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## RELATIONSHIP BETWEEN FIRM VALUE AND STOCK RETURN

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### Introduction

Firm value is such that firms with low value tend to provide higher returns while companies with high value tend to yield lower returns. Firm value is measured by taking price to book (P/B) ratio which is one of the corporate fundamentals. If a firm has low price to book ratio, that firm can be described as distressed firm [see Fama-French (1995)]. Hence, they are fundamentally weak, called as distressed companies. This value effect turns out to be an anomaly of stock returns. Moreover, this value effect phenomenon is one of the big challenges to capital asset pricing model developed by Sharpe (1964). In the recent past, many researchers bring out new evidences that show strong relation between corporate fundamentals and stock returns. Basu (1977) documents that stocks with low P/E ratios (an indicator of company value) provide superior returns than stocks with high P/E ratios. The author argues that non-reflection of P/E ratio information in securities prices, market disequilibrium, and entry of tax-paying investors in to capital market to rebalance their portfolios through buying low P/E stocks. Bhandari (1988) observes a linear relation between stock returns and firm's debt-equity ratio. Chan, Hamao, and Lakonishok (1991) demonstrate that there is a positive relation between stock returns and corporate fundamentals such as size, book equity to market equity, earnings yield, and cash flow yield. They find a significant impact in stock returns and book equity to market equity and cash flow yield. Chan, Karceski, and Lakonishok (1998) take on an empirical work which examines the stock returns' relation with fundamental factors, technical factors, and macroeconomic factors and they find a significant influence of fundamental factors (accounting based variables) and technical factors (prior returns) in stock returns while poor relation is observed between stocks returns and macroeconomic factors. Chui and Wei (1998) test the relationship between stock returns and market beta, size, and book equity to market equity for the stock markets of Hong Kong, Korea, Malaysia, Taiwan, and Thailand. They find a positive relation between beta and stock returns is weak while size effect is strongly

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pronounced across the markets. Book to market equity explains the stock returns in all the markets with exception of Taiwan and Thailand. Stattman (1980) shows that stock returns have negative relation with book equity to market equity. Sehgal and Tripathi find that there is a strong value effect in Indian stock market. Balakrishnan A (2014) finds that there are strong size, value, and momentum effects in Indian stock market. Previous studies on Indian context experiment value effect by forming only five portfolios with the breakpoints of 20 percent each. None of the studies evaluates by constructing ten portfolios with 10 percent breakpoints. This study intends to fill that gap.

The paper takes journey as follows. Section 2 describes objectives of the study. Data and their sources are presented in section 3. Section 4 shows methodology of the study. The empirical results are discussed in section 5. Last and final section throws light concluding remarks of the paper.

### **Objective**

The study has the following objective

To know whether Indian stock market has value effect in the context of even one forms 10 portfolios

### **Data**

The study uses data for 491 companies. The entire sample companies are listed on Bombay Stock Exchange (BSE) 500 which is broad based one. The data includes month end adjusted share prices, price to book (P/B) ratio etc. are from CMIE Prowess. Returns are calculated using first difference. We use only capital gain for estimation purposes and we deliberately exclude dividend as it is arbitrary and meager in Indian context (see L.C Gupta). The study period is January, 1999 to April, 2015. P/B ratio is taken to be the proxy of company value. The study also uses BSE-200 index return as the proxy of market and its data is also taken 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).

### **Methodology**

We start the analysis by ranking sample securities on a single criterion (Company characteristic) i.e. measure of company value and form portfolios termed as single sorted portfolios. The portfolio construction procedure is as follows. First, we rank the



companies at the end of March, 1999 (period t) on the basis of P/B ratio and then construct ten portfolios.  $P_1$  (Portfolio one) contains 10% of the sample stocks with low P/B while,  $P_{10}$  (Portfolio ten) comprises of 10% of the sample stocks with high P/B ratio. Then equally weighted returns on these five portfolios from July, 1999 (t) to June, 2000 (t+1) are calculated. Then ranking is revised in June, 2000 and this process is repeated till end of the study period.

Then, we run CAPM regressions on returns on portfolios using prominent excess return version of the market model specification.

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

where

$R_{Pt} - R_{Ft}$  = Excess returns (stock return minus risk free return) on portfolio,

$R_{Mt} - R_{Ft}$  = Excess returns on the market factor (excess of market returns over risk free return)

a = Measure of abnormal returns and

b = Sensitivity coefficient.

### Empirical results

Table 1 reveals that excess returns and standard deviation of 10 portfolios formed based on company value (P/B ratio). The returns clearly indicate that there is value effect in stock returns. Because,  $P_1$  (portfolio one) yields a significant return compared to  $P_{10}$  which is high value stock. Moreover, the return differential between  $P_1$  and  $P_{10}$  is 0.019 i.e., 1.9 percent per month. This large indicates that there are some risk factors associated with stock returns that can capture the average returns on portfolios. Table 2 shows regression results for one factor CAPM model. It is noted from the results that CAPM is not able to capture the average stock returns on portfolios. This is attributable to the facts that alpha (intercept) values of 7 portfolios out of 10 portfolios are bigger and they are not close to zero. Hence, it is concluded that in addition to market factor some other factors can capture the average returns on portfolios.

**Table 1 Summary statistics showing mean excess returns and standard deviation on portfolios formed using single sort on price- to- book ratio**

	$P_1$	$P_2$	$P_3$	$P_4$	$P_5$	$P_6$	$P_7$	$P_8$	$P_9$	$P_{10}$
Mean	0.035	0.026	0.024	0.024	0.021	0.021	0.021	0.016	0.014	0.0168
Std. Dev.	0.123	0.108	0.104	0.098	0.100	0.088	0.089	0.091	0.079	0.095

**Table 2 Regression Results of CAPM**

Portfolio	a	b	t(a)	t(b)	R <sup>2</sup>
P <sub>1</sub>	0.024	1.228	4.332	17.090	0.608
P <sub>2</sub>	0.016	1.127	3.581	19.059	0.658
P <sub>3</sub>	0.014	1.116	3.557	20.970	0.700
P <sub>4</sub>	0.014	1.082	4.012	22.871	0.735
P <sub>5</sub>	0.011	1.103	3.171	23.610	0.747
P <sub>6</sub>	0.012	0.991	4.083	24.825	0.766
P <sub>7</sub>	0.012	1.054	4.862	32.316	0.847
P <sub>8</sub>	0.007	1.039	2.424	26.974	0.794
P <sub>9</sub>	0.006	0.910	2.546	27.207	0.797
P <sub>10</sub>	0.007	1.004	1.875	19.764	0.675

### 1. Conclusion

The study examines the stock returns and efficiency of CAPM. The study employs data from January 1999 to April 2015. The empirical results reveal that there is a strong value effect in Indian stock market. The results also confirm that CAPM is unable to capture the abnormal returns on portfolios. Hence, one can infer that returns on portfolios can be explained by some other factors in addition to market factor. The study will be useful to investors, and fund managers

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