Indian Banks And Basel-II : An Econometric Analysis

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INTRODUCTION

BASEL norms are a set of international banking regulations put forth by the Basel Committee on Banking Supervision. The first accord was the Basel I. It was issued in 1988 and set out the minimum capital requirements of financial institutions with the goal of minimizing credit risk. Banks that operate internationally were required to maintain a minimum amount (8%) of capital based on a percent of risk-weighted assets.

Basel I focused mainly on credit risk by creating a bank asset classification system. Assets of banks were classified and were grouped in five categories according to credit risk and were assigned risk weights of zero (for example home country sovereign debt), ten, twenty, fifty, and up to one hundred percent (as an example, most corporate debt). Ever since its introduction in 1988, capital adequacy ratio has become an important benchmark to assess the financial strength and soundness of banks. It has been successful in enhancing competitive equality by ensuring level playing field for banks of different nationality. Reserve Bank of India introduced risk assets ratio system as a capital adequacy measure in 1992, in line with the capital measurement system introduced by the Basel Committee in 1988, which takes into account the risk element in various types of funded balance sheet items as well as non-funded off-balance sheet exposures. Capital adequacy ratio is calculated on the basis of various degrees of risk weights attributed to different types of assets.

WHY BASEL II?

The Basel I accord has been criticized as being inflexible due to focus on primarily credit risk and treating all types of borrowers under one risk category irrespective of credit rating. The major criticism against the existing accord stems from its :

- Broad-brush approach - of quality of counter party or credit;
- Encouraging regulatory arbitrage by cherry picking;
- Lack of incentives for credit risk mitigation techniques;
- Not covering operational risk.

Basel II takes a three-pillar approach to regulatory capital measurement and capital standards.

- **Pillar 1** spells out the capital requirement of a bank in relation to the credit risk in its portfolio, which is a significant change from the *"one size fits all"* approach of Basel I. Pillar 1 allows flexibility to banks and supervisors to choose from among the Standardized Approach, Internal Ratings Based Approach, and Securitization Framework methods to calculate the capital requirement for credit risk exposures. Besides, Pillar 1 sets out the allocation of capital for operational risk and market risk in the trading books of banks.

- **Pillar 2** provides a tool to supervisors to keep checks on the adequacy of capitalization levels of banks and also distinguish among banks on the basis of their risk management systems and profile of capital. Pillar 2 allows discretion to supervisors to **(a)** Link capital to the risk profile of a bank; **(b)** Take appropriate remedial measures if required; and **(c)** Ask banks to maintain capital at a level higher than the regulatory minimum.

- **Pillar 3** provides a framework for the improvement of banks' disclosure standards for financial reporting, risk management, asset quality, regulatory sanctions, and the like. The pillar also indicates the remedial measures that regulators can take to keep a check on erring banks and maintain the integrity of the banking system. Further, Pillar 3

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allows banks to maintain confidentiality over certain information, disclosure of which could impact competitiveness or breach legal contracts.

IMPLEMENTATION OF BASEL II IN INDIA

India had adopted Basel I guidelines in 1999. Based on the recommendations of a Steering Committee established in February 2005 for the purpose, the Reserve Bank of India had issued draft guidelines for implementing a New Capital Adequacy Framework, in line with Basel II. The RBI had initially specified that the migration to Basel II will be effective from March 31, 2007, though it expected banks to adopt only the rudimentary **Standardized Approach** for the measurement of Credit Risk and the **Basic Indicator Approach** for the assessment of Operational Risk. Over time, as risk management skills improve, some banks were to be allowed to migrate to the **Internal Ratings Based Approach** for credit risk measurement. The latter gives greater freedom to individual banks to assess their own economic capital after taking account of risks, resulting in a degree of regulatory forbearance. Regulation was to be restricted largely to the supervisory functions and disclosure norms incorporated in Pillars II and III of the Basel II guidelines.

The deadline for implementing Basel II, originally set for March 31, 2007, had been extended. Foreign banks in India and Indian banks operating abroad were to meet those norms by March 31, 2008, while all other scheduled commercial banks were supposed to adhere to the guidelines by March 31, 2009. But the decision to implement the guidelines remained unchanged. This is true even though the international exposure of even the major Indian banks is still limited. As far back as 2003, the then chairman of the State Bank of India, India's largest commercial bank had declared that his institution has committed itself to becoming a Basel-II compliant bank, even though the Reserve Bank of India had taken a view that only Indian banks that get 20 per cent of their business from abroad need to follow the Basel-II norms. At that time, SBI's international operations contributed to just about 6 percent of its business.

LITERATURE REVIEW

❁ **Roy (2003)** studied the impact of 1988 Basel accord on behavior of banks of seven G-10 countries towards capital ratios and relationship between changes in capital and risk ratios for the period of 1988-1995. Basel Accord promoted greater financial stability and provided banks with a higher capital buffer against insolvency.

❁ **Nachane, et. al (2000)** examined the impact of capital adequacy requirements on public sector banks in India for the period 1997 to 1999. The study concluded that the Capital remains a useful tool in the hands of policy makers for influencing the banks' behavior and there is no conclusive evidence to support a shift from high-risk to low-risk assets by banks. Adjustments by banks in their capital ratios are done primarily by boosting their capital rather than systematic substitution of higher risk loans.

❁ **Nag and Das (2002)** studied the impact of imposition of capital requirement norms on flow of credit to the business sector by public sector banks of India. The study concluded that in the post reform period, public sector banks did shift their portfolio in a way that reduced their capital requirements.

❁ **Reddy, et. al (2006)** suggested that banks are not only reacting to comply with the new Basel regulations, but are also making changes in their strategies to reduce their credit risk. He studied the trend of NPA of public sector banks in India and the study revealed that gross and net NPAs have gone down gradually and quality of portfolio of the PSBs has improved.

❁ **Vyas, et. al (2007)** studied the impact of Capital regulation norms like Basel II on credit growth of Indian banks. The study concluded that capital requirements regulations do not seem to affect credit growth in spite of the growing concerns about the banking stability.

❁ **Singla (2008)** studied the financial performance of banks in India in view of increasing globalization and increased competition in the banking industry. He concluded that the financial positions of banks is reasonable, debt-equity ratio is maintained at an adequate level and NPAs also witnessed a decline during the study period.

RESEARCH GAPS

Most of the researches done so far on Basel-II norms have focused primarily on explaining the three pillars of Basel-II and how the banks have changed their risk management policies over the period to have low-risk weight assets in their portfolio. If we look at the scenario in Indian banking sector, Basel II norms are quite a new introduction. Some of the

large Indian banks like SBI, PNB, ICICI etc. started adhering to Basel II norms since April 1, 2008. Other scheduled commercial banks will had to adhere to the guidelines by March 31, 2009.

Since Basel-II is in such a nascent stage in India, there is not much data available to analyze the advantages of following these norms. There is no concrete research done on evaluating positive aspects of implementing Basel-II norms in the Indian Banking Sector. Thus, there lies a big lack in data and information which can play vital role in encouraging other banks to adhere to Basel-II norms. In this research paper, the researchers have tried to show that how banks have improved their financial position by studying the trends in Capital Adequacy Ratio (CAR) and Non Performing Assets (NPAs). They used financial statements and data of various banks over the years and then tried to evaluate changes in trends of banks which have implemented Basel-II norms.

OBJECTIVES OF THE STUDY

This paper has been written with a view to evaluate the positive outcomes of implementing Basel-II norms in Indian Banking industry. The researchers have tried to evaluate the reasons for introducing Basel-II, when Basel-I norms were already in existence. They have also tried to analyze and throw light onto various pillars of Basel-II, namely - Pillar 1 (minimum capital requirements); Pillar 2 (supervisory oversight); and Pillar 3 (market discipline and disclosures).

The purpose of the paper is to provide comprehensive overview of various facets of Basel-II norms. Basel-II requires banks to access their credit, market and operational risk and to make sufficient provisioning to cover them. In this research, the researchers have tried to find out what measures have been taken by Indian banks to meet the guidelines prescribed under Basel-II and how their risk-management process has become more effective. Apart from that, some other objectives includes:

1. To provide comprehensive overview of reasons for implementing Basel-II norms in India.

2. To analyze advantages of implementing Basel-II norms in the context of the Indian banking sector by studying the trends in Capital adequacy ratio (CAR) and Non-performing Assets (NPAs) of 5 major public sector and 5 major private sector banks.

3. To find and establish relationship between CAR and NPAs.

RESEARCH METHODOLOGY

Null Hypothesis:

- **H01: By implementing Basel-II norms, Indians banks are able to improve their capital adequacy ratio and reduce their non-performing assets.**
- **H02: The improvement in CAR has a negative relationship with NPAs.**

Alternate Hypothesis:

- **H11: Basel II norms have no significant impact on CAR and NPAs.**
- **H22: The maintenance of CAR by Indian banks has a positive relationship with NPAs.**

The researchers carried out a secondary research study by referring to various publications and reports on Basel-II norms by Reserve Bank of India, ICRA, FICCI and Indian Banks Association (IBA). They evaluated financial statements of various banks like Punjab National bank, State Bank Of India, Union Bank of India, ICICI Bank, UTI Bank etc. and primarily stressed on changes in capital adequacy ratios and Non-Performing assets for respective banks. They also referred to various online publications, speeches of eminent personalities and articles of various newspapers.

ANALYSIS AND INTERPRETATION OF DATA

a) Reasons For Adopting Basel II Norms In India: One argument advanced to explain rapid adoption of the guidelines is the pressure from the Bretton Woods institutions, which function as a de facto international regulatory power monitoring the implementation of a set of best practice standards for financial institutions across the world. The World Bank and the IMF are seen as enforcing compliance with these guidelines by, *"Introducing them in the conditions that developing countries are required to meet in order to qualify for financing from these institutions or as part of the standards used in IMF Article IV surveillance*. Mechanisms have also been put in place to encourage their

introduction, govern their use and monitor compliance. The key instrument is the Report on the Observance of Standards and Codes, prepared by the IMF as a part of Article IV consultations or through Financial Sector Assessment Programmes conducted jointly by the IMF and the World Bank." **(Kregel 2006).**

The second argument in support of Basel II is financial sector reforms undertaken by government in recent years and liberalization of the structure of the domestic financial sector. There are two broad objectives that the process of financial liberalization serves: **(i)** It opens the country to new forms and larger volumes of international financial flows and; **(ii)** It transforms the structure of the financial sector and the nature and operations of financial firms in a manner that makes the financial system resemble that in countries like the US and the UK.

One factor driving such liberalization is the government's desire to attract financial flows from abroad. But liberalization has not merely resulted in a surge in portfolio investment flows into the country, but a growing presence of foreign financial institutions including foreign banks within the country. This *"success"* has warranted changes in financial policies to accommodate the needs of these players.

The second feature of financial liberalization is that it removes or dilutes controls on the entry of new financial firms, subject to their meeting pre-specified norms with regard to capital investments. Thirdly, liberalization involves a reduction in controls over the investments that can be undertaken by financial agents. This can take two forms. Financial agents could be permitted to invest in areas they were not permitted to enter earlier. Most regulated financial systems sought to keep separate the different segments of the financial sector such as banking, merchant banking, the mutual fund business and insurance. Agents in one segment were not permitted to invest in another for fear of conflicts of interest that could affect business practices adversely. Financial liberalization involves the breaking down of the regulatory walls separating these sectors, leading in the final analysis to the emergence of the so-called *"universal banks"* or financial supermarkets. The consequent ability of financial agents to straddle multiple financial activities implies that the linkages between different financial markets tend to increase, with developments in any one market affecting others to a far greater degree than they did before.

Finally, the universalization of banking and the proliferation of financial assets that liberalization involves, has transformed the traditional role of the banking system of being the principal intermediary bearing risks in the system. The way that role is transformed is captured, for example, in the following description of the bank in today's more liberalized financial system: *"There was a time when a bank would lend to a business or provide a mortgage, would take the asset and put it on their books much the way a museum would place a piece of art on the wall or under glass - to be admired and valued for its security and constant return. Times have changed. Banks now take those assets, structure them into pools, and sell securities based on those pools to institutional investors and portfolio managers. In effect, they use their balance sheets not as museums, but as parking lots - temporary holding spaces to bundle up assets and sell them to those investors who have a far greater interest in holding those assets for the long term. "* **(OECD, 2000: 8).**

Thus, liberalization triggers a shift in the role of the *"pure"* banking system as the principal bearer of financial risk to one where its focus is that of generating financial assets that transfer risks to the portfolio of institutions willing to hold them. These changes have required forms of regulation that correspond to the new environment. A central element of the new form of regulation is the shift from a regulatory framework focused on using the financial sector as an instrument for realization of growth and equity goals to one directed at ensuring financial stability. The adoption of capital adequacy standards is an important element of this feature. And since international banks are to be subject to Basel II norms, arguments of a level playing field have been used to justify similar norms for domestic banks as well.

b) Effect Of Basel II Implementation On Risk Management Effectiveness Of Banks : Risk Management is the strategic tool, which helps in identifying, quantifying, monitoring and controlling risks. Though universally relevant, it is of immense importance to a banking organization or financial institution. A banking organization has to constantly strike a risk & reward balance. A proposal, which may seem very rewarding in the short term, may wipe out the bank completely in the long run due to high risk embedded in it. Basel II is proving to be a very effective tool of Risk Management in present deregulated and liberalized economic environment.

Credit Risk is the most fundamental risk faced by a banking company. The effective management of credit risk is a critical component of a comprehensive approach to risk management and essential to the long-term success of any banking organization. In doing so, it is imperative to be able to quantify risk so that it becomes more objective to deal with it. Basel II allows national regulators to specify risk weights for quantification of risk. RBI has, therefore,

announced an indicative set of weights for domestic corporate long term loans and bonds subject to different ratings by international rating agencies like Moody's Investor Services which are slightly different from that specified by the Basel Committee (Refer to Appendix A: Table 4).

c) Lower Risk Weights : Indian banks have a large short-term portfolio in the form of cash credit, overdraft and working capital demand loans, which are currently un-rated, and carry a risk weight of 100 per cent. They also have short-term investments in commercial papers in their investment portfolio, which also currently carry a 100 per cent risk weight. But the implementation of Basel II implies lower risk weights and hence, less requirement of capital against the loans. The RBI's draft capital adequacy guidelines provide for lower risk weights for short-tem exposures, if these are rated (Appendix A :Table 5). This would allow banks to benefit from their investments in commercial paper (which are typically rated in A1+/A1 category) and give them the potential to exploit the proposed short-term credit risk weights by obtaining short-term ratings for exposures in the form of cash credit, overdraft and working capital loans.

The net result is that the implementation of Basel II does provide Indian banks the opportunity to significantly reduce their credit risk weights and reduce their required regulatory capital, if they suitably adjust their portfolio by lending to rated but strong corporates, increase their retail lending and provide mortgage under loans with higher margins. This would, of course, change the proportion of lending in their portfolio and the direction of their lending. But, even if they do not resort to that change, ICRA estimates that the implementation of Basel II would result in marginally lower credit risk weights and a marginal release in regulatory capital needed for credit risk.

d) Improvement In Capital Adequacy Ratio (CAR) : Most of the Indian banks have improved on their capital adequacy ratio in line with the Basel II norms. The financial health of Indian banking system has improved significantly in terms of capital adequacy ratio (CAR) during the third quarter of the fiscal 2007-08. In comparison to the mandated limit of 9 per cent CAR posed by the Basel II, the average capital adequacy ratio of commercial banks went upto 13 per cent in FY 08 from 12 per cent in the previous year as shown in the Table 1 given below:

Table 1: Capital Adequacy Ratio of Public Sector Banks in India

								(In Percent)	
Banks	**2000-01**	**2001-02**	**2002-03**	**2003-04**	**2004-05**	**2005-06**	**2006-07**	**2007-08**	**2008-09 H1**
State Bank of India	12.79	13.35	13.5	13.53	12.45	11.88	12.34	12.64	12.14
Punjab National Bank	10.24	10.7	12.02	13.1	14.78	11.95	12.29	12.96	13.64
Union Bank of India	10.86	11.07	12.41	12.32	12.09	11.41	12.8	12.51	12.53
Canara Bank	9.84	11.88	12.5	12.66	12.78	11.22	13.5	13.25	13.21
Oriental Bank of Commerce	11.81	10.99	14.04	14.47	9.21	11.04	12.51	12.12	~
Capital Adequacy Ratio of Private Sector Banks in India									
								(In Percent)	
Banks	**2000-01**	**2001-02**	**2002-03**	**2003-04**	**2004-05**	**2005-06**	**2006-07**	**2007-08**	**2008-09 H1**
ICICI Bank Ltd.	11.57	11.44	11.1	10.36	11.78	13.35	11.69	13.97	14.01
HDFC Bank Ltd.	11.09	13.93	11.12	11.66	12.16	11.41	13.08	13.60	11.4
Axis Bank	9	10.65	10.9	11.21	12.66	11.08	11.57	13.73	12.2
ING Vysya Bank Ltd.	12.05	11.57	9.81	11.05	9.09	10.67	10.56	10.20	~
Jammu & Kashmir Bank Ltd.	17.44	15.46	16.48	16.88	15.15	13.52	13.24	12.80	12.44

Source: Report on Trends and Progress of Banking in India, various issues, RBI and Press releases of banks for the first half of 2008-09 ending Sept. 30, 2008.

❁ The Experience With Reducing NPAs : In the recent past, banks have been able to reduce their provisioning needs by adjusting their non-performing assets. The process of restructuring capital began with the reform of the financial sector triggered by the report of the Narasimham Committee, which formulated a new definition of NPAs that was in conformity with the international practice (Refer to Appendix B for definition of NPAs). Data relating to NPAs of 5 public sector banks and 5 private sector banks between 2000-01 and first half of 2008-09 are presented in Table 2. It

shows that the proportion of total NPAs to total advances declined from 2006-07 to 2008-09 for most of the banks. **(Null Hypothesis H01 Accepted)**.

Table 2 : NPAs of Public Sector Banks in India

								(In Percent)	
Banks	**2000-01**	**2001-02**	**2002-03**	**2003-04**	**2004-05**	**2005-06**	**2006-07**	**2007-08**	**2008-09 H1**
State Bank of India	6.03	5.63	4.5	3.48	2.65	1.88	1.56	1.78	1.34
Punjab National Bank	6.69	5.32	3.86	0.98	0.20	0.29	0.76	0.64	0.42
Union Bank of India	6.87	6.26	4.91	2.87	2.64	1.56	0.96	0.17	0.14
Canara Bank	4.84	3.89	3.59	2.89	1.88	1.12	0.94	0.84	0.89
Oriental Bank of Commerce	3.6	3.2	1.4	0.00	1.29	0.49	0.49	0.99	0.86
NPAs of Private Sector Banks in India									
								(In Percent)	
Banks	**2000-01**	**2001-02**	**2002-03**	**2003-04**	**2004-05**	**2005-06**	**2006-07**	**2007-08**	**2008-09 H1**
ICICI Bank Ltd.	2.19	5.48	5.21	2.21	1.65	0.72	1.02	1.55	1.4
HDFC Bank Ltd.	0.45	0.5	0.37	0.16	0.24	0.44	0.43	0.47	0.46
Axis Bank	3.43	2.74	1.35	1.29	1.39	0.98	0.72	0.42	0.43
ING Vysya Bank Ltd.	4.77	4.59	3.55	2.60	2.13	0.95	0.70	0.79	~
Jammu & Kashmir Bank Ltd.	2.45	1.88	1.58	1.48	1.41	0.92	1.13	1.07	0.96

Source: Report on Trends and Progress of Banking in India, various issues, RBI and Press releases of banks for the first half of 2008-09 ending Sept. 30, 2008.

Table 3: Correlation between CAR and NPAs

Correlation Table	
Bank	**Correlation Coefficient**
State Bank of India	0.933
Punjab National Bank	-0.818
Union Bank of India	-0.703
Canara Bank	-0.645
Oriental Bank of Commerce	-0.324
ICICI Bank Ltd.	-0.471
HDFC Bank Ltd.	0.404
Axis Bank	-0.8
ING Vysya Bank Ltd.	0.519
Jammu & Kashmir Bank Ltd.	-0.819

The correlation coefficient comes to be negative for most of the banks, which implies that there exists a negative relationship between CAR and NPAs **(Null hypothesis H02 accepted)**. If one increases, other decreases due to the increase in the provisioning of NPAs and this amount comes from the profit of banks. This squeezing of profit for making provisions reduces the bank capital. Therefore, many banks have gone for IPOs to increase their capital base for meeting Basel II guidelines. All this implies that implementing Basel II requires additional capital, despite the large amounts infused in the past to restructure NPAs.

❁**Impact On Various Entities In Financial Markets :** Apart from banks and regulators, who are directly affected by Basel II, customers, rating agencies, capital markets and other financial companies (outside the scope of Basel II) will also be affected. Banks will have to implement an enterprise-wide risk management framework, which will entail establishing relevant processes and gathering, integrating and analyzing large amount of data. Using quantitative methods to manage risk - and to deploy capital based on risks - requires high quality and high frequency data.

❁Customers will find that they have to cope with increased demands for timely information from banks that are on IRB approaches. Risk-based pricing of credit products will become the norm as banks begin differentiating customers as per their risk profiles. Riskier borrowers are likely to find their borrowing costs going up and/or credit lines tightened up.

❁Rating agencies may face more competition as the market for them will expand and deepen, which will be a driver for them to be more transparent in their rating process.

❁Good quality rated corporates will prefer capital markets to banks for their funding. Securitisation and credit derivatives will increasingly be used as credit risk hedging tools.

❁Basel II is also likely to impact financial institutions that do not have to comply with it. Non-banking corporations such as credit card companies, leasing companies, auto manufacturers and financiers, or retailers' financing arms may not have to fulfill the potentially extensive disclosure requirements prescribed by Basel II nor make investments in managing operational risk, which will put them at a competitive advantage vis-à-vis banks.

CONCLUSION

The empirical and qualitative evidence suggests that Basel II regulations have led to significant improvement in the risk structure of banks as their capital adequacy has improved. The NPAs for both Public sector as well as private sector banks have declined. Also, there exists a negative relationship between CAR and NPAs, which clearly indicates that due to capital regulation, banks have to increase their CAR and increase in CAR is leading to decrease in NPAs.

RECOMMENDATIONS

The new norms seem to favor the large banks that have better risk management and measurement expertise, who also have better capital adequacy ratios and geographically diversified portfolios. The smaller banks are also likely to be hurt by the rise in weightage of inter-bank loans that will effectively price them out of the market. Thus, smaller banks will have to re-structure and adopt if they are to survive in the new environment.

Since improved risk management and measurement is needed, more and more banks may have to use internal model developed in house and their impact is uncertain. Most of these models require minimum historical bank data that is a tedious and high cost process, as most Indian banks do not have such a database.

The technology infrastructure in terms of computerization is still in a nascent stage in most Indian banks. Computerization of branches, especially for those banks, which have their network spread out in far-flung areas, will be a daunting task. Implementation of the Basel II will require huge investments in information technology.

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APPENDICES

APPENDIX A

Table 1 : RBI Recommendations For Risk Weights

Moody's Ratings	ICRA	Risk weights(%)
Aaa to Aa	LAAA	20
A	LAA	50
Baa to Ba	LA	100
B	LBBB and below	150
Unrated	Unrated	100

Source ICRA(2005)

Table 2 : Recommended Risk Weights For Short Term Assets

ICRA's short-term ratings	Risk weights(%)
A1+/A1	20
A2+/A2	50
A3+/A3	100
A4+/A4	150
A5	150
Unrated	100

Source ICRA(2005)

APPENDIX B

❁ **NPA :** Narasimham Committee, formulated a new definition of NPAs that was in conformity with the international practice. In line with the Committee's recommendations, the RBI advised banks in 1991-92 to classify their advances into four groups such as **(i)** standard assets; **(ii)** sub-standard assets; **(iii)** doubtful assets; and **(iv)** loss assets, and indicated that the advances classified under the last three groups were to be considered as NPAs.

As per the existing RBI guidelines, a NPA is defined as a loan or an advance where:

i) Interest and/ or installment of principal remains overdue for more than 90 days in respect of a term loan. Any amount due to the bank under any credit facility is *'overdue'* if it is not paid on the due date fixed by the bank;

ii) The account remains *'out of order'* in respect of an overdraft/ cash credit (OD/CC) facility continuously for 90 days. An account is treated as *'out of order'* if:

a) The outstanding balance remains continuously in excess of the sanctioned limit/drawing power, or

b) Where the outstanding balance in the principal operating account is less than the sanctioned limit/drawing power, but there are no credits continuously for 90 days as on the date of the balance sheet ,or

c) Credits in the account are not enough to cover the interest debited during the accounting period

d) Drawings have been permitted in the account for a continuous period of 90 days based on drawing power computed on the basis of stock statements that are more than three months old even though the unit may be working or the borrower's financial position is satisfactory.

e) The regular/ad hoc credit limits have not been reviewed/ renewed within 180 days from the due date/ date of ad hoc sanction.

iii) A bill purchased/discounted by the Bank remains overdue for a period of more than 90 days.

iv) Interest and/or installment of principal in respect of an agricultural loan remains overdue for two crop seasons for short duration crops and one crop season for long duration crops.

APPENDIX C

❁ **SPSS Output For Correlation**

Table 3: Correlations

		SBICRAR	SBINPA
SBICRAR	Pearson Correlation	1	.933(**)
	Sig. (2-tailed)		.001
	N	8	8
SBINPA	Pearson Correlation	.933(**)	1
	Sig. (2-tailed)	.001	
	N	8	8

** Correlation is significant at the 0.01 level (2-tailed).

Table 4: Correlations

		PNBCRAR	PNBNPA
PNBCRAR	Pearson Correlation	1	-.818(*)
	Sig. (2-tailed)		.013
	N	8	8
PNBNPA	Pearson Correlation	-.818(*)	1
	Sig. (2-tailed)	.013	
	N	8	8

* Correlation is significant at the 0.05 level (2-tailed).

Table 5: Correlations

		UBICRAR	UBINPA
UBICRAR	Pearson Correlation	1	-.703
	Sig. (2-tailed)		.052
	N	8	8
UBINPA	Pearson Correlation	-.703	1
	Sig. (2-tailed)	.052	
	N	8	8

Table 6: Correlations

		CANARACRAR	CANARANPA
CANARACRAR	Pearson Correlation	1	-.645
	Sig. (2-tailed)		.084
	N	8	8
CANARANPA	Pearson Correlation	-.645	1
	Sig. (2-tailed)	.084	
	N	8	8

Table 7: Correlations

		OBCCRAR	OBCNPA
OBCCRAR	Pearson Correlation	1	-.324
	Sig. (2-tailed)		.433
	N	8	8
OBCNPA	Pearson Correlation	-.324	1
	Sig. (2-tailed)	.433	
	N	8	8

Table 8: Correlations

		CICICRAR	ICICINPA
ICICICRAR	Pearson Correlation	1	-.471
	Sig. (2-tailed)		.239
	N	8	8
ICICINPA	Pearson Correlation	-.471	1
	Sig. (2-tailed)	.239	
	N	8	8

Table 9: Correlations

		HDFCCRAR	HDFCNPA
HDFCCRAR	Pearson Correlation	1	.404
	Sig. (2-tailed)		.321
	N	8	8
HDFCNPA	Pearson Correlation	.404	1
	Sig. (2-tailed)	.321	
	N	8	8

Table 10: Correlations

		AXISCRAR	AXISNPA
AXISCRAR	Pearson Correlation	1	-.800(*)
	Sig. (2-tailed)		.017
	N	8	8
AXISNPA	Pearson Correlation	-.800(*)	1
	Sig. (2-tailed)	.017	
	N	8	8

* Correlation is significant at the 0.05 level (2-tailed).

Table 11: Correlations

		INGCRAR	INGNPA
INGCRAR	Pearson Correlation	1	.519
	Sig. (2-tailed)		.187
	N	8	8
INGNPA	Pearson Correlation	.519	1
	Sig. (2-tailed)	.187	
	N	8	8

Table 12: Correlations

		JKBCRAR	JKBNPA
JKBCRAR	Pearson Correlation	1	-.819(*)
	Sig. (2-tailed)		.013
	N	8	8
JKBNPA	Pearson Correlation	-.819(*)	1
	Sig. (2-tailed)	.013	
	N	8	8

* Correlation is significant at the 0.05 level (2-tailed).