

An Insight into The Determinants on the Valuation Accuracy for Bank Stocks in Indian Stock Market- An Empirical Analysis

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ABSTRACT

Investors in stock market using different valuation models to pick the stocks from Indian stock market. Few valuation models are accurate for some stocks due to various reasons. There are different factors determining the accuracy of valuation for bank stocks in Indian Stock Market. This paper studies on the importance of six equity valuation models in terms of valuation accuracy of bank stocks in Indian Stock Market. This paper shows the determinants such as Size, Profitability and Ownership of bank determining the accuracy of valuation models for BSE Bankex stocks in Indian Stock Market. This study selected P/E Model, P/B model, Ohlson Model, CAPM, Dividend Discount Model and Excess return Model for valuation accuracy determinants of Bank Stocks in Indian Stock Market. This study selected a sample of 14 banks which constitute the BSE Bankex. It was found that size, profitability and ownership of bank are the most important determinants determining the valuation accuracy of banks in Indian stock market.

Keywords

Valuation model, Profitability, Dividend discount model

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Introduction

There are several factors determining the accuracy of valuation of bank stocks in the stock market. There are different equity models used for estimating the intrinsic value of bank stocks in Indian stock market. Valuation models will give different intrinsic value due to difference in the inputs used in the models. This study focused on the significant bank characteristics such as Size of the bank, Profitability of Bank, Ownership influence on the valuation accuracy of bank stocks using different equity valuation models in Indian stock market. So it is very important to know the fundamentals of the bank and the most influencing fundamental variables of each equity model influencing on the value of bank stocks in Indian stock market. This study will help the investors to choose the best model for each bank stock in Indian stock market. This study also focused on testing the significant and most influential variable determine the value of bank stocks in BSE Bankex. Mean absolute Percentage Error is the statistical tool used to measure the valuation accuracy of all of these models for bank stocks in BSE Bankex. Finally, investors can understand the characteristics of bank and choose the appropriate equity model for predicting the value of bank stocks very accurately in Indian Stock Market.

Review of Literature

Antonella Silvestri (1995) tested the impact of current and forward accounting variables on the firms' market value in the financial sector of the Italian Stock Exchange and found that accounting data in the firm's evaluation process was very important in the Italian market. **Reza Rahgozar (2005)** used several valuation models such as discounted cash flow, market-value added, and multiple methods for estimating stocks prices of all companies included in the Dow Jones Industrial, Transportation, and Utility Indexes over several

time periods. The estimated values were then compared with actual stock prices to test the accuracy of the models and results showed that the estimated stock prices used differ greatly from their actual prices. So, it found that valuation have limited application overtime. **Christos Negakis (2006)** used a set of valuation models which are based on Feltham and Ohlson's (1995) model and examined the relationship between market values and book values. It found that Feltham and Ohlson's (1995) model, were able to explain the variation in the market value of newly listed firms

Rocia Duran (2007) tested the value relevance of Mexican accounting variables using econometric models and found that book value is more relevant variable to explain share price. An alternative model was also presented with operating cash flow per share as third variable and it presented extra information. **Spilioti (2007)** studied on equity valuation and found that security prices should be determined by book value and discounted future abnormal earnings. **Dilpreet Singh (2007)** analyzed a company's equity valuation model using earnings and compared the intrinsic value using Modi Miller Model and Ohlson Model. It was found that Ohlson Model performed better than Modi Miller Model. **Anastasia Vardavaki, Epidavrou, Halnandri (2007)** presented the theoretical framework for the process of equity valuation and studied the explanatory power of alternative linear equity valuation models applied to firms in the UK food and drug retail sector. Results supported the combined valuation model for providing better and more accurate estimations of equity market values. **Alina Lucia Trifan (2009)** tested the performance of CAPM for the Romanian capital market both for individual assets and for portfolios, using a sample of daily data for 24 companies listed on Bucharest Stock Exchange. It was found that intercept was statistically insignificant for both individual assets and portfolios.

Mohammad Reza Tavakoli (2010) studied the relationship between systematic risk and return in three selected markets

of Iran economy using CAPM and found that negative relationship existed between systematic risks with realized and expected return of the currency market; negative relationship between risk and expected return rate in the stock market; and positive linkage between these two variables in the real estate market. **Kapil Choudhary, Sakshi Choudhary (2010)** examined the CAPM for the Indian stock market using monthly stock returns from 278 companies of BSE 500 Index listed for the period of January 1996 to December 2009 and found that higher risk was not with higher levels of return for stocks and residual risk had no effect on the expected return of portfolio. **W. S. Nel (2011)** investigated academic consensus among chartered accountants regarding the use of CAPM and revealed that both academia and investment practitioners favoured on calculating the cost of equity and disagreed significantly with regard to the components of the model.

Thomas Payne (1999) studied fundamental nature of the Dividend Discount Model with its parameters and found that DDM is very sensitive to the relationship between the required return on investment and the assumed growth rate in earnings and dividends. It was also found that calculating a value under Dividend Discount Model based on narrow assumptions was impractical in nature. **Jennifer Francis (2000)** provided empirical evidence on the reliability of intrinsic value estimates derived from three theoretically equivalent valuation models: the discounted dividend model, the discounted free cash flow model, and the discounted abnormal earnings model. Reliability of abnormal earnings as a measure of intrinsic value was better than free cash flow and dividend models. **Fabio Canova (1995)** attempted to reproduce the time series properties of nominal excess returns in a variety of financial markets using representative agent cash-in-advance model and simulations demonstrated that the model can replicate some of the predictability features of observed excess returns for the period 1978-1991. **Patricia Dechow (1999)** provided an empirical assessment of the residual income valuation model proposed in Ohlson and found that empirical implementation of this model provided only minor improvements over existing attempts to implement the dividend-discount model.

Dimitar Nenkov (2010) studied the use of relative valuation for estimating the value of companies associated with its application in Bulgaria. This study found that during the period prior to the financial crisis, the average levels of the actual price to earnings and price to book value ratios were considerably higher than the levels suggested by fundamentals in the Bulgarian capital market. **Clifford Asness (2012)** indicated that one year earnings were highly volatile and probably mean reverting in Shiller price earnings model. It was found that during the period of high earnings, the one year low P/E stocks were very cheap and in the period of low earnings, high P/E stocks were expensive. **Surendra Agarwal and Reza Monem (2014)** examined the theoretical and empirical validity of the price-to book ratio model and found that model fits very well in the stock market. Most important factor is dividend as the prime value driver explained the significant portion of the variability in the P/B ratio.

Research Methodology

Objectives of the study

- 1) To compare the valuation accuracy of six equity valuation models for bank stocks in India based on the characteristics of the bank.
- 2) To know the significant and fundamental factor of Bank influencing on the valuation accuracy
- 3) To suggest the appropriate equity model for each bank stock after understanding the characteristics.

Sources of data

The study used secondary data. Secondary sources include annual reports, National Stock Exchange's official website (www.nseindia.com), Bombay Stock Exchange's official website (www.bseindia.com), websites of Individual Banks, Confederation of Indian Industries (CII) library, databases like Centre for Monitoring Indian Economy (CMIE) Prowess and Business Beacon and annual report library services like Ebsco Services. A number of research papers, working papers and financial dailies are also referred for this purpose. Secondary data include financial variables and accounting information such as yearly netprofit, dividend, book value per share, earnings per share, market price of share, beta, book value of equity, number of outstanding shares, etc., of each bank. The operating and financial reviews along with the notes to accounting policies for each bank contributed to the accurate extraction of accounting information. Total of 14 bank stocks, constituting Bombay Stock Exchange's Bankex (a sectoral index), are selected for the study as sample.

The following six appropriate equity valuation models for valuing bank stocks are identified for the study:

1. Price to Earnings Model (P/E Model)

$$\text{Predicted P/E} = \beta_0 + \beta_1 \text{BETA} + \beta_2 \text{EPS}_g + \beta_3 \text{DPR} + \epsilon_i$$

$$\text{Intrinsic value} = \text{Predicted PE} * \text{EPS}$$
2. Price to Book value Model (P/B Model)

$$\text{Predicted P/B} = \beta_0 + \beta_1 \text{BETA} + \beta_2 \text{EPS}_g + \beta_3 \text{ROE} + \beta_4 \text{DPR} + \epsilon_i$$

$$\text{Intrinsic value} = \text{Predicted PB} * \text{BVPS}$$
3. CAPM (Capital Asset Pricing Model)

$$\text{Intrinsic value} = \text{Last year Market Price} + [\text{Last year Market Price} * \text{Expected Return}]$$

$$\text{Expected Return} = R_f + \beta(R_m - R_f)$$
4. Ohlson Model (OHL Model)

$$\text{Intrinsic value} = [(\text{Net Profit after Tax} / R_f) + (\text{Predicted Book value of Equity} - \text{Last Year Book Value of Equity})] / \text{No. of O/S Shares.}$$

$$\text{Predicted Book value of Equity} = (\text{Last year Book Value of Equity} + \text{Current Year Earnings} - \text{Current Year Dividend})$$
5. Dividend Discount Model (DDM)

$$\text{Intrinsic value} = \text{Expected DPS} / (K_e - \text{EPS}_g)$$
6. Excess Return Model (ERM)

$$\text{Intrinsic Value} = (\text{Equity} + \text{PVER}) / \text{No. of outstanding shares}$$

Statistical Tools used for the study

a) **MAPE-** Valuation accuracy of bank stocks are measured by calculating the mean absolute percentage of error (MAPE) between the stock's calculated intrinsic values with actual market price.

$MAPE\ it = |(P'it - Pit)| / Pit \times 100\%$ where $MAPE\ it$ is the Mean Absolute Percentage Error for bank
 $P'it$ = Market price, Pit = Intrinsic value.

b) **Karl Pearson correlation**

Karl Pearson correlation coefficient is used for finding the difference in the valuation accuracy of bank stocks based on its characteristics (Size, Profitability, ownership of banks) in Indian Stock Market.

Hypotheses

In line with the objectives, the study tested the following major hypotheses besides a number of working hypotheses:

H01: There is no positive relation in the valuation accuracy between Large cap bank stock and Mid cap bank stocks for PE, PB, and Ohlson Model in Indian stock market.

H02: There is no positive relation in the valuation accuracy between High profitable and Moderate profitable bank stocks for PE, PB, and Ohlson Model in Indian stock market.

H03: There is no positive relation in the valuation accuracy between public sector bank stock and private sector bank stocks for PE, PB, and Ohlson Model in Indian stock market.

Methodology

The study has followed a systematic procedure to check the accuracy and identifying the determinants of accuracy of valuation models for bank stocks are detailed below:

a) Identifying six valuation models- P/E Model, P/B Model, Ohlson Model, CAPM, DDM, Excess Return Model for valuing bank stocks in the Indian context.

b) Determining the valuation accuracy for bank stocks in Indian Stock Market using Six equity valuation Models.

c) Compare the valuation accuracy of equity valuation models based on size, profitability and ownership of banks using Mean Absolute Percentage Errors (MAPE).

d) Identify the determinants such as Size of bank, Profitability and Ownership determining the valuation accuracy of bank stocks in Indian stock market.

e) Suggest suitable valuation model for each bank stock after understanding the most important characteristics influencing on the value of bank.

Analysis

This section identifies the factors that determine the valuation accuracy of the bank stocks. Size, profitability and ownership of banks are the characteristics highly influencing the valuation accuracy of bank stocks in India. Based on size, Banks are classified into Large capitalised banks (Large Cap), Medium capitalised banks (Mid Cap). Based on profitability (Return on Equity), Banks are classified into High profitable banks and Medium profitable banks. Based

on the ownership pattern, banks are classified into Public sector banks and private sector banks. Valuation accuracy of all these banks based on the characteristics are given below.

Table – 1.1 Comparing the Mean Absolute Percentage Errors (MAPE) for Six Equity Valuation Models from 2007-08 to 2018-19 based on size, profitability and ownership of banks (In %)

Owner ship	Size	Profitability	Name of Bank	P/E Model	P/B Model	Ohlson Model	CAPM	DDM	ER Model
PUBLIC BANKS	LARGE CAP	High	SBI	34.18	29.51	40.72	46.94	948.03	26.04
		Average Errors			34.18	29.51	40.72	46.94	948.03
	MID CAP	moderate	BOB	60.12	53.55	61.57	59.05	291.31	78.91
		high	PNB	47.78	44.39	60.90	51.42	941.95	80.09
		high	CANARA	46.45	41.51	61.52	54.72	613.63	59.28
		high	BOI	45.55	36.50	59.83	45.84	798.40	61.48
		high	UBOI	42.29	37.73	59.72	48.77	800.13	68.19
		Average Errors			48.43	42.74	60.71	51.96	689.08
	PRIVATE BANKS	LARGE CAP	high	HDFC	38.82	62.07	45.14	37.62	1244.9
			high	AXIS	30.36	68.35	31.90	59.39	948.45
			moderate	ICICI	61.28	45.32	41.85	44.14	965.07
		Average Errors			43.49	58.58	39.63	47.05	1052.8
		MID CAP	Moderate	KOTAK	193.27	127.18	216.90	218.15	8419.2
			moderate	Indusind	118.03	47.20	63.07	91.11	1488.5
			high	Yes	61.18	49.48	80.75	89.04	632.80
			high	Federal	64.66	65.77	63.17	112.67	683.72
		moderate	IDBI	45.64	57.40	57.62	63.35	930.00	40.22
	Average Errors			96.56	69.41	96.30	114.86	2430.8	131.76

Note: Results computed using SPSS

Table 1.1 shows the comparison of MAPE for six equity valuation models based size, profitability and ownership of banks. It was found that P/E Model, P/B Model and Ohlson model are the most accurate valuation models can be termed as (PEPBOHL Models) in Indian Stock Market. CAPM and Dividend discount model does not work well for bank stocks in BSE Bankex. It is clear that P/E Model, P/B Model and Excess Return Model are suggested for large cap public sector banks having high profitability. P/B Model is also suggested for mid cap public and private sector banks having high and moderate profitability. Ohlson Model is suggested for large cap private sector banks having high and moderate profitability respectively for bank stocks in BSE Bankex. This section selected three most accurate valuation models such as P/E Model, P/B Model and Ohlson Model (PEPBOHL Model) respectively and suggesting the investors the most accurate models based on the characteristics of the bank.

a) Size of the Bank

Size of the bank is expressed in terms of market capitalization. It is expected that stock prices of banks with high market capitalization should be more efficient, assuming a constant free float and ownership structure. Hence, the prediction error for larger banks are lesser than medium sized banks

Table – 1.2. Valuation Errors (MAPE) of Large Cap Bank Stocks using PEPBOHL Models from 2007-08 to 2018-19 (in %)

Name of Bank	Based on Market Capitalisation (Crores)	MAPE for P/E	MAPE for P/B	MAPE for Ohlson
HDFC Bank	Large Cap	38.82	62.07	45.14
SBI	Large Cap	34.18	29.51	40.72
AXIS Bank	Large Cap	30.36	68.35	31.9
ICICI Bank	Large Cap	61.28	45.32	41.85
Average MAPE		41.16	51.31	39.90

Note: Results computed using MS Excel

Table 1.2 shows the MAPE for 4 large cap banks using PEPBOHL Models. Ohlson model is suitable for large cap bank stocks. Ohlson Model and P/E Model can use for valuing Axis bank, P/B Model can use for valuing State Bank of India respectively.

Table – 1.3 Valuation Errors (MAPE) of Mid Cap Bank Stocks using PEPBOHL Models from 2007-08 to 2018-19 (in %)

Name of Bank	Based on Market Capitalisation (Crores)	MAPE for P/E	MAPE for P/B	MAPE for Ohlson
KOTAK	Mid Cap	193.27	127.18	216.90
BOB	Mid Cap	60.12	53.55	61.57
PNB	Mid Cap	47.78	44.39	60.90
INDUS IND	Mid Cap	118.03	47.20	63.07
YES	Mid Cap	61.18	49.48	80.75
CANARA	Mid Cap	46.45	41.51	61.52
FEDERAL	Mid Cap	64.66	65.77	63.17
BOI	Mid Cap	45.55	36.50	59.83
UBOI	Mid Cap	58.56	33.84	59.72
IDBI	Mid Cap	45.64	57.40	57.62
Average MAPE		74.12	55.68	78.50

Note: Results computed using MS Excel

Table 1.3 shows the MAPE for 10 mid cap bank stocks using PEPBOHL models. P/B Model is suitable for mid cap bank stocks. P/B Model is suitable for valuing bank stocks

like Union Bank of India, Bank of India and Canara Bank respectively.

b) Profitability of the Bank

Profitability of the banks is expressed in terms of return on equity. On examining the relationship between the prediction error and bank profitability, it is observed that valuation accuracy for profitable banks are higher than banks with low profitability. Hence, the prediction error is negatively correlated to return on equity as a measure of bank profitability.

Table 1.4 Valuation Errors (MAPE) of PEPBOHL Models for Highly Profitable Banks from 2007-08 to 2018-19 (in%)

Name of Bank	Average Return On equity	MAPE for P/E Model	MAPE for P/B Model	MAPE for Ohlson Model
HDFC Bank	19.50	38.82	62.07	45.14
SBI	15.84	34.18	29.51	40.72
AXIS Bank	19.40	30.36	68.35	31.90
PNB	19.65	47.78	44.39	60.90
YES	17.90	61.18	49.48	80.75
CANARA	19.59	46.45	41.51	61.52
FEDERAL	15.77	64.66	65.77	63.17
BOI	17.74	45.55	36.50	59.83
UBOI	18.84	58.56	33.84	59.72
Average MAPE		47.50	47.94	55.96

Note: Results computed using MS Excel

Table 1.4 shows the MAPE of highly profitable banks for PEPBOHL models. It is clear that P/E model is suitable for highly profitable banks. P/E Model is suitable for valuing highly profitable banks such as HDFC Bank, SBI, AXIS Bank etc.

Table – 1.5 Valuation Errors (MAPE) of PEPBOHL Models for Moderate Profitable Banks from 2007-08 to 2018-19 (in%)

Name of Bank	Return On equity	MAPE for P/E Model	MAPE for P/B Model	MAPE for Ohlson Model
ICICI	12.69	61.28	45.32	41.85
KOTAK	11.59	193.27	127.18	216.90
BOB	13.18	60.12	53.55	61.57
INDUSIND	13.40	118.03	47.20	63.07
IDBI	8.94	45.64	57.40	57.62
Average MAPE		95.66	66.13	88.20

Note: Results computed using MS Excel

Table 1.5 shows the Mean Absolute Percentage Errors of moderate profitable banks using PEPBOHL models. P/B model is suitable for moderate profitable banks.

c) Ownership of Bank

Banks are classified into public and private banks based on ownership.

Table – 1.6 Valuation Errors of PEPBOHL Models for Public Sector Banks from 2007-08 to 2018-19 (in %)

Name of Bank	Type of Bank	MAPE for P/E Model	MAPE for P/B Model	MAPE for Ohlson Model
SBI	public	34.18	29.51	40.72
BOB	public	60.12	53.55	61.57
PNB	public	47.78	44.39	60.90
CANARA	public	46.45	41.51	61.52
BOI	public	64.66	36.50	59.83
UBOI	public	58.56	33.84	59.72
IDBI	public	45.64	57.4	57.62
Average MAPE		51.05	42.38	57.41

Note: Results computed using MS Excel

Table 1.6 shows the Mean Absolute Percentage Errors of public sector banks using PEPBOHL models. It is clear that P/B model is suitable for public sector banks such as SBI, Bank of India, Union Bank of India Etc..

Table – 1.7 Valuation errors (MAPE) of PEPBOHL Models for Private Sector Banks from 2007-08 to 2018-19 (In %)

Name of Bank	Type of Bank	MAPE for P/E Model	MAPE for P/B Model	MAPE for Ohlson Model
HDFC	Private	38.82	62.07	45.14
ICICI	Private	61.28	45.32	41.85
AXIS	Private	30.36	68.35	31.90
KOTAK	Private	193.27	127.18	216.90
INDUSIND	Private	118.03	47.20	63.07
YES	Private	61.18	49.48	80.75
FEDERAL	Private	64.66	65.77	63.17
Average MAPE		81.08	66.48	77.54

Note: Results computed using MS Excel

Table 1.7 shows the Mean Absolute Percentage Errors of private sector banks using PEPBOHL models. It is clear that P/B model is suitable for private sector banks.

This section focused on testing the significance of bank's characteristics determining the valuation accuracy of bank stocks in BSE Bankex.

H01: There is no significant and positive relation in the valuation accuracy between Large cap bank stock and Mid

cap bank stocks for PE, PB, and Ohlson Model in Indian stock market.

H02: There is no positive relation in the valuation accuracy between High profitable and Moderate profitable bank stocks for PE, PB, and Ohlson Model in Indian stock market.

H03: There is no positive relation in the valuation accuracy between public sector bank stock and private sector bank stocks for PE, PB, and Ohlson Model in Indian stock market.

Table 1.8. Testing the Significant relation of Banks valuation accuracy based on its characteristics

Characteristics	Model	Correlation Coefficient	P value
Size Of Bank	P/E Model	.357	.643
	P/B Model	.325	.675
	Ohlson Model	.625	.375
Profitability of Bank	P/E Model	-.355	.558
	P/B Model	-.771	.127
	Ohlson Model	-.305	.618
Ownership of Banks	P/E Model	.174	.710
	P/B Model	.011	.981
	Ohlson Model	.271	.556

It shows the correlation results for testing the importance of size, profitability and ownership of banks determining the valuation accuracy for bank stocks. As the p value is greater than 0.01, the null hypothesis, H01, H02, H03 for each model is accepted. This proved that there is no significant relation in the valuation accuracy between banks classified on the basis of three characteristics such as size, profitability, ownership of banks under PEPBOHL Models.

Conclusion

Valuation errors of large cap banks are lesser than that of mid cap banks under PEPBOHL Models. Hence, researchers are advised to value large market capitalized bank stock such as HDFC, SBI and AXIS Bank through PEPBOHL (Price to Earnings Model, Price to Book value Model, Ohlson Model) Models. Valuation accuracy for profitable banks is higher than banks with low profitability. Hence, researchers are advised to value the profitable banks using PEPB (Price to Earnings Model, Price to Book value Model) Models. Valuation accuracy for public sector banks is higher than private sector banks using PEPBOHL Models. Hence, researchers are advised to make use of this information while valuing bank stocks. Even though the stock valuation is complex, factors such as size of the bank, profitability of bank, ownership of banks are the most important determinants to be taken into consideration for valuing the bank stocks by choosing the appropriate valuation model in Indian Stock Market. This will help the investors to predict the intrinsic value of bank stocks very accurately based on the characteristics of bank

References

- [1] Antoneilla Silvestri (1995). Testing the validity of Ohlson Model on the Italian Stock exchange. *Accounting & Taxation*, 4(1) 83-94.
- [2] Reza Rahgozar (2005). Valuation Models and Their Efficacy Predicting Stock Prices. *Iranian Accounting & Auditing Review*, Autumn 2005, (45) 114-130.
- [3] Christos I. Negakis (2006). Using Earnings and residual income in the valuation of newly listed firms. *Spoudai*, 56(3) 7-16.
- [4] Rocia Duran (2007). Value relevance of Ohlson Model with Mexican data. *Contaduria Administration Paper*, no.223, 33-.52.
- [5] S.N.Spilioti (2007). Empirical application of the clean-surplus valuation model. Athens University of Economics and Business — working paper series.
- [6] Dilpreet Singh (2007). Analyzing GSK with equity valuation model with Earnings., Working Paper Series, 0730031, UK.
- [7] Anastasia Vardavaki, Epidavrou, Halandri (2007). Empirical Evidence on Retail Firms' Equity Valuation Models. *International Research Journal of Finance and Economics*, 7(1) 104-119.
- [8] Alina Lucia Trifan (2009). Testing CAPM for Romanian market. *Annales Universitatis Apulensis Series Oeconomica*, 11(1) 426-434.
- [9] Mohammad Reza Tavakoli (2010). Application of CAPM in Measuring Risk and Return for Selected Markets of Iran's Economy. *International Review of Business Research Papers*, 6(5)303-319.
- [10] Kapil Choudhary, Sakshi Choudhary (2010). Testing Capital Asset Pricing Model: Empirical Evidences from Indian Equity Market. *Eurasian Journal of Business and Economics*, 3(6)127-138.
- [11] W. S. Nel (2011). The application of the Capital Asset Pricing Model (CAPM): A South African perspective. *African Journal of Business Management*, 5(13) 5336-5347.
- [12] Thomas H. Payne (1999). Effective teaching and constant growth and use of Dividend Discount Model. *Financial Services Review*, 8(9) 283-291.
- [13] Jennifer Francis (2000). Comparing the accuracy and explainability of dividend, free cash flow and abnormal earnings equity value estimates. *Journal of Accounting Research*, 38(1) 45-70.
- [14] Fabio Canova (1995). Predicting excess returns in financial markets. *European Economic Review*, 39(1) 35-69.
- [15] Patricia M Dechow (1999). An empirical assessment of the residual income valuation model. *Journal of Accounting and Economics*, 26(2)1 -34.
- [16] Dimiter N Nenkov (2010). Relative company valuations and lessons of Global financial crisis. *Issues of Business and Law*, 2(1) 46-62.
- [17] Clifford S Asness (2012). An old friend-Stock market schiller P/E. *Capital Management*, 2(12) 1-8.
- [18] Surendra Agarwal and Reza Monem (2014). Price to Book Ratio as a Valuation Model: An Empirical Investigation. *Finance India*, 10(2) 333-344.