COMPARATIVE ANALYSIS OF N.P.A. BETWEEN SBI AND PNB USING ANOVA

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ABSTRACT

According to R.B.I., for the duration of 2017-18 the continuous worsening in 'asset quality' demanded quick increases in provisions and for the first moment in time since 1993-94, the banking structure at the same time as an entire, mainly driven by PSBs, recorded heavy losses. The determinants that lead to the decrease in 'Asset Quality' were careless credit evaluation and post approval monitoring standards: project delays and outlay overruns: and deficiency of a well-built in solvency administration until first quarter of 2016. This research paper by means of secondary data taken from diverse sources, try to analyze the trends of components of 'Non Performing Assets (NPA)' of Indian public sector banks during the period 2014-2018. The comparative study of NPA of State Bank of India (SBI)&Punjab National Bank (PNB) during the period of study (2014-2018) has also been carried out using Two- way ANOVA (Analysis of Variance). The most important aim of current study is to discover that there are considerable differences in the mean variation of NPA among selected banks and during the period of study. The main finding of the paper highlights to target against big borrowers of the particular bank which increases the magnitude of Gross NPA. The paper also highlights the worst problem ahead due to sharp rise in 'Doubtful Advances' of public sector banks post 2016 period. It gives warning signal to the banking system.

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Keywords: *Non Performing Assets, Analysis of Variance (ANOVA), Gross NPA, Net NPA.*

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Introduction

"As per **Financial Stability Report (F.S.R.) of RBI December 2016**, risks to the banking sector remained very high due to continuous decline in 'asset quality', low profitability and liquidity. " *(Annual Report of SBI, 2017)*

Among all Public Sector Banks, State Bank of India (**largest lender**) had undergone a big change after merger on 15 February, 2017 (after approval by Union Cabinet). According to recent news PNB is also going to merge. According to Finance Minister Nirmala Sitharaman, as per proposed merger, PNB will become **second largest** PSB after merger with Oriental Bank of Commerce and United Bank of India.

These changes in banking sector draws attention for researchers for deeper understanding about the causes of turmoil in the banking system. The root cause is Non – performing Assets (NPAs). The current paper focuses on NPAs of major Public Sector banks.

Review of Literature

As per **RBI guidelines**," N.P.A. was defined as a credit facility in respect of which the interest and / or installment of principal has remained 'past due' for a specified period of time (two quarters 1995 onwards)."

As per **RBI**, the classifications of NPA in to 3 categories are as follows:

- **Sub-standard assets**: w.e.f. 31.03.2001, it is that asset which has remained N.P.A. for duration of less than or equal to **1.5 years**.

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- **Doubtful Assets**: w.e.f. 31.03.2001, it is that asset which remained N.P.A.for duration exceeding 1.5 years.
- **Loss Assets:** It is one where loss has been recognized by the bank / internal or external auditors / RBI examination, but the amount has not been written off entirely.

Types of N.P.A.

- **Gross NPA**: Gross NPAs is total of all three categories of NPA discussed above. It indicates quality of credit provided by the banks.
- **Net NPA**: Net NPAs is equal to the difference between Gross NPAs and Provisions.

Immediate Reasons for Growth of magnitude of NPAs of the bank : - According to **Annual Report, 2017 of SBI**, the immediate reasons behind the growth of magnitude of NPAs of the banks are Global recession, Low domestic Growth, Cancellation of coal blocks, Delay in realization of receivables, Anxiety in mainly steel sector & power sector , delay in implementation of infra-projects etc.

Maity, S.(2017): The research paper studied that whether the before merger SBI and its all associates are operating at efficiency level or at inefficiency level using Data Envelopment Analysis.

Ojha, A.(2017): This paper analyzes and interprets the performance indicators of Public sector banks in India.

Dutta, A.(2014): This paper focuses on the learning of growth of N.P.A. of Indian public and private sector banks.

Das, S. (2014): The paper analyzed Net NPA for the time period 2008-2013) sample of 26 public sector banks by using one way ANOVA.

Joseph, A.L.(2014): The paper highlights that about direct impact of N.P.A. on profitability, liquidity & solvency position of the selected bank.

Balasubramaniam, C.S. (2013): The paper tries to find out the trends of the N.P.A. of the banks post 2000.

There is gap in the literature review. We find that limited studies have been carried out on NPA of SBI and PNB for the period 2014-2018. Few researches have been done using Two-way ANOVA for the period of study. Therefore, present scenario is not captured in above literature review.

Research Objectives

- To analyze the Trends of different categories of N.P.A. of Indian Public sector banks during the period of study.
- To know the consistency of PSBs in India on the basis of different categories of NPA during the period of study.
- To find the trends of Gross N.P.A., Provisions for NPA and Net N.P.A. of S.B.I.& P.N.B. respectively during the period of study.
- To discover that there is considerable difference in mean variation of N.P.A. of the selected banks and the periods of study.

Research Methodology

This study relates to **Descriptive Research Design**. For this study secondary data has been gathered from Reports of RBI, Annual Reports of SBI & PNB and Reports of Indian banks' association (IBA).

In the present paper various Statistical tools such as time series graph, bar diagram, Average, Standard Deviation, and Coefficient of variation and Two-way ANOVA without Replication have been used.

The present paper studies magnitude of NPA of PSBs in India, especially S.B.I. and P.N.B. for the period 2014 to 2018.

We have used the factorial design in the research. In this case, dependant variable is the interval or the ratio scale and there are two or more independent variables which are nominal scale. In our present study, dependent variable is NPA of Public Sector Banks in India. The present study consists of two independent variables which are nominal scale i.e**. types of banks** and **different years.** Therefore, Two- way ANOVA has been applied for results and discussions.

Results and Discussions

Our **first objective** is to analyze the Trends of different categories of NPA of Indian Public sector banks during the period of study.

First of all, let us discuss the trend of every component of Non-performing Asset of all public sector banks in India. With the help of appendix table 1, from year 2014 to 2018, the time series graph has been presented below:
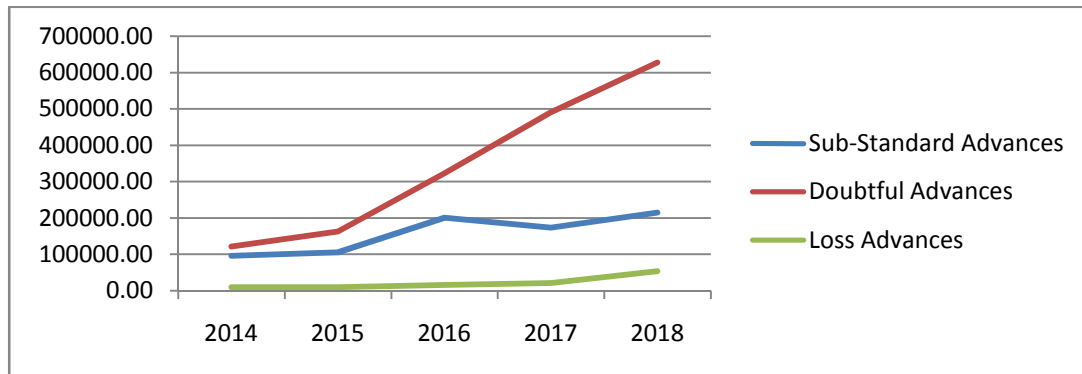

Figure 1: Category wise NPA of Indian Public Sector Banks- 2014-2018.

In figure 1, there is **rising** trend in every component of NPA of public sector banks post 2014. Among all the components of NPA, there is sharp rise in Doubtful advances since 2015. It plays a major role in magnitude of NPA of PSBs. It gives warning signal to the public sector banks in upcoming years.

Our **second objective** is to know the consistency of Indian PSBs on the basis of different categories of NPA during the period of study.

Let us discuss the percentage Variability of NPA (C.V.) of PSBs in India. From appendix Table 1, Coefficient of Variation (CV) to measure the consistency has been calculated for the concerned period of study with the help of MS- Excel, which are presented below.

Table 1: Analysis of Category wise NPA of Indian Public Sector Banks- 2014-2018

Summary	Count	Sum	Average	Variance	SD	CV
Row 1(2014)	3	227263.91	75754.64	3424205272.58	58516.71	77.25
Row 2(2015)	3	278468	92822.67	5974702650.59	77296.20	83.27
Row 3(2016)	3	539956.34	179985.45	23871406181.95	154503.74	85.84
Row 4(2017)	3	684733	228244.33	57293298437.33	239360.19	**104.87**
Row 5(2018)	3	895601	**298533.67**	87777963072.33	296273.46	99.24
Column 1(S.S.A)	5	789339.82	157867.96	2968947349.19	54488.05	34.51
Column 2(D.A.)	5	1726007.9	**345201.59**	46131372374.84	214782.15	62.22
Column 3(L.A.)	5	110674.48	22134.90	325536824.40	18042.64	**81.51**

If we discuss about year wise, then in above table No.1, Mean (Average) is highest in 2018 (Row 5) among category wise NPA of Indian public sector banks. It means that performance of Indian public sector banks in the particular year was relatively not good in terms of credit risk management. From 2014 onwards average is rising continuously till 2018. Therefore, performance of banks under the study is deteriorating continuously. But percentage variability (CV) is highest in 2017 (Row 4). It means that in 2017, there is more percentage variability among different components of NPA of Public Sector Banks in India. Public sector banks in India were relatively more inconsistent in 2017 in terms of credit risk management.

On the other hand, if we discuss about category wise NPA then, among all different components of NPA, Mean(Average) is highest in Doubtful Advances (D.A.). It means magnitude of NPA of the banks under study is largely affected due to Doubtful Advances. But percentage variability (CV) is highest in Loss Advances (L.A.) i.e. 81.51%. It means that there is more percentage variability in Loss Advances in different components of NPA of Public Sector Banks in India. Therefore, particular component is relatively more inconsistent.

Our **third objective** is to know the trends of Gross NPA, Provisions for NPA and Net NPA of SBI & PNB respectively during the period of study (2014-2018).

After taking overall view about performance and consistency of Indian public sector banks on the basis of category wise NPA, let us discuss about Gross NPA and Net NPA .The basic difference between the two is Provision for NPA. Let us make a relative analysis ofNPA of SBI and PNB respectively.

Firstly, Let us discuss about NPA of SBI from 2014 to 2018.With the help of appendix table 2, from year 2014 to 2018, the time series graph has been presented below:-
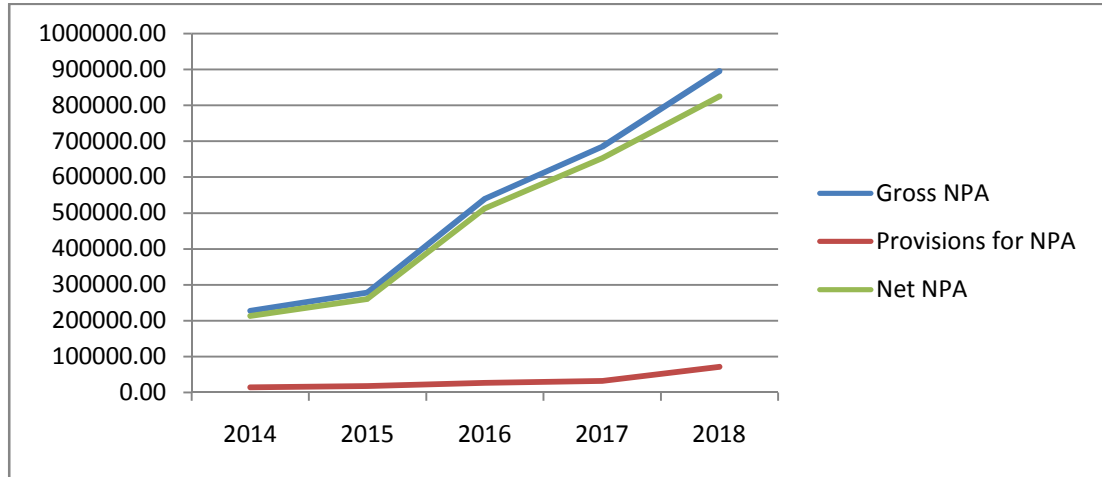

Figure 2: NPA of SBI: 2014-2018

In figure 2, there is **rising** trend in Gross NPA and Net NPA of SBI post 2014. It shows continuous inefficient management of credit risk. It will pose threat to the particular bank and its sector in the future. However there is sharp rise in provisions for NPA post 2017. There is possibility of its continuous rising trend if adverse situation prevails in the upcoming years.

Secondly, we are going to discuss about NPA of PNB from 2014 to 2018.With the help of appendix table 2, from year 2014 to 2018, the time series graph has been presented below:-
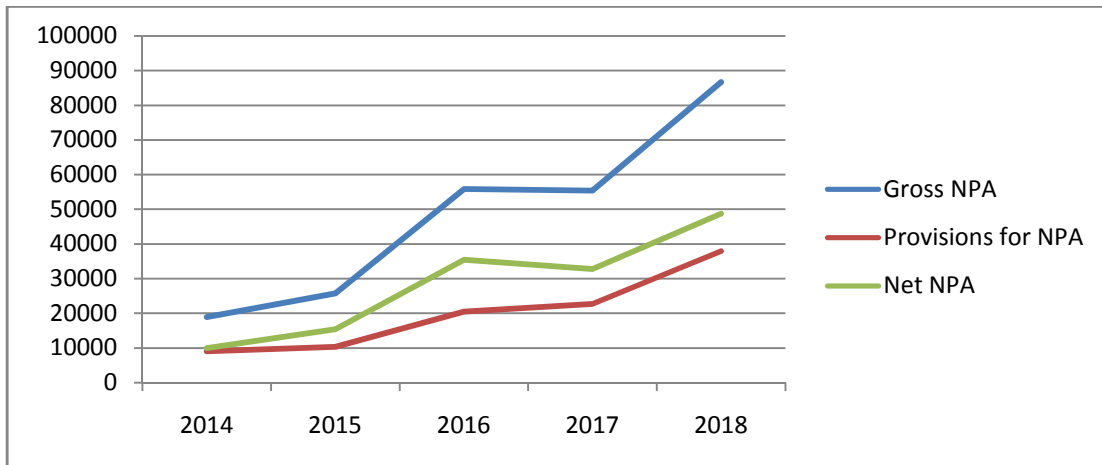

Figure 3: NPA of PNB: 2014-2018

In figure 3, there is **rising** trend in Gross NPA, Provisions for NPA and Net NPA of PNB post 2014 but they are fluctuating between the periods of study as compared to SBI. It shows continuous inefficient and inconsistent management of credit risk by the particular bank. After 2017, there is sharp rise in Gross NPA, Provisions for NPA and Net NPA. It shows that more problematic circumstances will persist for PNB if the present situation continues.

However in absolute terms, Gross NPA, Provisions for NPA and Net NPA of PNB are very low as compared to SBI but trends are almost same.

Our **fourth objective** is to discover that there is considerable difference in mean variation of NPA occurrence of the selected banks and during the periods of study (Two- Way ANOVA).

The hypothesis is given below:

Null Hypothesis (Ho): There is no significant difference in the mean variation of NPA occurrence of the selected Public Sector banks in India and during the periods under the study.

The data related to Gross NPA of PNB and SBI from 2014 to 2018 are given below:

Table 2: Bank Wise Gross NPAs (2014-2018)

	2014	2015	2016	2017	2018
Punjab National Bank (PNB)	18880.06	25694.86	55818.33	55370.44	86620.05
State Bank of India (SBI)	61605.35	56725.33	98172.80	112342.99	223427.46

Source: Reports of RBI

Let us compare between Gross NPA of SBI and PNB from 2014 to 2018.With the help of table No.2, the multiple bars diagram has been presented below:-
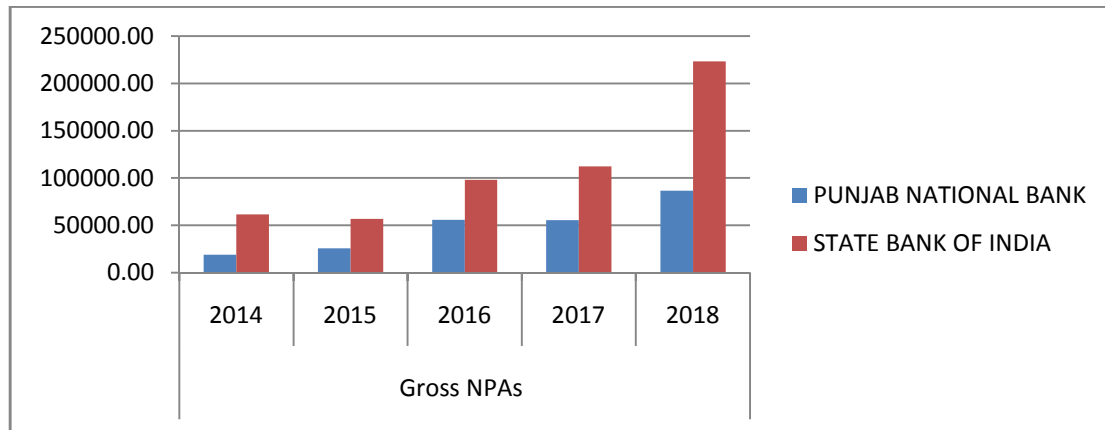

Figure 4: Bank Wise Gross NPAs (2014-2018)

In above figure 4, in every year Gross NPA of SBI is higher than PNB but magnitude of Gross NPA of both banks are rising during the periods of study.

With the help of Microsoft Excel using Two-way ANOVA without replication (without interaction effect), the analysis output is given below:

Table 3: ANOVA: Two-Factor Without Replication (Bank & Year Wise)

Summary	Count	Sum	Average	Variance	SD	CV
Row 1 (PNB)	5	242383.7	48476.746	737827944.37	27162.99	56.03303
Row 2 (SBI)	5	552273.9	**110454.787**	4547589972.85	67435.82	**61.05287**
Column 1 (2014)	2	80485.41	40242.705	912725202.79	30211.34	**75.07284**
Column 2 (2015)	2	82420.19	41210.095	481445034.21	21941.86	53.24389
Column 3 (2016)	2	153991.1	76995.563	896950666.14	29949.13	38.89722
Column 4 (2017)	2	167713.4	83856.7145	1622936239.50	40285.68	48.04109
Column 5 (2018)	2	310047.5	**155023.7575**	9358133578.65	96737.45	**62.40169**

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F critical
Rows (Banks)	9603193630.40	1	9603193630.40	10.46955709	**0.031804**	7.708647
Columns (Year)	17472674577.95	4	4368168644.49	4.762248142	**0.079899**	6.388233
Error	3668997090.90	4	917249272.72			
Total	30744865299.24	9				

Interpretation

In table No. 3, the percentage variability in Gross NPA of SBI is 61.05287%, which is more than PNB. It means that SBI is comparatively less consistent in credit risk management. On the other hand, percentage variability in Gross NPA during the period of study is decreasing during first three years (2014 to 2016) then rising afterwards. It means that in recent years, there is relatively more inconsistency in NPA management.

Let us discuss about the sources of variation of Gross NPA of selected banks during the period of study.

- **Row wise (Bank Wise)**

The mean variation in Gross NPA of selected banks is significant at 5% because P-value is 0.031804, which is less than 5%. (Null hypothesis is not accepted.) It means that mean variation in Gross NPA bank wise is not due to chance. It is due to mismanagement by the selected banks in terms of NPA management.

- **Column wise (Year wise)**

The mean variation in Gross NPA during the period of study is not significant at 5% because P-value is 0.079899, which is more than 5%. (Null hypothesis is accepted).The analysis concludes that mean variation in Gross NPA during the period of study is due to chance.

Limitations and Further Research

This study is limited for the period 2014-2018 only. This may not give the accurate results. This paper is based on secondary data only and so its inherent limitations. Only two major public sector banks have been studied. The further research can be done on NPA of Private Banks and foreign banks.

Conclusion

As per the annual reports of the banks under study, some major initiatives adopted by SAMG (Stressed Assets Management Group) of the banks are as follows:-

- Use of SARFAESI Act, 2002 for the sale of properties under symbolic possession.
- Recovery ways of agricultural NPA.
- Arranging legal set up for recovery of NPA.
- Debt-Asset swap arrangement
- Arranging 'Mega electronic auction'
- Reminders to the customers by SMS

Despite of above initiatives by the banks, Gross NPA of both banks are still on the rising trend. The previous initiatives taken by the particular bank is not effective. The revival of the previous credit policy is required immediately. Innovations in expedite recovery of NPA should be done by the particular bank.

The particular bank should target those borrowers which increase the magnitude of Gross NPA. Credit worthiness of big borrowers should be regularly monitored and evaluated to avoid NPAs. The particular bank should improve quality of loans by minimizing asymmetric information about big borrowers.

The RBI should frame strict rules and regulation for willful defaulters and big borrowers. The new guidelines related to credit risk management should be implemented by the particular bank quickly and effectively. The efficiency in credit risk management by the particular bank should be improved on urgent basis to avoid turmoil in the banking sector.

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Appendix

Appendix Table 1: Category wise NPA of Public Sector Banks (2014-2018)

Year	Sub-Standard Advances	Doubtful Advances	Loss Advances
2014	95758.03	121646.62	9859.26
2015	105416.03	163048.91	10003.06
2016	200462.76	323229.41	16264.16
2017	173079.00	490371.00	21283.00
2018	214624.00	627712.00	53265.00

Appendix Table 2: NPA of SBI: 2014-2018

Year	Gross NPA (` Cr.)	Provisions for NPA (` Cr.)	Net NPA (` Cr.)
2014	227263.91	14224.00	213039.91
2015	278468.00	17908.00	260560.00
2016	539956.34	26984.00	512972.34
2017	684733.00	32247.00	652486.00
2018	895601.00	70680.00	824921.00

Source: Annual reports of SBI 2014-2018

Appendix Table 3: NPA of PNB: 2014-2018

Year	Gross NPA (` Cr.)	Provisions for NPA (` Cr.)	Net NPA (` Cr.)
2014	18880	8963	9917
2015	25695	10298	15397
2016	55818	20395	35423
2017	55370	22668	32702
2018	86620	37936	48684

Source: Annual reports of PNB 2014-2018

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