A STUDY ON STOCK MARKET REACTION AROUND BOOK-TO-MARKET RATIO OF BANKING STOCKS

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ABSTRACT

The presence of the effect of book to market ratio on stock returns has been reported in several developed and emerging stock markets. This study investigates the existence of abnormal effect of stock returns due to the presence of book to market ratio. The Efficient Market Hypothesis suggests that all securities are priced efficiently to fully reflect all the information intrinsic in the asset. This is one of the anomalies in stock market that companies with low book to market ratio would deliver high returns than companies with high book to market ratio. The study examines the relationship between book to market ratio and stock returns. We attempt to determine whether excess returns are generated by stocks with high or low boot to market ratio. For the purpose of analysis banking stocks were chosen for a period of ten years from April 1 2004 to 31st March 2014.

Key words: Stock market, Share price, Book to market ratio, Sharpe ratio and Treynor ratio.

1. INTRODUCTION

1.1. Book-to-Market Ratio

Scholars in Finance have seen the relationship of market-to-book value mostly as a proxy for risk and as correlating with the cross-section of returns to common equity holders. Note that, in the finance literature, the relationship is operationalized as the reciprocal of the MB ratio – as Book-to-Market (or BM ratio) – where book is the common equity or net assets. Yet, the two variables of interest, book value and market value, remain the same in the two traditions. The Book to Market ratio is the ratio which is used for comparing company value to its market value. It is an important measure for company's performance and for quick reference

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to compare a company with its competitors, it is used for investors and analysts to judge the company's performance, to calculate the book to market ratio one should take current price per stock and divide by the book value per stock. This is useful to determine the market prices a company relative to its actual worth, as with most of the ratios it varies a fair amount by industry.

2. LITERATURE REVIEW

One of the most well-known and accepted "anomalies" of the stock market is the effect of the Book-to-market value ratio of equity on a firm's performance. A large number of studies, using US and international data, have demonstrated that this ratio has a significant explanatory power for cross section average stock returns and that these returns are higher for stocks with high book-to-market ratios.

Fama and French papers spurred interest in the relationship between market and book value of the firm. In an early paper, the authors highlighted "several empirical contradictions" (1992a: 427) to the presumed sufficiency of beta (β) in explaining portfolio cross-sectional returns. The initial reaction to Fama and French (1992a, 1993) was one of skepticism, with concern that the relationship observed between book-to-market and average returns was an artifact of the sample chosen (Black, 1993; MacKinlay, 1995).

Contrary out-of-sample evidence was then presented by Chan, Hamao and Lakonishok (1991), Capaul, Rowley and Sharpe (1993). In a 1998 paper, Fama and French presented data from thirteen major markets (including the U.S.) and showed return premium for value (high book-to-market) stocks in 12 of 13 of those markets. Barber and Lyon (1997) found similar value premium for financial firms.

Davis (1994) presented evidence of the value premium for U.S. stocks extending back to 1941. Davis, Fama and French (2000) extend this result back to 1926 and include the whole population of NYSE industrial firms. Taken altogether, this research generally supports Fama and French (1992a, 1993).

Vassalou and Xing (2004) further support the risk-based interpretation for the book-to-market. Even though behavior finance scholars have objected (e.g., Lakonishok, Shleifer & Vishny, 1994), the proponents of the rational pricing/efficient market hypothesis have

continued to defend the risk-reward linkage in the excess returns for high book-to-market stocks (Davis et.al. 2000; Malkiel, 2003; Fama & French 2006).

3. Methodology

3.1. Objectives of the study:

The paper attempts to examine the reaction of stock market around book to market ratio of banking stocks.

The following are the objectives of the present study:

- ✓ To study the Book to market ratio reflective of firm performance and to what extent does it reflect risk.
- ✓ To assess the stock returns in terms of change in its value
- ✓ To identify whether there are any abnormal returns in stock market of India with low or high book to market ratio

3.2. Sources of Data:

Analysis was been done by taking a sample of 18 stocks which belong to banking industry over the period of 2004 -2014. The present study is based on secondary data relating to share prices, of selected companies and their book to market ratios of that particular year. The present study covered a Period of ten Years from 1st April 2004 to 31st march 2014.

3.3. Hypotheses:

Null Hypothesis (H0): Are there any abnormal returns with low book to market ratio value of various companies listed in NSE.

4. Data Analysis

4.1 Analysis of effect of book to market value of the firm on excess return and risk

To analyse the effect of book to market value, the stock of 18 banks listed in NSE are taken as sample and analysis is done for the period ranging from 2004 to 2014. The parameters of analysis include

1. Analysis of Book to market value for the sample stocks
2. Analysis of Descriptive statistics
3. Analysis of correlation of book to market ratio values of sample stocks with mean returns ,standard deviation ,Sharpe ratio and Treynor ratio

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4. Hypothesis testing to determine the significance of correlation.

Table 4.1: Effect of book to market value on return and risk for the year 2004 - 2005

Stock	Book to Market Value	Mean Returns	Std Dev of Returns	Beta	Sharpe Ratio	Treynor Ratio
Andhra bank	0.42553	77.57%	56.88%	1.5714	1.2562	0.4547
Allahabad bank	0.51813	108.44%	58.83%	1.5108	1.7392	0.6773
Bank of Baroda	0.87719	-14.05%	62.14%	1.8385	-0.3244	-0.1096
Bank of India	0.84746	49.94%	59.85%	1.5264	0.7324	0.2872
Corporation bank	0.60976	26.20%	50.40%	1.0058	0.3987	0.1998
Dena bank	1.08696	8.76%	57.98%	1.5045	0.0456	0.0176
Dhanalakshmi bank	1.29870	-12.39%	100.26%	2.4147	-0.1849	-0.1492
Federal bank	0.70423	23.81%	55.72%	1.4048	0.1285	0.1946
HDFC	0.26810	35.03%	41.88%	1.1286	0.6906	0.2563
ICICI	0.43290	26.74%	35.16%	0.9102	0.5868	0.2267
Indus Ind Bank	0.57143	21.46%	54.63%	1.1836	0.2809	0.1297
Ing Vysya bank	1.69492	0.58%	54.97%	1.0258	-0.1006	-0.0539
Kotak Mahindra bank	0.17889	48.76%	40.67%	0.8499	1.0489	0.5019
Karur Vysya Bank	1.04167	10.18%	43.26%	0.6040	0.0940	0.0673
PNB	0.63291	16.65%	53.55%	1.4431	0.1968	0.0730
Syndicate bank	0.78740	28.66%	59.52%	1.7311	0.3789	0.1303
South India bank	1.49254	-10.77%	53.95%	1.3550	-0.3130	-0.1246
Union bank of India	0.60241	72.88%	59.46%	1.3471	1.1230	0.4957
Correlation		-0.6336	0.4484	0.2391	-0.7007	-0.7393
p-value		0.0014	0.0237	0.1550	0.0003	0.0001

The book to market value of the sample stocks are correlated with mean returns, standard deviation, Beta, Sharpe ratio and Treynor ratio. The stock returns are negatively correlated with book to market ratio. It indicates higher the book to market ratio, lower the returns delivered by the stock. Similarly, Sharpe ratio and Treynor ratio are negatively correlated with BV/MV ratio. It shows stocks with low BV/MV ratio has generated abnormal returns. Beta is positively correlated to BV/MV ratio. It shows higher the BV/MV ratio greater the market risk of the stocks. The obtained probability values are less than 5 % for all variables except beta which proves significance of all the correlation values other than Beta.

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Table 4.2: Effect of book to market value on return and risk for the year 2005 - 2006

Stock	Book to Market Value	Mean Returns	Std Dev of Returns	Beta	Sharpe Ratio	Treynor Ratio
Andhra bank	0.8547	-6.09%	39.79%	0.9145	-0.3514	0.1383
Allahabad bank	1.1111	-11.60%	577.54%	0.6793	-0.0337	-0.2869
Bank of Baroda	1.0989	-8.16%	45.15%	0.9790	-0.3554	-0.1639
Bank of India	0.6993	24.13%	55.54%	1.3207	0.2925	0.1230
Corporation bank	0.9091	-34.46%	51.72%	1.0426	-0.8189	-0.4062
Dena bank	1.2346	-4.55%	52.65%	0.9974	-0.2364	-0.1248
Dhanalakshmi bank	0.7874	62.24%	55.15%	0.6499	0.4794	0.5010
Federal bank	0.8130	6.30%	48.57%	1.1185	-0.0994	-0.0075
HDFC	0.2123	21.37%	37.37%	0.8251	0.3606	0.1633
ICICI	0.3165	35.26%	38.22%	0.9271	0.7160	0.2952
Indus Ind Bank	0.7874	-13.30%	70.62%	1.6399	-0.3001	-0.1292
Ing Vysya bank	0.6250	19.24%	47.78%	0.6697	0.2375	0.1694
Kotak Mahindra bank	0.1044	53.14%	52.34%	0.9527	0.8645	0.4750
Karur Vysya bank	0.8333	35.86%	33.32%	0.4809	0.8395	0.5817
PNB	0.6803	1.67%	41.11%	1.0047	-0.1513	-0.0619
Syndicate bank	0.9524	-36.63%	52.56%	1.1978	-0.8469	-0.3716
South India bank	1.0101	46.66%	35.94%	0.5985	1.0789	0.6479
Union bank of India	0.9009	-16.24%	49.40%	1.1406	-0.4885	-0.2116
correlation		-0.5107	0.2854	0.0046	-0.4834	-0.4301
p-value		0.0107	0.1113	0.4923	0.0154	0.0292

The mean returns of the stocks are negatively correlated with BV/MV ratio. The negative correlation of Sharpe and Treynor ratio shows stock with low BV/MV ratio has delivered return more than the market and stocks with high BV/MV ratio have not delivered abnormal return. The obtained probability values are less than 5 % for mean returns, Sharpe ratio and Treynor ratio, shows the significance of correlation for all variables. The correlation between BV/MV ratio, Beta and standard deviation is not statistically significant at 5 % confidence level. It indicates there is no significant relationship between the BV/MV ratio and both systematic and unsystematic risk.

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Table 4.3: Effect of book to market value on return and risk for the year 2006 - 2007

Stock	Book to Market Value	Mean Returns	Std Dev of Returns	Beta	Sharpe Ratio	Treynor Ratio
Andhra bank	0.8547	-6.09%	39.79%	0.9145	-0.3514	0.1383
Allahabad bank	1.1111	-11.60%	577.54%	0.6793	-0.0337	-0.2869
Bank of baroda	1.0989	-8.16%	45.15%	0.9790	-0.3554	-0.1639
Bank of India	0.6993	24.13%	55.54%	1.3207	0.2925	0.1230
Corporation bank	0.9091	-34.46%	51.72%	1.0426	-0.8189	-0.4062
Dena bank	1.2346	-4.55%	52.65%	0.9974	-0.2364	-0.1248
Dhanalakshmi bank	0.7874	62.24%	55.15%	0.6499	0.4794	0.5010
Federal bank	0.8130	6.30%	48.57%	1.1185	-0.0994	-0.0075
HDFC	0.2123	21.37%	37.37%	0.8251	0.3606	0.1633
ICICI	0.3165	35.26%	38.22%	0.9271	0.7160	0.2952
Indusind	0.7874	-13.30%	70.62%	1.6399	-0.3001	-0.1292
Ing vysya bank	0.6250	19.24%	47.78%	0.6697	0.2375	0.1694
Kotak mahindra bank	0.1044	53.14%	52.34%	0.9527	0.8645	0.4750
Karur vysya bank	0.8333	35.86%	33.32%	0.4809	0.8395	0.5817
PNB	0.6803	1.67%	41.11%	1.0047	-0.1513	-0.0619
Syndicate bank	0.9524	-36.63%	52.56%	1.1978	-0.8469	-0.3716
South India bank	1.0101	46.66%	35.94%	0.5985	1.0789	0.6479
Union bank of India	0.9009	-16.24%	49.40%	1.1406	-0.4885	-0.2116
correlation		-0.5107	0.2854	0.0046	-0.4834	-0.4301
p-value		0.0107	0.1113	0.4923	0.0154	0.0292

The analysis of relationship shows negative correlation exist between BV/MV and mean returns, Sharpe ratio and Treynor ratio. The correlation between BV/MV and all other variables except beta and standard deviation is statistically significant at 5 % confidence level. The analysis indicates both systematic and unsystematic risk has no significant relationship with BV/MV of the stock.

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Table 4.4: Effect of book to market value on return and risk for the year 2007 - 2008

Stock	Book to Market Value	Mean Returns	Std Dev of Returns	Beta	Sharpe Ratio	Treynor Ratio
Andhra bank	0.9009	-3.85%	49.61%	1.0169	-0.2413	-0.1177
Allahabad bank	1.2658	10.37%	53.70%	1.1661	0.0419	0.0193
Bank of Baroda	1.0638	34.52%	51.00%	1.0969	0.5177	0.2407
Bank of India	0.6623	50.18%	59.75%	1.1278	0.7038	0.3729
Corporation bank	1.0417	8.94%	49.46%	0.8741	0.0166	0.0094
Dena bank	1.0753	-44.43%	69.21%	1.3851	-0.7592	-0.3794
Dhanalakshmi bank	0.8547	45.27%	49.64%	0.4114	0.2891	0.2553
Federal bank	0.7042	33.93%	40.12%	0.6385	0.1369	0.2121
Hdfc	0.2457	39.47%	41.57%	0.9255	0.7541	0.3387
ICICI	0.5435	-4.45%	47.93%	1.1033	-0.2621	-0.1139
IndusInd	0.4405	72.82%	71.35%	1.4685	0.9068	0.4406
Ing Vysya Bank	0.4098	69.66%	45.59%	0.6528	1.3499	0.9428
Kotak Mahindra bank	0.1658	31.45%	60.15%	1.2711	0.3879	0.1836
Karur vysya bank	0.6579	34.12%	42.40%	0.7405	0.6133	0.3511
Pnb	0.6711	18.10%	46.42%	1.0574	0.2149	0.0943
Syndicate bank	0.9901	24.56%	52.98%	1.1570	0.3103	0.1421
South India bank	0.9091	42.17%	54.00%	0.9375	1.0685	0.3632
Union bank of India	0.7874	38.67%	59.00%	1.2106	0.5178	0.2524
correlation		-0.4792	0.0980	0.0274	-0.4542	-0.4847
p-value		0.0163	0.3405	0.4543	0.0221	0.0152

The mean returns of the stocks are negatively correlated with BV/MV ratio. The negative correlation of Sharpe and Treynor ratio shows stock with low BV/MV ratio has delivered return more than the market and stocks with high BV/MV ratio has not delivered abnormal return. The obtained probability values are less than 5 % for mean returns, Sharpe ratio and Treynor ratio, shows the significance of correlation for all variables. The correlation between BV/MV ratio, Beta and standard deviation is not statistically significant at 5 % confidence level. It indicates there is no significant relationship between the BV/MV ratio and both systematic and unsystematic risk.

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Table 4.5: Effect of book to market value on return and risk for the year 2008 – 2009

Stock	Book to Market Value	Mean Returns	Std Dev of Returns	Beta	Sharpe Ratio	Treynor Ratio
Andhra bank	1.6667	48.73%	49.50%	0.7269	0.8292	0.5646
Allahabad bank	2.8571	-71.18%	43.59%	0.6082	-1.8091	-1.2967
Bank of baroda	1.4925	-22.15%	56.88%	0.8561	-0.5245	-0.3485
Bank of India	1.0204	-19.39%	64.08%	1.0477	-0.4225	-0.2584
Corporation bank	1.8868	-43.52%	44.57%	0.5510	-1.1490	-0.9294
Dena bank	2.0833	-45.98%	58.13%	0.9558	-0.9234	-0.5616
Dhanalakshmi bank	1.3158	-23.27%	68.53%	0.7453	-0.3449	-0.3358
Federal bank	1.8182	-45.48%	49.17%	0.7170	-0.6112	-0.5620
Hdfc	0.3559	-31.01%	56.72%	1.0359	-0.6823	-0.3736
Icici	1.3333	-86.02%	80.75%	1.6380	-1.1606	-0.5721
Indusind	1.2500	3.42%	791.33%	1.0313	-0.0053	-0.0409
Ing vysya bank	1.1905	-97.47%	51.71%	0.6110	-2.0337	-1.7212
Kotak mahindra bank	0.3906	-85.99%	75.05%	1.3392	-1.2483	-0.6995
Karur vysya bank	1.2500	-53.08%	30.47%	0.4236	-1.9946	-1.4347
Pnb	1.0101	-20.08%	56.17%	0.9142	-0.4945	-0.3038
Syndicate bank	1.8182	-46.06%	47.18%	0.6037	-1.1393	-0.8903
South India bank	2.2222	-81.27%	43.80%	0.6397	-2.0311	-1.3907
Union bank of India	0.9524	4.21%	53.17%	0.7934	-0.0692	-0.0481
correlation		-0.1365	-0.1078	-0.4751	-0.2708	-0.3167
p-value		0.2830	0.3256	0.0171	0.1240	0.0868

The analysis indicates stocks with high BV/MV have delivered lower returns and vice versa. The Sharpe ratio and Treynor ratio is negative for all stocks except Andhra Bank, irrespective of the BV/MV ratio. The negative return shows the reflection of global meltdown in 2008. The observed probability values are less than 5 % for all variables except Beta, indicating the significance of correlation for all variables except beta.

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Table 4.6 Effect of book to market value on return and risk for the year 2009- 2010

Stock	Book to Market Value	Mean Returns	Std Dev of Returns	Beta	Sharpe Ratio	Treynor Ratio
Andhra bank	0.8403	-90.00%	42.00%	0.8418	-2.3286	-1.1601
Allahabad bank	0.9259	133.00%	50.00%	1.0966	2.5381	1.1510
Bank of Baroda	0.6452	105.27%	40.74%	0.7959	2.4062	1.2318
Bank of India	0.7143	45.26%	29.98%	0.9345	0.7893	0.4069
Corporation bank	0.8403	101.69%	37.94%	0.6952	2.4898	1.3588
Dena bank	1.0638	90.75%	53.23%	1.1829	1.5690	0.7061
Dhanalakshmi bank	0.5155	98.76%	59.54%	1.0547	0.8662	0.9190
Federal bank	1.0309	65.13%	41.82%	0.7811	0.4784	0.5588
Hdfc	0.2433	68.65%	32.00%	0.7856	1.9289	0.7818
Icici	0.4854	104.00%	52.00%	1.4292	1.8664	0.6801
Indusind	0.3086	169.95%	59.00%	1.1853	2.7658	1.3728
Ing vysya bank	0.6623	79.38%	51.22%	0.6599	1.4086	1.0934
Kotak mahindra bank	0.1721	95.33%	54.75%	1.3435	1.6093	0.6558
Karur vysya bank	0.6494	86.00%	36.00%	0.3350	2.2002	2.3465
PNB	0.5076	-95.23%	38.00%	0.8474	-21.6152	-9.6558
Syndicate bank	1.1628	59.50%	42.91%	0.9612	1.2181	0.5438
South India bank	0.7299	127.04%	41.48%	0.8652	2.8882	1.3848
Union bank of India	0.5952	35.11%	35.12%	0.7032	0.7937	0.3965
Correlation		-0.1032	-0.1404	-0.2026	0.0951	0.0986
p-value		0.3325	0.2775	0.1959	0.3451	0.3396

The analysis of relationship shows negative correlation exists between BV/MV and mean returns, standard deviation and beta. Both Sharpe ratio and Treynor ratio are positively correlated with BV/MV unlike the previous year. The obtained probability values are more than 5 % for all variables, shows the relationship is not statistically significant at 5 % confidence level.

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Table 4.7: Effect of book to market value on return and risk for the year 2010 – 2011

Stock	Book to Market value	Mean	SD	Sharpe ratio	Treynor ratio	Beta
Andhra bank	0.7692	0.13%	33.18%	0.1035	0.1035	0.9154
Allahabad bank	0.6944	0.15%	33.71%	0.0001	0.0303	0.9597
Bank of Baroda	0.5556	0.16%	26.64%	0.4426	0.4426	0.7149
Bank of India	0.6098	0.12%	36.18%	0.6351	0.2159	1.0643
Corporation bank	0.7576	0.11%	30.49%	0.6710	0.2492	0.821
Dena bank	1.0000	0.10%	40.90%	0.4408	0.1267	1.4234
Dhanalakshmi bank	0.8772	-0.08%	37.91%	-0.4165	-0.2888	0.9746
Federal bank	0.7143	0.16%	32.98%	0.1659	0.3213	0.934
HDFC	0.2326	0.08%	24.83%	0.4476	0.1101	1.0097
ICICI	0.4292	0.06%	33.54%	0.2363	0.0529	1.4984
Indusind	0.3106	0.16%	39.26%	0.8100	0.2895	1.0983
Ing vysya bank	0.6494	0.06%	36.30%	0.2194	0.0846	0.9416
Kotak mahindra bank	0.2020	-0.08%	31.34%	-0.9030	-0.2457	1.1517
Karur vysya bank	0.5618	0.16%	28.41%	1.1711	0.8652	0.3845
Pnb	0.5076	0.07%	24.71%	0.3961	0.1156	0.847
Syndicate bank	0.9524	0.14%	36.49%	0.7393	0.2216	1.2175
South India bank	0.6579	0.10%	36.21%	1.8430	0.1934	0.9313
Union bank of India	0.6098	0.01%	31.76%	-24.8271	-7.2714	1.0843
correlation		0.1829	0.489	0.0198	0.0094	0.0557
p-value		0.2201	0.0143	0.4669	0.4843	0.4078

The books to market values are positively correlated with annual mean returns, annual standard deviation returns, Beta, Sharpe ratio and Treynor ratio. The observed probability is more than 5 % for all values except standard deviation. It shows the relationship is statistically significant only for standard deviation.

Table 4.8: Effect of book to market value on return and risk for the year 2011 – 2012

Stock	Book to Market Value	Mean Returns	Std Dev of Returns	Beta	Sharpe Ratio	Treynor Ratio
Andhra bank	1.1236	-23.83%	34.38%	1.0808	-0.9412	-0.2994
Allahabad bank	1.0309	19.49%	40.71%	1.2576	0.2694	0.0872
Bank of baroda	0.8403	-17.57%	32.40%	0.9282	-0.8054	-0.2811
Bank of India	0.9524	-28.63%	40.38%	1.1982	-0.9201	-0.3101
Corporation bank	1.3158	-41.02%	25.76%	0.6663	-1.9228	-0.7435
Dena bank	1.3699	-16.97%	42.37%	1.4560	-0.6016	-0.1751
Dhanalakshmi bank	1.2500	-53.63%	51.35%	1.2454	-0.7022	-0.6047
Federal bank	0.7813	1.49%	33.75%	1.0321	-0.2375	-0.0676
HDFC	0.2451	10.99%	25.94%	0.9462	0.0953	0.0261
ICICI	0.5917	-21.86%	36.77%	1.5117	-0.8262	-0.2009
Indusind	0.3003	19.55%	36.26%	1.1828	0.3043	0.0933
Ing vysya bank	0.7246	10.81%	31.59%	0.8280	0.0725	0.0276
Kotak mahindra bank	0.1976	19.38%	20.64%	1.1758	0.5262	0.0924
Karur vysya bank	0.6757	-8.11%	21.37%	0.4887	-0.7780	-0.3402
Pnb	0.8403	-24.80%	32.10%	0.9333	-1.0378	-0.3570
Syndicate bank	1.2048	-9.89%	39.43%	1.3306	-0.4668	-0.1383
South India bank	0.7246	6.17%	30.53%	0.7917	-0.0769	-0.0297
Union bank of India	1.0000	-41.56%	41.74%	1.1077	-0.0769	-0.0297
Correlation		-0.6684	0.5728	0.1440	-0.5993	-0.5989
p-value		0.0006	0.0041	0.2724	0.0026	0.0026

The mean returns are negatively correlated with BV/MV. The correlation between BV/MV and mean returns are statistically significant at 5 % confidence level. The BV/MV to Sharpe ratio and BV/MV to Treynor ratio are negatively correlated indicating higher the book to market value ratio, lower the excess returns. The relationship between BV/MV and Sharpe ratio and Treynor ratio is statistically significant at 5 % confidence level. Positive correlation is observed between BV/MV and standard deviation as well as beta. Hence the relationship between BV/MV and both systematic and unsystematic risk is significant at 5 % confidence level.

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Table 4.9 Effect of book to market value on return and risk for the year 2012– 2013

Stock	Book to Market Value	Mean Returns	Std Dev of Returns	Beta	Sharpe Ratio	Treynor Ratio
Andhra bank	1.5873	-23.76%	33.61%	1.4134	-0.9556	-0.2272
Allahabad bank	2.2222	-38.93%	35.41%	1.6210	-1.3353	-0.2917
Bank of baroda	1.2658	-16.63%	31.37%	1.4930	-0.7964	-0.1674
Bank of India	2.1739	-19.60%	33.05%	1.4021	-0.8460	-0.1994
Corporation bank	1.9608	-11.34%	20.69%	0.6207	-0.9521	-0.3174
Dena bank	1.5625	-2.09%	35.04%	1.7406	-0.2981	-0.0600
Dhanalakshmi bank	1.8868	-43.82%	39.81%	1.3724	-0.6482	-0.4992
Federal bank	0.7752	11.09%	21.58%	0.7731	-0.2765	0.0027
HDFC	0.2439	17.20%	18.92%	0.9730	0.4669	0.0908
ICICI	0.5525	17.20%	18.92%	1.6826	0.4669	0.0525
Indusind	0.3497	22.00%	23.96%	1.0752	0.5693	0.1268
Ing vysya bank	0.5236	43.03%	24.26%	0.8156	1.4289	0.4251
Kotak mahindra bank	0.1942	-16.41%	23.27%	0.9804	-1.0644	-0.1543
Karur vysya bank	0.6369	-18.39%	22.46%	0.3855	-1.1911	-0.6939
Pnb	1.2346	-26.30%	31.55%	1.4761	-1.0984	-0.2348
Syndicate bank	1.4493	-2.11%	33.67%	1.6793	-0.3110	-0.0624
South India bank	0.8696	-0.83%	28.69%	0.9491	-0.3203	-0.0968
Union bank of India	1.2048	1.35%	39.54%	1.4598	-0.1772	-0.0480
Correlation		-0.6684	0.6754	0.4306	-0.5516	-0.4601
p-value		0.0006	0.0005	0.0290	0.0058	0.0206

The BV/MV and means returns are negatively correlated and it is statistically significant at 5 % confidence level. It shows stocks with high BV/MV have tendency to generate lower returns as compared to stocks with low BV/MV ratio. Similarly negative correlation is observed for BV/MV and Share ratio and BV/MV and Treynor ratio. The correlation is significant at 5 % level. It shows stocks with high book value to market value have not generated excess returns, rather they produced negative returns. Standard deviation and Beta are positively correlated with BV/MV ratio. It shows higher the BV/MV ratio greater is the systematic and unsystematic risk.

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Table 3.10 Effect of book to market value on return and risk for the year 2013– 2014

Stock	Book to Market Value	Mean Returns	Std Dev of Returns	Beta	Sharpe Ratio	Treynor Ratio
Andhra bank	2.3256	-42.93%	37.27%	1.2063	-1.3775	-0.4256
Allahabad bank	2.2222	-48.66%	43.06%	1.4490	-1.3192	-0.3920
Bank of baroda	1.1494	5.19%	44.88%	1.6045	-0.0717	-0.0201
Bank of India	1.7544	-30.46%	55.42%	1.9588	-0.7014	-0.1984
Corporation bank	2.1739	-35.23%	30.89%	0.9851	-1.4127	-0.4430
Dena bank	1.9608	-42.09%	42.38%	1.5005	-1.1916	-0.3365
Dhanalakshmi bank	1.4286	-30.65%	42.47%	0.9144	-0.5045	-0.3984
Federal bank	0.8475	-1.21%	42.93%	1.4003	-0.2240	-0.0687
HDFC	0.2421	18.48%	29.90%	1.2850	0.3366	0.0783
ICICI	0.5076	18.48%	29.90%	1.5635	0.3366	0.4356
Indusind	0.3279	19.06%	44.51%	1.7401	0.2393	0.0612
Ing vysya bank	0.5882	15.76%	31.77%	0.9326	0.2313	0.0788
Kotak mahindra bank	0.2049	18.28%	32.83%	1.3117	0.3006	0.0752
Karur vysya bank	0.8264	-19.31%	26.46%	0.6919	-1.0477	-0.4006
Pnb	1.2821	2.62%	42.99%	1.6448	-0.1347	-0.0352
Syndicate bank	1.8182	-17.29%	45.55%	1.4431	-0.5641	-0.1781
South India Bank	1.0753	-9.96%	30.20%	0.7772	-0.6082	-0.2363
Union bank of India	1.9608	20.74%	58.34%	1.9089	0.2114	0.0646
Correlation		-0.7819	0.4529	0.1302	-0.7702	-0.6803
p-value		0.0000	0.0225	0.2922	0.0000	0.0005

The above table shows the relationship between Book to market value and means returns, standard deviation, beta, Sharpe ratio and Treynor ratio. The book to market value and means returns are positively correlated. The relationship is statistically significant at 5 % confidence level. It indicates higher BV/MV is associated with lower returns. The Sharpe ratio and Treynor ratio are negatively correlated with BV/MV and significant at 5 % level. It shows stocks with high BV/MV have not generated abnormal returns as compared to stocks with low BV/MV ratio. Both standard deviation and Beta are positively correlated with BV/MV and the correlation is significant at 5 % level. It shows high BV/MV is associated with increasing systematic and unsystematic risk.

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5. DISCUSSION

In this paper, we developed, based on economic and finance theory, a model for the determination of (MV/BV) ratio of a business firm and adopted it to a banking firm. The study shows the annual mean returns were negatively correlated with book to market ratio for the sample stocks for all the years from 2004-05 to 2013-14, except during 2010-11. For most of the years under study, the stocks with high book to market value ratio have delivered low returns as compared to stocks with low book to market value ratio. During the year 2010-11, all variables are positively correlated with book to market value ratio. In the Recession period 2008- 2009 almost all the stock had delivered negative returns and stock which remained positive in returns are also very low. In most of the year's annual returns of the stock went down with High book to market ratio and went high with low book to market ratio. Up to Recession period 2008-2009 all the P values of annual Returns are less than 0.05 which proves its significance with correlation with Book to market ratio. The Treynor Ratio and Sharpe Ratio were negatively correlated with Book to Market ratio and they are proven significant for most of the years. The study proves potential Investor ,it can be said that Book to market ratio one important to be considered to invest in NSE as companies with Low Book to Market ratio also had performed well than companies with high book to market ratio

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