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STATEMENT OF THE PROBLEM
OBJECTIVES
HYPOTHESIS (ES)
RESEARCH METHODOLOGY
RESULTS & DISCUSSION
FINDINGS
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PERFORMANCE OF PUBLIC SECTOR BANKS IN INDIA – AN ANALYTICAL STUDY

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ABSTRACT

The study is an effort to analyse the financial soundness and shareholder value creation in Indian Banking Industry by applying Bankometer Model and Refined Economic Value Added Model. These models help the stakeholders and the true owners of the business to compare the return earned to the proportion of the profit made. For this purpose, 20 listed public sector banks in BSE (Bombay Stock Exchange) are chosen for the study. The data have been collected for a period of ten years from 2005-06 to 2014-15 from Capitaline Plus Database, CIME Prowess Database and Annual Reports of the banks. Statistical tools viz., correlation and regression have been applied to find the relationship and impact of financial soundness ratios and value creation models in banks. The results reveal that there is significant relationship between the select parameters in the study and the study highlight the value creation of public sector banks. These results would be useful to the bankers, policy makers and researchers to develop more insights for indepth analysis of the banking industry in India.

KEYWORDS

banks, financial soundness, shareholder value.

INTRODUCTION

Financial system has an imperative role for the economic growth and development of a nation. Strong financial sector which is inclusive of banking industry is the backbone of a country. Banks are vital to business circulating money through the economy and form the core of the money market. It is an indispensable institution of a modern society that provides financial services to their customers and acts as a yardstick to measure the economy of a country. A strong and profitable banking system is always ready to solve the abrupt crisis and contribute to the stability of the financial system.

The banking system in India, not hassle free but it is able to meet the new challenges posed by the technology and any other external and internal factors. For the past three decades, India's banking system has several outstanding achievements to its credit and has modernized their service point by providing various financial and insurance products. In spite of these changes, banks continue to maintain and perform their primary role - accepting deposits and lending funds from these deposits. Profitability and productivity of any bank depict its ability to generate earnings. In the present trend banking industry has adopted numerous changes as a result of reform in financial sector in world economy. As an impact of reforms banks have started to promote capital formation, monetary policy, trade, agriculture, infrastructure and balance of payment from traditional functions. The present study is an effort to analyse the performance of the commercial banks in India.

REVIEW OF LITERATURE

Amir Hussain et al. (2010), have made a study using secondary data derived from the statistics department of the State Bank of Pakistan and from financial statements published by State Bank of Pakistan and published audited annual reports of the banks. The study had been conducted for the period 1998-99 to 2000-01 by using Bankometer Model. The results of the study provide the solvent score for all the select banks that shows the banks are super sound during the study period. **Muhammad Hanif et al.** (2012), have analysed Islamic and conventional banks in Pakistan with a sample of 22 conventional banks and 5 Islamic banks for a period of five years from 2004-05 to 2008-09. Bankometer model has been applied to gauge the solvency of banks. It has been found that in terms of profitability and liquidity conventional banking is better and in terms of credit risk and solvency Islamic banking is found to be much better. **Senthil kumar** (2012), has examined the financial soundness of public and private sector banks in India for a period of three years (2008-09 to 2010-11) by applying Bankometer Model. Secondary data has been collected from the annual reports of select banks and bankometer model has been applied to find the solvency of banks. The researcher has concluded that private sector banks have been found to be performing better than public sector banks in India. **Makkar and Singh** (2012) have evaluated the solvency of 37 Indian commercial banks by applying bankometer model for a period of five years from 2006-07 to 2010-11.The analysis reveals that private sector banks have performed much better than public sector banks in terms of financial soundness. The results conclude that top five financially sound banks in the private sector are Kotak Mahindra Bank, Federal Bank, ICICI Bank, HDFC Bank and Development Credit Bank. The least five banks of public sector are Central Bank of India, UCO, Syndicate Bank, Bank of Maharashtra and State Bank of Travancore. **Arulvel et al.** (2013), have examined the banking sector in Sri Lanka for a period of five years from 2005-06 to 2009-10 using bankometer model which is derived from CAMELS and CLSA stress test parameters with some modifications. The researchers have made an effort to analyse the solvency position of public and private sector banks in Sri Lanka and have concluded that "S" value of public sector banks indicates that these banks are found to be sounder than private sector banks in Sri Lanka. **Eduardo Sandoval** (2000), has analysed the performance of 62 Chilean companies for six years from 1993-94 to 1998-99 by applying economic measures (EVA and REVA) and accounting measures (net income and operating cash flows). Regression has been applied to test the results statistically. The results indicate that REVA have outperformed as an alternative measure in associations between current and lagged realizations and value creation. The researcher from the analysis has concluded that accounting measures are found to be complementary in performance analysis of the selected industries. **Moghaddam et al**. (2012), have compared the performance of 97 companies listed in Tehran Stock Exchange which are taken as the sample through systematic omittance method for a study period of five years from 2003-04 to 2007-08. The researchers have examined the relationship between REVA, MVA and earnings per share. Regression and Voung statistics have been applied to analyse the relationship between the economic model and to select the best model among the select models respectively. The results indicate that MVA has correlation with earnings per share than Refined Economic Value Added. **Hajiabbasi et.al** (2012), have analysed the shareholder value creation in 76 companies listed in Iran Stock Exchange. The hypotheses framed in the study are tested with respective statistical tools to find the relationship between accounting and value based measure with Shareholder Return. The researchers have concluded that there is no significant relationship between value based measure (EVA, REVA, MVA, SVA and CVA) and accounting measures (ROE, EPS and CFO) with Shareholder Return. The results also indicate that CVA is positively correlated and ROA is negatively correlated with Shareholder Return.

METHODOLOGY

SAMPLING DESIGN

To achieve the objectives of the study 20 public sector banks in the Indian banking industry listed in Bombay Stock Exchange with continuous data for ten years (2005-06 to 2014-15) have been chosen as the sample for the analysis.

SOURCES OF DATA

The information needed for the study have been collected through secondary sources, namely, Capitaline Plus, CMIE prowess databases and annual reports of respective banks.

PERIOD OF STUDY

The study on financial soundness and its impact on shareholder value of public banks in India were taken with an aim to explore the solvency level and shareholder value created during the period 2005-06 to 2014-15 using Bankometer Model and Economic measure (REVA).

RATIOS TO TEST FINANCIAL SOUNDNESS

Financial soundness of the select banks would be analysed through Bankometer Model from 2005-06 to 2014-15. Bankometer ratios are derived from both the CAMEL and CLSA stress test parameters with some modifications. The changes in the selected ratios are made only to integrate the measurement of banks financial soundness. Following IMF (2000) recommendations, the procedure of Bankometer has been used to measure the public and private sector banks in India. In applying Bankometer model, solvency scores for banks have been ascertained as follows:

S =1.5*CA +1.2*EA +3.5*CAR +0.6*NPL +0.3*CI +0.4*LA

'S' stands for solvency score.

Capital to Assets ratio (CA), measures the assets financed by total capital. Higher ratio suggests the bank is more secure because the assets are financed by long term funds.

Equity to Assets ratio (EA), measures the assets financed by equity capital. Higher this ratio, more secure the financial position of the bank in the long run because more assets could be financed by bank's capital and is less dependent on external funding.

Capital Adequacy ratio (CAR), measures the bank's capital position. The S-score of the banks are mainly influenced by capital adequacy rate.

Non performing loans to loans ratio (NPL) measures the proposition of NPL to total loans. Higher ratio indicates higher non-productive loans given by a bank.

Cost to Income Ratio (CI), compares operating expenses excluding non-cash expenses and operating income. Lower the ratio, higher is the level of bank profits.

Loans to Assets (LA), ratio measures the amount of assets invested in long-term credit. Higher ratio indicates more loans, that give positive impact on bank earnings but give negative impact on bank liquidity, whereas lower ratio means fewer loans and hence it gives bad impact for bank earnings yet good impact on the liquidity of the bank.

Individually analyzing the bankometer parameters, IMF has laid down the limits for a financially sound bank as follows:

Bankometer parameters and IMF limits

Capital to Assets Ratio : More than or equal to 4%
Equity to total Asset : More than or equal to 2%
Capital Adequacy Ratio : Between 8% to 40%
NPLs to Loans : Less than or equal to 15%
Cost to Income ratio : Less than or equal to 40%
Loans to Assets ratio : Less than or equal to 65%

According to Altman (1968) all banks having 'S' value greater than 70 percent are solvent and termed as super sound banks, while those banks having 'S' value below 50 percent are not solvent. The area between 50 and 70 percent is defined as gray area because of the susceptibility to error classification.

Refined Economic Value Added (REVA) REVA is calculated based on market value and market based weighted average cost of capital, net operating income after taxes, capital invested and rate of return on capital. The tool assesses the capital charges based on market value than economic book value of the assets at the end of the period. Refined economic value added is otherwise known as net residual profit that is obtained after deducting opportunity cost of investors to the market value from the net operating profit after tax. A positive REVA shows that additional value has been added to the shareholders in proportion to opportunity cost based on market and vice versa. REVA is one of the economic measures to determine the shareholder value of a company. In general, economic tools help the researchers to overcome the limitations in performance analysis with the traditional measures. REVA is calculated based on market value and market based weighted average cost of capital, net operating income after taxes, capital invested and rate of return on capital. The tool assesses the capital charge based on market value than economic book value of the assets at the end of the period. REVA is calculated as follows (Bacidore et al. 1997):

$$\mathbf{REVA_t = NOPAT_t - WACC_t\,(MCAPITAL_{t-1})}$$

$NOPAT_t$ = Net operating profit after tax in t end
WACC = Weighted Average Cost of Capital
$MCAPITAL_{t-1}$ = market value at beginning of period t (end of period $_{t-1}$)
i.e (Stock market price in the first period × number of shares) – (book value of total liabilities - Interest free current liabilities).

RESULTS AND INTERPRETATIONS

Bankometer Model, Refined Economic Value Added Model and statistical tools, namely, correlation and regression have been applied to analyse the data. The results shown below would state the financial soundness and shareholder value creation with relationship prevailing among the parameters in the select banks of the study. Table 1 shows the mean S-scores computed for the banks for 10 years.

TABLE 1: S-SCORE FOR SELECT BANKS FROM 2005-06 TO 2014-15

S.No	Bankometer Ratios (Wgs)	1.5	1.2	3.5	0.6	0.3	0.4	S-score
	Banks/Ratios	CA	EA	CAR	NPL	CI	LA	
1.	ALBK	5.89	1.62	12.22	1.72	72.03	60.71	100.47
2.	ANBK	5.77	2.03	12.23	1.07	70.82	63.17	101.03
3.	BOB	5.91	0.17	12.96	0.82	68.94	60.49	99.77
4.	BOI	4.69	1.75	11.65	1.45	71.1	62.5	97.13
5.	BOM	4.09	1.82	11.46	1.54	71.59	60.68	95.10
6.	CAN	5.02	1.75	12.82	1.44	75.33	61.01	102.38
7.	CORP	5.68	1.87	12.86	0.99	74.81	59.61	102.65
8.	DENA	4.58	1.96	10.98	1.81	73.6	60.15	94.88
9.	IOB	4.89	1.33	12.32	1.96	71.93	61.35	99.34
10.	OBC	6.38	2.04	11.63	1.5	75.41	61.02	100.64
11.	PNB	5.90	1.47	12.33	1.39	63.53	61.54	98.29
12.	SYND	4.02	1.29	11.48	1.06	71.58	64.55	95.68
13.	UNION	4.68	1.53	12.01	1.34	71.38	63.08	98.35
14.	UCO	3.36	1.19	11.58	2.22	74.56	61.69	95.37
15.	VB	4.07	2.28	11.68	1.23	76.64	58.51	96.84
16.	IDBI	5.63	1.87	12.7	1.51	88.27	60.49	106.72
17.	SBI	6.09	1.39	12.41	1.9	67.37	61.06	100.03
18.	SBBJ	5.04	2.43	12.23	1.5	68.94	64.54	100.68
19.	SBM	5.00	1.33	11.84	1.46	70.23	64.41	98.25
20.	SBT	4.54	1.05	11.64	1.38	73.39	64.47	97.43

Source: Computed

CAPITAL TO ASSETS RATIO

It is evident from the above table that the mean Capital to Assets Ratio of select banks have been found to be above 3 per cent during the study period. The results of the analysis shows that OBC (6.38 per cent) has topped among the select public sector banks, followed by SBI (6.09 per cent) which indicates that the banks are safer in their financial position, by right investment strategies on assets. The least mean of Capital to Assets Ratio has been found for UCO Bank (3.36 per cent), followed by SYND at 4.02 per cent which proves that the banks are highly dependent on external funds. The banks are said to be secure as the select public sector banks (except UCO) have been found above 4 per cent of Capital to assets ratio (IMF 2000 norms). The results of the analysis indicate that all the select banks in the study have performed well by achieving the IMF norms (4 per cent) for capital to assets ratio and the banks are found to be secured. OBC Bank is the topper among the select banks with the highest mean capital to assets ratio.

EQUITY TO ASSETS RATIO

It is observed from the table that the mean Equity to Assets Ratio of the select banks the SBBJ (2.43 per cent) has the highest mean Equity to Assets Ratio followed by VB (2.28 per cent) and OBC (2.04 per cent) which indicates the banks are safe in their financial position. The least mean of Equity to Assets Ratio has been found for BOB (0.17 per cent), followed by SBT at 1.05 per cent which indicates that the banks are dependent on more of equity funds. The banks are said to be less secure as high leverage would lead to bankruptcy and the banks have not fallen in line with IMF 2000 norms.

CAPITAL ADEQUACY RATIO

The table depicts that mean Capital Adequacy Ratio has been above the mean Capital Adequacy Ratio has been above 10 per cent for all the select public sector banks. BOB (12.96 per cent) is found to be the highest among the select public sector banks, followed by CORP (12.86 per cent) which implies that the banks are safe and can meet their financial obligations at the right time. The least mean CAR is found for DENA (10.98 per cent), followed by BOM (11.46 per cent) which reveals that the bank is not much safe as the risk weighted assets are higher. While IMF norms have prescribed a range of 8-40 per cent for the CAR, the RBI Basel norms have recommended a CAR of 11.5 per cent for the banks. The banks with less CAR should concentrate on their capital and risk weighted assets to avoid insolvency in future. It is understood that all the select public sector banks in the study have a CAR above RBI Basel III norms and IMF recommendations which have proved that the banks are safe and financially sound.

NONPERFORMING LOANS TO LOANS RATIO

It is evident from the above table that mean non performing loans to loans ratio is below the mean non performing loans to loans ratio is below 2.5 per cent for all the banks. UCO (2.22 per cent) is found to have the highest mean ratio, followed by IOB at 1.96 per cent and SBI at 1.90 per cent. It indicates that the banks are at a greater risk with their inefficient asset management and poor maintenance of credit quality. It is observed that during the period of study, the recovery of loans granted has not been satisfactory in the banks which have secured highest mean ratio of NPL/L. A high NPL/L ratio is an alarm for the stakeholders to have a turnaround strategy to avoid bankruptcy. The least non performing loans to loans ratio has been found for BOB at 0.82 per cent, followed by CORP at 0.99 per cent and SYND at 1.06 per cent. From the analysis, it is concluded that the banks with less mean ratio of non performing loans to loans ratio are said to be more productive through lending loans and assets utilization.

COST TO INCOME RATIO

The mean Cost to Income ratio of select public sector banks has been above 63 per cent during the study period. The table depicts that the mean cost to income ratio of IDBI (88.27 per cent) is found to be the highest among the select public sector banks, followed by VB (76.64 per cent) and OBC (75.41 per cent) showing that the banks are not very profitable and the proportion of operating cost to income of the banks has been found to be higher. The least mean cost to income ratio has been found for PNB (63.53 per cent), followed by SBI (67.37 per cent) which implies that the banks are efficient in cost control to increase the profit. No public sector banks in the study have been found with the cost to income ratio below 40 per cent (IMF norms less than 40 per cent). Hence, the banks have to introduce effective cost management measures to increase the profitability. The results disclose that the cost to income ratio of select public sector banks is more than the IMF norms (40 per cent) which implies that the high cost affects the profitability of the banks. The highest mean of cost to income ratio has been found for IDBI Bank.

LOANS TO ASSETS RATIO

The mean loans to assets ratio of the select public sector banks in the study are found to be above 58 per cent. It is interesting to note that SYND (64.55 per cent) has been the highest in public sector, followed by SBBJ (64.54 per cent) and SBT at 64.47 per cent which indicates that the banks are at a risk of cash crunch. The least mean of loans to assets ratio has been found for VB (58.51 per cent), followed by CORP at 59.61 per cent and DENA at 60.15 per cent which proves that the banks enjoy high liquidity position with less earnings. The select public sector banks have achieved the IMF 2000 norm by maintaining the loans to assets ratio below 65 per cent though closer to it. The results indicate that all the select banks have performed well by maintaining the loans to assets ratio below 65 per cent (IMF norms) showing the liquidity position to be better. VB has been the best among the select public sector banks as the mean loans to assets ratio is the least.

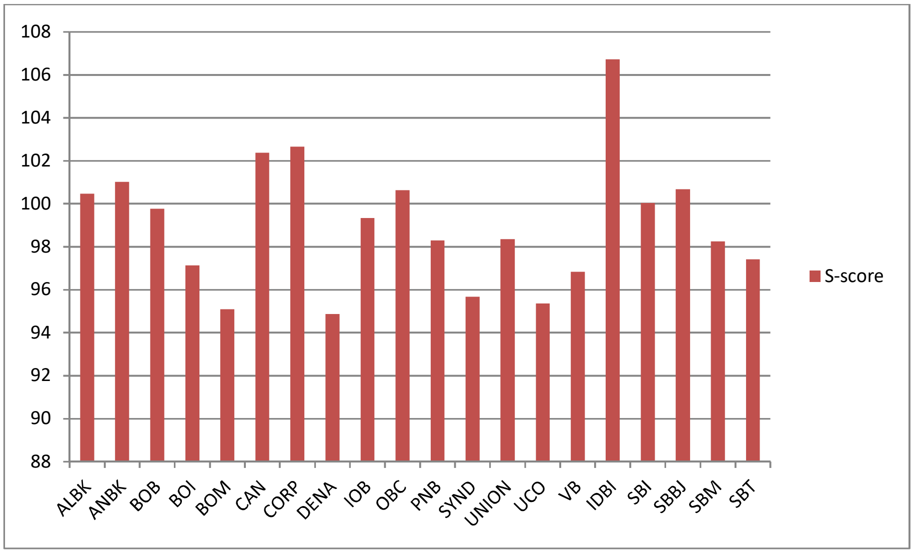
S-SCORE

The mean S-score of IDBI (106.72 per cent) is the greatest among the select public banks in the study, followed by CORP (102.65 per cent) and CAN (102.38 per cent) which implies that the banks are solvent and super sound in their financial strength. It is understood from the analysis that the S-score of all the select public sector banks have been found above 94 per cent. The least mean S-score is found in DENA (94.88 per cent), followed by BOM (95.10 per cent) and UCO (95.37 per cent).

The select banks have performed the best as the S-score of the banks are found above IMF norms which indicates that all the public sector banks selected for the study are said to be super sound and solvent.

It could be concluded that all the select public sector banks in the study are found to be super sound in their financial position as per the IMF norms. The highest mean of S-score has been found for IDBI.

EXHIBIT 1: S-SCORE OF PUBLIC SECTOR BANKS



REFINED ECONOMIC VALUE ADDED (REVA)

The table presents the mean of Refined Economic Value Added of public sector banks from 2005-06 to 2014-15.

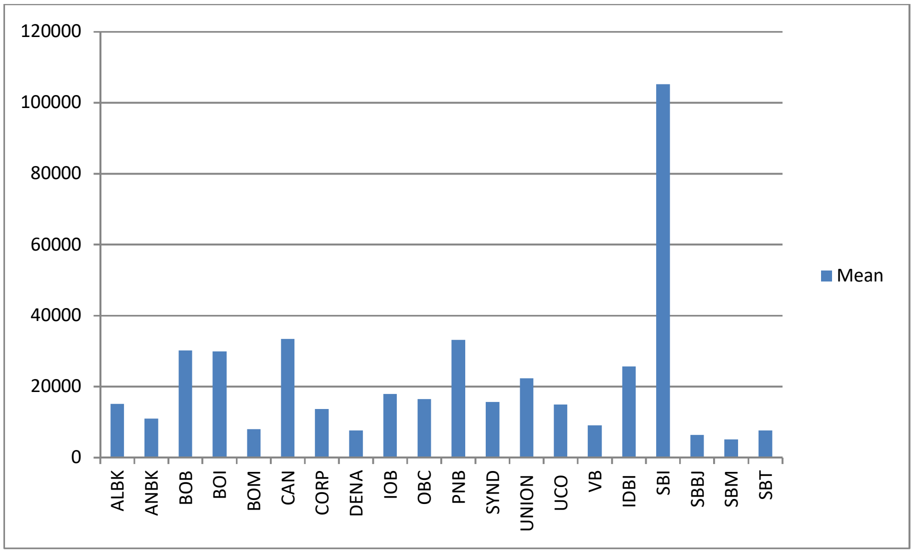
TABLE 2: REFINED ECONOMIC VALUE ADDED PUBLIC SECTOR BANKS

S.No	Bank	Mean(*Rs.in Crores*)	S.No	Bank	Mean(*Rs.in Crores*)
1.	ALBK	15104.00	11.	PNB	33201.10
2.	ANBK	11033.10	12.	SYND	15726.50
3.	BOB	30171.60	13.	UNION	22279.50
4.	BOI	29958.50	14.	UCO	14957.90
5.	BOM	8045.56	15.	VB	9055.87
6.	CAN	33466.90	16.	IDBI	25689.60
7.	CORP	13659.60	17.	SBI	105203.00
8.	DENA	7605.03	18.	SBBJ	6332.81
9.	IOB	17886.30	19.	SBM	5186.70
10.	OBC	16413.20	20.	SBT	7637.88

Source: Computed

The table depicts that mean REVA of SBI (Rs.1,05,203 Crores) is the highest among the select public sector banks in the study, followed by CAN (Rs. 33,466.90 Crores) and PNB (Rs. 33,201.10 Crores) which shows that these banks have added value to their shareholders as the opportunity cost of the shareholders to the market value are found to be less than the NOPAT. The least mean REVA has been found for SBM at Rs. 5,186.70 Crores, followed by SBBJ (Rs.6,332.81 Crores) and DENA (Rs. 7,605.03 Crores) which implies that current liabilities have been higher resulting in higher cost of capital and reduce the economic profit of the banks. The table reveals positive REVA values showing that the public sector banks have created value to their shareholders during the study period. It could be concluded that REVA of public sector banks is found to be positive which implies that NOPAT is greater than opportunity cost of capital employed by the banks. The highest mean REVA has been found for SBI.

EXHIBIT 2: REVA OF PUBLIC SECTOR BANKS



FINANCIAL SOUNDNESS Vs. REVA

Regression analysis has been done to find the relationship between the financial soundness variables and REVA of the select banks. As an initial step for regression, correlation has been applied to find the relativity between the variables of final soundness and REVA.

TABLE 3: CORRELATION OF BANKOMETER RATIOS AND REVA

	C/A (%)	E/A (%)	CAR (%)	NPL/L (%)	C/I (%)	L/A (%)
REVA	.267**	-.212**	.089	.326**	.017	.162*

**Correlation is significant at 1%,* Correlation is significant at 5%.

It is observed from the table that economic measure REVA has significant positive correlation with C/A ratio, NPL/L ratio and L/A ratio mean while it has significant negative correlation with E/A ratio during the study period.

H_0: The variables, namely, C/A, E/A, CAR, NPL/L, C/I and L/A do not have a significant influence on REVA.

TABLE 4: REGRESSION ANALYSIS-DEPENDENT VARIABLE: REVA

	Regression Coefficients (B)	Std. Error	Beta	T	Sig.
(Constant)	-73208.120	42886.572			
C/A (%)	7224.627	1901.436	.273	3.800	**
E/A (%)	-11561.424	3141.637	-.236	-3.680	**
CAR(%)	2359.471	1956.202	.088	1.206	Ns
NPL/L (%)	9005.683	1966.381	.323	4.580	**
C/I (%)	2.747	255.097	.001	.011	Ns
L/A (%)	564.312	507.891	.073	1.111	Ns

TABLE 5

R	R Square	F	Sig.
.498[a]	.248	10.624	**

Ns- Not significant,* Significant at 5% level,** Significant at 1% level.

The coefficient of multiple correlation with its value at 0.498[a] indicates a positive degree of correlation of independent variables with REVA.

The coefficient of multiple determination (R^2) signifies that 24.8 per cent of variation in the REVA has been explained by the independent variables.

The regression results show that the regression co-efficient of E/A ratio is negative indicating that the ratio has negative effect on REVA whereas C/A, CAR, NPL/L, C/I and L/A ratios have positive effect on REVA. The t-test results show that C/A, E/A ratio and NPL/L ratio are found to have significant influence on dependent variable, REVA at 1 per cent level of significance and the other independent variables are found to have no significant influence on the dependent variable.

The Beta co-efficient (Standard Regression Co-efficient) of NPL/L ratio (Beta=0.323), contributes more in explaining the relationship with REVA followed by C/A ratio (0.273) in absolute terms. The least contributing beta is that of E/A ratio (-0.236) and the F ratio has been found with the value of 10.624.

Hence, the variables C/A, E/A and NPL/L have significant influence on REVA and the null hypothesis is rejected at 1 per cent level of significance for public sector banks during the study period.

CONCLUSION

Banks are found with the required IMF limit with respect to bankometer ratios, hence it could be concluded that all the public sector banks are financially secure and super sound. OBC and SBBJ Bank have been found with the highest mean of Capital to Assets Ratio and Equity to Assets ratio respectively. In terms of CAR and Non Performing Loans to Loans ratio, BOB has been found to be the topper among the select banks. PNB and VB have taken the top position in terms of Cost to Income and Loan to Assets ratio respectively. Considering the S-score, the wonder test (Bankometer Model) identifies IDBI as the best performer among the select public sector banks which also indicates that the top performers in individual ratio have not taken the top position in terms of s-score. It is quite attention-grabbing that SBI has been found to be the best performer in shareholder value creation during the study even though the bank has not gained the top position in any of the bankometer ratios and S-score. The regression result proves that bankometer ratios and REVA are statistically significant and indicates that financial soundness of banks have impact on their shareholder value creation.

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