# EVALUATION OF CREDIT RISK RATIOS BETWEEN PUBLIC AND PRIVATE SECTOR BANKS IN INDIA

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## ABSTRACT

*Monitoring the Credit risk is very important for the banks. The credit risk should be monitored very carefully otherwise it could lead to the huge losses and even the failures of banks. Basel committee has issued various guidelines from time to time to measure the credit risk in banks. RBI has made it mandatory for the Indian banks to follow those guidelines. It has enhanced the performance of the banks. Therefore a study was carried out to find out the credit risk in various public and private sector banks in India from the year 2005 to 2011. Various ratios have been calculated to know the credit risk in the banks. It further shows that nonperforming assets of the banks have been reduced substantially by the following the Basel norms and the banks are progressing in the right direction*

***Keywords:*** *Credit Risk, Basel norms, Non performing assets*

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# INTRODUCTION

Credit risk emanates from a bank's dealing with individuals, corporate, financial institutions or a sovereign. It occurs from the potential that an obligor is either unwilling to perform on an obligation or its ability to perform such obligation is impaired resulting in economic loss to the bank. Credit risk arises from activities both on and off balance sheet. For most banks, loans are the largest and most obvious source of credit risk. Credit risk not necessarily occurs in isolation. The same source that endangers credit risk for the institution may also expose it to other risk. For instance a bad portfolio may attract liquidity problem. Management of Credit risk is very important for the banks. It is the overall responsibility of bank's Board to approve credit risk strategy and significant policies relating to credit risk and its management which should be based on the bank's overall business strategy. The overall strategy has to be reviewed by the board annually. Moreover Basel committee has issued various guidelines from time to time to measure the credit risk in banks. RBI has made it mandatory for the Indian banks to follow those guidelines. It has enhanced the performance of the banks. Therefore a study was carried out to find out the credit risk in various public and private sector banks in India from the year 2005 to 2011. Various ratios have been calculated to know the credit risk in the banks.

# REVIEW OF LITERATURE

- Michael J Phelan: in his study "PROBABILITY AND STATISTICS APPLIED TO THE PRACTICE OF FINANCIAL RISK MANAGEMENT; The Case of J P Morgan's RiskMetrics" has describes applications of probability and statistics in RiskMetricsTM, J P Morgan's methodology for quantifying market risk. The methodology implements an analytical approach to financial risk in trading, arbitrage, and investment based on the statistics of market moves in equities, bonds, currencies and commodities. The public unveiling of RiskMetricsTMin October of 1994 attracted widespread interest among regulators, competing financial institutions, investment managers, and corporate treasurers, while the available technical documentation offers us a unique opportunity for informed statistical research on the theory and practice of financial risk management. For the purpose of identifying problems for further research, this discussion focuses on applications of statistics in Risk Metrics TM, which range from data analysis of daily returns and locally Gaussian processes to stochastic volatility models and it processes for the term structure of interest rates. The latter problems reflect the author's particular interest in stochastic inference for Markov processes and multivariate dependencies. Another important theme of this discussion, however, is devoted to attracting statisticians to

the study of financial risk management and developing the foundations for collaborative work with financial economists and practicing risk managers. For this reason, this is also an expository document that touches several areas of active statistical research with applications to problems of risk management.

- Oldfield, G and A. Santomero, "The Place of Risk Management in Financial Institutions", the purpose of this paper is to address two issues. It defines the appropriate role played by institutions in the financial sector and focuses on the role of risk management in firms that use their own balance sheets to provide financial products. A key objective is to explain when risks are better transferred to the purchaser of the assets issued or created by the financial institution and when the risks of these financial products are best absorbed by the firm itself. However, once these risks are absorbed, they must be efficiently managed. So, a second part of the current analysis develops a framework for efficient and effective risk management for those risks which the firm chooses to manage within its balance sheet. The goal of this activity is to achieve the highest value added from the risk management undertaken.

- Bank for international settlement: "Computing Capital for Incremental Risk in the Trading Book" and "Revisions to the Basel II market risk framework" - consultative documents issued by the Basel Committee on Banking Supervision" 22 July 2008; the report suggest that "Major banking organisations have experienced significant losses over the last year, most of which were sustained in banks' trading books" stated Nout Wellink, Chairman of the Basel Committee and President of the Netherlands Bank. "Against this backdrop, the Basel Committee's incremental risk proposal will better align regulatory capital requirements with the risk exposure of banks' trading book positions." The guidelines support one of the key recommendations for strengthening prudential oversight set out in the Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience, which was presented to G7 Finance Ministers and Central Bank Governors in April 2008.   These proposals were developed jointly by the Basel Committee and the International Organization of Securities Commissions (IOSCO). Mr Christopher Cox, chairman of IOSCO's Technical Committee and Chairman of the US Securities and Exchange Commission, noted

- In October 2007, the Basel Committee consulted on proposed guidelines for computing capital for incremental default risk, or the risk that is incremental to the

default risk already reflected in a bank's value-at-risk (VaR) model. The application of such an incremental default risk charge, however, would not have captured recent losses in CDOs of ABS and other resecuritisations held in the trading book. The losses that materialised during the market turmoil have not arisen from actual defaults but rather from credit migrations combined with widening of credit spreads and the loss of liquidity. Given this and other observations from the market turmoil, as well as comments received through the consultative process, the Committee decided to expand the scope of the capital charge. The proposed incremental risk charge (IRC) would capture price changes due to defaults as well as other sources of price risk, such as those reflecting credit migrations and significant moves of credit spreads and equity prices.

- The Basel Committee also proposes improvements to the Basel II Framework concerning internal VaR models. It has further aligned the language with respect to prudent valuation for positions subject to market risk with existing accounting guidance. In addition, it has clarified that regulators will retain the ability to require adjustments to current value beyond those required by financial reporting standards, in particular where there is uncertainty around the current realisable value of a position due to illiquidity.  Once the Basel Committee has finalised the revised requirements, it expects firms to comply with them by 1 January 2010. However, firms will be allowed an additional year to incorporate into their IRC models all risks covered by the proposed IRC beyond default and migration risks for positions subject to credit risk. Until the IRC is implemented in 2010 and to ensure that firms hold adequate capital for resecuritisations, an interim treatment will apply. This interim treatment will be specified in a separate proposal that will be issued by the Basel Committee later in 2008. Over a longer term horizon, the Committee also intends to review the VaR approach for the trading book including the specific risk capital charges under the standardised approach.  In conjunction with this proposal, the Basel Committee will conduct a two-stage quantitative impact study of the IRC on firms' capital requirements. In the first stage, the Committee plans to rely largely on data collected in connection with the 2007 incremental default risk proposal to examine the impact of incorporating default and migration risk into the IRC. In stage two, additional data will be collected to examine the impact of incorporating other risks. Bank for international settlement: "International Convergence of Capital

Measurement and Capital Standards" This document is a compilation of the June 2004 Basel II Framework, the elements of the 1988 Accord that were not revised during the Basel II process, the 1996 Amendment to the Capital Accord to Incorporate Market Risks, and the 2005 paper on the Application of Basel II to Trading Activities and the Treatment of Double Default Effects.

- Bank for international settlement: "Basel Committee on Banking Supervision announces enhancements to the Basel II capital framework" report issued on16 January 2009. The Basel Committee on Banking Supervision today issued a package of consultative documents to strengthen the Basel II capital framework. These enhancements are part of a broader effort the Committee has undertaken to strengthen the regulation and supervision of internationally active banks in light of weaknesses revealed by the financial markets crisis. Nout Wellink, Chairman of the Basel Committee and President of the Netherlands Bank, said that "the proposed enhancements will help ensure that the risks inherent in banks' portfolios related to trading activities, securitisations and exposures to off-balance sheet vehicles are better reflected in minimum capital requirements, risk management practices and accompanying disclosures to the public."

- Santomero, A and Jeffrey T. Trester: "financial innovation and bank risk taking". In this paper we investigate the effect of one change in the financial sector, namely, the growing ease with which assets created by the banking sector can be sold to other investors. Of interest is whether the reduced cost of value communication and asset sales leads to higher levels of risky lending by the banking sector. Of equal interest is whether these same changes result in riskier banks, i.e., ones that are more vulnerable to instability and failure. The results suggest that the risky asset portfolio held by the banking sector unambiguously increases as a result of the innovations considered. A reduction in illiquidity increases the banking sector's willingness to provide risk capital for real sector investment. On the other hand, it does not imply that banks will become more risky. Rather, there exists a trade-off between external shock risk, which is alleviated by increased asset liquidity, and the risk taking by banks on the returns of their assets, which is encouraged by these market changes.

- Kero Afroditi :"Banks Risk Taking, Financial Innovation and Macroeconomic Risk." European University Institute on April 2010.This paper shows how .financial innovation, together with the observed changes in the structure of macroeconomic risk

in the U.S. economy, can explain the strong growth in primary and secondary credit markets since the 1990s. In the empirical part we document the fall in macroeconomic risk, the .financial innovation in the .financial markets and the expansion of the prime and secondary credit market. We also show that changes in macroeconomic risk are closely related to the evolution of the prime market. In the theoretical part of the paper we study the interconnection of these different elements in a simple model. The model incorporates heterogeneous banks that seek to maximize the value of their portfolio by investing in safe and risky assets in the prime market for risk. In addition, financial innovation allows them to reduce the risk of their portfolio by investing in credit derivatives in the secondary markets. The CARA-Normal specification of the model permits the generation of closed-form expressions for the demand of risky assets and for the demand of credit derivatives. The results of the model show that financial innovation increases bank appetite for risky investment, credit derivatives acquisition and the portfolio variance. The model also highlights the fact that the strength of its effect on portfolio choices is stronger in environments with low aggregate macroeconomic risk.

## DATA COLLECTION

The data has been collected through secondary source. The data collected have been organized, analyzed and interpreted so as to draw conclusion and arrive at appropriate recommendations. The secondary sources of data includes: Academic Journals, Government reports, reports of RBI, books on credit risk management and capitaline software.

The data for both bank specific factors such as net non performing assets (NPA), total loans, total equity, total assets etc. have been obtained from audited statements of the individual banks and also from the reserve bank of India website at www.rbi.org.in. A total of 19 scheduled commercial banks that were listed in the Bombay stock exchange (BSE) were chosen for the study based on the availability of the data for the entire 6 years period from 2005 to 2011. The data for each of the 12 public sector banks and 7 private sector banks were collected and was grouped as listed in table 1. The period chosen is significant expansion due to deregulation and opening of the market to foreign banks which created a competitive environment. The later part of the past decade has also seen turmoil in the global financial markets due to sub-prime mortgage crisis in the major economies of the world.

The credit risk ratios analysed in this study are:

- The ratio of total loan (TL) to total assets (TA)

- The ratio of total equity (TE) to total assets (TA)

- The ratio of non-performing assets (NPA) to total loans (TL)

- The ratio of total loans (TL) to total equity (TE)

- The ratio of non-performing assets (NPA)  to NPA and total equity (TE)

TABLE 1

List of public sector and private sector banks

| Public sector banks | Private sector banks |
|---|---|
| Allahabad bank | Axis bank |
| Andhra bank | Federal bank |
| Bank of baroda | HDFC  bank |
| Bank of india | ICICI bank |
| Bank of Maharashtra | Indusind bank |
| Canara bank | ING vysya bank |
| Central bank of india | Karur  vysya bank |
| Corporation bank | |
| Indian bank | |
| Punjab national bank | |
| State bank of india | |
| Union bank | |

## ANALYSIS

**1)  The ratio of  Total loans to total assets (TL/TA)**

Table 2

Total loans to total assets (TL/TA)

| year | private | Public |
|---|---|---|
| 2005 | 6.685439 | 2.378786 |
| 2006 | 5.451679 | 3.061171 |
| 2007 | 5.493502 | 2.597255 |
| 2008 | 5.725209 | 2.527187 |
| 2009 | 8.914805 | 14.31254 |
| 2010 | 10.13955 | 5.421176 |
| 2011 | 10.09514 | 6.255082 |

Source- capitaline data base

**INTERPRETATION**

Table 2 shows the ratio of total loans to total assets of public and private sector banks from the year 2005 to 2011. The data have been collected from the capitaline database.

Chart 1

Total loans to total assets (TL/TA)
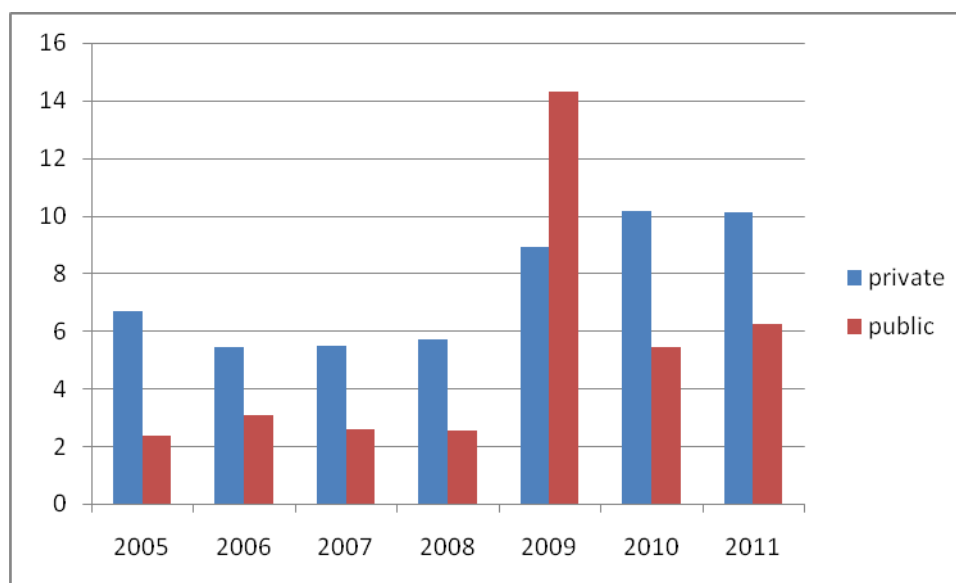


**INTERPRETATION**

Chart 1 show that the total amount of total loans to total assets has shown an increasing trend from the study period 2005 to 2011. Also the amount of loans given by private sector banks has been more than public sector banks except the year 2009. It is because the procedure to get loans in private sector banks is much easier than in Public sector banks. It shows that the banks are progressing as they are advancing more loans to the public. Also getting the things through instalments has become more common.

2)  **The ratio of Total equity to total asset (TE/TA)**

Table 3

Total equity to total asset (TE/TA)

| year | public | private |
|------|--------|---------|
| 2005 | 5.610381 | 7.010557 |
| 2006 | 5.896204 | 7.091884 |
| 2007 | 5.76474 | 6.569481 |
| 2008 | 5.912071 | 9.051121 |
| 2009 | 5.716792 | 8.830133 |
| 2010 | 5.473232 | 9.596874 |
| 2011 | 5.575236 | 9.456305 |

Source: capitaline data base

### INTERPRETATION

Table 3 shows the ratio of total equity to total assets of public and private sector banks from the year 2005 to 2011. The data have been collected from the capitaline database.

Chart 2

Total equity to total asset (TE/TA)
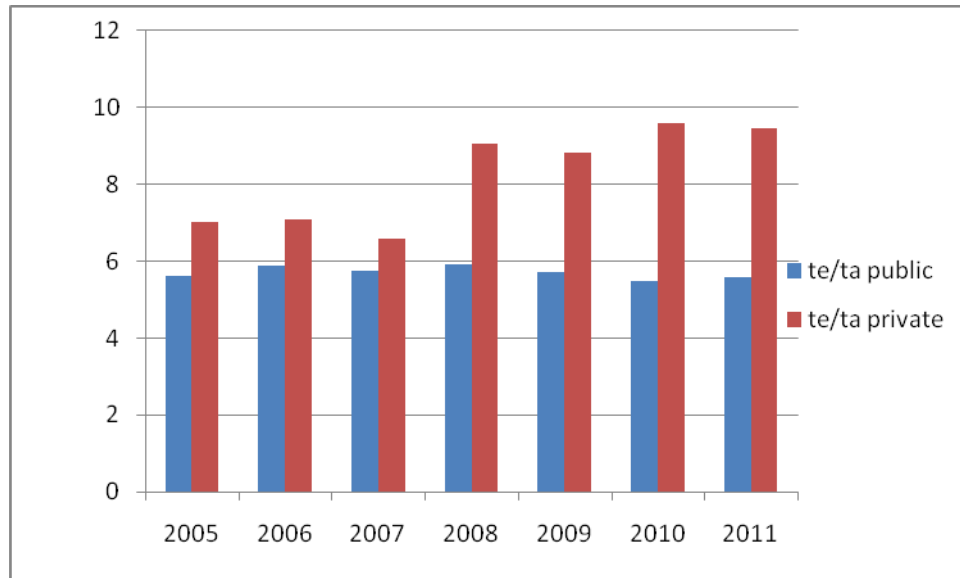


### INTERPRETATION

Chart 2 shows the ratio of total equity to total assets is almost same in public sector banks from the research period 2005 to 2011. But in private sector banks it shows an increasing trend. This may be due to the fact private sector banks were successful in raising their equity through public share offerings.

**3) The ratio of nonperforming asset to total loan (NPA/TL)**

Table 4

Nonperforming asset to total loan (NPA/TL)

| year | private | public |
|------|---------|--------|
| 2005 | 38.80156 | 168.3374 |
| 2006 | 12.44034 | 367.1068 |
| 2007 | 8.391772 | 51.47723 |
| 2008 | 7.002352 | 41.32391 |
| 2009 | 22.56888 | 17.2792 |
| 2010 | 4.266185 | 10.25133 |
| 2011 | 3.046128 | 10.12257 |

Source: capitaline data base

**INTERPRETATION**

Table 4 shows the ratio of Nonperforming assets to total loans of public and private sector banks from the year 2005 to 2011. The data have been collected from the capitaline database. It further shows that the private sector banks have less of nonperforming asset to total loan ratio than public sector banks.

Chart 3

Nonperforming asset to total loan (NPA/TL)
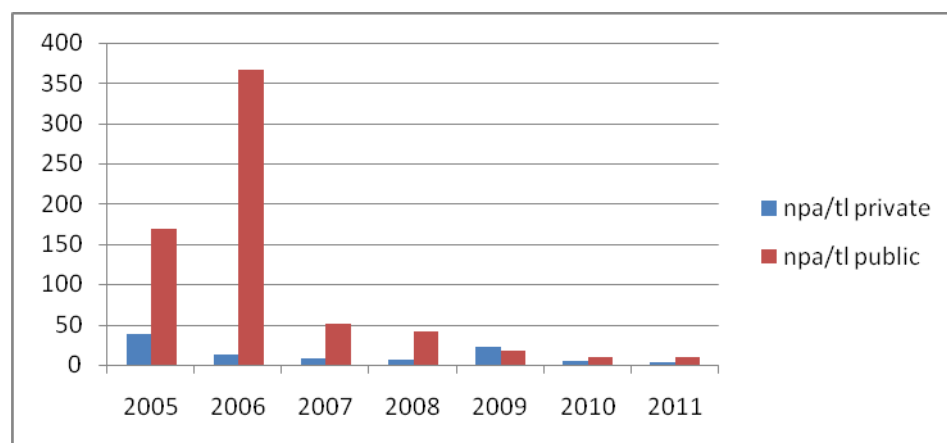


**INTERPRETATION**

Chart 3 is the graphical presentation of nonperforming asset to total loan. It shows that the non performing assets have decreased a lot in both private and public sector banks from the time period 2005 to 2011. It shows that the healths of banks are improving.

**4)  Total loan to Total Equity**

Table 5
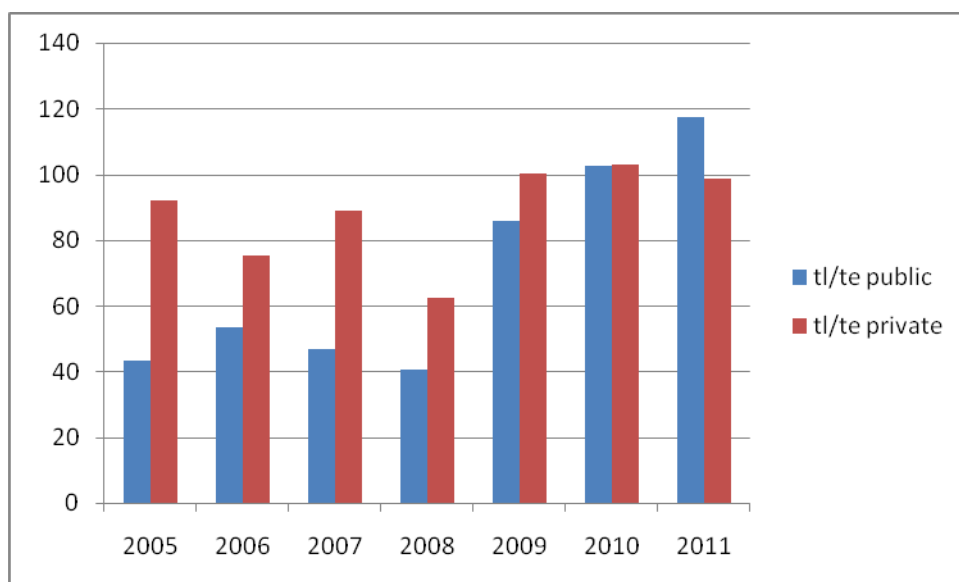
Total loan to total equity (TL/TE)

| year | public | private |
|------|--------|---------|
| 2005 | 43.37309 | 91.90897 |
| 2006 | 53.45723 | 75.18573 |
| 2007 | 46.60626 | 88.92289 |
| 2008 | 40.70164 | 62.20722 |
| 2009 | 85.85045 | 100.2836 |
| 2010 | 102.6388 | 103.0035 |
| 2011 | 117.3198 | 98.76 |

Source: capitaline data base

**INTERPRETATION**

Table 5 shows the ratio of mean of Total loan to total equity of public and private sector banks from the year 2005 to 2011. The data have been collected from the capitaline database.

Chart 4



INTERPRETATION

Chart 4 shows the graphical representation of the ratio of mean of Total loan to total equity of public and private sector banks from the year 2005 to 2011. It shows that the ratio is higher in the private sector banks than public sector banks in all the years expect 2011.

**5)  Nonperforming assets to non-performing asset plus total equity**

Table 6

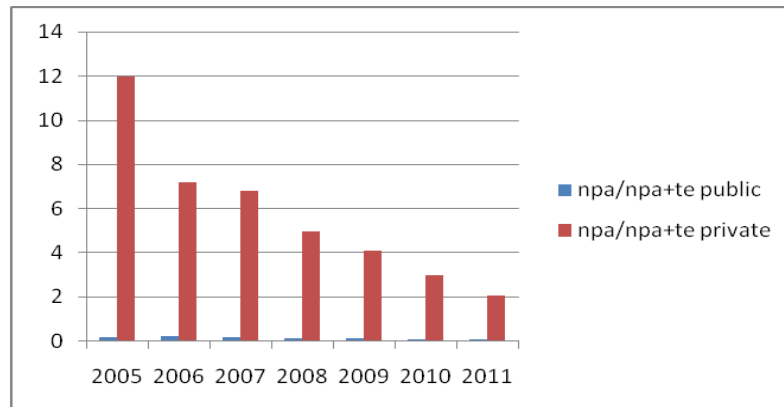Nonperforming assets to non-performing asset and total equity (NPA/NPA+TE)

| year | public | private |
|------|--------|---------|
| 2005 | 0.199548 | 11.95175 |
| 2006 | 0.22021 | 7.172006 |
| 2007 | 0.188096 | 6.82597 |
| 2008 | 0.151369 | 4.991556 |
| 2009 | 0.142206 | 4.111052 |
| 2010 | 0.08635 | 3.016071 |
| 2011 | 0.087367 | 2.053448 |

Source :capitaline data base

### INTERPRETATION

Table 6 shows the ratio of Nonperforming assets to non-performing asset and total equity of public and private sector banks from the year 2005 to 2011. The data have been collected from the capitaline database.

Chart 5



### INTERPRETATION

The chart 5 is the graphical representation of the ratio Nonperforming assets to non-performing asset and total equity of public and private sector banks from the year 2005 to 2011. It depicts the ratio is less for the public sector banks during the study period and is higher in private sector banks.

## CONCLUSION

The paper investigates the effect of credit risk in selected Scheduled commercial banks in India. A total of 19 scheduled commercial banks that were listed in the Bombay stock exchange (BSE) were chosen for the study based on the availability of the data for the entire 6 years period from 2005 to 2011. The data for each of the 12 public sector banks and 7 private sector banks were collected The credit risk ratios analysed in this study are: The ratio of total loan (TL) to total assets (TA), The ratio of total equity (TE) to total assets (TA), The ratio of non-performing assets (NPA) to total loans (TL),The ratio of total loans (TL) to total equity (TE), The ratio of non-performing assets (NPA)  to NPA and total equity (TE). It seems that although the banks are able to reduce their NPA's over the years but still they need to be very careful. RBI has designed the various policies to manage the credit risk in banks. It is in accordance to the norms set out by Basel committee on Banking supervision. Moreover the bank should be more vigilant while advancing loans to their customers. It will enhance the profitability of the banks and will be good for the society.

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