Analysis of Financial Statements for Prediction of Financial Soundness of the Banks

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Abstract:
For the banking system of any economic to achieve these injective it muse stable and sound but in stability is what your baking system is own for this banks could no longer service. Performance evaluation aiming of determine potential of failure of an organization is desirable to avoid the in numerable consequences of liquidation ranging from loss of deposit by depositors loss of job by employees, loss of revenue by government to lose confidence in the system and eventual retardation of the country's economy But banking crises a sub set financial crises has become global and common phone mean in U.S.A. 2008 -09 American banks were faced problem with the liquidity and recovery of loan . In Indian banking sector plays very vital role of Indian economic in financial sectors but this study can predict health of bank when banking sector will safer from financial crises at that time we will use this model for predict bank financial situation and we can take steps for bank in short . We can say (EWS) early warning system, it is very important in Indian economic to save financial institute like bank. Current privatization effort of India government also require a sound banking system this process of development may be interrupted by failure in banking sector.

Keywords: *Financial statement, Banking*

1. Introduction

The Indian banking can be broadly categorized into nationalized (government owned) private and specialized banking institutions. The reserve bank of India act as centralized body is monitoring and discrepancies and shortcoming in the system since the nationalization of bank in 1969, the public sectors banks or the nationalized banks have acquired a place of prominence and has since then seen tremendous progress. The need to become highly customer focused has focused the slow – moving public sector banks to adopt a fast track approach conservative banking practices allowed Indian bank to be insulated partially from the Asian countries. The central banking inquiry committee (1929) the following major causes of bank failures in India.

- Insufficient paid – up capital and reserves.
- Poor liquidity of assets.
- Combination non-banking activities with banking irrational.
- Favoritism by directors and their used interest.
- Mismanagement.
- Corrupt management
- Creation of long – term loans on basis of short – term deposits.
- Indulgence in speculative investments.
- Lack of co-ordination among joint stock banks.
- Absence of a central bank pro overall supervision and control.
- Lack of suitable banking legislation for regulation of banks.

2. Scope of the Study

The whole study is intended to help in knowing as to whether the SCBS are performing well and whether there are specific variable indicator leading to banks performance. It is intended study the overall performance so India SCBS as reflected during a period of 1995- 96 to 2006-07. The whole study is intended to help in knowing as to whether the SCBS are healthy or weak.

The study financial statement for prediction financial soundness of a bank, Indian schedules commercial bank. The study is primarily based on the secondary data relating to the different accounting variable as indicators of so Indian schedules commercial banks . This is the reason why performance can be evaluated with the help of such secondary data as reflected in the annual published account of scheduled commercial bank during the period of the study it is essentially an accounting evaluation only.

3. Objectives of the Study

1. To identify different accounting variables as indicators of bank's health.
2. To examine interrelationship among these variables.
3. To develop multivariable discriminate analysis model for predication of health of a bank.
4. To develop a statistical model for computer software predication model.

4. Meaning of Multivariate Analysis

Multivariate Analysis is statistical procedure for analysis of data involving more than one type of measurement or observation it may also mean than one dependent where more than one dependent variable is analyzed simultaneously with other variable Multivariate is a generic term for any statistical techniques used to analysis data from more than one variable MVA is the study of variability and its source. Variability may be defined as wanted or un wanted a model is a summary of yours best knowledge of system a the time of investigation you can use good model to predict future event with confidence you can validate a good model to show that it is fit for its interred purposed. A multivariate Analysis is capable of showing the influence that both type of variability can have system so that it can be better. Understood or improvement can be made Any of number of statistical techniques used in operational research to examine the characteristics and relationship between multivariate analysis techniques includes cluster analysis, Discriminates analysis ,and multiple regression Analysis. Many statistical techniques focus on just one or two variables. Multivariate analysis techniques allow more than two variable to be analyzed at once multiple regression is not typically included under this heading but can be thought of as a multivariate Analysis. Multivariate statistical method or simply multivariate method are statistical method for the simultaneous analysis of data on several variable suppose that correlations in our Analysis maker the analysis more accurate and more meaningful Recall that regression analysis and correlation analysis are method involving several variables

5. Factor analysis Method

Principal factor analysis principal factor analysis is essentially equivalent to a principal components analysis abstained by replacing the observed diagonal elements of s with estimated commerciality each at these estimated will give higher communality value when xi highly correlated with other variable which is what is required next principal components analysis is performed on s and the first in components used to provide estimates of the loading in the K – factor model revised estimates of specific variance are found from and principal factor.

6. Factor Analysis

In this research this method is applied and used as a statistical method. In many real- life application the number of Independent variables used in predicting a response variable will too many. The difficulties in having too many independent variables in such exercise are as.

Increased computational time.
Increased time in data collection
Too much expenditure in data collection

These can be avoided using factor analysis aim at grouping the original input variables into factor which underlie the input variable. Each factor will account for one or more input variable. Theoretically the total number at factors analysis is equal to the total number of input variable but after performing factor analysis the total number factor in the study can be reduced by dropping the insignificant factor bused on certain criterion.

7. Centroid method

This method maximized the sum of absolute loading of each factor in this method the Co- efficient of the term in the linear composite at each factor will be either + l or - 1 This method is less cumbersome when compared to other method. Steps at this method are explained below

8. Regression Analysis

Regression analysis gives information on the relationship between a response (dependent) variable and one or more (predictor) independent variables to the extent that information is contained in the data. The goal of regression analysis is to express the response variable as a function of the predictor variables. The duality of fit and the accuracy of conclusion depend on the data used. Hence non-representative or improperly compiled data result in poor fits and conclusions. Thus, for effective use of regression analysis one must investigate the data collection process, discover any limitations in data collected, and restrict conclusions accordingly Once a regression analysis relationship is obtained, it can be used to predict values of the response variable, identify variables that most affect the response, or verify hypothesized causal models of the response. The value of each predictor variable can be accessed through statistical tests on the estimated coefficients (multipliers) of the predictor variables. An example of a regression model is the linear regression model which is a linear relationship between response variable, *y* and the predictor variable, of the f Linear as used in linear regression refers to the form of occurrence of the unknown parameters, simple linear multipliers of the predictor variable.

9. Meaning of Regression Analysis

A statistical technique used to explain or predict the behavior of a dependent variable. Generally, a regression equation takes the form of Y=a+bx+c, where Y is the dependent variable that the equation tries to predict, X is the independent variable that is being used to predict Y, a is the Y-intercept of the line, and c is a value called the regression residual. The values of a and b are selected so that the square of the regression residuals is minimized. Regression analysis is a statistical technique to analyze quantitative data to estimate model parameters and make forecast .

10. Uses of Regression Analysis

Three uses for regression analysis are for

1. Prediction
2. Model specification and
3. Parameter estimation.

Regression analysis equations are designed only to make predictions. Good predictions will not be possible if the model is not correctly specified and accuracy of the parameter not ensured. However, accurate prediction and model specification require that all relevant variables be accounted for in the data and the prediction equation be defined in the correct functional form for all predictor variables. Parameter estimation is the most difficult to perform because not only is the model required to be

correctly specified, the prediction must also be accurate and the data should allow for good estimation. For example, multicolinearity creates a problem and requires that some estimators may not be used. Thus, limitations of data and inability to measure all predictor variables relevant in a study restrict the use of prediction equations.

11. Definition of linear Regression

Linear Regression Calculator is an online statistics tool for data analysis programmed to calculate the relationship between two variables by fitting a linear equation to observed data. One enters data points into the calculator and the calculator keeps track of the sums and performs the necessary calculations for linear regression.

12. Hypotheses testing Method

Ho: Ratio of the banks from healthy group equals that of bank from weak group.
H1: Ratio of the banks from healthy group do not equals that of bank from weak group.

13. What an Independent t-Test Does

The independent t-test is an inferential test designed to tell us whether we should accept or reject our null hypothesis. You have learned that any two samples from the same population are unlikely to have the same mean. If you carry out an experiment or collect data from two samples because you expect to see a difference between them, you have a problem because there will almost always be some difference due to sampling! It is vital to know whether the difference between the means of your two samples is due to the effect of sampling or to a true difference between the populations they were sampled from. The independent t-test answers this question. It tells you whether the difference that you have found is due to sampling or a true difference between the populations.

14. Use of Multivariate Analysis in Research

In research area use of multivariate Analysis is very vital role. This statistical technique to develop financial model which will do predication of all kind of commercial Bank model will be develop by using Financial statements of Banks. In Multivariate Analysis is the Analysis of data consisting of observations pertaining to reality involving two or more variables. In the multivariate Analysis are presented Discriminate Analysis, Factor Analysis, Cluster Analysis but researcher have to used factor Analysis. Factor Analysis main objective is data reduction and most important of this model multivariate Analysis to examine the relationship between all of variable. Factor Analysis is varying vital tool of multivariate Analysis. Researcher will develop one model

15. Data collection

In the study first and very important steps is data collection. Data collection is playing vital role of any research. Three are two type of data collection. first is primary data and second is secondary data in research. The main objective of research is that to predict of financial soundness of bank. Researcher have used secondary data collection. All data are given as per under.

"The publication "statistical tables relating to banks in India 1979 – 2009" all data are given in CD ROM format, to provide bank wise and bank group wise data and ratio based on annual accounts submitted by scheduled commercial Bank and also bank group wise data and ratio based on final form. The data are presented in balance site, profit and loss account statement. scheduled commercial are categories in five deferent group to their ownership or nature of operation the bank groups state bank of India, nationalized bank, regional rural banks, foreign banks other scheduled commercial banks private sector. Coppice of this CD ROM are available from the division of reports reviews and publication (sale section) Department of economic analysis. coppice are available and published by director of division of banking studies department of statistics and information management Reserve Bank of India. Second data are available annual reports by published RBI. I got two CD from

Ahmadabad and Mumbai RBI. I have used secondary data which is not direct information where primary data are direct data from source means direct source of information or data RBI statistical department is published annual reports.

16. Calculations of Ratio

In overall concept of ratio are mentions my research thesis one has to calculated total 39 Ratio which are as under.

1. Advances to asset
2. Advances to Deposits
3. Cash – Deposits Ratio
4. Cost of Deposits
5. Cost of fund
6. cost of Borrowing
7. Credit + Investment deposit Ratio
8. Credit – Deposit Ratio
9. Debts – equity Ratio
10. Government to Investment
11. Investment – Deposit Ratio
12. Leverage Ratio
13. Liquid to Asset
14. Operating profit
15. Profit Rate
16. Ratio of Burden to interest
17. Ratio of Deposits to total liabilities
18. Ratio of Non Interest Income to total asset
19. Ratio of Term loan to total advances
20. Ratio of wage bill to total Income
21. Ratio of wage bill to total Expenses
22. Ratio of Burden to total Asset
23. Ratio of Interest to total Income
24. Ratio of Interest Income to total Asset
25. Ratio of Intermediation cost to total Assets
26. Ratio of Intermediation cost
27. Ratio of Net interest margin to total Assets
28. Ratio of Priority sector Advances
29. Ratio of Secured Advance total advance
30. Ratio of Wage bill to intermediation
31. Return on Investment Adjust to cost of fund
32. Return on Investment
33. Return on advance adjust to cost fund
34. Return on advance
35. Time Deposit to total Asset
36. Demand Deposit to total asset
37. ROE – Return of equity
38. Total investment to total
39. ROA – Return on Asset

17. Frame work of Prediction Model

In chapter 5 ‘Determinates of Overall Performance’, the factors affecting the overall performance of private banks, Public banks and foreign banks are identified. The liner regression analysis has been used to describe the following different models which can be used as models for evaluation of the

financial performances of a bank. The ROI is a dependent variable of these models. Here, ROI is an indicator to decide the financial soundness of a bank. First, it is applied to the public sector banks with the following formula which can be used as a prediction model.

18. Testing of Model

Model testing is very vital in the research study. After all research has been done. Finally model has been prepared . Research study mentions, there are four different model identified. Which is mentioned as under.

1. All Bank For Model: Under study model has applied on the state bank of India hence ROI identified for it . State bank of India has taken for testing of model .for developing model, data used in 1991 to 2001. The result and formula of model is mentioned as under .

$ROI=9.849 + (1.274)_{X1} +(0.229)_{X2} +(-0.330)_{X3} + (0.322)_{X4} +(0.20)_{X5}$.

CONSTANT VALUE= 9.849
X1 = COST OF BORROWING
X2 =TERM LOAN TO TOTAL ADVANCE
X3 = INVESTMENT DEPOSIT RATIO
X4 =LOAN TO DEPOSIT
X5 = CAPITAL RATIO.

Calculation=9.849+(1.274)(6.83)+(0.229)(29.025)+(0.330)(44.87)+(0.322) (15.80)+ (0.020)(0.278) = 15.53%

1. Interpretation: above result mentions predicted ROI of SBI banks in year 1991 to 2001. Predicted ROI is 15.53%. In the year 19 91 to 2001 actual ROI of SBI bank has 11.42%. Under study all ratio of model have been taken average ratio of 11 year data and constant value is considered for model. **All Banks hypothesis**

Table 1: Independent Samples Test

		T-test for Equality of Means		
		T	Df	Sig. (2-tailed)
ADVANCE TO DEPOSIT	Equal variances assumed	2.061	18	.054
	Equal variances not assumed	2.061	9.002	.069
COST OF BORROWING	Equal variances assumed	-1.626	18	.121
	Equal variances not assumed	-1.626	9.000	.138
LOAN TO DEPOSIT	Equal variances assumed	2.908	18	.009
	Equal variances not assumed	2.908	9.004	.017
LEVERAGE RATIO	Equal variances assumed	-2.068	18	.053
	Equal variances not assumed	-2.068	9.000	.069
INVESTMENT TO DEPOSIT RATIO	Equal variances assumed	1.039	18	.312

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INVESTMENT TO DEPOSIT RATIO	Equal variances assumed	1.039	18	.312
	Equal variances not assumed	1.039	9.000	.326

Table 2: Group Statistics

	GROUP TYPE	N	Mean	Std. Deviation
ADVANCE TO DEPOSIT	H	10	718.166810	1070.1963913
	W	10	20.765673	12.0477110
COST OF BORROWING	H	10	1.069392	1.3220637
	W	10	369.342736	716.3236485
LOAN TO DEPOSIT	H	10	135.177410	145.5862417
	W	10	1.268342	2.0900547
LEVERAGE RATIO	H	10	1194.715391	2550.0709800
	W	10	1411349.614959	2156766.2591932
INVESTMENT TO DEPOSIT RATIO	H	10	37549.389591	114206.8817687
	W	10	20.239846	9.7374982

1. Advance to Deposits

Ho= Advance to deposits of banks from healthy group equal that of the banks of weak groups.

H1 = Advance to deposits of banks from healthy banks group do not equal the banks of weak groups

Ho= There is no significant difference between mean of ratio pertaining to advance to deposits of healthy banks and weak banks.

H1 = There is significant difference between mean of ratio pertaining to advance to deposits of healthy banks and weak banks.

As per above table no Significant value is 0.054 which is more than 0.05 and so null hypothesis (ho) is accepted (H1) alternatives hypothesis (Ho) is accepted (H1) alternative hypothesis is rejected its mean there is no significant difference between weak bank and healthy banks.

2. Leverage ratio

Ho= Leverage ratio of banks from healthy groups equal that of the banks from weak group.
H1 = Leverage ratio of the banks from healthy groups do not equals to that of the banks
Ho = There is no significant different between mean of ratio pertaining to leverage ratio of healthy banks and weak banks
H1 = There is significant different between mean of ratio pertaining to leverage ratio of healthy banks weak banks.

As per above table No 4, Significant value is 0.066 which is more than 0.05 so null hypothesis (Ho) is accepted. It is mean that there is no significant difference between weak banks and healthy banks.

2. Cost of Borrowing

Ho = cost of borrowing of banks from healthy group equal that of the banks of weak groups

H1 = Cost of borrowing of banks from healthy banks group do not equal the banks of weak group

Ho = There is no significant difference between mean of ratio pertaining to cost of borrowing of healthy banks and weak banks.

H1 =cost of borrowing of banks from healthy banks group do not equal the banks of weak group

Ho = There is significant difference between mean of ratio pertaining to cost of borrowing of healthy banks and weak banks

As per above table significant value is 0.121 which is more than 0.05 and so null hypothesis (Ho) is accepted (H1) alternative hypothesis is rejected its mean there is no significant difference between weak bank and healthy banks

3. Loan to Deposits

Ho = Loan to deposit of banks from healthy group equal that of the banks of weak groups
H1 = Loan to deposits of banks from healthy banks group do not equal the banks of weak group

Ho = There is no significant difference between mean of ratio pertaining to loan to deposits ratio of healthy banks and weak banks
H1 = There is significant difference between mean of ratio pertaining to loan to deposits of healthy banks and weak banks
As per above table no significant value is 0.009 which is less than 0.05 and so null hypothesis (Ho) is accepted and (H1) alternative hypothesis is rejected its mean there is significant different between weak banks and healthy banks.

4. Investment -to Deposits ratio

Ho = Investment to deposits of banks from healthy group equal that of bank of weak groups
H1 = Investment to deposits of banks from healthy banks group do not equal the banks of weak group

Ho = There is no significant difference between mean of ratio pertaining to investment to deposits ratio of healthy banks and weak banks

H1 = There is significant difference between means of ratio pertaining to investment to deposits of healthy banks and weak banks

As per above table no Significant value is 0.312 which is more than 0.05 and so null hypothesis (Ho) is accepted and (H1) alternative hypothesis is rejected its means there is no significant difference between weak banks and healthy banks

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