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“Financial Performance Analysis of Public sector banks- with special reference to Net Profit”

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Abstract: *Indian banking sector play an important role in economic growth of country. Non-Performing Assets adversely affect the health of banks. The term ‘NPAs’ first time introduced in economic reforms in 1991, since the reform Indian banking sector has gone through various economic transformation and there are different phases of NPAs. This paper examined financial performance analysis of public sector banks. Total 30 years of data were collected from different banks annual reports. In this study, financial performance will be analysed by using regression model. Net profit will be dependent variable and GNPA and CD ratio will be independent variable. Results of the study shows that GNPA and CD ratio are significant with Net profit. GNPA is negatively impacted on Net profit and CD ratio is positively impacted on Net profit.*

Keywords: CD ratio, financial performance. GNPA, Net Profit, Public sector bank

Introduction:

The banking sector play critical role in economic growth and development of country. Indian banking system faced lots of difficulties since independence. In every phases of development, various challenges hit Indian financial system. Recently, COVID- 19 hit the whole world. In early 2020 it hit India and has badly affected the growth of various sectors. One of the major sector which affected by COVID-19 is Indian financial sector or Indian banking sector. Indian banking system which has already faced lots of problem because of mounting high NPAs, this pandemic create more difficulties. Global market recession and economic fall down of countries are expected to push up NPAs of banking sector.

The economic growth in India is supported by a wide variety of banking institutions consisting of public sector and private sector banks. Co-operative banks, foreign sector banks RRBs and other Non-Banking Financial Companies also play vital role in providing credit facilities. Public sector banks are a major type of bank in India. Finance ministry, Government of India has held majority of stake i.e. more than 50%. Public sector banks have been merged by the government in last few years. Financial performance is process of measuring how effectively a company utilizes its assets from primary mode of business to raise incomes it also measure organizations whole financial health over a particular period of time.

Review of Literature:

(Lotto, 2019) In his research paper, he examines factors affecting operating efficiency of 36 commercial banks. He used multiple regressions model for to estimate the results. According to his model, bank liquidity and capital adequacy affect positively to bank operating efficiency. (Thiagarajan, 2011), she tried to analyse profitability of private sector and public sector banks by using correlation analysis and multiple regression analysis. (Palani, 2019) He made his attempt to study financial performance analysis of HDFC bank. He used different ratios like profitability ratios, long term solvency ratios and short term solvency ratios. (Sutan Emir Hidayat & Muhamad Abduh, 2012), in their research paper, they found factors which impacted on banking performance by using multiple regression models. Return on Assets and

Return on Shareholders' equity were taken as dependent variable and leverage, loans, GDP; expenses etc. were taken as independent variables. (Altman, 1977), his mathematical model of Z-Score become well known tool for financial analysis. (Joshi, 2020), he presented his study with aim of financial performance analysis by using Altman's Z-Score model. In his study he developed linear regression model, dependent variable was Altman's Z-score and Non-Performing assets, Net Profit and Total assets were independent variables. The results found that a GNPA/total asset has inverse relationship with Altman's Z-Score.

Research methodology:

Objective:

- To analyse the Financial Performance of Public Sector banks.
- To study the impact of C-D ratio and NPAs on banks Net Profit.

Data collection:

Source of Data:

This project is purely based on secondary data. The data was collected from RBI website and EPW research foundation official website. The sample includes 30 years data of all Public Sector banks.

Time duration: 1991-2020 (30 years)

Statistical tools and technique: In this project, we use multiple regressions model to identify various independent variables influencing Bank Profit. For running multiple regression model EViews 11 Student Version is used.

Dependent variable: Net Profit/loss during year

Independent variables: C-D ratio Gross NPA.

The relationship equation is shown below:

$$\text{Profit/loss} = a + \beta * C/D + \beta * GNPA + e_i$$

Here:

a = Intercept

β = Unknown parameter

e_i = The Error Term

Profit/loss = Net profit or loss during year. The value of profit is taken after deducting interest and tax.

C-D Ratio = Credit to Deposit ratio.

GNPA = Gross Non-Performing Assets. NPA is one kind of loss for banking business.

Hypothesis:

H_0 : There is no significance impact of C-D ratio and gross NPA on Net Profit/Loss.

H_1 : There is significance impact of C-D ratio and gross NPA on Net Profit/Loss.

Data analysis and interpretations:**Table (1) Profit/Loss, C-D (Credit Deposits) Ratios and Gross NPA of Public Sector Banks (1991-2020)**

All Public Sector Bank			
Year	Profit / (Loss) during the year (In Crore)	gross NPA (In Crore)	C-D Ratio
1991	435	34768	60.4
1992	846	37345	55.9
1993	-3293	39253	58.9
1994	-4349	41041	55.1
1995	1115	38385	55.6
1996	-371	41660	58.3
1997	3115	43577	55.3
1998	4978	45653	54
1999	3258	51710	53.4
2000	5114	53033	54.4
2001	4317	54672	54.5
2002	8304	56473	56.2
2003	12296	54090	56.3
2004	16547	51537	55.4
2005	15432	48399	63.1
2006	16538	41358	71.5
2007	20152	38968	74.9
2008	26592	40452	74.4
2009	34373	44957	72.6
2010	39256	59926	74.2
2011	44900	74600	75.9
2012	49513	117839	78.7
2013	50582	165606	78.1
2014	37018	227264	78.2
2015	37539	278467	75.8
2016	-17993	539956	75.6
2017	-11388	684732	69.9
2018	-85370	895601	72.5
2019	-66608	739541	74.1
2020	-26015	678317	74

Sources: <http://www.epwrfits.in/>

Table (2) Stationary test

Data analysis	Interpretation																		
Null Hypothesis: D(PROFIT___LOSS_) has a unit root Exogenous: Constant Lag Length: 3 (Automatic - based on SIC, maxlag=7)	The given data of Net profit and loss are stationary at 1st difference . P value is less than 0.05. Thus, null hypothesis will be rejected. i.e. data is not unit root.																		
<table border="1"> <thead> <tr> <th></th> <th>t-Statistic</th> <th>Prob.*</th> </tr> </thead> <tbody> <tr> <td>Augmented Dickey-Fuller test statistic</td> <td>-7.584198</td> <td>0.0000</td> </tr> <tr> <td>Test critical values:</td> <td></td> <td></td> </tr> <tr> <td> 1% level</td> <td>-3.724070</td> <td></td> </tr> <tr> <td> 5% level</td> <td>-2.986225</td> <td></td> </tr> <tr> <td> 10% level</td> <td>-2.632604</td> <td></td> </tr> </tbody> </table>			t-Statistic	Prob.*	Augmented Dickey-Fuller test statistic	-7.584198	0.0000	Test critical values:			1% level	-3.724070		5% level	-2.986225		10% level	-2.632604	
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*MacKinnon (1996) one-sided p-values.																			
Null Hypothesis: D(CD_RATIO) has a unit root Exogenous: Constant Lag Length: 0 (Automatic - based on SIC, maxlag=7)	The given data of C-D Ratio are stationary at 1st difference . P value is less than 0.05. Thus, null hypothesis will be rejected. i.e. data is not unit root.																		
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Null Hypothesis: D(GROSS_NPA) has a unit root Exogenous: Constant Lag Length: 2 (Automatic - based on SIC, maxlag=7)	The given data of GNPA are stationary at 1st difference . P value is less than 0.05. Thus, null hypothesis will be rejected . i.e. data is not unit root.																		
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Table (3) Multiple Regression model results:

Dependent Variable: PROFIT___LOSS_
 Method: Least Squares
 Date: 06/07/21 Time: 18:24
 Sample: 1991 2020
 Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-100843.5	19075.91	-5.286429	0.0000
CD_RATIO	1964.643	301.1803	6.523146	0.0000
GROSS_NPA	-0.117051	0.011478	-10.19778	0.0000
R-squared	0.800591	Mean dependent var		7227.767
Adjusted R-squared	0.785819	S.D. dependent var		29975.03
S.E. of regression	13872.34	Akaike info criterion		22.00782
Sum squared resid	5.20E+09	Schwarz criterion		22.14794
Log likelihood	-327.1173	Hannan-Quinn criter.		22.05265
F-statistic	54.19989	Durbin-Watson stat		1.420315
Prob(F-statistic)	0.000000			

Interpretation:

The regression results presented in table 2 show that bank net profit/loss is impacted by C-D ratio and gross NPA.

- **Gross NPA:** the results show that the relationship of bank Net Profit with Gross NPA is **negative**. That means if Gross NPA increased then Net Profit will decrease. And if the level of Gross NPA reduced then Net profit will increase. **P value is less than 0.05 and 0.01. Thus, it is significant at 1% and 5% level**
- **C-D ratio:** Net profit and C-D ratio has **direct** or **positive** relationship. That mean if the C-D ratio increase then Net profit goes up and vice-versa. **P value is less than 0.05 and 0.01. Thus, it is significant at 1% and 5% level.**
- **R-Squared** value is 0.80 i.e. **80%** and **adjusted R-squared** value is 0.785, i.e. **79%**. It indicates that regression model is well fits to observed data. **R-Square** value is 0.80 that means **80% of data fit** the regression model.
- The value of **Durbin Watson** test is **1.4** that means there is **positive autocorrelation** detected in the sample.
- **F-statistics** value also shows that the model is significant.

Table (4) Serial correlation LM test:

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	1.150227	Prob. F(2,25)	0.3328
Obs*R-squared	2.527929	Prob. Chi-Square(2)	0.2825

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 06/07/21 Time: 18:24

Sample: 1991 2020

Included observations: 30

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-370.4460	18972.31	-0.019526	0.9846
CD_RATIO	17.42305	299.7621	0.058123	0.9541
GROSS_NPA	-0.004324	0.012040	-0.359160	0.7225
RESID(-1)	0.242649	0.204953	1.183930	0.2476
RESID(-2)	0.124812	0.229218	0.544514	0.5909
R-squared	0.084264	Mean dependent var		-3.00E-11
Adjusted R-squared	-0.062253	S.D. dependent var		13385.43
S.E. of regression	13795.79	Akaike info criterion		22.05313
Sum squared resid	4.76E+09	Schwarz criterion		22.28666
Log likelihood	-325.7969	Hannan-Quinn criter.		22.12784
F-statistic	0.575113	Durbin-Watson stat		1.893444
Prob(F-statistic)	0.683251			

Interpretation:

The breusch-godfrey test is a test for autocorrelation in the errors in a regression model.

- **Null hypothesis:** No serial correlation at up to 2 lags.
- Here results show **that P value is not significant** at any level of significance.
- Thus, null hypothesis is **accepted**. That means there is no serial correlation found in observed data.

Table (4) Heteroskedasticity Test: ARCH

Heteroskedasticity Test: ARCH				
F-statistic	1.608633	Prob. F(1,27)	0.2155	
Obs*R-squared	1.630639	Prob. Chi-Square(1)	0.2016	
Test Equation:				
Dependent Variable: RESID^2				
Method: Least Squares				
Date: 06/07/21 Time: 18:28				
Sample (adjusted): 1992 2020				
Included observations: 29 after adjustments				
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.31E+08	65355900	2.007098	0.0548
RESID^2(-1)	0.237798	0.128196	1.854952	0.0746
R-squared	0.056229	Mean dependent var	1.73E+08	
Adjusted R-squared	0.021274	S.D. dependent var	2.43E+08	
S.E. of regression	2.41E+08	Akaike info criterion	41.50090	
Sum squared resid	1.56E+18	Schwarz criterion	41.59519	
Log likelihood	-599.7630	Hannan-Quinn criter.	41.53043	
F-statistic	1.608633	Durbin-Watson stat	2.151556	
Prob(F-statistic)	0.215511			

Interpretation:

- ARCH: Autoregressive conditional Heteroskedasticity, this is used to analyse volatility.
- This test normally performed for removing the error from regression test results.
- **Null hypothesis:** Heteroskedasticity ARCH error.
- **P value for Chi – Square** is 0.4804 that means **not significant** at any level of significance. Thus, we **accepted** null hypothesis.

Table (5) Regression result after removing heteroskedasticity error:

Dependent Variable: PROFIT___LOSS_				
Method: Least Squares				
Date: 06/07/21 Time: 18:29				
Sample: 1991 2020				
Included observations: 30				
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-100843.5	24934.64	-4.044313	0.0004
CD_RATIO	1964.643	423.9331	4.634322	0.0001
GROSS_NPA	-0.117051	0.014418	-8.118362	0.0000
R-squared	0.800591	Mean dependent var	7227.767	
Adjusted R-squared	0.785819	S.D. dependent var	29975.03	
S.E. of regression	13872.34	Akaike info criterion	22.00782	
Sum squared resid	5.20E+09	Schwarz criterion	22.14794	
Log likelihood	-327.1173	Hannan-Quinn criter.	22.05265	
F-statistic	54.19989	Durbin-Watson stat	1.420315	
Prob(F-statistic)	0.000000	Wald F-statistic	32.95972	
Prob(Wald F-statistic)	0.000000			

After Heteroskedasticity Test, the result of multiple regressions does not change more. Value of R-squares, F-statistics, and P-value and durbin-watson test are same. But now operating profit is not significant at 1% level, it is significant at only 5% level. R- Square value is 0.80 that means 80% of data fit the regression model.

Limitation of Study:

1. Present study considers only public sector banks.
2. There are many factors which affect Net profit or Loss. But present study takes only two variables i.e. GNPA and C-D ratio.
3. This study take data on yearly basis, but monthly or quarterly data give more accurate results.

Results and Conclusion:

This project aimed at examining the factor influence to bank profit. The study period is 30 years i.e.1991 to 2020. This study consist only public sector banks. The finding of study reveals that Gross NPA affect net profit adversely. And Credit-Deposit Ratio (C-D Ratio) affect directly or positively. The multiple regression results show that the model is significant at 1%, 5% and 10% level of significance. R- Square value is 0.80 that means 80% of data fit the regression model. In Regression results, Durbin Watson test value is 1.4, which indicates positive autocorrelation in observed data. But in breusch-godfrey LM test which test the Autocorrelation in data is not significant. i.e. there is no auto correlation upto 2 lag.

P – Value < 0.05 = Rejecting Null Hypothesis, at 5% level of significance.

P – Value > 0.05 = Not able to reject Null Hypothesis, at 5% level of significance.

Here, as the results show that all the P – Value are less than 0.05. Thus, **null hypothesis is rejected**. That means there is significance impact of C-D Ratio and Gross NPA on Net Profit/Loss of public sector bank.

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