STIMULUS OF MACRO ECONOMIC VARIABLE ON NON PERFORMING ASSETS(NPAS) OF INDIAN BANKS

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Abstract:

Aim: The Main objective is to examine the impact of macro-economic variables on the Non-Performing Assets (NPAs) of banks operating in India.

Method: Summary Statistics, Trend Line, t-test and OLS Regression Model.

Outcomes: The Gross NPAs of the banks have been increasing consistently over the years. There exists a significant difference between Gross NPAs and Net NPAs and no direct impact of macro-economic variables on NPAs of banks.

Implication: Formulation of a strong, prompt and appropriate lending policy of the banks especially when lending towards the priority sectors.

Applicability & Usefulness: This study is useful for those economy which has the potential to grow faster and whose economy is strappingly buoyed by its banking system.

Uniqueness: The study is unique in the sense that it considers only the Marco economic aspects of the economy in relation to identify its impact on NPAs.

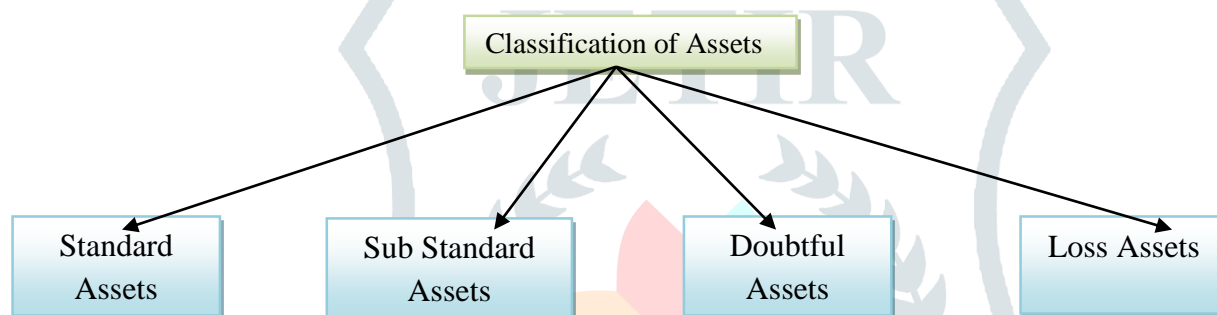**Key Words**: *GDP, GNPAs, NPPAs, WPI and CPI*

Introduction:

The conception of NPA was first come into notice in the recommendation report of Narsimham Committee in the year 1992. In recent years it can be seen that the percentage of NPAs to Total Assets of Banks have also been increased significantly and banks are unable to find elucidation to heal the problem. After the presentation of the union budget 2019-20 in the Lok Sabha by the Honorable Finance Minister Niramala Sitharaman it was felt that there is a need to take few more measures to fortify the Indian banking system. The banking system is considered as one of the major pillar of our economic system and this is the reason for which various macro-economic factors like *Gross Domestic Product, Wholesale Price Index, Consumer Price Index, Industrial Production Index,*

Change in Real Effective Exchange Rate, COBE Volatility Index and to an *extent Unemployment Rate* are some the major indicators whose recital directly and indirectly might made impact on the performance of the banks and mainly on NPAs of the banks. A Non-Performing Assets (NPAs) can simply be define as those assets which fail to generate income or revenue for the banks. It can also be defined as credit facilities provided by banks for which the interest/installments/principal amount has not been received for a period of 90 days and more. Following are the various types of Non-Performing Assets (NPAs):

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          Gross NPAs                                    Net NPAs
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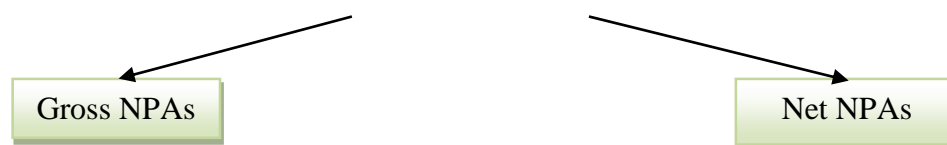
Gross NPAs includes all categories of unpaid loans which are irrecoverable and Net NPAs It is the difference between Gross NPA and provision for bad debts of banks assets. The RBI have categorized the banks' assets into following categories:

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                         Classification of Assets

   Standard          Sub Standard         Doubtful          Loss Assets
   Assets              Assets              Assets
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Standard Assets are those assets which generate regular income and make repayment on due time*, Sub-Standard Assets* are those assets which are remained non-performing assets for less than or equal to 12 months' period, *Doubtful Assets* are those assets which are remained non-performing assets for a period of more than 12 months and *Loss Assets* are those non-performing assets from which nothing can be recovered.

Review of Literature:

An endeavor had been made by (**Ibrahim and Thangavelu, 2014**) to analyze the concept and components of NPAs of banks operating in India. They found that there exits significant difference between the loss assets of public, private and foreign banks operating in India and loss assets is making significant impact on the Gross NPAs of these three categories of banks. On the other hand, (**Dawn and Sarkar, 2018**) made and effort to analyze the various factors which crop up at bank's operational level were they found the NPAs are affecting the profitability and liquidity position of the bank unfavorably but NPAs has a positive significant impact on the involvement of management of the banks. (**Rahman, Asaduzzaman and Hossin, 2017**) inspected the sway of financial ratios on NPAs of banks operating in Bangladesh and they originated that credit-deposit ratio, net interest margin has positive influence on NPAs of banks but capital adequacy ratio and return on assets have negative influence on NPAs of banks and the priority sector loans have seriously affected the NPAs of banks operating in Bangladesh. (**Singh, 2016**) made a stab to understand the status, trend of NPAs, factors which contribute to NPAs and he found bad performance of NPAs was making direct impact on the profitability and overall performance of banks. *(Yadav, 2011)* found that there are many micro variables which affect productivity and efficiency of banks.

(**Barmoriya, & Jain, 2013**) made an attempt to analyze the impact of key financial heads on NPAs of schedule commercial banks in India. They found total assets and total advances have significant impact on NPAs.

Material & Methods: In this paper an attempt has been made to identify the major macro-economic variables of the economic system and their impact on Non-Performing Assets (NPAs. In this regard following objectives has been set:

Objectives	Hypotheses
1. To identify the trend and growth of Gross and Net on Non-Performing Assets (NPAs) of Banks. 2. To assess the impact of macroeconomic variables on Non-Performing Assets (NPAs) of Banks	H_0: The macro economic variables have no significant on Non-Performing Assets (NPAs) of banks. H_1: The macro economic variables have significant on Non-Performing Assets (NPAs) of banks.

The study includes all commercial banks operating in India till March, 2018. Secondary data have been collected from RBI Database, NITI AYOG Reports, Periodic Labour Force Survey of NSSO and World Bank Reports. The study period covers a period of five years starting from 1st April, 2013 to 31st March, 2018.

Variables of the Study:

Gross Domestic Product (GDP), Wholesale Price Index (WPI), Consumer Price Index (CPI), Unemployment Rate (UER), Change in Real Effective Exchange Rate (CREER) Industrial Production Index (IPI), COBE Volatility Index (CVI), Gross NPA (GNPA, Net NPA (NNPA), Gross Advances (GAD), NET Advances (NAD) and proceeds. Total Assets (TA). The OLS Simple Linear Regression model has been used to test the developed hypothesis:

$$GNPA/GAD_{i,t} = \alpha_{i,t} + \beta_1(GDP_{i,t}) + \beta_2(WPI_{,t}) + \beta_3(CPI_{i,t}) + \beta_4(UER_{i,t}) + \beta_5(CREER_{i,t}) + \beta_6(IPI_{i,t}) + \beta_7(CVI_{i,t}) + \epsilon_{i,t}$$
…………………………………………..(i)

$$GNPA/TA_{i,t} = \alpha_{i,t} + \beta_1(GDP_{i,t}) + \beta_2(WPI_{,t}) + \beta_3(CPI_{i,t}) + \beta_4(UER_{i,t}) + \beta_5(CREER_{i,t}) + \beta_6(IPI_{i,t}) + \beta_7(CVI_{i,t}) + \epsilon_{i,t}$$
…………………………………………...(ii)

$$NNPA/NAD_{i,t} = \alpha_{i,t} + \beta_1(GDP_{i,t}) + \beta_2(WPI_{,t}) + \beta_3(CPI_{i,t}) + \beta_4(UER_{i,t}) + \beta_5(CREER_{i,t}) + \beta_6(IPI_{i,t}) + \beta_7(CVI_{i,t}) + \epsilon_{i,t}$$
…………………………………………..(iii)

$$NNPA/TA_{i,t} = \alpha_{i,t} + \beta_1(GDP_{i,t}) + \beta_2(WPI_{,t}) + \beta_3(CPI_{i,t}) + \beta_4(UER_{i,t}) + \beta_5(CREER_{i,t}) + \beta_6(IPI_{i,t}) + \beta_7(CVI_{i,t}) + \epsilon_{i,t}$$
…………………………………………(iv)

      'i' identifies the banks', *t* expresses the time variable (t = 2014 to 2018); $\boldsymbol{\beta_s}$ are the parameters to be estimated, α represents the constant term and ϵ represents the error term of the model.

Results and Discussion:

Table 1 represents the descriptive statistics; the Compound Annual Growth Rate of Gross Domestic Product shows a decline of -0.99 per cent during this period along with Consumer Price Index of the economy which also

shows negative growth. The industrial productivity index does not reflect any high value of compound annual growth.

Statistics	GDP (in %)	WPI (in %)	CPI (in %)	UER (in %)	CREER (in %)	IPI (in %)
			Table:1 Descriptive Statistics(2014-2018)			
Mean	7.56	117.46	4.73	5.37	108.00	2.36
SD	0.50	2.78	1.65	0.58	6.78	0.37
CV	6.62	2.37	34.82	10.73	6.28	15.62
MAX	8.17	121.81	6.32	6.10	114.00	2.85
MIN	7.05	115.27	2.23	4.90	97.00	1.98
CAGR (in %)	-0.99	1.10	-2.21	4.48	3.28	1.38

	CVI (in %)	GAD (in Crore Rs)	NAD (in Crore Rs)	TA (in Crore Rs)	GNPA (in Crore Rs)	NNPA (in Crore Rs)
Mean	17.58	8287000.58	7798636.42	13435961	606048	324422.29
SD	5.47	1266571.76	758787.89	2322137.11	323442.3	162859.04
CV	31.13	15.28	9.73	17.28	53.36	50.20
MAX	25.42	10285003.07	8750912.94	17029267	1038785	520679.32
MIN	11.04	6957398.42	6793143.33	11015881	264381.1	142656.01
CAGR (in %)	5.77	8.31	5.20	9.10	31.48	29.56

Source: RBI Database, NITI AYOG Reports, Periodic Labour Force Survey of NSSO and World Bank Reports.

Chart: 1 represents the annualised growth rate of Gross NPA and Net NPA of banks operating. A bell shaped curve of growth has been reflected by both NPA and Net NPA of banks. The Net NPA of displayed a highest growth rate of 85 per cent 2016 followed by a sharp decline in 2017 but increasing trend during 2018. Chart: 2 represent the annualised growth rate of Gross Advances and Net Advances of banks. A sharp increase in the Gross Advances of banks can be

Chart:1
Annualised Growth Rate of Gross NPA and Net NPA of Schedule Commercial Banks During 2014-2018
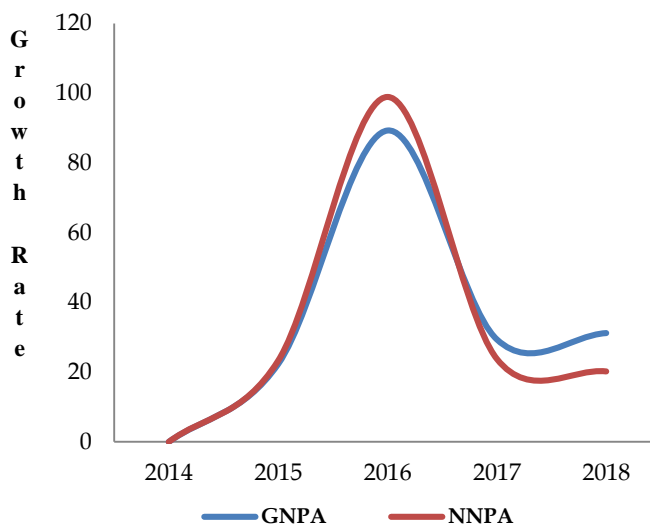
Source: Author's estimation based on secondary data collected from Annual reports of Banks and Statistical Table related to Banks in India.
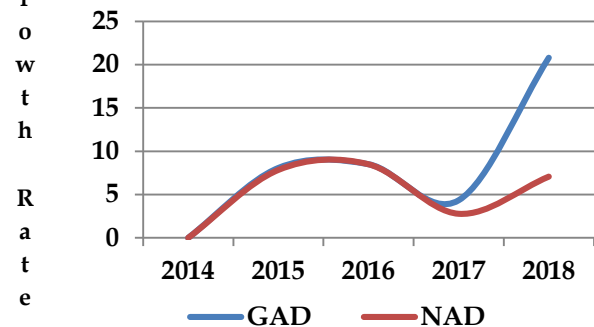
Gross banks during an seen from 2017 which continued till 2018.

Chart: 2
Annualised Growth Rate of Gross Advances and Net davances of Schedule Commercial banks during 2014-2018

Source: Author's estimation based on secondary data collected from Annual reports of Banks and Statistical Table related to Banks in India.

Test of Significance:

Table 2 represents the t- test results which says there exists some significant difference between Gross NPA and Net NPA of banks. Where it has been found that the calculated value of 't' i.e. 4.0998 is greater than table value i.e. 3.1824, p-value is <0.05 at 5% label of significance

. Table 2: t-test (Gross NPA and Net NPA of Schedule Commercial banks)		
Mean	691464.6975	369863.855
Variance	90846456101	21597848098
Observations	4	4
df	3	
p-value	0.019	
Calculated value	4.0998	
Table Value	3.1824	

Source: Author's estimation based on secondary data, Computed Using SPSS 16

Measuring Impact of Macro Economic Variables:

Table 3 represents the regression results of impact of macroeconomic variables of the economy on NPAs i.e. Gross NPA and Net NPA of schedule commercial banks. As results are insignificant we are not in a position to interpret the results accurately *So, our null hypothesis i.e. the macro economic variables have no significant impact on banks NPAs can be accepted.*

Table:3 Regression Results of Macro Economic Variables on Non-Performing Assets (NPA)							
Regressors	Gross NPA to Gross Advances (GNPA/GAD)		Gross NPA to Total Assets (GNPPA/TA)		Net NPA to Net Advances (NNPA/NAD)		Net NPA to Total Assets (NNPA/TA)
	Coefficient (Std. Error)	Sig	Coefficient (Std. Error)	Sig	Coefficient (Std. Error)	Sig	Coefficient (Std. Error)	Sig
Gross Domestic Product (GDP)	-.453 (.239)	.078	-.431 (.656)	.563	-.564 (.327)	.010	-.733	.983
Wholesale Price Index (WPI)	-.485 (1.977)	.091	-.582 (2.339)	.903	-.674 (3.998)	.342	-.579	.676
Consumer Price Index (CPI)	.596 (.337)	.086	.690 (27.786)	.099	.776 (.548)	.007	.989	.551
Unemployment Rate (UER)	.774 (.888)	.909	.912 (7.453)	.037	.572 (3.939)	.991	.885	.565
Change in Real Effective Exchange Rate (CREER)	.251 (.451)	.343	.783 (.449)	.090	.344 (.563)	.006	.452	.674
Industrial Production Index (IPI)	.909 (3.336)	.991	.886 (9.721)	.787	1.987 (7.663)	.982	1.359	.077
COBE Volatility Index (CVI)	.882 (.778)	.111	.833 (.992)	.781	.289	.874	.871	.439
_Cons (Constant Term)	1.907	.567	2.442	.369	5.897	.445	.939	.089
R²	.677		.578		.714		.612	
Observations (Adjusted R²)	.591		.616		.398		.294	

Source: Author's estimation based on secondary data computed using SPSS 21

Conclusion:

The Gross NPAs of the banks have been increasing consistently over the years. There exists a significant difference between Gross NPAs and Net NPAs of the banks which is confirmed by t-test result but the regression results have been found statistically insignificant. So, it cannot be articulate clearly whether macroeconomic variables have any positive or negative impact of banks NPAs. Because of which the null hypotheses of the study

i.e. *the macroeconomic variables have no significant impact on banks NPAs can have been accepted.* The major concern of banks on its raising NPA which needs to be taken into deliberation by considering an appropriate lending policy of the banks especially the lending towards the priority sector. Banks can take some prompt and corrective action like proper monitoring of lending policy, checking credit worthiness and proper application and implementation of CIBIL score and other norms as provided by RBI on regular basis to tackle the problem of NPAs of the banks.

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