

A STUDY TO MEASURE IMPACT OF GDP & INFLATION ON CREDIT RISK RATIOS OF AXIS BANK

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ABSTRACT -

Indian banking sector has expanded in an exponential manner in the past decade offering a wide range of services to rural, urban and metropolitan areas of the country. The banking sector reform initiated by the Reserve Bank of India has created a competitive environment for both public and private sector banks and are therefore vigorously expanding their customer base to offer various services. In light of the recent global financial crisis, risk measurement and management in the Indian banking sector is gaining importance. Credit risk is the core of all banking activities to both private and public sector banks. Our study illustrates how certain key credit risk ratios can be used to measure the credit risk in the banking sector through analysis of AXIS Bank. The current study is undertaken to analyze the various credit risk related ratios for Axis Bank and correlate those ratios with key macroeconomic indicators like inflation and GDP from 2001-2011.

Key words – Credit Risk, Ratios, Axis Bank, Inflation, GDP.

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INTRODUCTION –

While financial institutions have faced difficulties over the years for a multitude of reasons, the major cause of serious banking problems continues to be directly related to lax credit standards for borrowers and counterparties, poor portfolio risk management, or a lack of attention to changes in economic or other circumstances that can lead to a deterioration in the credit standing of a bank's counterparties. This experience is common in both G-10 and non-G-10 countries. Credit risk is most simply defined as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms. The goal of credit risk management is to maximize a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters. Banks need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions. Banks should also consider the relationships between credit risk and other risks. 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. Axis being the major player of Private Sector, its evaluation in terms of GDP and Inflation can provide insights for further research in banking Industry to monitor asset quality.

LITERATURE REVIEW -

Types of Credit Risk Ratios for banks -There are various types of credit risk ratios available but our study focuses on -

- (i.) Total Loan to Total Assets Ratio
- (ii.) Non Performing Assets to Total Loan Ratio
- (iii.) Total Loan to Total Deposit Ratio
- (iv.) Total Assets to GDP Ratio
- (v.) Total Equity to Total Assets Ratio
- (vi.) Total Loan to Total Equity Ratio.

Understanding of these ratios -

- (i.) **Total Loan to Total Assets Ratio:**

The total Loan to Total Assets Ratio is the ratio that represents the financial position of the company and the company's ability to meet all its financial requirements. It shows the percentage of a company's assets that are financed with loans and other financial obligations that last over a year. As this ratio is calculated yearly, decrease in the ratio would denote that the company is faring well, and is less dependent on debts for their business needs.

Formula: Total Loan / Total Assets

(ii.) Non Performing Assets to Total Loan Ratio:

The net NPA to loans (advances) ratio is used as a measure of the overall quality of the bank's loan book. An NPA are those assets for which interest is overdue for more than 90 days (or 3 months). Net NPAs are calculated by reducing cumulative balance of provisions outstanding at a period end from gross NPAs. Higher ratio reflects rising bad quality of loans.

The NPA ratio is one of the most important ratios in the banking sector. It helps identify the quality of assets that a bank possesses. If we look at the chart below, we can clearly see a differentiation between India's largest banks.

Formula: Non Performing Assets / Total Loan

(iii.) Total Loan to Total Deposit Ratio:

A commonly used statistic for assessing a bank's liquidity by dividing the banks total loans by its total deposits. This number, also known as the LTD ratio, is expressed as a percentage. If the ratio is too high, it means that banks might not have enough liquidity to cover any unforeseen fund requirements; if the ratio is too low, banks may not be earning as much as they could be. Forming part of the Liquidity ratios of a bank, this ratio is often used by policy makers to determine the lending practices of financial institutions. The higher the Loan-to-deposit ratio, the more the bank is relying on borrowed funds. Total deposits cover customer deposits, central bank deposits, banks and other credit institution deposits and other deposits.

Formula: Total Loan / Total Deposit

(iv.) Total Assets to GDP Ratio:

This ratio measures the contribution of total assets towards gross domestic product of the country. It is a measure of the performance of the bank at a particular level of activity of the economy.

Formula: Total Assets / GDP

(v.) Total Equity to Total Assets Ratio:

The equity to assets ratio indicates the finance and profitability of the company.

It shows what proportion of total assets is financed by equity, and hence what proportion is financed by loans and non-equity shares. A low equity to assets ratio means much of the business is financed by loans, or non-equity shares, whereas a high equity to assets ratio means that most or all of the long-term capital is equity. Under the same conditions, the more higher, the better, it shows the good finance and profitability.

Formula: Total Equity / Total Assets

(vi.) Total Loan to Total Equity Ratio

The debt to equity ratio measures how much money a company should safely be able to borrow over long periods of time. It does this by comparing the company's total debt (including short term and long term obligations) and dividing it by the amount of shareholder. (We haven't covered shareholder equity yet, but we will later. For now, you only need to know that the number can be found at the bottom of the balance sheet. You'll actually calculate the debt to equity ratio in segment two when we look at real balance sheets.

The result you get after dividing debt by equity is the percentage of the company that is indebted (or "leveraged"). The normal level of debt to equity has changed over time, and depends on both economic factors and society's general feeling towards credit. Generally, any company that has a debt to equity ratio of over 40% to 50% should be looked at more carefully to make sure there are no liquidity problems. If you find the company's working capital, and current ratio / quick ratios drastically low, this is a sign of serious financial weakness.

Formula: Total Loan / Total Equity

Objectives:-

- (i.) To analyze the credit risk capacity based on the level of activity by the bank.
- (ii.) To study the impact of Macroeconomic Indicators.

- (iii.) To identify the financial strengths and weakness of the bank so as to suggest improvement for the future.

Methodology:-These ratios for AXIS bank are calculated for each year and used as sample and the statistical analysis was carried out by using Microsoft Office Excel and manually and are tabulated by group.

Research Hypothesis:

(1) **TL/TA:- Inflation:**Ho: There is no significant relation between TL/TA & Inflation

HI: There is significant relation between TL/TA & Inflation

GDP: Ho: There is no significant relation between TL/TA & GDP

HI: There is significant relation between TL/TA & GDP

(2)**NPA/TL:-Inflation:**Ho: There is no significant relation between NPA/TL & Inflation

HI: There is significant relation between NPA/TL & Inflation

GDP: Ho: There is no significant relation between NPA/TL & GDP

HI: There is significant relation between NPA/TL & GDP

(3) **TL/TD:-Inflation:**Ho: There is no significant relation between TL/TD & Inflation

HI: There is significant relation between TL/TD & Inflation

GDP:Ho: There is no significant relation between TL/TD & GDP

HI: There is significant relation between TL/TD & GDP

(4) **TA/GDP:-Inflation:** Ho: There is no significant relation between TA/GDP & Inflation

HI: There is significant relation between TA/GDP & Inflation

GDP: Ho: There is no significant relation between TA/GDP & GDP

HI: There is significant relation between TA/GDP & GDP

(5) **TE/TA:-Inflation:**Ho: There is no significant relation between TE/TA & Inflation

HI: There is significant relation between TE/TA & Inflation

GDP: Ho: There is no significant relation between TE/TA & GDP

HI: There is significant relation between TE/TA & GDP

(6) **TL/TE:-Inflation:**Ho: There is no significant relation between TL/TE & Inflation

HI: There is significant relation between TL/TE & Inflation

GDP:Ho: There is no significant relation between TL/TE & GDP

HI: There is significant relation between TL/TE & GDP

Data Analysis, Tabulation & Results:-

The amount of Particulars (TL, TA, NPA, TD, TE, IR, and GDP) shown in the table – D below are collected from annual reports of AXIS Bank:

No of Years	Particulars						
	Total Loans	Total Assets	Non Performing Assets	Total Deposits	Total Equity	Inflation Rate	GDP Rate
2001	4,821.115	10,765.893	181.400	9,092.196	301.454	5.157%	3.90%
2002	5,352.300	14,374.510	185.420	12,287.210	614.760	3.198%	4.60%
2003	7,179.920	19,613.180	190.000	16,964.720	918.110	3.719%	6.90%
2004	9,362.945	24,150.167	112.210	20,953.903	1,136.421	3.785%	8.10%
2005	15,602.922	37,743.691	216.850	31,712.000	2,408.185	5.566%	9.20%
2006	22,314.230	49,731.117	219.830	40,113.531	2,872.186	6.528%	9.70%
2007	36,876.461	73,255.978	266.330	58,785.023	3,388.448	5.512%	9.90%
2008	59,475.989	109,566.381	248.290	87,619.345	8,751.836	9.701%	6.40%
2009	81,556.766	147,722.049	327.130	117,374.105	10,213.589	14.966%	6.80%
2010	104,343.119	180,647.852	419.000	141,300.218	16,044.449	9.468%	10.40%
2011	142,407.829	242,713.372	410.350	189,237.801	18,998.826	6.486%	8.20%

Table:- D

The data for AXIS Bank for 11 year are as under:

No of Years	Credit Risk Ratios					
	TL/TA	NPA/TL	TL/TD	TA/GDP	TE/TA	TL/TE
2001	0.4478	0.0376	0.5302	276048.54	0.0280	15.9929
2002	0.3723	0.0346	0.4356	312489.35	0.0428	8.7063
2003	0.3661	0.0265	0.4232	284248.99	0.0468	7.8203
2004	0.3877	0.0120	0.4468	298150.21	0.0471	8.2390
2005	0.4134	0.0139	0.4920	410257.51	0.0638	6.4791
2006	0.4487	0.0099	0.5563	512691.92	0.0578	7.7691
2007	0.5034	0.0072	0.6273	739959.38	0.0463	10.8830
2008	0.5428	0.0042	0.6788	1711974.70	0.0799	6.7958
2009	0.5521	0.0040	0.6948	2172383.07	0.0691	7.9851
2010	0.5776	0.0040	0.7384	1736998.58	0.0888	6.5034
2011	0.5867	0.0029	0.7525	2959919.17	0.0783	7.4956

Table:- E

Correlation between Credit Risk Ratios and Key Economic Indicators of AXIS Bank:

Credit Risk Ratios		Inflation	GDP
TL/TA	Pearson Correlation	0.736	0.316
	Sig. (1 tailed)	3.261	0.993
	N	11	11
NPA/TL	Pearson Correlation	-0.609	-0.726
	Sig. (1 tailed)	-2.303	-3.167
	N	11	11
TL/TD	Pearson Correlation	0.730	0.344
	Sig. (1 tailed)	3.204	1.099
	N	11	11
TA/GDP	Pearson Correlation	0.680	0.186
	Sig. (1 tailed)	2.783	0.568
	N	11	11
TE/TA	Pearson Correlation	0.634	0.508
	Sig. (1 tailed)	2.459	1.769
	N	11	11
TL/TE	Pearson Correlation	-0.260	-0.529
	Sig. (1 tailed)	11	11
	N	-0.808	-1.870

Table:- F

Correlation is significant at the 0.05 level (1-tailed)

Degree of Freedom (V) = (N – 2) = (11 – 2) = 9

Critical Value = 1.833

(1) Total Loan to Total Assets Ratio:-

Inflation:

Ho: There is no significant relation between TL/TA & Inflation

HI: There is significant relation between TL/TA & Inflation

Calculated Value = 3.261

Critical Value = 1.833

Findings:- According to this ratio calculated value is greater than the critical value so, Null Hypothesis is rejected and Alternate Hypothesis is accepted. It means that there is correlation between Total Loan to Total Assets Ratio.

GDP:

Ho: There is no significant relation between TL/TA & GDP

HI: There is significant relation between TL/TA & GDP

Calculated Value = 0.993

Critical Value = 1.833

Findings:- According to this ratio calculated value is less than the critical value so, Null Hypothesis is accepted and Alternate Hypothesis is rejected. It means that there is no correlation between Total Loan to Total Assets Ratio and GDP.

(2) Non Performing Assets to Total Loan Ratio:-

Inflation:

Ho: There is no significant relation between NPA/TL & Inflation

HI: There is significant relation between NPA/TL & Inflation

Calculated Value = (-2.303)

Critical Value = 1.833

Findings:-According to this ratio calculated value is less than the critical value so, Null Hypothesis is accepted and Alternate Hypothesis is rejected. It means that there is no correlation between Non Performing Assets to Total Loan Ratio and Inflation.

GDP:

Ho: There is no significant relation between NPA/TL & GDP

HI: There is significant relation between NPA/TL & GDP

Calculated value = (-3.167)

Critical Value = 1.833

Findings:-According to this ratio calculated value is less than the critical value so, Null Hypothesis is accepted and Alternate Hypothesis is rejected. It means that there is no correlation between Non Performing Assets to Total Loan Ratio and GDP.

(3) Total Loan to Total Deposit Ratio:-

Inflation:

Ho: There is no significant relation between TL/TD & Inflation

HI: There is significant relation between TL/TD & Inflation

Calculated Value =3.204

Critical Value = 1.833

Findings:-According to this ratio calculated value is greater than the critical value so, Null Hypothesis is rejected and Alternate Hypothesis is accepted. It means that there is correlation between Total Loan to Total Deposit Ratio and Inflation.

GDP:

Ho: There is no significant relation between TL/TD & GDP

HI: There is significant relation between TL/TD & GDP

Calculated Value = 1.099

Critical Value = 1.833

Findings:-According to this ratio calculated value is less than the critical value so, Null Hypothesis is accepted and Alternate Hypothesis is rejected. It means that there is no correlation between Total Loan to Total Deposit Ratio and GDP.

(4) TA/GDP:-

Inflation:

Ho: There is no significant relation between TA/GDP & Inflation

HI: There is significant relation between TA/GDP & Inflation

Calculated Value = 2.783

Critical Value = 1.833

Findings:-According to this ratio calculated value is greater than the critical value so, Null Hypothesis is rejected and Alternate Hypothesis is Accepted. It means that there is correlation between Total Assets to GDP Ratio and Inflation.

GDP:

Ho: There is no significant relation between TA/GDP & GDP

HI: There is significant relation between TA/GDP & GDP

Calculated Value = 0.568

Critical Value = 1.833

Findings:-According to this ratio calculated value is less than the critical value so, Null Hypothesis is accepted and Alternate Hypothesis is rejected. It means that there is no correlation between Total Assets to GDP Ratio and GDP

(5) Total Equity to Total Assets Ratio:-

Inflation:

Ho: There is no significant relation between TE/TA & Inflation

HI: There is significant relation between TE/TA & Inflation

Calculated Value =2.459

Critical Value = 1.833

Findings:-According to this ratio calculated value is greater than the critical value so, Null Hypothesis is rejected and Alternate Hypothesis is accepted. It means that there is correlation between Total Equity to Total Assets Ratio and Inflation.

GDP:

Ho: There is no significant relation between TE/TA & GDP

HI: There is significant relation between TE/TA & GDP

Calculated Value =1.769

Critical Value = 1.833

Findings:-According to this ratio calculated value is less than the critical value so, Null Hypothesis is accepted and Alternate Hypothesis is rejected. It means that there is no correlation between Total Equity to Total Assets Ratio and GDP.

(6) Total Loan to Total Equity Ratio:-

Inflation:

Ho: There is no significant relation between TL/TE & Inflation

HI: There is significant relation between TL/TE & Inflation

Calculated Value =(-0.8079)

Critical Value = 1.833

Findings:-According to this ratio calculated value is less than the critical value so, Null Hypothesis is accepted and Alternate Hypothesis is rejected. It means that there is no correlation between Total Loan to Total Equity Ratio and Inflation.

GDP:

Ho: There is no significant relation between TL/TE & GDP

HI: There is significant relation between TL/TE & GDP

Calculated Value =(-1.870)

Critical Value = 1.833

Findings:-According to this ratio calculated value is less than the critical value so, Null Hypothesis is accepted and Alternate Hypothesis is rejected. It means that there is no correlation between Total Loan to Total Equity Ratio and GDP.

CONCLUSION -

From the study it can be concluded that the bank has been able to maintain its level of activity in terms of borrowing, increasing deposits and lending as depicted through various ratios. Further with the level of inflation it could mitigate risk by changing its composition of deposits, loans, assets etc.

With the level of GDP it was successful in making its own contribution that too during non sleek economic period.

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