# A Revised Paradigm for Calculating the NPA Percentage in Banks

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## Abstract

**The gross and net NPA ratios are powerful indicators of the health of banks. Globally and more specifically in India, the increasing rate of non-performing assets has been a very critical issue for decades. Primarily, NPA ratios of banks indicate the quality of their rate-sensitive assets and are used by rating agencies, regulators, investors, and other stakeholders for decision-making ranging from distribution of dividends to classifying the banks under the prompt corrective action category. Since these ratios are pivotal, this study examined the existing system of calculation of these ratios and their lacunae. One of the objectives of this study was also to devise a new formula for the calculation of gross as well as net NPA percentages. A comparison of the net and gross NPA percentage in respect of a few banks as per the existing and proposed formula was done, and it was found that the difference was statistically significant. The study has important implications for the banking industry and may help the regulators and investors assess banks' health more stringently than is presently being done.**

***Keywords :*** **non-performing assets, gross NPA ratio, net NPA ratio, gross credit, net credit, gross NPA, net NPA, NPA formula**

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The fact that a bank's non-performing assets are weapons of bank destruction is a no-brainer. Researchers, reviewers, regulators, and rating agencies have contributed to the deluge of literature on the subject. The four key benchmarks used by these contributors have been the gross and net non-performing assets in absolute terms and the gross and net non-performing asset ratios in percentage terms. In a recent study of eight major banks in Kazakhstan, Kazbekova et al. (2020) showed evidence of how non-performing loans can bankrupt a bank. Similar views were echoed by Campbell (2007), who identified NPLs as an important cause of bank insolvency.

These above-mentioned studies showed that NPA ratios are a critical parameter to measure the health of banks. Therefore, this research is important as banks are reeling under the onslaught of burgeoning NPAs. This paper, however, does not delve into the deleterious effects of NPA on banks, as imposing evidence is already available. Instead, it deals with the present method of calculating NPA ratios and their inadequacies. Existing research has not yet critically examined the method of calculating the gross and net NPA ratios. Herein lies the need to examine the NPA formulae failing which many banks can use the lacunae in the formula to evade scrutiny. This paper aims

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to fill in this gap. We further suggest a variant to the existing formula, which is more rigorous than the existing one. If the new formula is substituted with the existing one, it will provide a new measure to assess the health of the rate-sensitive assets of banks. The rigor of the new formula is tested on a sample of NPAs from public and private sector banks in India to see if the formula can be applied without any glitches.

## Criticality of Non - Performing Assets for Banks

It is essential to stress the importance of the non-performing assets and their concomitant ratios as this seriousness will spill into the methodology of calculating the NPA ratios, which is the crux of this study. Reserve Bank of India constituted a working group on credit risk in 2001. Based on the group's findings, the Reserve Bank of India (2001) published a guidance note on September 20, 2001, as per which the asset portfolio of any bank should assess both funded and non-funded items. The note further adds that the credit portfolio quality is mirrored in the non-performing assets and provisioning ratios. The key ratios to be analyzed are the charge-offs/gross loans ratio, non-performing loans/gross loans ratio, provisions/gross loans ratio, and provisions/non-performing loans ratio.

Non-performing assets are like termites that eat into the whole financial system. If this termite is not controlled, it will be dangerous for the financial system. This is how Chary and Fasi (2019) remarked in their research on the Indian banking system. They concluded that the non-performing assets seriously affect the banking system. There is no denying the fact that the NPAs and their ratios are crucial. It is for this reason that globally, banks are concerned about containing these ratios.

The severity of the problem was flagged by the statistics put out by the Reserve Bank of India (2018) in their *Financial Stability Report* of June 2018. The report showed that the NPAs are increasing at a fast rate in India, as also the credit growth, which picked up in the FY 2017–18 along with a slow rise in the deposits of the scheduled commercial banks. The banking sector stress continues due to the rising GNPA ratio, which requires more provisions, thereby reducing the banks' profits.

## Literature Review

There is very scant literature that delves into the calculation of net and gross NPA ratios. It led us to believe that all stakeholders have accepted the existing system of computation of net and gross NPAs as the gospel truth without examining the same. Existing literature on the subject has accepted the formula given by the regulators, and analyses have been conducted of the credit portfolio of banks within the realms of this formula. This review shows that many researchers have stressed the importance of non-performing assets and their effect on the health of the banking sector and the country's economy. Though they do not have a direct bearing on the objectives of the paper, the review adds strength to the fact that the gross and net NPA ratios are important benchmarks, the computation of which requires further scrutiny.

Vallabh et al.'s (2016) research on the expansion of banks showed that the everlasting problem of NPAs will be the biggest issue to tackle as NPAs or non-performing loans (NPLs) have become a critical factor for the performance of a bank. Reddy and Arora (2010) extensively used the NPA ratios to assess the performance and asset quality of the State Bank of India and Associates. Under Chapter II of the latest *Financial Stability Report* published by the Reserve Bank of India (2021), they used the gross NPA ratio to assess large borrowers' sectoral asset quality and credit quality. Similarly, Tabassum and Pande (2021) studied the effect of GDP and inflation rate on the gross NPA of banks between 1996–1997 and 2016–17. Though their study concluded that the effect of GDP and inflation was statistically insignificant, they did use the barometer of gross NPA for their study spanning two decades.

Nath et al. (2017) analyzed the gross and net NPAs of banks in India and surmized that the difference between the gross and net NPAs is very high, indicating that while the delinquent loans are rising, the provisions made thereof by banks are also rising. While this distinction in the understanding of gross and net NPAs is quite perceptive, the authors used the existing formula prescribed by RBI. Pillai (2018), in an extensive study of Indian banks covering 15 years, found that the non-performing assets eroded an otherwise productive asset portfolio of productive assets. His study found that despite making rapid strides since the implementation of the New Economic Policy in India, the issue of NPA remains unresolved. Syed and Tripathi (2019) averred that non-performing loans are a serious threat to the banking system in their global study covering the impact of NPAs on BRIC countries, while Yadav and Mohania (2020) propounded that the NPA problem was one of the crucial factors for the merger of Chennai Bank Ltd. with Bhopal Bank Ltd.

Research on the trends of NPA is ubiquitous. Akrani (2011) also traced the trend of NPAs in India from the 1990s, and his findings are akin to that of Pillai (2018), referred above. A similar study made by Gupta and Murthy (2018) traced the trends of NPA ratios for the SBI group, nationalized banks, old private banks, and new private banks for the period ranging from 1995 – 96 to 2009–10. There is near unanimity amongst analysts that the NPAs in banks are important indicators of the health of the credit of banks. Perhaps, it is the criticality of these indicators which have led to researchers basing their analysis on them. An article by the Chief Economist of the Bank of India, "NPAs: Don't judge banks," (2018) eloquently described the genesis of gross and net NPA. More importantly, the article states that the loans have to be seen as a percentage of the total loan portfolio, or in other words, the gross and net NPA ratio. The article further elaborated that while the gross NPA depicts loans that do not earn a return, the net NPA numbers presage the potential write-offs of a bank. In a refreshingly different approach, Annapurna and Manchala (2017) used the balanced scorecard tool to assess the performance of banks, which evidenced that the net NPA ratio has a direct effect on the return on assets.

Another study by Anand (2017) surmized that the NPAs of banks in India stood at 75% of their net worth and that the pile of bad loans, or stressed assets, was close to ₹ 10 lakh crore ($154 billion), which is more than the GDP of at least 137 countries. According to Reddy and Arora (2010), the continuous escalation in non-performing assets in the portfolio of banks posed a significant threat to the very stability of the financial system. Similarly, Kaur and Singh (2011) also felt that to judge the financial health and performance of banks, NPAs are considered to be an important parameter**.** A high fraction of NPA steadily corrodes the capital base of banks, interrupting the bank's ability to generate fresh capital and continue lending for investment activities. The fiscal stability report published by the Reserve Bank of India (2016) relies heavily on the comparison of gross and net NPA ratios to describe the deteriorating position of the banking sector.

The literature review stresses the importance of NPAs and its ratios, the definitions for which have been provided by RBI. Though studies have been abundant by researchers from time to time on the importance of NPA, no study has ever talked about the lacuna which exists in the current system of calculating the gross and net NPA ratios. In the existing system, the gross NPA percentage on any day is the ratio of gross NPA on that particular day to gross advances outstanding on that day. Similarly, the net NPA percentage is the ratio of net non-performing assets to net advances outstanding on any given day. As there is a lag in the genesis of NPA, we opine that the ratio is too simplistic and obfuscates the correct picture of NPA. Therefore, in this paper, an attempt is made to propose a new formula for the calculation of the gross and net NPA ratio so that the actual asset quality is revealed.

## Objectives of the Study

**(1)** To study the existing system of calculating gross and net NPA ratios.

**(2)** To study the lacuna in the existing system of calculating gross and net NPA ratios.

**(3)** To devise a new formula for gross and net NPA percentage calculation.

**(4)** To compare the net and gross NPA percentages of a few banks as per old and new formulae and to verify if the difference is statistically significant.

## Hypotheses

- **H01 :** There is no statistically significant difference in the calculation of the gross NPA ratio using the current and new formulae.
- **Ha1 :** There is a statistically significant difference in the calculation of the gross NPA ratio using the current and new formulae.
- **H02 :** The gross NPA ratio calculated as per the new formula is not as severe as the calculation made using the old formula.
- **Ha2 :** The gross NPA ratio calculated as per the new formula is more severe than the calculation made using the old formula.
- **H03 :** There is no statistically significant difference in the calculation of the net NPA ratio using the current and new formulae.
- **Ha3 :** There is a statistically significant difference in the calculation of the net NPA ratio using the current and new formulae.
- **H04 :** The net NPA ratio calculated as per the new formula is not as severe as the calculation made using the old formula.
- **Ha4 :** The net NPA ratio calculated as per the new formula is more severe than the calculation made using the old formula.

## Research Methodology

### *Data Collection*

This research study is a thrust to study alternate forms of calculation of gross and net NPA ratios based on banks' published data. Therefore, the data for this research were culled from secondary sources. We would like to highlight that banks are not obligated to furnish quarterly information on the absolute amount of gross and net NPAs. This information is by and large available on a half-yearly basis; whereas, the study requires this data every quarter. The secondary data collection was therefore restricted to those banks that put this information in the public domain.

### *Sampling Methodology*

The quarterly data on gross and net NPAs is confidential and is not a part of regulatory divulgence. Therefore, this data were not published by all banks. On account of the scantiness of data, we had to resort to a convenience sampling method and gathered publicly available data. Data were collected from four banks for a period of 13 quarters from March 2015 – March 2018. The sample does not include data beyond 2018 as banks were impacted

by COVID - 19, a black swan event. During this period, the RBI relaxed the gestation period for the classification of NPAs through their forbearance norms, and the inclusion of this data would distort the sample. This has also been referred to by Reserve Bank of India (2021) in their *Financial Stability Report*, wherein they acknowledged that due to the black swan event, the NPAs reported by banks might not be reflective of their true portfolios. The sample size is 48 quarters, and the details of the sample data are given in Appendix Table A1 – Table A8.

## Analysis and Results

### *Existing System of Calculating Gross and Net NPA Ratios*

The calculation of existing gross and net NPA, as well as their ratios, has been detailed by the Reserve Bank of India (2015) in its master circular. They are to be calculated as per the format given in Table 1.

### *Lacuna in the Existing System*

From Table 1, it can be inferred that the current system of calculating the gross NPA ratio considers the gross NPA and the gross advances outstanding on a particular date. Similarly, for calculating the net NPA ratio, the net NPA

**Table 1.** ***Format for NPA Calculation***

| Details of Gross Advances, Gross NPAs, Net Advances, and Net NPAs | | |
|---|---|---|
| **Particulars** | | **Amount** |
| 1 | Standard Advances | |
| 2 | Gross NPAs | |
| 3 | Gross Advances (1+2) | |
| 4 | Gross NPAs as a percentage of Gross Advances (2/3) (in %) | |
| 5 | Deductions | |
| | (i) Provisions held in the case of NPA Accounts as per asset classification (including additional provisions for NPAs at higher than prescribed rates). | |
| | (ii) DICGC / ECGC claims received and held pending adjustment | |
| | (iii) Part-payment received and kept in Suspense Account or any other similar account | |
| | (iv) Balance in Sundries Account (Interest Capitalization – Restructured Accounts), in respect of NPA Accounts | |
| | (v) Floating Provisions | |
| | (vi) Provisions instead of diminution in the fair value of restructured accounts classified as NPAs | |
| | (vii)Provisions instead of diminution in the fair value of restructured accounts classified as standard assets | |
| 6 | Net Advances (3 – 5) | |
| 7 | Net NPAs {2 – 5 (i + ii + iii + iv + v + vi)} | |
| 8 | Net NPAs as a percentage of Net Advances (7/6) (in %) | |

Source : Reserve Bank of India (2015).

and total net advances outstanding on a particular date are taken. For example, the gross NPA and net NPA ratios as of 31-3-2021 will be determined by using the formulae as per (1) and (2) below :

Gross NPA ratio as of 31-3-21 = Gross NPAs as of 31-3-21 /Gross advances as of 31-3-21 ……. (1)

Net NPA ratio as of 31-3-21 = Net NPA as of 31-3-21 /Net advances as of 31-3-2021 …..... (2)

The numerator includes all NPAs outstanding as of 31-3-2021, and the denominator is the sum of all the loans outstanding as of 31-3-2021. However, the genesis of a non-performing asset begins when either the interest or principal is overdue for 90 days. This means that the loan which has become an NPA as of 31-3-2021 must have been granted at least 90 days before 31-3-2021, or in other words, before 1-1-2021. The outstanding gross and net advances mentioned in the denominator of the formula take into account all those advances outstanding up to 31-12- 2020 and the outstanding under fresh advances or loans granted from 1-1-2021 up to 31-3-2021. This formula, therefore, tends to distort the gross and net NPA ratios in the sense that these ratios can be manipulated by increasing the advances granted between 1-1-2021 and 31-3-2021. Such action will dilute the severity of the NPA problem by increasing the denominator, which is the gross or net advances as of 31-3-2021, thereby reducing the gross and net NPA ratios. We argue that loans that have not completed their first 90 days do not qualify to become an NPA and hence should not be included in the gross and net advances while calculating the NPA ratios. In the above example, the total gross or net advances as of 31-3-2021 include extraneous loans granted between the period from 1-1-2021 to 31-3-2021 and, therefore, have to be excluded from the denominator or the gross and net advances.

Further, apart from the 90-day norm and the one/ two crop seasons for agricultural advances, overdue receivables from derivative contracts and liquidity facilities in securitization contracts outstanding for more than 90 days are to be included in the classification of loans/ advances into NPA. Also included in the gross NPA are the non-performing investments of the bank. While these items form part of the numerator under gross NPA, the denominator excludes the non-performing investments and overdue under derivative and securitization contracts.

### *A New Formula for Gross and Net NPA Percentage Calculation*

The current formula used for calculating the NPA ratios does not depict a clear picture of banks' asset quality. Though the formula currently in use is accepted by all the banks worldwide, we think there is a certain scope for improvement that can be brought in this formula. The crux of the problem in the present formula is the denominator. In the above example, we had submitted that the denominator includes outstanding amounts of extraneous loans granted from 1-1-2021 to 31-3-2021 and has to be excluded. This can be achieved by taking the gross and net advances figures as of 31-12-2020 in the denominator while calculating the gross and net NPA ratios as of 31-03-2021. The numerator will be the gross and net NPA figure as of 31-3-2021. The revised gross and net NPA ratios for the above example will be as per the formula in (3) and (4) given below :

Gross NPA ratio = Gross NPA as of 31-3-2021/ Gross advances as of 31-12-2020 .....….. (3)

Net NPA ratio = Net NPA as of 31-3-2021/ Net advances as of 31-12-2020 …….....(4)

The new formula will, as per the above argument in generic terms, be as in (5) and (6) given below :

Gross NPA Ratio = Gross NPA as on the date of calculation of gross NPA ratio / gross advances as per the previous quarter .....(5)

Net NPA ratio = Net NPA as on the date of calculation of net NPA ratio / net advances as per the previous quarter ..... (6)

Data published by four banks, namely, Bank of Baroda, HDFC Bank, ICICI Bank, and Axis Bank, were analyzed to verify the effect of the new formula. Tables A1, A3, A5, and A7 in the Appendix contain the gross advances, net advances, gross NPA, net NPA, gross NPA ratio, and net NPA ratio published by the sample banks as per the existing formula. Since the net advances are not disclosed by banks, it is derived by dividing the net NPA by the net NPA percentage. Tables A2, A4, A6, and A8 in the Appendix contain gross advances, net advances, gross NPA, net NPA, gross NPA ratio, and net NPA ratio calculated as per the new formula. The gross NPA and net NPA ratios calculated as per the old and new formulae were then subjected to a *t*-test to find if there is a statistically significant difference between the two. The results of the *t*-test conducted for gross NPA as per the new and revised formula are given in Table 2, and the results of the *t*-test conducted for net NPA as per the new and revised formula are given in Table 3.

### *Results of t -Tests on Gross NPA Percentage as per Old and New Formula*

From Table 2, we gather the results of the paired two-sample *t*-test of means of gross NPA percentage calculated as per the old and new formulae, which shows $t\ (47) = -6.490$, $p = 0.000$. This shows a statistically significant difference between the means of the gross NPA calculated as per the old formula and the new formula at the 5% level as per the paired one-tailed *t*-test. Therefore, we reject the null hypothesis H01 at the 5% significance level.

Emphasis is laid on the one-tailed '*t* ' test only because we are interested in the unidirectional difference in the means as we are testing the hypothesis that there is a difference in the gross NPA percentage as per the old formula and the new formula and the hypothesis that the gross NPA percentage as per the new formula is more severe than the one calculated as per the old formula. Hence the one-tailed *t*-test is the appropriate statistical test for testing the difference in means of the data. Since the difference in the means of gross NPA percentage calculated as per the old formula and gross NPA percentage calculated as per the new formula is statistically significant at the 5% level, we reject the null hypothesis H02 at the 5% significance level.

**Table 2.** ***Two-Tailed Paired Two Sample t - tests of Existing and Proposed Gross Percentages***

| ***t* - Test : Paired Two Samples for Means** | **Gross NPA (Old)** | **Gross NPA (Proposed)** |
|---|---|---|
| | **Variable 1** | **Variable 2** |
| Mean | 0.054 | 0.059 |
| Variance | 0.001 | 0.002 |
| Observations | 48.000 | 48.000 |
| Pearson Correlation | 0.994 | |
| Hypothesized Mean Difference | 0.000 | |
| *df* | 47.000 | |
| *t* - Stat | –6.490 | |
| *P*(*T* < = *t*) one-tail | 0.000 | |
| *t* Critical one-tail | 1.678 | |
| *P*(*T* < = *t*) two-tail | 0.000 | |
| *t* - Critical two-tail | 2.012 | |

**Table 3.** ***Two-Tailed Paired Two Sample t-Tests of Existing and Proposed Net NPA Percentages***

| *t* - Test : Paired Two Samples for Means | Net NPA (Old) | Net NPA (Proposed) |
|---|---|---|
| | Variable 1 | Variable 2 |
| Mean | 0.026 | 0.027 |
| Variance | 0.000 | 0.000 |
| Observations | 48.000 | 48.000 |
| Pearson Correlation | 0.997 | |
| Hypothesized Mean Difference | 0.000 | |
| *df* | 47.000 | |
| *t* - Stat | –2.455 | |
| *P*(*T* < = *t*) one-tail | 0.009 | |
| *t* - Critical one-tail | 1.678 | |
| *P*(*T* < = *t*) two-tail | 0.018 | |
| *t* - Critical two-tail | 2.012 | |

Table 3 shows the results of the paired two-sample *t*-test of means of net NPA percentage calculated as per the old and new formulae. The result $t\ (47) = -2.455$, $p = .009$. shows a statistical difference in the means of net NPA percentage calculated as per the old and new formulae at the 5% probability level. Hence, we reject the null hypothesis H03 at the 5% significance level.

Again, since the one-tailed *t*-test is the appropriate statistical test for testing the difference in means of the net NPA percentage calculated as per the old formula and the net NPA percentage calculated as per the new formula and since the difference in means is statistically significant at the 5% level, we reject the null hypothesis H04 at the 5% significance level.

## Discussion and Implications

The results show that firstly there is a difference in the calculation of gross NPA percentage calculated as per the existing formula and the proposed formula. The second inference is that the calculation made as per the proposed formula shows a starker picture of the gross NPA percentage. The gross NPA percentage is a major indicator used by analysts and regulators to gauge the health of banks. Vaidyanathan (2013) stated that gross non-performing assets are an important index to measure the efficiency of credit risk management. In the Indian context, where banks are underperforming due to the huge overhang of NPA, we urge that the present indicators of NPA, like gross NPA percentage, be examined more minutely so that the regulators are not led to make imprudent decisions about the health of banks. There is a loophole in the existing formula where the banks can window-dress the gross NPA percentage by granting more loans in the last quarter.

The study shows that the difference in the means of the net NPA percentage calculated as per the new and old formulae is also statistically significant. The net NPA is calculated after deducting the provisions made by the banks. The regulators specify minimum provisions on the gross NPAs.

Notwithstanding the above results, this is a problem for future researchers to explore. This paper intends to draw researchers' attention to this problem that has not been addressed. Another issue not discussed in this paper is the inclusion of NPA related to investments and off-balance sheet items like derivatives in the numerator of the gross and net NPA ratios while excluding the same in the denominator. This study endeavors to bridge this gap by

suggesting a variant for the existing net and gross NPA ratios. This variant is also subject to further improvements by future researchers.

The emphasis of this study is more on the appropriateness of the formula being used for calculating the gross and net NPA percentages rather than on the effect of the old and new formulae. Since the NPAs, whether gross or net, used in the numerator do not form a part of the denominator of the formula, we submit that the present formula needs to be appropriately changed to remedy this lacuna. The new formula is proposed to rectify a few of these anomalies.

## Conclusion

The study shows significant changes in the calculation of NPA ratios when done with the formula we proposed. Moreover, migration to the new formula does not require drastic changes on the part of the banks. The proposed formula is not foolproof and may require further iterations before it is perfected. However, this is a start, and future researchers can work on perfecting the formula. The study assumes importance because the banking system needs efficient indicators to predict banks' asset quality. Banks are one of the major players in the financial system, and their health — which depends on asset quality — is critical. Ali and Dhiman (2019) showed evidence to prove that credit risk management is vital for measuring banking performance and that banks should be developing and revising their credit risk management practices or systems to minimize risk in lending. A look at the calculation of the NPA ratios is one step in this direction.

Further, the disclosures made by banks should be simplified and should include how the banks have arrived at the gross and net NPA ratios. At present, analysts have to unravel several adjustments made by the bank to arrive at the gross and net NPA ratios. There is, therefore, a case to keep the calculation of NPA ratios simple.

## Limitations of the Study and Scope for Further Research

We wholeheartedly agree that the want for sufficient data limits the study. The sample size is restricted to 48 quarters and to four banks, which is insufficient to study the effect of the new formula. Moreover, the variables considered, namely the gross and net advances and the gross and net NPAs, depend on the macroeconomic conditions prevailing at a particular point in time. In a booming economy, the NPAs could be less, and the value of the advances could be high. In adverse conditions, the NPAs could be high, and gross or net advances could decline. In a scenario where the quarterly advances of banks are declining, the existing formula presently being used will appear more stringent. The study is, therefore, limited by the period during which the study was done. This issue, therefore, requires a larger study involving a greater number of banks and different periods. However, there is a vast scope for studying the issue further. The formula suggested by us is subject to scrutiny and review. There is scope for a better formula using more variables which can make it more rugged. This research has only opened a small window for future research. Perhaps, future researchers can embark on a more comprehensive study. However, devising a new formula is more exploratory and is not affected by the above-mentioned limitations.

## Authors' Contribution

Dr. N. V. Vijaykumar conceived the idea and developed the research design as well as the statistical tests of the study. He wrote the manuscript. Ankita Tripathi scoured reputed research journals and websites to review the literature and get data relating to the NPA of various banks.

## Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.


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# Appendix

***Details of Quarterly Gross/Net Advances and Gross/Net NPA***

**Table A1.** ***NPA as per Existing Formula (Amount INR in Mln) : Bank of Baroda***

| Quarter Ended | Gross Advances | Net Advances | Gross NPA | Net NPA | Gross NPA % | Net NPA % |
|---|---|---|---|---|---|---|
| Mar-18 | 4274318.3 | 4277349.7 | 564803.9 | 234826.5 | 12.26% | 5.49% |
| Dec-17 | 3993807.6 | 3994396.4 | 484804.4 | 198521.5 | 11.31% | 4.97% |
| Sep-17 | 3873015.7 | 3875766.3 | 463068.3 | 195726.2 | 11.16% | 5.05% |
| Jun-17 | 3776067.4 | 3775495.2 | 461727.7 | 195193.1 | 11.40% | 5.17% |
| Mar-17 | 3832592.2 | 3830546.6 | 427187.0 | 180801.8 | 10.46% | 4.72% |
| Dec-16 | 3499601.1 | 3500244.9 | 426424.0 | 190063.3 | 11.40% | 5.43% |
| Sep-16 | 3541496.0 | 3542481.7 | 429492.5 | 193419.5 | 11.35% | 5.46% |
| Jun-16 | 3627663.5 | 3627185.0 | 429916.8 | 207837.7 | 11.15% | 5.73% |
| Mar-16 | 3837701.8 | 3835268.8 | 405210.4 | 194064.6 | 9.99% | 5.06% |
| Dec-15 | 3842720.9 | 3845883.6 | 389341.1 | 218061.6 | 9.68% | 5.67% |
| Sep-15 | 4148997.8 | 4155136.4 | 237103.3 | 127978.2 | 5.56% | 3.08% |
| Jun-15 | 4083881.3 | 4091797.1 | 172739.5 | 84700.2 | 4.13% | 2.07% |
| Mar-15 | 4280651.4 | 4269571.4 | 162614.5 | 80694.9 | 3.72% | 1.89% |

**Table A2.** ***NPA as per the Proposed Formula (INR in Mln) : Bank of Baroda***

| Quarter Ended | Gross Credit/ Advances | Net Credit/ Advances | Gross NPA | Net NPA | Gross NPA % | Net NPA % |
|---|---|---|---|---|---|---|
| Mar-18 | 4274318.3 | 4277349.7 | 564803.9 | 234826.5 | 14.14% | 5.88% |
| Dec-17 | 3993807.6 | 3994396.4 | 484804.4 | 198521.5 | 12.52% | 5.12% |
| Sep-17 | 3873015.7 | 3875766.3 | 463068.3 | 195726.2 | 12.26% | 5.18% |
| Jun-17 | 3776067.4 | 3775495.2 | 461727.7 | 195193.1 | 12.05% | 5.10% |
| Mar-17 | 3832592.2 | 3830546.6 | 427187.0 | 180801.8 | 12.21% | 5.17% |
| Dec-16 | 3499601.1 | 3500244.9 | 426424.0 | 190063.3 | 12.04% | 5.37% |
| Sep-16 | 3541496.0 | 3542481.7 | 429492.5 | 193419.5 | 11.84% | 5.33% |
| Jun-16 | 3627663.5 | 3627185.0 | 429916.8 | 207837.7 | 11.20% | 5.42% |
| Mar-16 | 3837701.8 | 3835268.8 | 405210.4 | 194064.6 | 10.54% | 5.05% |
| Dec-15 | 3842720.9 | 3845883.6 | 389341.1 | 218061.6 | 9.38% | 5.25% |
| Sep-15 | 4148997.8 | 4155136.4 | 237103.3 | 127978.2 | 5.81% | 3.13% |
| Jun-15 | 4083881.3 | 4091797.1 | 172739.5 | 84700.2 | 4.04% | 1.98% |
| Mar-15 | 4280651.4 | 4269571.4 | 162614.5 | 80694.9 | | |

**Table A3.** ***NPA as per the Old Formula (INR in Mln) : HDFC Bank***

| Quarter Ended | Gross Credit/ Advances | Net Credit/ Advances | Gross NPA | Net NPA | Gross NPA % | Net NPA % |
|---|---|---|---|---|---|---|
| Mar-18 | 6583330.9 | 6502550.0 | 86069.7 | 26010.2 | 1.30% | 0.40% |
| Dec-17 | 6312146.6 | 6303772.7 | 82348.8 | 27736.6 | 1.29% | 0.44% |
| Sep-17 | 6048669.4 | 6039139.5 | 77028.4 | 25968.3 | 1.26% | 0.43% |
| Jun-17 | 5809758.0 | 5745931.8 | 72429.3 | 25282.1 | 1.24% | 0.44% |
| Mar-17 | 5545682.0 | 5587848.5 | 58856.6 | 18439.9 | 1.05% | 0.33% |
| Dec-16 | 4950433.3 | 4888500.0 | 52322.7 | 15643.2 | 1.05% | 0.32% |
| Sep-16 | 4944178.4 | 4962833.3 | 50690.4 | 14888.5 | 1.02% | 0.30% |
| Jun-16 | 4706224.7 | 4666843.8 | 49208.9 | 14933.9 | 1.04% | 0.32% |
| Mar-16 | 4645939.6 | 4715607.1 | 43928.3 | 13203.7 | 0.94% | 0.28% |
| Dec-15 | 4363644.4 | 4346896.6 | 42552.0 | 12606.0 | 0.97% | 0.29% |
| Sep-15 | 4185409.7 | 4150720.0 | 38277.7 | 10376.8 | 0.91% | 0.25% |
| Jun-15 | 3820104.1 | 3806296.3 | 36522.3 | 10277.0 | 0.95% | 0.27% |
| Mar-15 | 3654950.4 | 3585120.0 | 34383.8 | 8962.8 | 0.93% | 0.25% |

**Table A4.** ***NPA as per the Proposed Formula (in lakhs) : HDFC Bank***

| Quarter Ended | Gross Credit/ Advances | Net Credit/ Advances | Gross NPA | Net NPA | Gross NPA % | Net NPA % |
|---|---|---|---|---|---|---|
| Mar-18 | 6583330.9 | 6502550.0 | 86069.7 | 26010.2 | 1.36% | 0.41% |
| Dec-17 | 6312146.6 | 6303772.7 | 82348.8 | 27736.6 | 1.36% | 0.46% |
| Sep-17 | 6048669.4 | 6039139.5 | 77028.4 | 25968.3 | 1.33% | 0.45% |
| Jun-17 | 5809758.0 | 5745931.8 | 72429.3 | 25282.1 | 1.31% | 0.45% |
| Mar-17 | 5545682.0 | 5587848.5 | 58856.6 | 18439.9 | 1.19% | 0.38% |
| Dec-16 | 4950433.3 | 4888500.0 | 52322.7 | 15643.2 | 1.06% | 0.32% |
| Sep-16 | 4944178.4 | 4962833.3 | 50690.4 | 14888.5 | 1.08% | 0.32% |
| Jun-16 | 4706224.7 | 4666843.8 | 49208.9 | 14933.9 | 1.06% | 0.32% |
| Mar-16 | 4645939.6 | 4715607.1 | 43928.3 | 13203.7 | 1.01% | 0.30% |
| Dec-15 | 4363644.4 | 4346896.6 | 42552.0 | 12606.0 | 1.02% | 0.30% |
| Sep-15 | 4185409.7 | 4150720.0 | 38277.7 | 10376.8 | 1.00% | 0.27% |
| Jun-15 | 3820104.1 | 3806296.3 | 36522.3 | 10277.0 | 1.00% | 0.29% |
| Mar-15 | 3654950.4 | 3585120.0 | 34383.8 | 8962.8 | | |

**Table A5.** ***NPA as per the Old Formula (Amount INR in Mln) : ICICI Bank***

| Quarter Ended | Gross Credit/ Advances | Net Credit/ Advances | Gross NPA | Net NPA | Gross NPA % | Net NPA % |
|---|---|---|---|---|---|---|
| Mar-18 | 5123952.9 | 5846178.2 | 540625.1 | 78862.7 | 8.84% | 4.77% |
| Dec-17 | 5053869.0 | 5669107.1 | 460387.0 | 238102.5 | 7.82% | 4.20% |
| Sep-17 | 4827801.3 | 5446902.9 | 444885.4 | 241297.8 | 7.87% | 4.43% |
| Jun-17 | 4640752.4 | 5207039.1 | 431476.4 | 253062.1 | 7.99% | 4.86% |
| Mar-17 | 4642320.8 | 5204709.6 | 425515.4 | 254510.3 | 7.89% | 4.89% |
| Dec-16 | 4574694.5 | 4571774.7 | 377167.3 | 198872.2 | 7.91% | 4.35% |
| Sep-16 | 4542555.1 | 4541977.6 | 321786.0 | 162148.6 | 6.82% | 3.57% |
| Jun-16 | 4494265.3 | 4489761.2 | 271935.8 | 150407.0 | 5.87% | 3.35% |
| Mar-16 | 4352639.4 | 4350026.8 | 262212.5 | 129630.8 | 5.82% | 2.98% |
| Dec-15 | 4347997.7 | 4345539.5 | 211491.9 | 99078.3 | 4.72% | 2.28% |
| Sep-15 | 4096926.5 | 4096539.4 | 158578.2 | 67592.9 | 3.77% | 1.65% |
| Jun-15 | 3997376.1 | 4008424.1 | 151376.1 | 63333.1 | 3.68% | 1.58% |
| Mar-15 | 3875220.7 | 3885422.4 | 150946.9 | 62555.3 | 3.78% | 1.61% |

**Table A6.** ***NPA as per the Proposed Formula (Amount INR in Mln) : ICICI Bank***

| Quarter Ended | Gross Credit/ Advances | Net Credit/ Advances | Gross NPA | Net NPA | Gross NPA % | Net NPA % |
|---|---|---|---|---|---|---|
| Mar-18 | 5123952.9 | 5846178.2 | 540625.1 | 278862.7 | 10.70% | 4.92% |
| Dec-17 | 5053869.0 | 5669107.1 | 460387.0 | 238102.5 | 9.54% | 4.37% |
| Sep-17 | 4827801.3 | 5446902.9 | 444885.4 | 241297.8 | 9.59% | 4.63% |
| Jun-17 | 4640752.4 | 5207039.1 | 431476.4 | 253062.1 | 9.29% | 4.86% |
| Mar-17 | 4642320.8 | 5204709.6 | 425515.4 | 254510.3 | 9.30% | 5.57% |
| Dec-16 | 4574694.5 | 4571774.7 | 377167.3 | 198872.2 | 8.30% | 4.38% |
| Sep-16 | 4542555.1 | 4541977.6 | 321786.0 | 162148.6 | 7.16% | 3.61% |
| Jun-16 | 4494265.3 | 4489761.2 | 271935.8 | 150407.0 | 6.25% | 3.46% |
| Mar-16 | 4352639.4 | 4350026.8 | 262212.5 | 129630.8 | 6.03% | 2.98% |
| Dec-15 | 4347997.7 | 4345539.5 | 211491.9 | 99078.3 | 5.16% | 2.42% |
| Sep-15 | 4096926.5 | 4096539.4 | 158578.2 | 67592.9 | 3.97% | 1.69% |
| Jun-15 | 3997376.1 | 4008424.1 | 151376.1 | 63333.1 | 3.91% | 1.63% |
| Mar-15 | 3875220.7 | 3885422.4 | 150946.9 | 62555.3 | | |

**Table A7.** ***NPA as per the Existing Formula (Amount INR in Mln) : Axis Bank***

| Quarter Ended | Gross Credit/ Advances | Net Credit/ Advances | Gross NPA | Net NPA | Gross NPA % | Net NPA % |
|---|---|---|---|---|---|---|
| Mar-18 | 4396503.1 | 4879914.7 | 342486.4 | 165917.1 | 6.77% | 3.40% |
| Dec-17 | 4209227.4 | 4597457.0 | 250005.1 | 117694.9 | 5.28% | 2.56% |
| Sep-17 | 4101707.6 | 4503955.1 | 274023.2 | 140523.4 | 5.90% | 3.12% |
| Jun-17 | 3854805.4 | 4246078.3 | 220308.7 | 97659.8 | 5.03% | 2.30% |
| Mar-17 | 3730693.5 | 4088412.3 | 212804.8 | 86265.5 | 5.04% | 2.11% |
| Dec-16 | 3471746.9 | 3804945.0 | 204668.2 | 82947.8 | 5.22% | 2.18% |
| Sep-16 | 3531699.4 | 3842153.5 | 163786.5 | 77611.5 | 4.17% | 2.02% |
| Jun-16 | 3449252.0 | 3713175.9 | 95531.7 | 40102.3 | 2.54% | 1.08% |
| Mar-16 | 3387737.2 | 3603057.1 | 60875.1 | 25221.4 | 1.67% | 0.70% |
| Dec-15 | 3153672.3 | 3352120.0 | 57240.5 | 25140.9 | 1.68% | 0.75% |
| Sep-15 | 2980655.9 | 3215875.0 | 44511.1 | 15436.2 | 1.38% | 0.48% |
| Jun-15 | 2846491.4 | 3044354.2 | 42511.8 | 14612.9 | 1.38% | 0.48% |
| Mar-15 | 2810830.3 | 2992522.7 | 41101.9 | 13167.1 | 1.34% | 0.44% |

**Table A8.** ***NPA as per the Proposed Formula (Amount INR in Mln) : Axis Bank***

| Quarter Ended | Gross Credit/ Advances | Net Credit/ Advances | Gross NPA | Net NPA | Gross NPA % | Net NPA % |
|---|---|---|---|---|---|---|
| Mar-18 | 4396503.1 | 4879914.7 | 342486.4 | 165917.1 | 8.14% | 3.61% |
| Dec-17 | 4209230.0 | 4597457.0 | 250005.1 | 117694.9 | 6.10% | 2.61% |
| Sep-17 | 4101707.6 | 4503955.1 | 274023.2 | 140523.4 | 7.11% | 3.31% |
| Jun-17 | 3854805.4 | 4246078.3 | 220308.7 | 97659.8 | 5.91% | 2.39% |
| Mar-17 | 3730693.5 | 4088412.3 | 212804.8 | 86265.5 | 6.13% | 2.27% |
| Dec-16 | 3471746.9 | 3804945.0 | 204668.2 | 82947.8 | 5.80% | 2.16% |
| Sep-16 | 3531699.4 | 3842153.5 | 163786.5 | 77611.5 | 4.75% | 2.09% |
| Jun-16 | 3449252.0 | 3713175.9 | 95531.7 | 40102.3 | 2.82% | 1.11% |
| Mar-16 | 3387737.2 | 3603057.1 | 60875.1 | 25221.4 | 1.93% | 0.75% |
| Dec-15 | 3153672.3 | 3352120.0 | 57240.5 | 25140.9 | 1.92% | 0.78% |
| Sep-15 | 2980655.9 | 3215875.0 | 44511.1 | 15436.2 | 1.56% | 0.51% |
| Jun-15 | 2846491.4 | 3044354.2 | 42511.8 | 14612.9 | 1.51% | 0.49% |
| Mar-15 | 2810830.3 | 2992522.7 | 41101.9 | 13167.1 | | |

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