A Study on Impact of Selected Ratio on the behaviour of Stock Market

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ABSTRACT

The study focuses that PRICE TO BOOK RATIO (P/B) Ratio along with Market Size has no significant impact on Market Index, that PE Ratio along with Market Size has no significant impact on Market Index and that PRICE TO BOOK RATIO (P/B) Ratio, PE Ratio along with Market Size has no significant impact on Market Index.The data is collected for 20 years from 2000 to 2020 from RBI (India) and BSE benchmark Sensex Index and three econometric models are constructed separately to find the interactions of PRICE TO BOOK RATIO (P/B) Ratio, PE Ratio and Market Capitalization on Market Index Values. Our econometric models are strong and robust findings suggest that PRICE TO BOOK RATIO (P/B) ratio and PE ratio impact the index negatively, whereas market capitalization impacts index very strongly and in positive direction.

INTRODUCTION

A great deal of labour has been put into understanding stock returns' cross-sectional behaviour. Fama and French (1992) work is predicated on price to book (PRICE TO BOOK RATIO (P/B) R) and price to earnings (PER) ratios and cross-sectional returns on the US domestic market. Ferson and Harvey (1997) also report similar relationships for established foreign markets, also as for a few emerging stock markets. Claessens, Dasgupta, and Glen (1998) also find that PRICE TO BOOK RATIO (P/B) R and PER are substantially associated with

stock returns during a number of emerging markets. More recently, during a data panel of 19 emerging stock markets, Aydogan and Gursoy (2000) report significant relationships between PRICE TO BOOK RATIO (P/B) R and PER and stock returns.

We investigate how PRICE TO BOOK RATIO (P/B) and PE ratios, alongside market capitalisation can predict stock market index in Indian markets. The empirical documentation provides some insight into whether these markets have evolved to the extent that the elemental factors associated with equity return performance in additional established emerging stock markets also are operational in these newer markets. To those engaged in investment decisions within the world, such facts are going to be of practical use.

REVIEW OF LITERATURE

Various studies have reported a connection among returns and in this way the relative book-to-showcase value esteems (BM) and income to-value proportions (EP) of firms. Basu (1977, 1981), for example, discovers proof that normal returns are higher for low cost to-income proportions after alteration for assessed betas. Rosenberg, Reid, and Lanstein (1985) report a positive connection between normal returns and book-to-advertise value esteem proportions, and Lakonishok, Shleifer, and Vishny (1994) give evidence that normal returns are decidedly connected with book-to-market and profit to-value proportions.

Chan, Hamao, and Lakonishok (1991) additionally give proof that the market-to-book proportion might be a critical consider clarifying normal returns in Japan, while Capaul, Rowley, and Sharpe (1993) give comparable worldwide discoveries to a more extensive arrangement of created securities exchanges. the principal conspicuous ongoing include this territory is by Fama and French (1992), who record a major connection between book-to-market and profit to-value proportions and cross-sectional returns inside the local U.S. showcase.

Comparable discoveries are accounted for by Fama and French (1998) for progressively created universal markets, additionally as clearly rising securities exchanges. All the more explicitly, Fama and French (1998) archive higher yearly returns for 12 of 13 created global markets (counting the U.S. showcase) for higher BM and EP portfolios over the 1975-1995 period. Yearly returns likewise are accounted for to be higher for higher BM proportions in 12 of 16 developing markets and better for higher EP proportions in 10 of the 16 nations.

Claessens, Dasgupta, and Glen (1998) find that PER proportions are emphatically connected with month to month stock returns in 14 of the 19 developing markets that they look at, while their discoveries propose a positive connection between PRICE TO BOOK RATIO (P/B) R proportions and month to month stock returns in 9 of the 19 markets. They really utilize the converse of the PRICE TO BOOK RATIO (P/B) R proportion or the market-to-book proportion, and locate a negative connection among returns and hence the PRICE TO BOOK RATIO (P/B) R proportion in nine markets.

RESEARCH OBJECTIVE

To know the impact of selected ratios on the behaviour of Market Index.

RESEARCH METHODOLOGY

Data

The data is collected from Reserve Bank of India and Bombay Stock Exchange's benchmark Sensex Index. The Annual Data for Index closure in the month of March every year from 2000 to 2020 is considered for data analysis. Similarly, the Market Capitalization, PRICE TO BOOK RATIO (P/B) Ratio and PE Ratio of the exchange for 20 years (2000 to 2020) are collected from Reserve Bank of India.

Hypothesis

H0:1 – PRICE TO BOOK RATIO (P/B) Ratio along with Market Size has no significant impact on Market Index.

H0:2 – PE Ratio along with Market Size has no significant impact on Market Index.

H0:3– PRICE TO BOOK RATIO (P/B) Ratio, PE Ratio along with Market Size has no significant impact on Market Index.

Regression Model

Model 1 - Index = $\alpha + \beta 1$ PRICE TO BOOK RATIO (P/B) ratio + $\beta 2$ Market Capitalization + $\mu 1$…….(1)

Model 2 -Index = $\alpha + \gamma 1$ PE Ratio + $\gamma 2$ Market Capitalization + $\mu 2$……..(2)

Model 3 -Index = $\alpha + \delta 1$ PRICE TO BOOK RATIO (P/B) ratio + $\delta 2$ PE Ratio + $\delta 3$ Market Capitalization + $\mu 3$……...(3)

Index – BSE's Sensex Closing Prices

RESULTS, ANALYSIS AND FINDINGS

Table 01, show the regression results along with Durbin-Watson values for Model-01. The model is based on econometric model as in equation no. 01. The only significant determinant of market index in Model 01 is Market Capitalization. The Durbin-Watson value is 2.68 which determines a robust model. The value of R-squared is 0.89 which is again robust.

Table01- Model 01

lnmarketindex	Coef.	St.Err.	t-value	p-value	(95% Conf	Interval)	Sig
PRICE TO BOOK RATIO (P/B) Ratio	-0.084	0.073	-1.15	0.267	-0.240	0.072	
lnmarketcap	0.651	0.060	10.82	0.000	0.523	0.779	***
Constant	0.026	0.912	0.03	0.978	-1.918	1.969	
Durbin-Watson d-statistic(3, 18) = 2.673521							
Mean dependent var	9.704	SD dependent var	0.683				
R-squared	0.887	Number of obs	18.000				
F-test	58.852	Prob> F	0.000				
Akaike crit. (AIC)	3.095	Bayesian crit. (BIC)	5.766				
*** p<0.01, ** p<0.05, * p<0.1							

lnmarketindex – log of index closing on annual basis; lnmarketcap- log of market capitalization

Table 02, show the regression results along with Durbin-Watson values for Model-02. The model is based on econometric model as in equation no. 02. The significant determinants of market index in Model 02 is Market Capitalization (at p value 0.01) and PE Ratio (at p value 0.1). The Durbin-Watson value is 2.54 which determines a robust model. The value of R-squared is 0.9 which is again robust.

Figure 1: Regression Curve Fitting for Independent Variables for Model 01

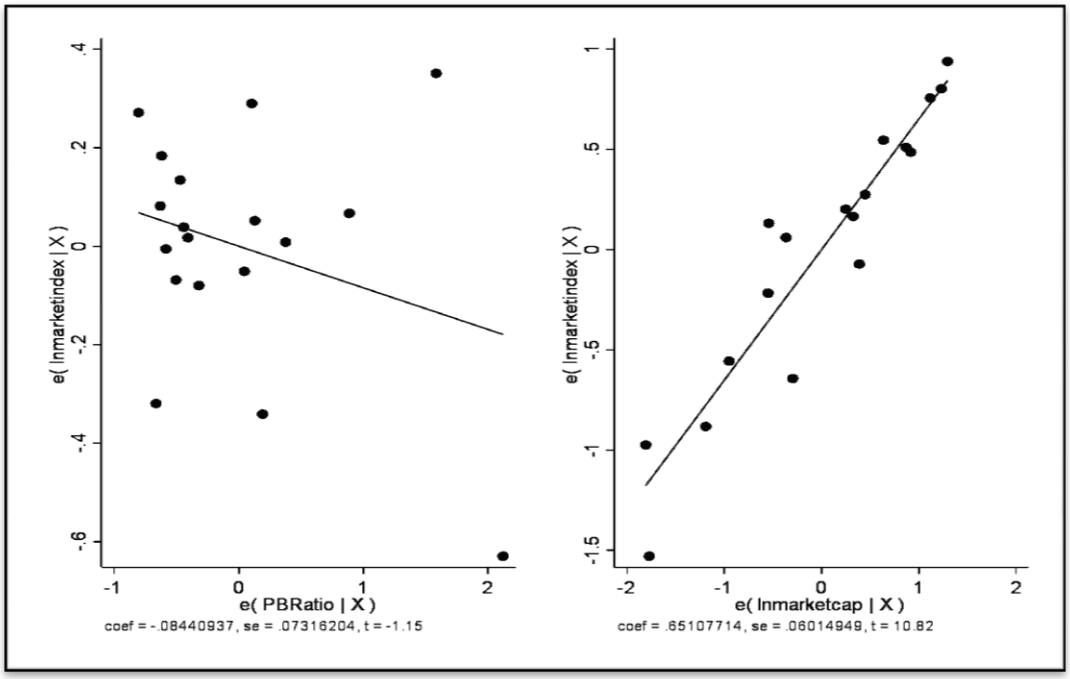

Figure 01, show the regression curve fitting for the independent variables in Model 01. Market Capitalization has significant positive linear relation with market index. The PRICE TO BOOK RATIO (P/B) Ratio although not significant, shows a negative relationship with market index.

Table02- Model 02

lnmarketindex	Coef.	St.Err.	t-value	p-value	(95% Conf	Interval)	Sig
PERatio	-0.055	0.030	-1.88	0.080	-0.118	0.008	*
lnmarketcap	0.755	0.083	9.08	0.000	0.578	0.932	***
Constant	-0.793	0.935	-0.85	0.410	-2.786	1.201	
Durbin-Watson d-statistic(3, 18) = 2.54661							

Mean dependent var	9.704	SD dependent var	0.683
R-squared	0.900	Number of obs	18.000
F-test	67.758	Prob> F	0.000
Akaike crit. (AIC)	0.828	Bayesian crit. (BIC)	3.499
*** p<0.01, ** p<0.05, * p<0.1			

lnmarketindex – log of index closing on annual basis; lnmarketcap- log of market capitalization

Table 03, show the regression results along with Durbin-Watson values for Model-03. The model is based on econometric model as in equation no. 03. The significant determinants of market index in Model 03 is Market Capitalization (at p value 0.01). The Durbin-Watson value is 2.51 which determines a robust model. The value of R-squared is 0.902 which is again robust.

Figure 2:Regression Curve Fitting for Independent Variables for Model 02

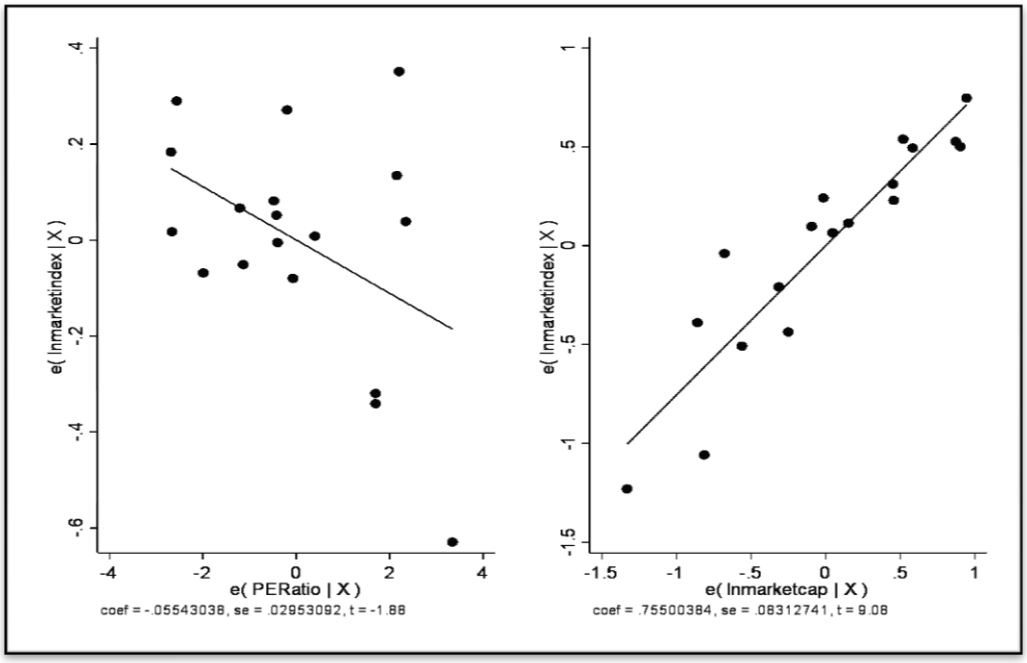

Figure 02, show the regression curve fitting for the independent variables in Model 02. Market Capitalization has significant positive linear relation with market index. The PE Ratio on the other hand shows a negative relationship with market index.

Table03- Model 03

Lnmarketindex	Coef.	St.Err.	t-value	p-value	(95% Conf	Interval)	Sig
PRICE TO BOOK RATIO (P/B) Ratio	-0.037	0.078	-0.47	0.645	-0.203	0.130	
PERatio	-0.049	0.033	-1.46	0.166	-0.120	0.023	
Lnmarketcap	0.746	0.087	8.55	0.000	0.559	0.934	***
Constant	-0.664	0.998	-0.67	0.517	-2.806	1.477	
Durbin-Watson d-statistic(4, 18) = 2.51863							

Mean dependent var	9.704	SD dependent var	0.683
R-squared	0.902	Number of obs	18.000
F-test	42.904	Prob> F	0.000
Akaike crit. (AIC)	2.545	Bayesian crit. (BIC)	6.106
*** *p<0.01*, ** *p<0.05*, * *p<0.1*			

lnmarketindex – log of index closing on annual basis; lnmarketcap- log of market capitalization

Figure 3: Regression Curve Fitting for Independent Variables for Model 03

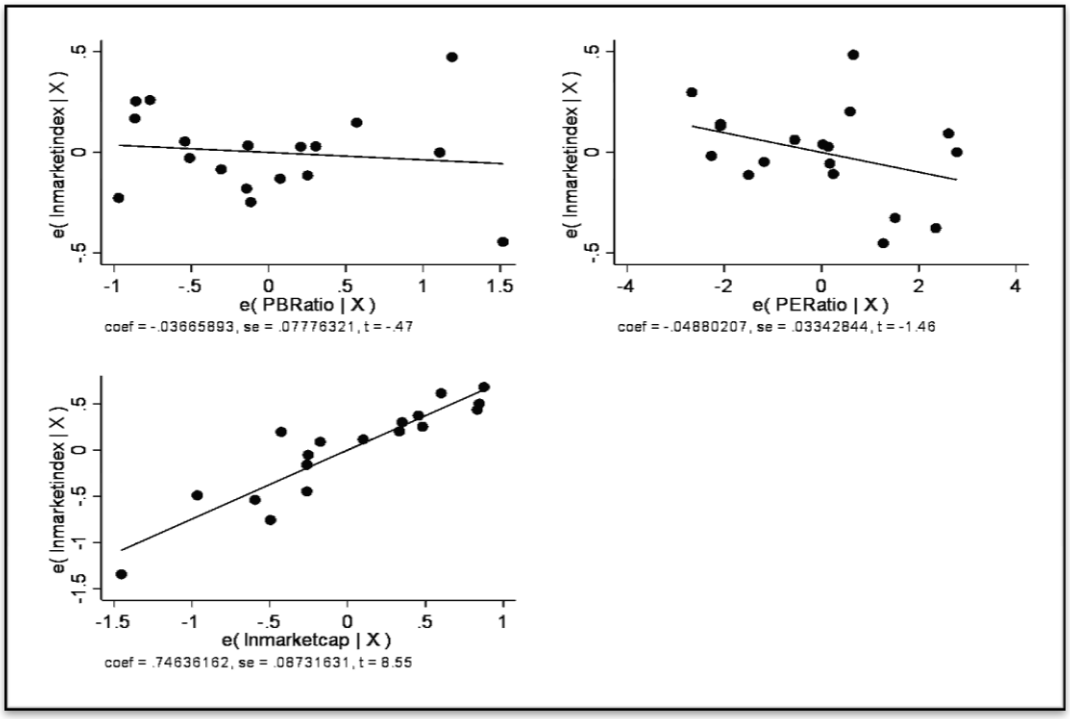

Figure 03, show the regression curve fitting for the independent variables in Model 03. Market Capitalization has significant positive linear relation with market index. The PRICE TO BOOK RATIO (P/B) Ratio and PE Ratio, although not significant, shows a negative relationship with market index.

CONCLUSION AND DISCUSSION

The study shows that how market capitalization, market PRICE TO BOOK RATIO (P/B) Ratio and market PE Ratio interact together with each other and individually to impact the Market Index. The results support the hypothesis that market capitalization significantly effects the market index. Also our models suggest that PRICE TO BOOK RATIO (P/B) Ratio and PE Ratio effect markets in negative way rather than positive way. The important finding of this study concludes that whenever market capitalization increases, the market indices will rise. If the PRICE TO BOOK RATIO (P/B) ratio and PE Ratio of the market is

higher than market indices will decrease.

The important finding and conclusion of this study suggests a stock market strategy that higher PRICE TO BOOK RATIO (P/B) Ratios and higher PE Ratios result in fall in market index, and an increase in market capitalization in the market will lead to rise in market indices.

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