess returns due to predominantly firm characteristics such as size and value. They further document that these significant returns are well captured by Fama-French three factor model (1993) vis-à-vis one factor CAPM. Sanjay Sehgal and Vanita Tripahti (2007) find a value effect in stock returns when BE/ME is used as a measure of company value and they also observe the same effect when alternative value measures such as earning to price (E/P), cash flows to price, and dividend to price are used. Sanjay Sehgal and Balakrishnan (2013) re-examine Fama-French three factor model and find that there are strong size, value, and short term momentum effects in stock returns in India. Balakrishnan (2015) finds that there is a strong short term momentum effect in stock returns for Indian stock market. From the above depth review, we find that none of the works carried out in Indian context has used two factor model to test the value effect in stock returns. Hence, our study fills the above gap.

The paper is organized as follows. Section II presents data and methodology. Section III discusses of summary statistics of different portfolios. Empirical results of CAPM are presented in section IV. Two factor model results are interpreted in Section V. Last and final section offers concluding remarks.

Data and methodology

The study uses data for 484 listed companies and the listing of the companies is done on Bombay Stock Exchange (BSE) 500. The study period is July, 1999 to December, 2014. We use month end adjusted closing share prices, price- to-book (P/B) ratio, price-to-earning ratio (P/E), earning per share (EPS), and dividend yield (DY) ratio of the sample companies and the above

data are collected from CMIE Prowess. P/B ratio is taken to be the proxy of company value. We use P/E ratio, EPS, and DY ratio as alternative measures of company value. Further, BSE-200 index return is taken as the proxy of market and its data is also obtained from CMIE Prowess. Finally, 91 day T-Bill return is used as proxy of risk free rate of return. Data source for risk free rate is the website of Reserve Bank of India (RBI). Next, methodological procedures to form portfolios are presented. First, we rank the sample securities at the end of March 1999 on P/B ratios and construct five portfolios namely portfolio one (P_1) to portfolio five (P_5). P_1 contains the stocks of bottom 20% of the sample securities, they are called low P/B stocks as they have low market price to book price while, P_5 comprises of top 20% of the sample stocks, they are described as high P/B stocks since they have high market price to book price. Then equally weighted returns are computed on five portfolios (portfolio one to portfolio five) from July, 1999 (t) to June, 2000 (t+1). Then portfolios are revised in June, 2000 and this revision is continuously done till December, 2014.

Next, CAPM regressions are run using familiar excess return version of the market model. This will show whether CAPM can capture the abnormal reruns on different portfolios. The specification of the model is expressed below.

$$R_{Pt} - R_{Ft} = a + b\,(R_{Mt} - R_{Ft}) + e_t$$

Where,

$R_{Pt} - R_{Ft}$ = Excess returns on portfolio,

$R_{Mt} - R_{Ft}$ = Excess returns on the market factor

a = Measure of extra-normal returns and

b = Sensitivity coefficient.

Then excess returns on portfolios are regressed for two-factor model. The model is developed by adding another factor namely value factor (distress factor) in addition to market factor.

$$R_{Pt} - R_{Ft} = a + b\,(R_{Mt} - {}_{RFt}) + vVMG + e_t$$

VMG- value minus growth, mimicking the risk factor in relation to company value

v is the portfolio's responsiveness to value factor. Next, we replicate the above procedures for constructing the portfolios using different variables particularly P/E ratio, EPS, and DY which also represent company value.

Empirical results

Table 1 shows mean excess returns, standard deviation, and t- statistics for value and growth portfolios. Monthly average returns on five portfolios based on price-to- book ratio for study period show a pattern of value effect i.e., value stocks (P_1) persistently provide higher returns than growth stocks (P_5). Besides, return differential between value stocks and growth stocks is 1.6% per month. Next, we also observe value effect in mean excess returns on portfolios of PE ratio. Monthly average returns on P_1 based on PE are higher than that of P_5 by 1.5% per month. However, mean excess returns on portfolios based on earning per share and dividend yield ratio show a weak negative value effect. This could be attributed that average returns on P_1 stocks are slightly less than P_5 stocks. Hence, it is concluded that there is a strong value effect present in Indian stock market when portfolios are formed on price-to-book ratio and PE ratio. At the same time, the value effect hypothesis is unseen in the portfolios based on EPS and DY.

Table 1 shows summary statistics consisting of mean excess returns, standard deviation, and t statistics for the portfolios sorted on PB, PE, EPS, and DY ratios.

PB

	P_1	P_2	P_3	P_4	P_5
Mean excess return	0.032	0.025	0.022	0.019	0.016
Std. Deviation	0.115	0.101	0.094	0.090	0.085
T-Statistics	3.838	3.409	3.182	2.943	2.545

PE

	P_1	P_2	P_3	P_4	P_5
Mean excess return	0.031	0.027	0.023	0.016	0.015
Std. Deviation	0.105	0.095	0.091	0.083	0.096
T-Statistics	4.030	3.842	3.454	2.646	2.163

EPS

	P_1	P_2	P_3	P_4	P_5
Mean excess return	0.025	0.021	0.022	0.024	0.026
Std. Deviation	0.098	0.094	0.091	0.096	0.098
T-Statistics	3.536	2.975	3.286	3.475	3.570

DY

	P_1	P_2	P_3	P_4	P_5
Mean excess return	0.022	0.029	0.023	0.021	0.023
Std. Deviation	0.098	0.100	0.096	0.092	0.096
T-Statistics	3.018	3.935	3.327	3.111	3.255

Empirical results of CAPM

Next, regression results of CAPM provided in table 2 are discussed to check if one factor CAPM can capture average returns on portfolios. The results clearly reveal that CAPM is unable to absorb the average returns on almost all the portfolios. Because, the alpha (intercept) values of seventeen portfolios remain nonzero. Any model which is capable of capturing average returns on stocks will produce alpha which is close to zero. But the alpha values of value stocks and other stocks are quite bigger. Further, t(a) values of all the portfolios are statistically significant at 5 percent level (two tailed). The results are consistent with Fama-French (1998). We therefore, conclude that average returns on value and growth stocks are not captured by CAPM.

Table 2 presents regression results for CAPM

$R_{Pt} - R_{Ft} = a+b\ (R_{Mt-}R_{Ft}) + e_t$ (1)

PB

PF	a	b	t(a)	t(b)	R^2
P_1	0.022	1.178	4.317	18.665	0.654
P_2	0.015	1.101	4.057	23.360	0.748
P_3	0.012	1.049	3.865	25.855	0.784
P_4	0.010	1.049	3.885	32.182	0.849
P_5	0.007	0.959	2.542	27.147	0.800

PE

PF	a	b	t(a)	t(b)	R^2
P_1	0.021	1.109	4.946	20.638	0.698
P_2	0.017	1.056	5.204	25.280	0.776
P_3	0.014	1.031	4.564	26.843	0.797
P_4	0.008	0.966	3.029	30.717	0.837
P_5	0.005	1.122	1.902	32.491	0.852

EPS

PF	a	b	t(a)	t(b)	R^2
P_1	0.016	1.077	4.389	23.753	0.754
P_2	0.011	1.045	3.358	24.910	0.771
P_3	0.013	1.041	4.390	28.732	0.818
P_4	0.015	1.042	4.157	22.721	0.737
P_5	0.016	1.106	4.845	27.057	0.799

DY

PF	a	b	t(a)	t(b)	R^2
P_1	0.012	1.106	3.586	26.614	0.794
P_2	0.019	1.063	4.836	21.120	0.708
P_3	0.014	1.061	4.014	24.178	0.761
P_4	0.012	1.017	3.620	24.683	0.768
P_5	0.013	1.053	3.823	23.710	0.753

Empirical results of two factor model

Table 3 shows regression results for two factor model. It is found from the results that there is a strong value effect in Indian stock market as value factor loads heavily for all value portfolios. Next, coming to the two factor model's efficacy, the model produces disappointing results as it fails to capture average returns on most of the value portfolios. This is stated from the fact that alpha values of three value portfolios out of four value portfolios are distinguishable from zero. Moreover, t(a) of all the portfolios are statistically significant at 5% level (two tailed test). The results are inconsistent with Fama-French (1998). Hence, we conclude that two factor model is found to be an unsuccessful one as it fails to explain the average returns on portfolios formed on price-to-book ratio, price-to-earning ratio, earning per share, and dividend yield ratio.

Table 3 exhibits two factor model regression results

$$R_{Pt} - R_{Ft} = a + b\,(R_{Mt-}R_{Ft}) + vVMG + e_t \qquad (2)$$

PB

PF	a	b	v	t(a)	t(b)	t(v)	R^2
P_1	0.010	0.997	0.828	3.531	28.762	21.566	0.902
P_2	0.008	0.990	0.507	2.841	28.246	13.052	0.869
P_3	0.008	0.975	0.338	2.714	27.595	8.644	0.847
P_4	0.008	1.021	0.130	3.190	31.350	3.601	0.859
P_5	0.010	0.997	-0.172	3.531	28.762	-4.488	0.820

PE

PF	a	b	v	t(a)	t(b)	t(v)	R^2
P_1	0.007	1.120	0.885	2.476	32.757	16.465	0.878
P_2	0.010	1.062	0.442	3.385	29.195	7.734	0.832
P_3	0.009	1.034	0.294	3.092	28.787	5.208	0.823
P_4	0.006	0.967	0.110	2.244	31.098	2.261	0.841
P_5	0.007	1.120	-0.115	2.476	32.757	-2.147	0.855

EPS

PF	a	b	v	t(a)	t(b)	t(v)	R^2
P_1	0.016	1.098	0.750	4.909	27.125	6.999	0.806
P_2	0.011	1.053	0.286	3.403	25.424	2.605	0.779
P_3	0.013	1.045	0.138	4.399	28.842	1.442	0.820
P_4	0.015	1.049	0.237	4.183	22.979	1.961	0.743
P_5	0.016	1.098	-0.250	4.909	27.125	-2.331	0.805

DY

PF	a	b	v	t(a)	t(b)	t(v)	R^2
P_1	0.012	1.084	0.405	4.032	27.637	5.078	0.819
P_2	0.019	1.065	-0.055	4.800	21.014	-0.537	0.708
P_3	0.014	1.064	-0.046	3.980	24.043	-0.507	0.761
P_4	0.012	1.020	-0.059	3.582	24.579	-0.692	0.769
P_5	0.012	1.084	-0.595	4.032	27.637	-7.446	0.811

Summary and Conclusion

In this paper, we examine whether value stocks are able to outperform growth stocks in terms of producing significant returns. We also evaluate the ability of one factor CAPM and two factor model of capturing average returns on portfolios. We observe from the results that there is a strong value effect in Indian stock market particularly when one forms portfolio based on PB and PE ratios. On the other hand, weak negative value effect is found in portfolios based on EPS and DY. The empirical results show that both CAPM and two factor model do not explain the average returns on portfolios. Probably, we may have to look for some other factors that can capture the average stock returns. This study would be useful to the retail investors, financial analysts, and fund managers to coin a viable and profitable investment strategy.

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