Z-Score: A Predictive Tool of Financial Health
(A Comparative Study of Andhra Bank & Indian Bank)

Prof. T. Umamaheswara Rao,

Professor,
KL Business School,
Deemed to be University, Guntur, India.

B. Krishnaiah,

Assistant Professor,
Department of Business Administration,
SRK Institute of Technology,
Vijayawada, India.

Dr. M. Veerabhadra Rao,

Professor,
Department of Business Administration,
SRK Institute of Technology,
Vijayawada, India.

ABSTRACT

The Z-score is one of the important tools to measure the company's financial health and utilizes various important ratios for its formulation. The banking industry comes under to service sector. Service sector plays a wider role in growth of the country's economy. The financial health is one of the important elements in the present financial crisis facing the banks due to increasing the non-performing assets in both public and private sector banks in India. In this context it is necessary to understand the reasons for a bank sickness and the second question is- is it possible to estimate a banks failure using few modelling techniques with reasonable accuracy. The present research paper deals in analysis of financial health of selected public sector bank namely Andhra bank and Indian bank using tool Z-score developed by Altman and concluded that the public sector banks Andhra bank and Indian bank are under study fall in Grey zone. According to Z-score there is a probability of facing bankruptcy problem in Andhra bank in coming few years.

Keywords: Bankruptcy, Financial health, Non-performing assets, Grey zone, Financial performance.

INTRODUCTION:

Banking sector failure takes place due to many reasons. One of the important reasons is the financial crisis of 2007-08 and increasing of non-performing assets in both priority and non-priority sectors in public sector banks in India. while some banks within beginning itself few others grow, mature and fail much later. The failure takes place in a different way and also from various reasons. Having understood the causes for a bank sickness, the next important question is it is possible to estimate a bank failure applying statistical tool. Research shows that as a company enters the final stage prior to failure a pattern may develop in terms of changing financial ratios, which prove to be used indicators of an impending disaster. Altman has developed a statistical tool and found the statistical ratios best predicting bankruptcy. Based on Altman's sample of bankrupt banks the study yielded an equation that used five ratios to estimate bankruptcy.

REVIEW OF LITERATURE:

Majumder and Rahman (2011) used financial ratios and Prof. Altman's MDA Model, the Z-score Model for financial analysis of selected pharmaceutical companies in Bangladesh. They observed from the study that the profitability, liquidity and solvency position of the selected pharmaceuticals are not in sound position and it was also observed that most of the selected pharmaceuticals companies have a lower level position of bankruptcy.

Dr. D. Maheswara Reddy, (2011), In this research paper an attempt is made to predict the financial health of two selected sample pharmacy companies, Aurobindo Datong Bio-Pharmacy Ltd and Ranbaxy Laboratories Ltd for five years 2005-06 to 2009-10 using modified Altman's model. The research concluded that the overall financial health of both companies was good.

V. Dheenadhyalan (2008) adopted Z-score to predict the corporate failure of Steel Authority of India Limited (SAIL). The Z-score of the SAIL showed a rising trend throughout the study period and it was concluded that the financial health of the SAIL was good.

M. Khannadhasan (2007) ascertained the financial health of Wendt India Co. Ltd. by using Z score model. He concluded that company's overall financial health was good.

STATEMENT OF RESEARCH PROBLEM:

The important reason to failure of banking sector in India is a financial crisis of 2007-08 and continuous increasing of non-performing assets in public sector banks from 2010 onwards. In this context, it is necessary to study the financial stability of public sector banks in India. Hence the study has been undertaken with a prediction of financial health of selected public sector banks with Z-score analysis.

OBJECTIVES OF THE STUDY:

The primary objectives of the study are as follows:
- To analyse the overall financial performance of selected public sector banks.
- To estimate the financial health and viability of selected public sector banks.
- To examine the comparative analysis of the financial performance of Andhra bank and Indian bank.

METHODOLOGY OF THE STUDY:

Sample:
I have been selected two public sector banks namely Andhra bank an Indian bank because these banks are having more NPA'S and more branches in public sector banks in Andhra Pradesh.

Research Period:
The study period is confined to 5years starting from April 2015 to March 2019.

Data Collection:
The study is an empirical analysis based on secondary data collected from the annual reports of Andhra bank, Indian bank, Official website of banks, journals, web sources.

Tools and Techniques:
Analysis of banks financial health the researcher has been used Z-score model for drawing the conclusion of the research.

Z-Score Model:
The Z-score is a measure of company's health and utilizes several key ratios for its formulation. The model was developed in the late1960's by Edward Altman professor of finance at New York University school of business. The model incorporated five weighted financial ratios into the calculations of the Z-score.

Analysis of Z-Score:
Z-score value for public or manufacturing industries is calculated as follows:

$$Z=1.2*X1+1.4X*2+3.3*X3+0.6*X4+0.999*X5$$

Where a (X1) = working capital / total assets
b (X2) = retained earnings / total assets
c (X3) = EBIT / total assets
d (X4) = market value of assets / book value
e (X5) = net sales / total assets

LIMITATIONS OF THE STUDY:

1. The study is confined to two public sector banks namely Andhra bank and Indian bank. So, it may not represent whole of the universe.
2. To analyse the financial health of banks, the secondary data has been used. So, the limitations of the secondary data, limits the accuracy and authenticity of the conclusion.

Table 1: Statement Showing the Financial Data of Andhra Bank

(Rs In Crores)

Particulars	March 2015	March 2016	March 2017	March 2018	March 2019
Current Assets	137407.0	145327.0	161895.0	175927.0	238367.0
Current Liabilities	5499.0	5547.0	8309.0	5849.0	6047.0
Working Capital	131973.33	139779.67	153585.47	170078.0	232320.52
Retained Earnings	602.9	981.16	681.16	1198.83	10280.64
Ebit	5269.2	5437.1	5672.04	5361.03	5023.12
Book Value	166.94	161.41	166.87	90.24	45.64
Market Value	19.70	19.85	20.40	19.63	19.80
Total Assets	185170.0	200560.0	223123.0	242171.0	249311.41
Sales	175001.61	178001.49	200001.8	20346.60	20977.26

Source: Annual reports of Andhra bank / moneycontrol.com

Table 2: Statement Showing the Ratios of Andhra Bank

Ratio		2015	2016	2017	2018	2019
Working Capital/Total Assets	(X1)	0.71	0.70	0.69	0.70	0.93
Retained Earnings/ Total Assets	(X2)	0.003	0.003	0.003	0.05	0.04
Ebit / Total Assets	(X3)	0.028	0.027	0.025	0.022	0.020
Market Value / Book Value	(X4)	0.12	0.13	0.12	0.18	0.43
Sales / Toatl Assets	(X5)	0.95	0.89	0.90	0.08	0.08

Source: Calculated from table-1.

Table 3: Statement Showing the Z-Score of Andhra Bank

Year	1.2*1	1.4*2	3.3*3	0.6*4	0.999*5	Z-Score
2015	0.85	0.004	0.092	0.072	0.949	1.967
2016	0.84	0.004	0.089	0.078	0.889	1.90
2017	0.83	0.004	0.083	0.072	0.901	1.89
2018	0.84	0.007	0.073	0.108	0.080	1.108
2019	1.12	0.06	0.066	0.258	0.080	1.584

Source: Calculated from table-2

Inference:

The resulting Z-score puts a company one of the three categories. Companies with a Z-score above 3 are considered healthy. Z-score less than 1.8 indicates a high probability for bankruptcy in the few years (1-2 years). Score of 1.8-3 are considered within Grey area.

From the above table-3, it was found that 2015-17 the Z-score of Andhra bank is between 1.8 and 1.5 it means that the bank was in grey area it means that financial violability is considered to be healthy. During this period 2018-19 the Z-score was less than 1.8. therefore, the bank must improve its financial performance otherwise the bank may go to the bankruptcy situation.

Table 4: Statement of Showing Financial Data of Indian Bank

(Rs In Crores)

Particulars	March 2015	March 2016	March 2017	March 2018	March 2019
Current Assets	185012.49	194337.99	205536.14	241121.57	266561.43
Current Liabilities	6140.22	5665.77	5937.55	6224.12	6474.02
Working Capital	178872.27	188672.22	199598.59	234897.45	260087.41
Retained Earnings	14548.67	16009.54	16953.55	18235.15	19235.17
Ebit	11496.92	10971.49	10440.56	9520.68	10568.04
Book Value	261.46	280.63	301.10	329.53	399.24
Market Value	140.8	141.6	354	371	196.255
Total Assets	193035.72	203941.09	218507.44	252981.41	280388.28
Sales	15853	16243.78	16039.75	17113.65	19184.81

Source: Annual reports of Indian bank / moneycontrol.com

Table 5: Statement Showing Ratios of Indian Bank

Ratio		2015	2016	2017	2018	2019
Working Capital/Total Assets	(X1)	9.265	0.092	0.913	0.929	0.928
Retained Earnings/ Total Assets	(X2)	0.075	0.079	0.078	0.072	0.069
Ebit / Total Assets	(X3)	0.060	0.054	0.048	0.038	0.038
Market Value / Book Value	(X4)	0.539	0.505	1.176	1.126	0.491
Sales / Toatl Assets	(X5)	0.082	0.080	0.073	0.068	0.068

Source: calculated from table-4

Table 6: Statement Showing the Z-Score of Indian Bank

YEAR	1.2*1	1.4*2	3.3*3	0.6*4	0.999*5	Z-SCORE
2015	11.1	0.105	0.198	0.323	0.082	11.808
2016	0.110	0.111	0.178	0.303	0.082	0.784
2017	1.096	0.109	0.158	0.706	0.073	2.142
2018	1.115	0.101	0.125	0.676	0.068	2.085
2019	1.114	0.097	0.125	0.295	0.068	1.694

Source: calculated from table-5

Inference:

From the above table-6 reveals that the Z-score of Indian bank during the period of 2015-2019. During the period of 2019, the Z-score was 1.694 it was less than 1.8. So, there is a high probability for bankruptcy in coming 1-2 years where as the Z-score of Indian bank in the year 2018 and 2017 is 2.085 and 2.142 respectively. It was greater than 1.8. So, the bank was in grey area. In the year 2015 the calculated Z-score was greater than 3 so the bank financial health is healthy. Hence it was advised to Indian bank has to reduce its non-performing assets and try to improve its profits otherwise the bank may go to the bankruptcy situation in few years.

Table 7: Statement Showing Comparision off Z-Score of Andhra Bank and Indian Bank

Year	Andhra Bank (Z-Score)	% Change	Indian Bank (Z-Score)	% Change
2015	1.584	-	1.694	-
2016	1.108	-30%	2.085	+23%
2017	1.890	+71%	2.142	+2.73%
2018	1.90	+0.52%	0.784	-63%
2019	1.967	+3.52%	11.808	+14.6%

Source: Table -3 and Table -6

From the above table-7 reveals that the financial ratios are one is used to ascertain the financial health of selected assets. It was observed that the Z-score of Andhra bank was gradually increasing from 2017 onwards. Where as the Z-score of Indian bank was fluctuating in between 2015-2018 and it was reached highest in 2019 i.e., 11.808. It was concluded that after comparing the financial performance of both the banks, Indian bank performance in good when compared to Andhra bank.

FINDINGS OF THE STUDY:

1. It was found that 2015-17 the Z-score of Andhra bank is between 1.8 and 1.5 it means that the bank was in grey area it means that financial violability is considered to be healthy.
2. During the period of 2019, the Z-score was 1.694 it was less than 1.8. So, there is a high probability for bankruptcy in coming 1-2 years where as the Z-score of Indian bank in the year 2018 and 2017 is 2.085 and 2.142 respectively.
3. It was concluded that after comparing the financial performance of both the banks, Indian bank performance in good when compared to Andhra bank.

CONCLUSION:

It was concluded that the Andhra bank was fell in grey zone in between 2015 and 2019. Whereas the Indian bank fall in grey zone in 2016-17 and 2019. Hence it is advised to both the banks to improve their performance to avoid financial distress problem and also, the banks have to try to improve their Z-score, maintaining sufficient working capital and reducing their non-performing assets.

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