Research Journal of Finance and Accounting
ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online)
Vol.5, No.7, 2014

Analysis of Performance and Financial soundness of financial institution (Banks): A Comparative Study

Md. Qamruzzaman
CMA –ICMAB, MBA (IBA, DU), MBA (DU)
Lecturer
School of Business Studies (SBS),Southeast University
Email: qzamanfindu@gmail.ciom

Abstract
Financial sector of Bangladesh comprises with commercial banks, non-bank financial institutions, insurance companies etc. However, the banks play the key role in the financial system of Bangladesh. The foremost question now is whether the commercial Banks were performing successfully as expected or not. It is a matter of argument regarding how far they are performing and contributing towards both the sustainable development of Bangladesh's financial sector, especially banking industry and the improvement of overall socio economic condition by fulfilling customer's expectation. This research is aims to evaluate performance and financial soundness of baking industry. Quantitative approach is used as well as considering a sample of 20 listed Banks in Dhaka Stock Exchange. To do so, different financial ratios like Return on Assets (ROA), Return on Equity (ROE), Cost to Income Ratio (C/I), Liquid assets to deposit-borrowing ratio (LADST), Net Loans to total asset ratio (NLTA), Net loans to deposit and borrowing (NLDST) , Multivariate Discriminate Analysis (MDA) and statistical tools like mean, standard deviation (SD) and coefficient of variance as well as Trend analysis is done to indicate the performance.
Key words: Performance, ROI, ROE, C/I, Financial soundness, Multivariate Discriminate Analysis (MDA)

1. Introduction

Financial institutions specially, banks play the key role in the financial system of Bangladesh. The performance of banks is important to the individual consumers of bank deposit and loan services, stockholders, employees, government regulators, management and to the entire economy. Financial analysis is the process of identifying the financial strength and weaknesses of the firm by properly establishing relationship between the items of the balance sheet and the profit and loss account. Financial evaluations have been among the oldest and the most important approaches used for evaluating the performance of companies which are mainly based on financial statements. Financial analyses provide valuable information regarding procedures, correlations, qualities, dividends, and finally corporate strengths and Weaknesses and the quality of their financial positions

2. Statement of the problem

Broadly speaking, bank performance is important to individual consumers of bank deposit and loan services as well as to the performance of the entire economy. The foremost question now is whether the commercial Banks were performing successfully as expected or not. It is a matter of argument regarding how far they are performing and contributing towards both the sustainable development of Bangladesh's financial sector, especially banking industry and the improvement of overall socio economic condition by fulfilling customer's expectation.

3. Objectives of the Study

The study is designed to achieve the following objectives:
i. To assess the financial performance of the selected financial institutions.
ii. To assess the probability and bankruptcy of the selected financial institutions.
iii. To compare individual performance with the industry performance

4. Methodology of the study

Quantitative approach is used for this paper because the majority of data collection from the quantitative form. Data has been taken from a sample of 20 listed Banks in Dhaka Stock Exchange. The study covers a five year period from 2007-08 to 2011-12. In the second step of model data has been collected from the identified balance sheet, income statement, cash flow statement and statement of shareholders equity. Finally we identified suitable ratio for performance evaluation and to analyze the financial soundness of the Banking industry. Basically all the collected data have been analyzed and interpreted with the help of different financial ratios, Multivariate

Discriminate Analysis (MDA)[1] and statistical tools like mean, standard deviation (SD) and coefficient of variance (CV), etc..

5. Review of Literature

Financial analysis is the process of identifying the financial strength and weaknesses of the firm by properly establishing relationship between the items of the balance sheet and the profit and loss account (Pandey, 1979). Analysis of financial statements is of interest to lenders, security analysts, managers and others (Prasanna, 1995). Trade creditors are interested in the firm's ability to meet their claims. Their analysis will therefore, confine to the evaluation of the firm's liquidity position. The suppliers are concerned with the firm's solvency and survival. They analyze the firm's profitability over time. Long term creditors place more emphasis on the firm's solvency and profitability. The investors are more concerned about the firm's earnings. So they concentrate on the analysis of the firm's present and future profitability as well all earning ability and risk (Abu Sinha, 1998). Financial ratios are the simplest tools for evaluating the financial performance of the firm (Wen-Cheng LIN, 2005). One can employ financial ratios to determine a firm's liquidity, profitability, solvency, and capital structure and assets turnover. (Hannan and Shaheed,1979) used financial ratios to show the financial position and performance analysis of Bangladesh Shilpa Bank. They showed that techniques of financial analysis can be used in the evaluation of financial position and performance of financial institution as well as non financial institutions even Development Financial Institutions (DFI). (Saleh Jahur and Mohi Uddin,1995) used financial ratios to measure operational performance of limited company. They used profitability, liquidity, activity and capital structure to measure operational performance. Altman (1968) used financial ratios to predict corporate bankruptcy. He found that the bankruptcy model has an accuracy rate of 93% and is very successful in predicting failed and non-failed firms. Beaver's univariate analysis led the way to a multivariate analysis by Edward Altman, who used multiple discriminate analysis (MDA) in his effort to find a bankruptcy model. He selected 33 publicly traded manufacturing bankrupt companies between 1946 to 1965 and matched them to 33 firms on a random basis for a stratified sample (assets and industry). The results of the MDA exercise yielded an equation; he called the Z-Score that correctly classified 94% of the bankrupt companies and 97% of the non-bankrupt companies one year prior to bankruptcy.

These percentages dropped when trying to predict bankruptcy two or more years before it occurred (Chuvakhin & Gertmenian, 2003). Krishan Chaitanya (2005) used Z model to measure the financial distress of IDBI and conclude that IDBI is likely to become insolvent in the years to come. Sina and Arshed Ali (1998) used financial ratios to test the financial strengths and weaknesses of Khulna Newsprint Mills Ltd. they found that due to lack of planning and control of working capital, operational inefficiency, obsolete store, ineffective credit policy, increased cost of raw materials, labour and overhead, the position of the company was not good. Saleh Jahur and Parveen (1996) used Altman's MDA model to conclude the bankruptcy position of Chittagong Steel Mills Ltd. They found that absences of realistic goals, strict govt. regulations are the main reasons for the lowest level of bankruptcy. Ohlson (1980) employed financial ratios to predict a firm's crisis. He found that there are four factors affecting a firm's vulnerability. These factors are the firm's scale, financial structure, performance and liquidity. In the article "The Assessment of Financial and Operating Performance of the Cement Industry: A Case Study of Confidence Cement Limited", Dutta and Bhattacharjee (2001) found that the investment in cement was fairly profitable. Salauddin (2001) examined the profitability of the Pharmaceutical Companies of Bangladesh. By using ratio analysis, mean, standard deviation and co-efficient of variation he found that the profitability of the

6. Research Question

The present study aims to answer the following question:

Whether banking industry of Bangladesh is performing profitably with strong financial soundness?

[1] Discriminate analysis characterizes an individual, or a phenomenon, by a vector of variables which constitute a multivariate density function. The discriminate function maps the multidimensional characteristics of the density function of the population's variables into a one-dimensional measure, by forming a linear combination (Zavgren 1983). The linear discriminate function is as follows:

$Z_i = XA = a0 + a1X1 + a2X2 + \ldots\ldots\ldots + anXn$

Where; Z = discriminate score for the company $_i$

X = vector of n independent variables or characteristics

A = vector of discriminate coefficients

MDA computes the discriminate coefficients and selects the appropriate weights (cut-off score) which will separate the average values of each group, while minimizing the statistical distance of each observation and its own group means (Altman 1993).

7. Research Variables

Independent Variables under study are:

Input and output variables including financial ratios (current ratio, quick ratio, working capital ratio, accounts receivable turnover ratio, inventory turnover ratio, Asset turnover ratio, collection period ratio, debt ratio, interest coverage ratio, equity ratio, economic value added (EVA), ROA ratio, ROE ratio, return on current assets ratio, return on equity ratio, operational profit to sale).

The dependent variable was determined as companies' performance (Profitability and Liquidity) and Financial Soundness.

8. Research Population and Sampling Procedure

The population under study consisted of 30 listed Commercial Banks in Dhaka Stock Exchange and the sample of 20 listed Banks the study was selected in the population under study

9. Data Analysis and Findings

9.1 *Profitability Performance*

In banking the risk-reward trade off is constantly present. Risk taking generates higher expected earnings through various mechanisms. Profitability is measured in terms of ROA, ROE, and Cost-to-Income (C/I)

9.1.1 *Return on assets (ROA)*

Return on Assets (ROA) is an indicator of how profitable company's assets are in generating profit. Return on Assets shows how many Tk of earnings result from each Tk of assets the company controls. Return on Assets ratio gives an idea of how efficient management is at using its assets to generate profit.

It is apparent from (Appendix-A) that industry average return on assets (**ROA**) is 1.58%. Only there are few financial institutions who performing in the industry whose return on assets (**ROA**) is equal or above the industry average, Prime Bank 1.74%, AB Bank 2.13%, EBL 2.04%, Premier Bank 1.60%, One Bank 1.63%, Standard Bank 1.74%, AL-Bank 2.10%, DBBL 1.65%. Maximum return on assets is 2.17% and minimum return is 1.14% as against industry average return is 1.58% over period of 2008 to 2012.

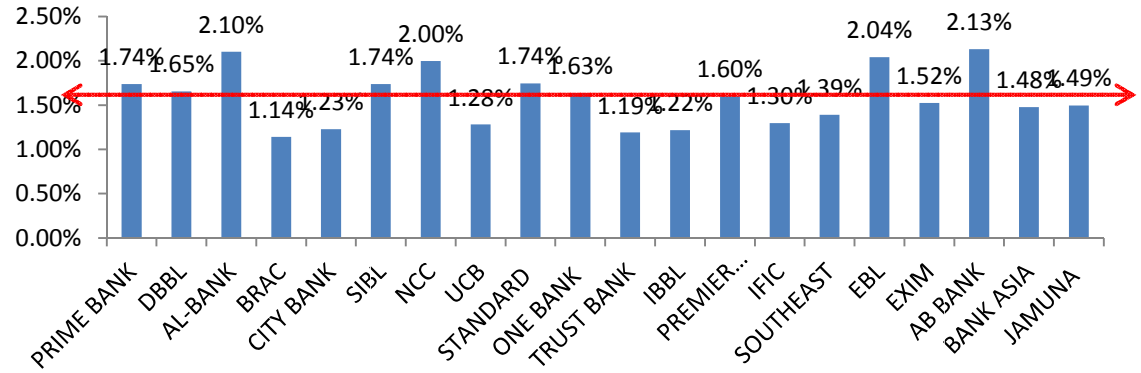

Figure 1: Average Return on Assets (ROA)

It is obvious (Figure – A) that in the industry, almost 60% of total institutions performing below average the industry which indicate as a whole industry being performing less than expected level of profitability return. Since significant number of institutions are performing below industry average (ROA-1.58%) that is why overall industry performance is immensely affected and shows dismissal performance in the industry as whole but some institutions performing exceedingly will and earning above average ROA-2.13%.

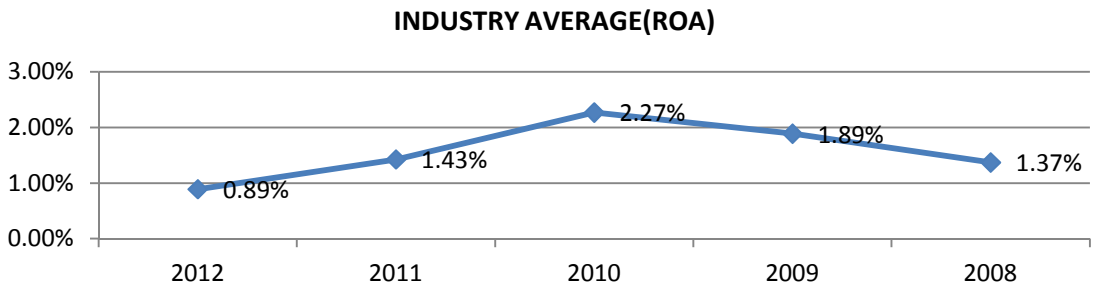

Figure 2: Average Return on Assets (ROA)

Industry Return on Assets (ROA) over the period **(Figure – 2)** is changing positive and negative direction. In 2008 Return on Assets was 1.37% which increase to 1.89% in year 2009 as percentage 38% in compare to year 2008. In 2010, industry average returns increase to 2.27%, about 20% increase in compare with return in year 2009 on an average.In the year 2011, industry ROA decrease to 1.43% from ROA of 2.27 in 2010, as percentage 37% decrease in compare with 2010. In 2012, Return on Assets again decrease to .89% from 1.43%, as percentage 38% decrease in compare to 2011 year ROA.

9.1.2 *Return on equity (ROE)*

Return on Equity (ROE) is an indicator of company's profitability by measuring how much profit the company generates with the money invested by common stock. **Return on Equity** shows how many Tk of earnings result from each Tk of equity.

(Appendix – B) exhibits average industry Return on Equity (**ROE**) is 18.60% over the period. This ratio indicates that operation efficiency while using equity capital investment. Higher the ROE means higher level of efficiency of using equity investment and lower ROE means inefficiency and unproductive investment of equity capital.In compare with industry ROE -18.60%, less than 45% financial institutions performing above average having maximum ROE is 26.22% by DBBL and 55% of financial institution performing below industry average having minimum ROE is 11% by City Bank.

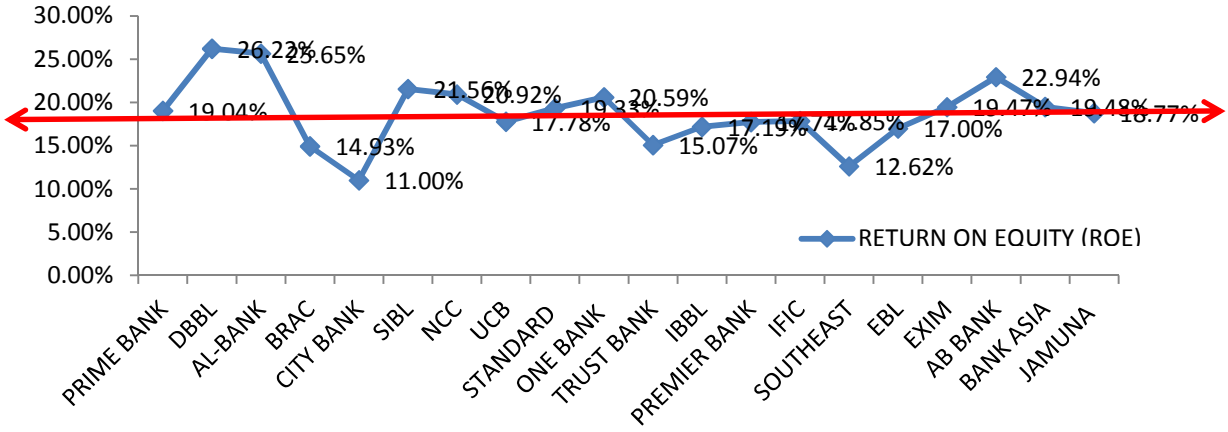

Figure 3: Industry Return on Equity (2008-2012)

In comparison **(Figure – 3)** with industry average ROE 18.60% from over the period (2008-2012). There are few financial institution performing above average of industry among which DBBL-26.22%, AL-Bank -25.65%, SIBL-21.56%, NCC-20.93%, standard Bank -19.33%, one bank 20.59%, EXIM-19.47%, AB BANK-22.94%, BANK ASIA-19.48% and JAMUNA BANK-18.77%.Industry return on equity (ROE) range from 26.2% to 11.00% over the period of 2008 -2012, which indicates some institution, had underutilized equity investment.

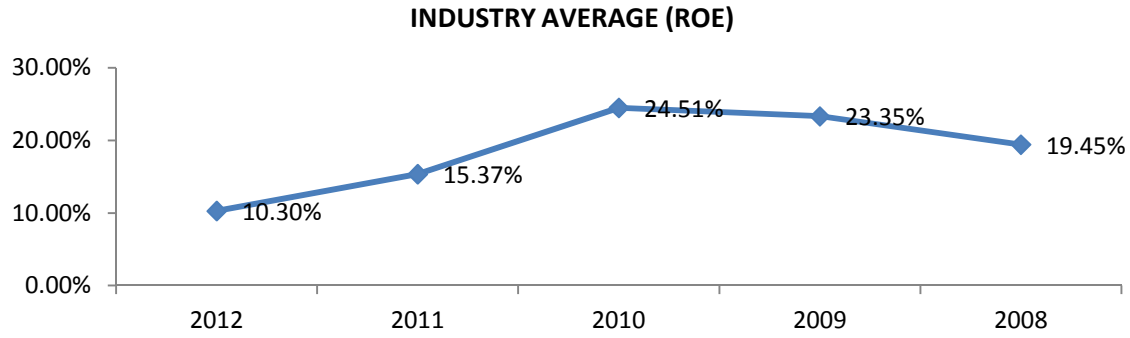

Figure 4: Industry Average ROE (08-12)

In **(Figure – 4)** 2008, industry ROE was 19.45% which increased to 23.35% in the year 2009 as percentage increased by 20% higher than year 2008. Increase of ROE in year 2009 indicates that more efficiency in using equity investment compare to year 2008.In 2010, return on equity (ROE) increase to 24.51% as percentage of 5% from 23.35% ROE in 2009. Return on equity moves declined in 2011 and 2012 in both year, indicates inefficiency of using equity investment in the business. In 2011 and 2012 ROE declined by 37% and 33% in compare with ROE of 2010 and 2011. Both year exhibits below return on equity as in 2011 15.37% and in 2012 10.30% respectively.

9.1.3 *Cost to income ratio (C/I)*

Cost/income ratio is the ratio between operating expenses and operating income. It is a measure of how costs are changing compared to income. It is one of the main key performance indicators of a bank's efficiency: the lower the ratio the more efficient the bank.

Industry expenses on an average 71% of revenue treated as operating expenses for generating revenue means every TK71 operating expenses for generating every Tk 100 revenue.

(Appendix – C) shows industry cost to income ratio 71%, most of the financial institutions were performed remarkably well means showing highest level of operational efficiency. Maximum efficiency level showed by AL-Bank 63.18% of C/I Ratio by using lower operating cost to generate revenue and least efficiency level showed by Premier Bank of 80.04% of revenue as operating expenses which lead lower profitability level.

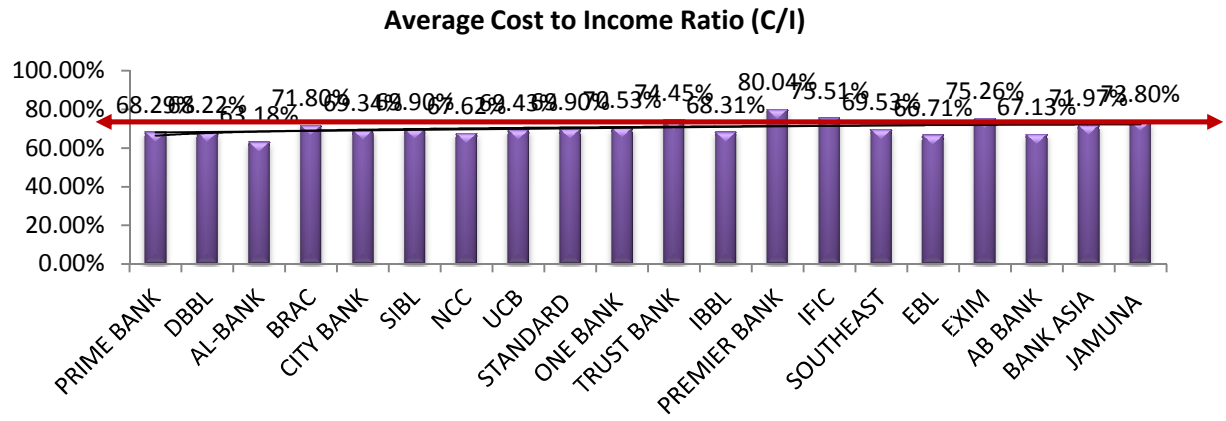

Figure 5: Cost to Income Ratio (08-12)

From above **(Figure-5)** it is clearly manifest that large number of financial institutions Cost to Income(C/I) is below industry average Cost to Income (C/I) ratio 70.55%. Such average respective institutions low operating Cost to Income ratio exhibits higher level of operating efficiency and profitability as well.

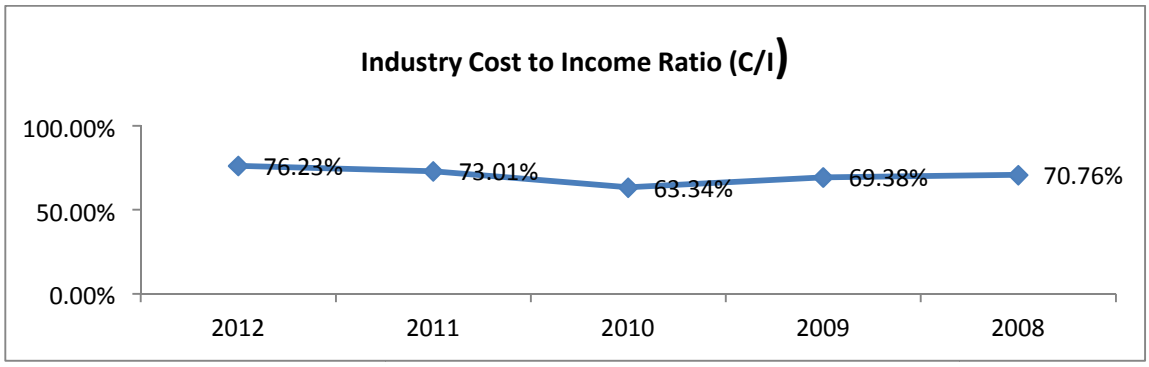

Figure 6: Industry Cost to Income Ratio

From **(Figure-6)** it manifest that over the period Cost to Income ratio (C/I) was decreasing and eventually increasing overall industry profitability as whole. In 2008, industry average cost to income ratio was 70.76% which declined to 69.38% in 2009 as percentage of 2% decrease in compare to year 2008. Decrease trend continue in 2010 C/I ratio declined to 63.34% as 9% decrease of operating expenses in compare to 2009. In 2011, rate of operating expenses incurred for generating revenue to 73.01% (C/I) from 63.34% of year 2010, as percentage increase of 15% and in 2012, C/I ratio also increased further to 76.23% from 2011 as percentage of 4% higher than last year C/I ratio. Such increase of C/I ratio indicates non-profitability in case of operating performance as whole.

9.2 *Liquidity Performance*

Liquidity performance measures the ability to meet financial obligations as they become due and is crucial to the sustained viability of banking institutions.

9.2.1 Liquid assets to deposit-borrowing ratio (LADST)

This ratio indicates the percentage of short term obligations that could be met with the bank's liquid assets in the case of sudden withdrawals.

(Appendix-D) shows respective financial institutions LADST ratio with industry average for the period of 2008

to 2012. It is manifest from the table that industry LADST ratio is 112% which indicates that industry holding more liquid assets in order to settle short term customer withdrawal by customers. Higher rate of LADST means institutions having higher short term payment by using most liquid assets like cash, money at call and short notice and short term investment made by institutions.

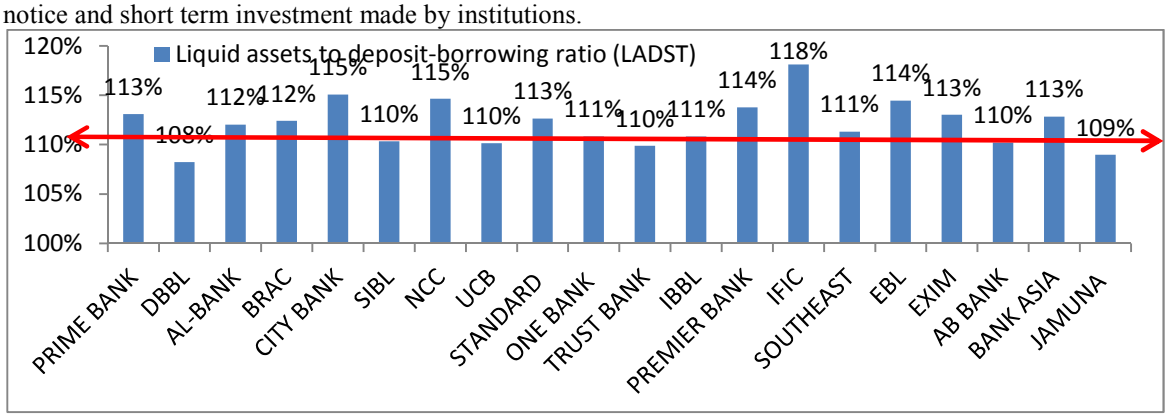

Figure 7: Average LADST ratio (08-12)

(Figure-7) shows obvious of industry average LADST ratio with different financial institutions performing in the industry for period of 2008 to 2012. Industry represents more than 50% of financial institutions has higher LADST ratio range from 112% to 118% of current assets in relation to short term obligation placed by customers. Having higher LADST ratio indicates financial institutions having more capacity to settle sudden requirement by customers.

Industry average LADST ratios show range from 108% to 118% over the period 2008 to 2012. Although there are some financial institutions having low LADST ratio in compare with industry average but still those institutions has capacity to repay sudden requirement place by customers because lower ratio of LADST is 108% which more than 100% means holding more current assets than short term requirement.

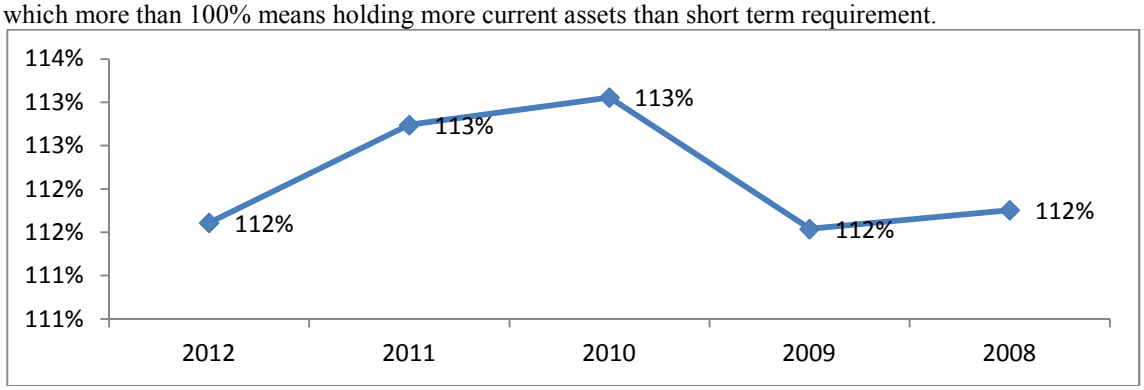

Figure 8: Industry LADST Ratio (08-12)

It is obvious from **(Figure-8)** that is industry LADST ratios were moving from 112% to 112% from 2008 to 2012. LADST ratio in 2008 and 2009 remain same 112% but in year 2010 increase to 113% and remain same in 2011 as well. In year 2012 again LADST ratio declined to 112%.

9.2.2 Net Loans to Total Asset Ratio (NLTA)

NLTA measures the percentage of assets that is tied up in loans. The higher the ratio, the less liquid the bank is. Net Loans represents total loans to customers, reduced by possible default losses and unearned interest income. Net Loans by taking Total Gross Loans and subtracting: Loan Loss Allowances and Unearned Interest. Bank assets include loans, reserves, investment securities, and physical assets

(Appendix –E) shows Net Loans to total asset ratios (NLTAs) of financial institutions for period of 2008 to 2012 with industry NLTA ratio. From table it is apparent that industry having NLTA ratio 70.16% indicating institutions having about 70% of total assets tied up in the form of loan represents fund retain by customers. Higher NLTA ratio indicate higher portion of assets tide up as loan to financial institutions.

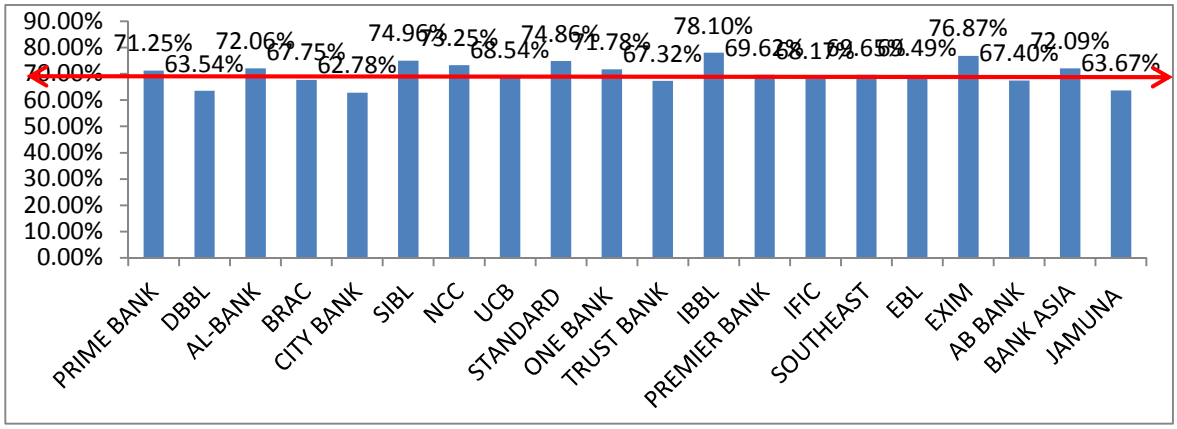

Figure 9: Average Net Loans to total asset ratio (NLTA)

It is obvious from above **(Figure-9)** that is industry participants' show Net Loans to Total Assets Ratio range from 62.78% to 78.10%. About 45% of financial institutions having higher rate of NLTA ratio in compare with industry average 70.16% indicating having higher amount of total assets as loan represents low liquidity position. About 55% of financial institutions having lower rate of NLTA ratio which indicate large number of institutions maintaining lower total assets as loan which indicate high liquidity position in the industry. IBBL showing lowest level of liquidity of having NLTA ratio 78.10% and City Bank shows higher level of liquidly having lower NLTA ratio of 62.78% indicating 62.78% of total assets as loan amount which is significantly lower that industry average 70.16%

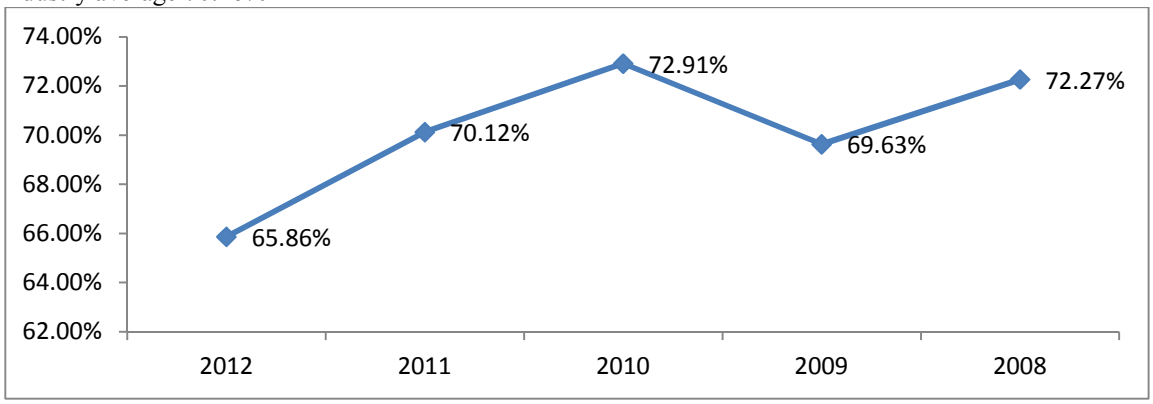

Figure 10: Industry NLTA ratio (08-12)

Industry average net loan to total assets (NLTA) ratio moves from 72.27% to 65.86% over the period of 2008 to 2012. From **(Figure-10)** it is manifest that liquidity position of industry was increased from 2010 to 2012. In 2008, net loan to total assets ratio was 72.27% which declined to 69.63% in year 2009. In comparison to liquidity position from year 2008 to 2012, year 2012 shows higher liquidity position as a whole industry such less lending to customer indicate conservative attitudes toward lending and eventually reduction of operating profitability as well.

9.2.3 Net loans to deposit and borrowing (NLDST)

This ratio indicates the percentage of the total deposits locked into non-liquid assets. Net loans to deposit and borrowing 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.

(Appendix-F) shows industry's net loans to deposit and borrowing ratios of respective financial institution with industry average over time period from 2008 to 2012. Industry NLDST ratio is about 80.00% whereas institutions having NLDST ratio range from 73.01% to 89.16%. Higher ratio of NLDST represents lower liquidity position but having capacity to earn more from giving loan as return

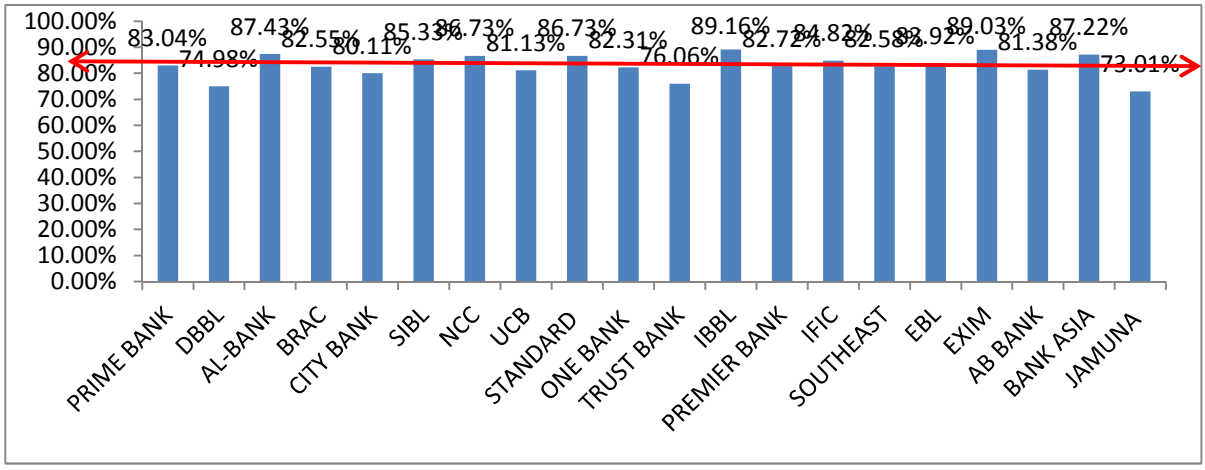

Figure 11: Average Net loans to deposit and borrowing (NLDST)

About 55% of financial institution having higher average NLDST ratios in compare to industry average (Figure-11) for period of 2008-2012. Form the above figure, it is obvious that higher rate of NLDST ratio shows by IBBL is 89.16% indicating that lower liquidity position but positively shows that having capacity to generate higher operating income and lowest NLDST ratio shows Jamuna Bank by 73.01% which is significantly lower than industry average as a whole. Jamuna bank shows lower rate with higher liquidity position by sacrificing profitability position of excess operating earnings.

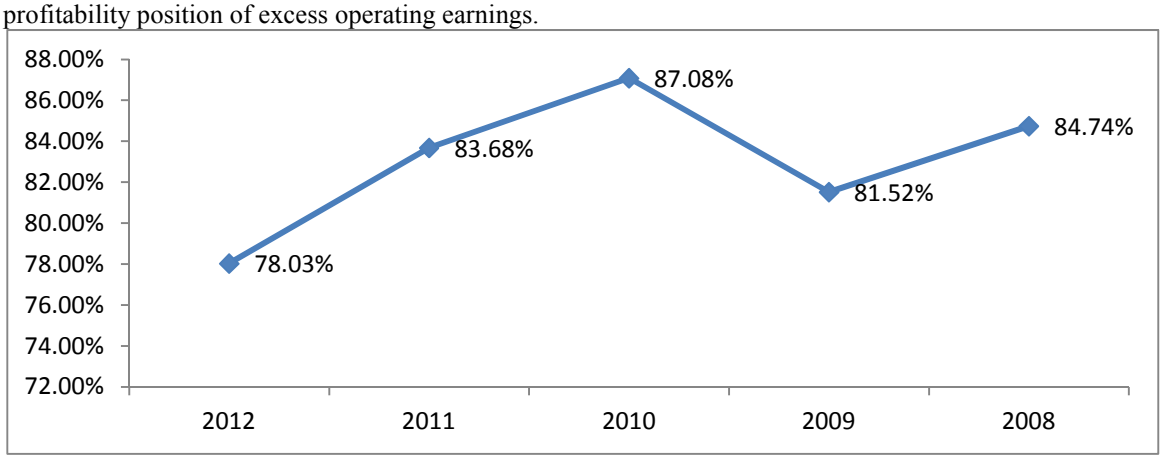

Figure 12: Industry Net loans to deposit and borrowing (08-12)

From above **(Figure-11)** it is noticeable that industry average NLDST ratios range move from 84.74% to 78.03% over period 2008 to 2012. Year 2010 represents higher rate of NLDST ratio 87.07% indicating lower liquidity position. Over the period, NLDST ratio declined 78.03% in year 2012 as increasing liquidity position as a whole industry.

9.3 *Testing the Financial Soundness*

After examining profitability, liquidity of banking industry and financial institutions specially Banks, now it is necessary to examine the overall financial soundness of Banking industry and respective Banks during the study period. In this context Multivariate Discriminate Analysis (MDA) model as developed by Prof. Altman may be considered worthwhile. This is one of the most commonly used statistical ratio models for predicting business collapse. This model has proven to be a reliable tool for bankruptcy forecasting in a wide variety of contexts and markets. The said model can give some rough idea about the financial soundness of an enterprise. The Z-Score[1]

[1] The **Z-score formula for predicting bankruptcy** was published in 1968 by Edward I. Altman. The Z-score uses multiple corporate income and balance sheet values to measure the financial health of a company. T_1 = (Current Assets − Current Liabilities) / Total Assets
T_2 = Retained Earnings / Total Assets
T_3 = Earnings Before Interest and Taxes / Total Assets
T_4 = Market Value of Equity / Total Liabilities
Z-Score bankruptcy model: $Z = 6.56T_1 + 3.26T_2 + 6.72T_3 + 1.05T_4$
Zones of discriminations:
Z > 2.9 -"Safe" Zone

bankruptcy predictor combines four common business ratios, using a weighting system calculated by Altman to determine the likelihood of a company going bankruptcy. The given formula applicable for publicly traded financial institution specially Banks.

From **(Appendix-G)** it is manifest that industry average Altman Z score is 2.88 which represent overall financial soundness of banking industry is fall into "Grey Zone" is likely to have financial stability about to be reached "Safety Zone". Altman Z score shows range from 1.97 in 2012 to 3.99 in 2008 indicating industry is tends to become more financially unsound as year progress.

In year 2008, 209 and 2010 show Altman Z score having 3.58, 2.96 and 3.99 fall into the "Safety Zone" means indicating financial soundness with stability of banking industry as whole. But as year progress industry is losing financial soundness according to Altman Z score moving from "Safety Zone" to "Grey Zone" which is vulnerable towards bankruptcy.

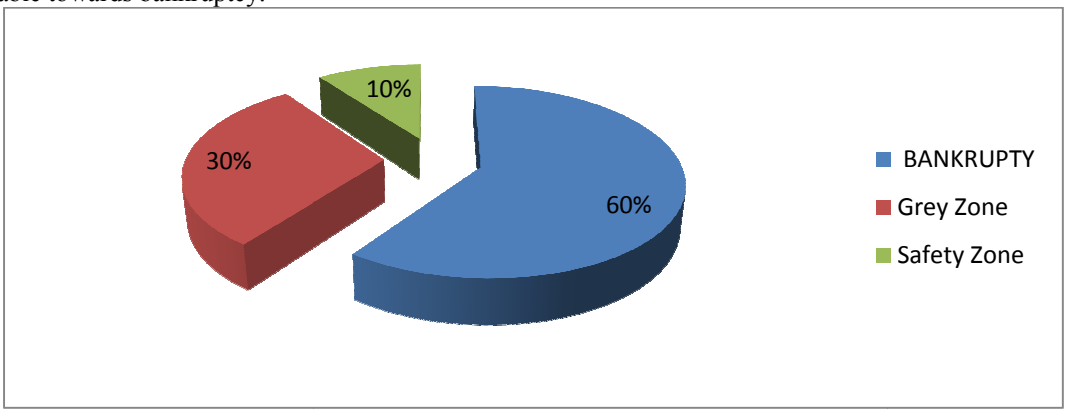

Figure – 13: Financial Soundness of Banking Industry

According to Altman Z **(Figure – 13)** score about 60% of financial institutions belong to "Bankruptcy Zone" and only 10% of entire financial institutions belong to "Safety Zone" as well as remaining institutions belong to "Grey Zone" which is also vulnerable toward financial soundness.

10. Findings and Conclusion from the Research Question

Profitability analysis of banking industry for the period of 2008 to 2012 shows that from 2008 to 2010 as a whole industry profitability is increasing (**Figure-2, 4 and 6)** ROA 1.37% to 2,27%, ROA 19.45% to 24.51% and C/I 69.38% to 63.34%. But in year 2011 and 2012 over industry profitability is declining as Cost to Income Ratio increase which eventually reduce earning capacity of industry as whole. C/I ratio in 2012 is 76.23% is significantly higher than industry

average of 70.01%. **Figure-14** exhibit overall movement of industry profitability from period 2008 to 2012 and all indicators such as ROE, ROA and C/I ratios moves in same direction.

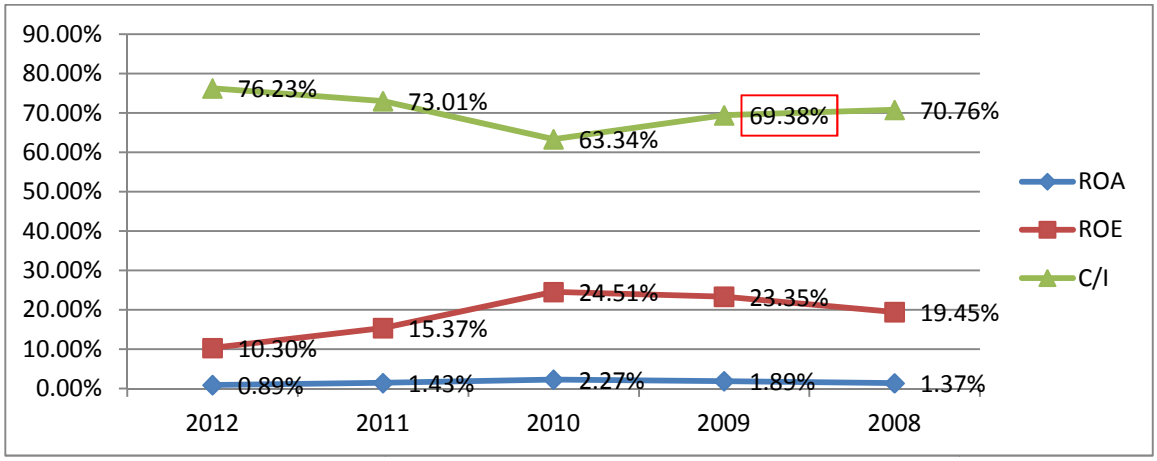

Figure 134: Profitability analysis (2008-2012)

1.22 < Z < 2.9 -"Grey" Zone
Z < 1.22 -"Distress" Zone

Liquidity analysis of banking industry shows that liquidity position of industry as whole changes over period from 2008 to 2012. **Figure-8, 10 and 12** shows liquidity position of banking industry is increasing from year 2008 to 2010. Comparative assessment **(Figure-15)** among three indicators LADST ratio, NLTA ratio and NLDST ratio show positive indicator toward liquidity position range from LADST ratio 112% to 113% is approximately close to industry average 112%, NALT ratio range from 72.23% to 65.85% and NLDST ratio range 84.74% to 78.03%.

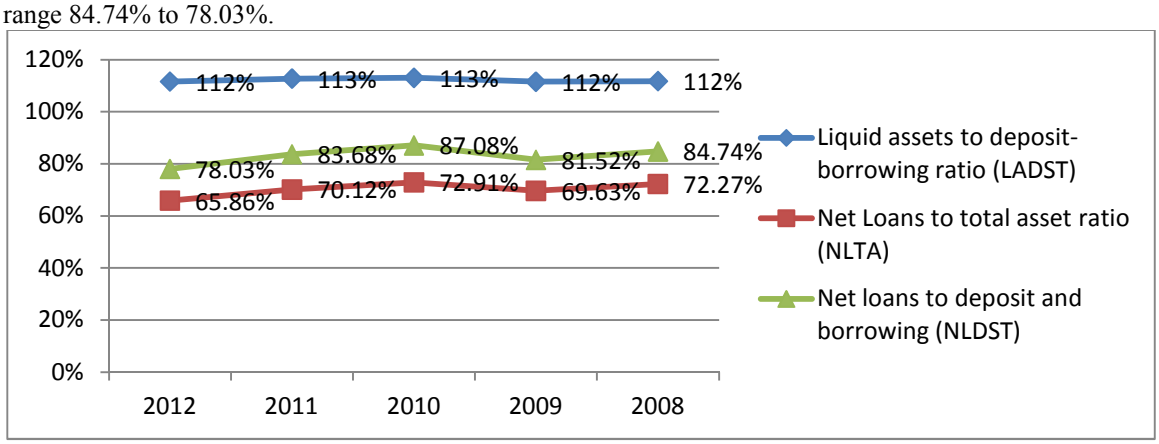

Figure 145: Liquidity Analysis (2008-2012)

Overall financial soundness of banking industry is declining from "Safety Zone" to "Grey Zone" **(Appendix-7)** clearly manifest changes of financial soundness of banking industry from 2008 to 2012. Furthermore it is also obvious that in year 2012, about 60% financial institutions are performing in the industry having very high rate of Bankruptcy means inability to pay debt obligation to customers when it is required, such large portion of financial institutions occupying "Bankruptcy Zone" immensely affected the entire banking industry's financial soundness. Only having 10% financial institutions are performing with financial soundness according to Altman Z –score (**Figure-13**).

As a whole, though profitability and liquidity position increased in beginning year from 2008-2010 but situation move to worse and continue to till 2012 in both profitability and Liquidity position of banking industry as well as institutions in the industry as well. Changing of overall industry profitability and liquidity position significantly affected financial soundness as well. As a whole industry belonging into Grey Zone and in that situation only 10% institutions belong to safety Zone. If such trend moves further, it will be alarming to the industry in case of maintaining profitability and liquidity position and financial soundness as well.

11. Limitations of this study

This study has several limitations which may affect the accuracy of ANN and MDA including:

(1) Only data on a relatively small sample of failed companies and non-failed companies was available. Hence, there is some risk that the results have been affected by sample size.

(2) The companies were not selected at random.

(3) The data analyzed in this study was obtained from public financial statements which may subject to creative accounting. Companies facing failure may distort their published accounts and this will skew the results of the model.

(4) Some corporate financial statements did not disclose figures on cash flow or operating expenses. This study was restricted to balance sheet and income statements.

(5) The MDA methodology violates the assumptions of normality for independent variables.

Reference

Abbasoglu, Furkan, O., A. Ahmet Faruk and A. Gunes. 2007. "Concentration,Competition, Efficiency and Profitability of the Turkish Banking Sector in the Post-Crises Period." *MPRA Paper No. 5494.*

Ahmed, M., B. (2009). "Measuring the Performance of Islamic Banks by Adapting Conventional Ratios", *German University in Cairo Faculty of Management Technology Working Paper No. 16* pp 1-26.

Altman E. (1993). *Corporate Financial Distress and Bankruptcy*. 2nd edition, New York: John Wiley & Sons.

Bain, J. S. 1951. "Relation of Profit Rate to Industry Concentration." *Quarterly Journalof Economics*, 65: 293–324.

Bangladesh Bank Annual Reports. 2008. "*Banking Sector Performance, Regulation and Bank Supervision*", Chapter 5, Dhaka.

Bangladesh Bank Annual Reports. 2010. "*Banking Sector Performance, Regulation and Bank Supervision*." Chapter 5, Dhaka.

Bhattacharya, D. and T. A. Chowdhury. 2003. "Financial Sector Reforms in Bangladesh:The Next Round." *Occasional Paper 22, Centre for Policy Dialogue, Dhaka*.
Bhatti, G. A. and H. Hussain. 2010. "Evidence on Structure Conduct Performance Hypothesis in Pakistani Commercial Banks." *International Journal of Business and Management*, 5(9).
Elyasiani, E. and I. Mansur (1998). "Sensitivity of the Bank Stock Returns Distributions to Changes in the Level and Volatility of Interest Rate: A GARCH-M Model," *Journal of Banking and Finance*, Volume 22: 535-563.
Hair, J. F., Anderson, R. E., Tatham, R. L. & Black, W. C. (1998). *Multivariate Data Analysis*, NJ: Prentice-Hall
Lloyd-Williams, D. M., P. Molyneux and J. Thornton. 1994. "Market Structure and Performance in Spanish Banking." *Journal of Banking and Finance*, 18(3): 433-443.
Mabwe Kumbirai, and Robert Webb. 2010. "A financial Ratio Analysis of Commercial Bank Performance in South Africa*." African Review of Economics and Finance*, Vol. 2, No. 1.
Seelanatha, L. 2010. "Market Structure, Efficiency and Performance of Banking Industry in Sri Lanka." *Banks and Bank System*s, 5(1).
Tarawneh, M. (2006). A Comparison of Financial Performance in the Banking Sector: Some Evidence from Omani Commercial Banks". *International Research Journal of Finance and Economics 3*, pp 103-112.
Yeh, Q., J. (1996). The Application of Data Envelopment Analysis in Conjunction with Financial Ratios for Bank Performance Evaluation. *Journal of the Operational Research Society 47*, pp 980-988.

Appendix:

Appendix A:RETURN ON ASSETS (ROA)

	2012	**2011**	**2010**	**2009**	**2008**	**Average**	INDUSTRY AVEAGE	STANDARD DEVIATION	CV
PRIME BANK	1.13%	1.84%	2.34%	2.26%	1.12%	1.74%	1.58%	0.59%	37.41%
DBBL	1.48%	1.75%	1.98%	1.53%	1.53%	1.65%	1.58%	0.21%	13.21%
AL-BANK	1.31%	1.71%	2.36%	4.03%	1.09%	2.10%	1.58%	1.18%	74.79%
BRAC	0.31%	1.28%	1.40%	1.37%	1.34%	1.14%	1.58%	0.47%	29.44%
CITY BANK	0.59%	1.74%	2.03%	1.07%	0.70%	1.23%	1.58%	0.64%	40.45%
SIBL	1.30%	1.09%	2.63%	1.82%	1.85%	1.74%	1.58%	0.60%	37.76%
NCC	1.14%	1.87%	2.84%	2.61%	1.54%	2.00%	1.58%	0.71%	45.22%
UCB	0.76%	1.74%	1.68%	1.03%	1.18%	1.28%	1.58%	0.42%	26.71%
STANDARD	1.33%	1.82%	2.07%	1.58%	1.92%	1.74%	1.58%	0.29%	18.41%
ONE BANK	0.37%	1.75%	3.11%	1.61%	1.33%	1.63%	1.58%	0.98%	62.30%
TRUST BANK	0.19%	1.21%	2.22%	1.13%	1.20%	1.19%	1.58%	0.72%	45.42%
IBBL	1.16%	1.19%	1.36%	1.22%	1.16%	1.22%	1.58%	0.08%	5.17%
PREMIER BANK	0.74%	0.68%	2.60%	2.30%	1.69%	1.60%	1.58%	0.88%	55.48%
IFIC	0.36%	0.91%	2.35%	1.43%	1.44%	1.30%	1.58%	0.74%	46.58%
SOUTHEAST	0.87%	1.23%	2.09%	1.66%	1.09%	1.39%	1.58%	0.49%	30.80%
EBL	1.55%	2.14%	2.96%	2.08%	1.47%	2.04%	1.58%	0.60%	37.69%
EXIM	0.73%	0.36%	3.07%	2.03%	1.42%	1.52%	1.58%	1.08%	68.24%
AB BANK	0.83%	0.90%	2.98%	3.20%	2.75%	2.13%	1.58%	1.17%	73.77%
BANK ASIA	0.60%	1.73%	1.83%	1.93%	1.29%	1.48%	1.58%	0.55%	34.68%
JAMUNA	1.01%	1.55%	1.50%	1.89%	1.51%	1.49%	1.58%	0.32%	19.94%
AVERAGE	0.89%	1.43%	2.27%	1.89%	1.37%				

APPENDIX – B:RETURN ON EQUITY (ROE)

	2012	2011	2010	2009	2008	Average	INDUSTRY AVEAGE	STANDARD DEVIATION	CV
PRIME BANK	12.88%	19.15%	20.86%	23.93%	18.39%	19.04%	18.60%	4.05%	21.78%
DBBL	21.31%	24.09%	28.56%	28.75%	28.42%	26.22%	18.60%	3.37%	18.10%
AL-BANK	15.45%	18.47%	23.14%	54.87%	16.31%	25.65%	18.60%	16.61%	89.30%
BRAC	5.32%	17.73%	17.68%	15.99%	1.79%	11.70%	18.60%	7.57%	40.73%
CITY BANK	4.25%	11.30%	16.05%	13.96%	9.44%	11.00%	18.60%	4.54%	24.41%
SIBL	17.93%	14.76%	30.71%	21.73%	22.68%	21.56%	18.60%	6.01%	32.31%
NCC	11.81%	17.18%	25.35%	28.49%	21.76%	20.92%	18.60%	6.61%	35.53%
UCB	8.73%	18.45%	27.91%	16.35%	17.44%	17.78%	18.60%	6.84%	36.78%
STANDARD	15.21%	19.59%	24.41%	18.27%	19.17%	19.33%	18.60%	3.32%	17.83%
ONE BANK	4.33%	19.16%	37.57%	23.68%	18.23%	20.59%	18.60%	11.94%	64.19%
TRUST BANK	2.67%	15.92%	25.66%	16.27%	14.84%	15.07%	18.60%	8.19%	44.03%
IBBL	14.16%	16.75%	19.09%	16.93%	19.02%	17.19%	18.60%	2.03%	10.89%
PREMIER BANK	8.44%	7.66%	28.23%	23.47%	20.88%	17.74%	18.60%	9.23%	49.64%
IFIC	5.97%	12.44%	28.86%	21.43%	20.56%	17.85%	18.60%	8.83%	47.48%
SOUTHEAST	8.38%	10.03%	16.12%	16.51%	12.06%	12.62%	18.60%	3.62%	19.45%
EBL	13.30%	17.50%	20.07%	17.26%	16.87%	17.00%	18.60%	2.42%	13.02%
EXIM	6.97%	3.25%	27.86%	25.22%	34.05%	19.47%	18.60%	13.56%	72.93%
AB BANK	9.02%	9.27%	28.20%	33.88%	34.33%	22.94%	18.60%	12.82%	68.95%
BANK ASIA	6.48%	16.21%	27.33%	26.79%	20.60%	19.48%	18.60%	8.60%	46.26%
JAMUNA	13.33%	18.51%	16.64%	23.19%	22.19%	18.77%	18.60%	4.04%	21.75%
AVERAGE	10.30%	15.37%	24.51%	23.35%	19.45%				

APPENDIX – C:Cost to Income Ratio (C/I)

	2012	2011	2010	2009	2008	Average	Industry Average	Standard Deviation	CV
PRIME BANK	72.37%	68.07%	62.72%	68.07%	70.19%	68.29%	70.55%	3.58%	5.08%
DBBL	71.41%	66.13%	60.42%	69.76%	73.39%	68.22%	70.55%	5.11%	7.24%
AL-BANK	72.64%	65.73%	59.82%	55.85%	61.83%	63.18%	70.55%	6.38%	9.05%
BRAC	75.60%	72.84%	67.56%	72.13%	70.89%	71.80%	70.55%	2.93%	4.16%
CITY BANK	71.86%	67.10%	62.10%	71.94%	73.70%	69.34%	70.55%	4.74%	6.71%
SIBL	74.50%	75.03%	62.89%	71.32%	65.76%	69.90%	70.55%	5.38%	7.63%
NCC	74.20%	69.73%	59.64%	66.38%	68.14%	67.62%	70.55%	5.32%	7.54%
UCB	76.84%	69.37%	64.91%	67.24%	68.79%	69.43%	70.55%	4.49%	6.36%
STANDARD	75.19%	73.02%	64.30%	72.24%	64.74%	69.90%	70.55%	5.03%	7.13%
ONE BANK	77.73%	68.95%	60.58%	71.17%	74.20%	70.53%	70.55%	6.47%	9.17%
TRUST BANK	82.66%	75.99%	65.99%	75.66%	71.97%	74.45%	70.55%	6.10%	8.65%
IBBL	68.78%	66.69%	68.18%	69.37%	68.52%	68.31%	70.55%	1.00%	1.42%
PREMIER BANK	92.31%	91.83%	65.34%	75.85%	74.89%	80.04%	70.55%	11.72%	16.62%
IFIC	83.64%	75.35%	67.99%	73.75%	76.80%	75.51%	70.55%	5.64%	8.00%
SOUTHEAST	77.65%	72.43%	59.16%	66.56%	71.84%	69.53%	70.55%	7.00%	9.92%
EBL	69.44%	65.93%	59.20%	66.18%	72.82%	66.71%	70.55%	5.05%	7.16%
EXIM	78.93%	89.33%	60.93%	73.75%	73.37%	75.26%	70.55%	10.28%	14.57%
AB BANK	78.26%	76.47%	56.84%	60.43%	63.65%	67.13%	70.55%	9.67%	13.70%
BANK ASIA	74.09%	73.73%	67.28%	71.23%	73.50%	71.97%	70.55%	2.85%	4.04%
JAMUNA	76.48%	76.55%	70.88%	68.82%	76.30%	73.80%	70.55%	3.68%	5.22%
AVERAGE	76.23%	73.01%	63.34%	69.38%	70.76%				

APPENDIX – D:Liquid assets to deposit-borrowing ratio (LADST)

	2012	2011	2010	2009	2008	Average	Industry Average	Standard Deviation	CV
PRIME BANK	114%	114%	117%	113%	108%	113%	112%	3.19%	2.84%
DBBL	108%	109%	109%	108%	107%	108%	112%	0.79%	0.70%
AL-BANK	107%	109%	117%	110%	117%	112%	112%	4.69%	4.18%
BRAC	109%	112%	114%	113%	114%	112%	112%	1.78%	1.59%
CITY BANK	120%	121%	116%	109%	109%	115%	112%	5.62%	5.01%
SIBL	107%	108%	111%	112%	113%	110%	112%	2.73%	2.43%
NCC	113%	116%	116%	115%	113%	115%	112%	1.61%	1.43%
UCB	111%	112%	107%	109%	112%	110%	112%	2.07%	1.85%
STANDARD	111%	113%	112%	112%	114%	113%	112%	1.07%	0.96%
ONE BANK	113%	113%	110%	110%	108%	111%	112%	2.26%	2.02%
TRUST BANK	110%	110%	112%	108%	110%	110%	112%	1.34%	1.20%
IBBL	111%	111%	110%	111%	111%	111%	112%	0.47%	0.42%
PREMIER BANK	109%	112%	115%	116%	117%	114%	112%	3.49%	3.11%
IFIC	118%	118%	118%	117%	120%	118%	112%	1.18%	1.05%
SOUTHEAST	112%	113%	112%	110%	110%	111%	112%	1.53%	1.37%
EBL	112%	114%	117%	115%	113%	114%	112%	1.74%	1.55%
EXIM	113%	115%	115%	110%	112%	113%	112%	1.78%	1.59%
AB BANK	112%	112%	113%	108%	106%	110%	112%	3.19%	2.84%
BANK ASIA	112%	112%	111%	114%	115%	113%	112%	1.47%	1.31%
JAMUNA	110%	110%	108%	110%	107%	109%	112%	1.53%	1.36%
AVERAGE	112%	113%	113%	112%	112%				

APPENDIX – E:Net Loans to total asset ratio (NLTA)

	2012	2011	2010	2009	2008	Average	Industry Average	Standard Deviation	CV
PRIME BANK	69.30%	70.55%	76.41%	71.97%	68.05%	71.25%	70.16%	3.23%	2.88%
DBBL	58.77%	64.51%	66.87%	59.19%	68.36%	63.54%	70.16%	4.39%	3.91%
AL-BANK	69.41%	70.94%	71.09%	74.48%	74.37%	72.06%	70.16%	2.26%	2.02%
BRAC	59.67%	68.18%	70.75%	67.44%	72.72%	67.75%	70.16%	4.98%	4.44%
CITY BANK	64.01%	66.36%	66.37%	56.87%	60.27%	62.78%	70.16%	4.14%	3.69%
SIBL	72.42%	75.16%	77.97%	74.61%	74.63%	74.96%	70.16%	1.99%	1.77%
NCC	63.53%	69.84%	75.68%	76.42%	80.77%	73.25%	70.16%	6.68%	5.96%
UCB	65.59%	68.39%	71.96%	68.18%	68.60%	68.54%	70.16%	2.27%	2.02%
STANDARD	65.37%	74.09%	77.70%	77.66%	79.48%	74.86%	70.16%	5.65%	5.04%
ONE BANK	70.77%	70.85%	71.87%	72.03%	73.36%	71.78%	70.16%	1.05%	0.94%
TRUST BANK	60.83%	70.81%	73.27%	60.26%	71.44%	67.32%	70.16%	6.26%	5.58%
IBBL	77.27%	78.53%	79.62%	77.12%	77.99%	78.10%	70.16%	1.02%	0.91%
PREMIER BANK	63.82%	66.41%	68.00%	71.11%	78.77%	69.62%	70.16%	5.75%	5.13%
IFIC	68.35%	71.28%	68.92%	60.08%	72.20%	68.17%	70.16%	4.79%	4.27%
SOUTHEAST	67.06%	68.09%	70.07%	68.78%	74.25%	69.65%	70.16%	2.80%	2.49%
EBL	65.73%	69.53%	71.43%	68.22%	72.54%	69.49%	70.16%	2.68%	2.39%
EXIM	74.02%	76.77%	82.51%	82.34%	68.70%	76.87%	70.16%	5.84%	5.21%
AB BANK	64.76%	66.36%	72.12%	66.30%	67.47%	67.40%	70.16%	2.81%	2.51%
BANK ASIA	66.14%	70.62%	75.58%	73.21%	74.90%	72.09%	70.16%	3.84%	3.42%
JAMUNA	50.47%	65.16%	69.99%	66.26%	66.47%	63.67%	70.16%	7.60%	6.78%
AVERAGE	65.86%	70.12%	72.91%	69.63%	72.27%				

APPENDIX – F:Net loans to deposit and borrowing (NLDST)

	2012	2011	2010	2009	2008	Average	Industry Average	Standard Deviation	CV
PRIME BANK	81.26%	83.03%	91.40%	83.93%	75.60%	83.04%	83%	5.69%	5.07%
DBBL	70.34%	77.60%	79.49%	68.85%	78.62%	74.98%	83%	4.99%	4.45%
AL-BANK	81.59%	84.07%	91.03%	88.18%	92.30%	87.43%	83%	4.54%	4.05%
BRAC	71.86%	84.22%	86.70%	82.59%	87.38%	82.55%	83%	6.28%	5.60%
CITY BANK	83.78%	89.23%	85.90%	68.62%	73.02%	80.11%	83%	8.84%	7.88%
SIBL	82.44%	85.63%	89.44%	84.60%	84.55%	85.33%	83%	2.57%	2.29%
NCC	75.17%	83.90%	90.58%	90.43%	93.58%	86.73%	83%	7.37%	6.57%
UCB	79.24%	82.81%	82.66%	79.37%	81.57%	81.13%	83%	1.74%	1.55%
STANDARD	76.34%	86.37%	88.71%	89.44%	92.78%	86.73%	83%	6.24%	5.57%
ONE BANK	81.81%	82.78%	82.59%	81.34%	83.02%	82.31%	83%	0.70%	0.63%
TRUST BANK	68.22%	79.90%	84.14%	67.18%	80.84%	76.06%	83%	7.80%	6.95%
IBBL	89.25%	89.45%	90.17%	87.85%	89.08%	89.16%	83%	0.84%	0.75%
PREMIER BANK	73.87%	78.54%	81.29%	85.63%	94.27%	82.72%	83%	7.74%	6.90%
IFIC	84.20%	87.87%	87.32%	73.72%	90.97%	84.82%	83%	6.65%	5.93%
SOUTHEAST	79.64%	82.49%	85.05%	79.95%	85.78%	82.58%	83%	2.82%	2.52%
EBL	78.67%	84.29%	89.29%	82.15%	85.20%	83.92%	83%	3.91%	3.49%
EXIM	85.48%	89.55%	96.58%	92.92%	80.62%	89.03%	83%	6.24%	5.56%
AB BANK	78.92%	80.99%	88.49%	79.45%	79.03%	81.38%	83%	4.06%	3.62%
BANK ASIA	81.19%	86.41%	89.57%	88.17%	90.75%	87.22%	83%	3.74%	3.33%
JAMUNA	57.32%	74.48%	81.30%	76.01%	75.93%	73.01%	83%	9.14%	8.15%
AVERAGE	78.03%	83.68%	87.08%	81.52%	84.74%				

APPENDIX –G: Altman Z-score

	2012	2011	2010	2009	2008	Average	Industry Average	Standard Deviation	CV
PRIME BANK	1.04	1.14	1.57	1.15	0.74	1.13	2.88	0.30	0.10
DBBL	0.77	0.87	1.17	0.94	1.31	1.01	2.88	0.22	0.08
AL-BANK	0.61	0.82	1.53	1.05	1.15	1.03	2.88	0.35	0.12
BRAC	1.43	1.91	3.07	2.52	14.91	4.77	2.88	5.71	1.98
CITY BANK	1.19	1.32	1.48	0.76	0.66	1.08	2.88	0.36	0.12
SIBL	0.62	0.71	1.21	0.87	0.94	0.87	2.88	0.23	0.08
NCC	0.90	1.14	1.51	1.26	0.97	1.15	2.88	0.24	0.08
UCB	0.76	0.96	1.14	1.11	0.97	0.99	2.88	0.15	0.05
STANDARD	0.88	1.05	1.24	1.03	1.14	1.07	2.88	0.13	0.05
ONE BANK	1.25	1.51	1.87	1.27	1.09	1.40	2.88	0.30	0.10
TRUST BANK	10.75	13.49	33.77	17.26	21.03	19.26	2.88	8.99	3.12
IBBL	7.36	8.85	18.83	21.41	17.96	14.88	2.88	6.34	2.20
PREMIER BANK	1.04	1.28	2.00	1.63	1.57	1.51	2.88	0.37	0.13
IFIC	1.34	1.47	2.04	1.45	1.56	1.57	2.88	0.27	0.10
SOUTHEAST	0.96	1.10	1.33	0.93	0.88	1.04	2.88	0.18	0.06
EBL	1.10	1.32	1.96	1.42	1.19	1.40	2.88	0.34	0.12
EXIM	1.12	1.19	1.67	1.11	1.74	1.37	2.88	0.31	0.11
AB BANK	1.03	1.08	1.51	1.03	0.77	1.08	2.88	0.27	0.09
BANK ASIA	0.83	0.95	0.80	0.96	0.92	0.89	2.88	0.07	0.02
JAMUNA	0.76	0.02	0.02	0.02	0.02	0.16	2.88	0.33	0.12
AVERAGE	1.79	2.11	3.99	2.96	3.58				
	Grey Zone	Grey Zone	Safety Zone	Safety Zone	Safety Zone				
"Bankruptcy" is very high at an Altman Z-score of below 1.22.									
"Grey area" exists with an Altman Z-score between 1.22 and 2.9.									
"Safety Area": Altman Z-score above 2.9.									

	Average Z Score	Financial Position
PRIME BANK	1.1287	Bankruptcy
DBBL	1.0115	Bankruptcy
AL-BANK	1.0313	Bankruptcy
BRAC	4.7669	Safety Zone
CITY BANK	1.0796	Bankruptcy
SIBL	0.8697	Bankruptcy
NCC	1.1545	Bankruptcy
UCB	0.9879	Bankruptcy
STANDARD	1.0677	Bankruptcy
ONE BANK	1.3975	Grey area
TRUST BANK	19.2599	Safety Zone
IBBL	14.8834	Safety Zone
PREMIER BANK	1.5051	Grey area
IFIC	1.5690	Grey area
SOUTHEAST	1.0378	Bankruptcy
EBL	1.3986	Grey area
EXIM	1.3656	Grey area
AB BANK	1.0838	Bankruptcy
BANK ASIA	0.8894	Bankruptcy
JAMUNA	0.1649	Bankruptcy
Industry Average	**2.88**	Grey area

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:
http://www.iiste.org

CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

Prospective authors of journals can find the submission instruction on the following page: http://www.iiste.org/journals/ All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: http://www.iiste.org/book/

Recent conferences: http://www.iiste.org/conference/

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library , NewJour, Google Scholar