Impact Factor (SJIF): 6.092 E-ISSN: 2583-1615

International Journal of Research in Academic World

Received: 14/April/2023 **IJRAW:** 2023; 2(5):46-53 **Accepted:** 18/May/2023

Role of Financial Soundness of Banking Industry in India by Using Altman Z-Score Model-with Special Reference Union Bank of India-Empirical Evidence

[*1]Dr. Vanumu Chittabbai and [2]Dr. Ch. Vishnu Murthy

[*1]Principal, Government Degree College, Paderu, Alluri Sitharama Raju, Andhra Pradesh, India.

[2]Assistant Professor, Department of Commerce, Dr. V.S. Krishna Government Degree & OG College (A), Visakhapatnam, Andhra Pradesh, India.

Abstract

In this country, more than 75% of all banking transactions occur in nationalised banks. The government owns the lion's share of the stock in these financial institutions. After merging with its five partner banks (as of April 1, 2017), SBI has become one of the world's top 50 banks in terms of transaction volume. Every economy relies on a banking system that is as stable financially as possible. The failure of large banks might have severe consequences for the global economy. The recent demise of Lehman Brothers is an example of this domino effect in action. Examining the health of domestic financial institutions is critical here. A bank's financial health may be evaluated using a variety of measures, including capital adequacy ratios, profitability, liquidity, and hybrid models like the CAMEL rating.

A financial institution that offers banking and related services to the general public is known as a bank. Financial institutions, of which banks are a subset, are crucial to economies everywhere. They are crucial to the growth of the economy. Banking is a urgent movement. Because they make it easier for money to move around, financial institutions are very important to the growth of the economy. Banks serve as go-betweens between the lenders and the borrowers of money, allowing businesses and governments to function. An essential instrument for assessing the financial stability of a corporation is the Altman Z score model. Unfortunately, this aspect was least investigated by scholars examining banks' financial health. The Altman model is being used in the present study to assess the Indian banking industry. With just a few of notable outliers, the survey concluded that Indian banks are in a decent financial situation. Canara Bank, a public sector bank, and Kotak Mahindra Bank, a private sector bank, were the two institutions discovered to be in a troubled financial state. Both of these banks, however, have adequate capital adequacy ratios in comparison to their competitors. The study advises utilizing a hybrid model before making any definitive judgments about a company's financial stability.

Keywords: Altman model, financial position, hybrid model, union Bank of India

1. Introduction

Banks are essential to the economy as a whole because they collect savings from people all around the country and then make those money accessible for investment via lending or the purchase of assets. The banking industry is increasingly crucial to people's financial stability, companies, countries, and the global community as a whole, and the development of any economy. This article will offer a high-level overview of the banking industry, including its basic structure, major subsectors, and current developments. A financial institution that offers banking and related services to the general public is known as a bank. Financial institutions, of which banks are a subset, are crucial to economies everywhere. They are crucial to the growth of the economy. Banking is a urgent movement. Because they make it easier for money to move around, financial institutions are very important to the growth of the economy. Banks serve as go-betweens between the lenders and the borrowers of money, allowing businesses and governments to function.

Several variables, such as escalating inflation, currency devaluation, monetary instability, high interest rates, and subdued industrial production, contributed to a global financial crisis that was severe enough to weaken the banking system. When financial powerhouses Lehman Brothers and Merrill Lynch collapsed, it caused widespread worry among financial institutions throughout the world. Distress may be quantified in a number of ways, such by using a capital adequacy ratio, profit and loss statement, or liquidity statement, or a hybrid model like the CAMEL rating. The Altman score model is a useful tool for assessing a business's health and financial stability. Z-scores represent the model's assessment of a company's fiscal health. Edward Altman created the Z-score to predict whether or not a manufacturing company will go bankrupt. Since then, however, it has

***Corresponding Author:** Dr. Vanumu Chittabbai

undergone a number of revisions to make it suitable to non-manufacturing businesses, private enterprises, and those who engage in developing finance. More than 70% of business failures may supposedly be predicted using this technique. Unfortunately, this aspect was least investigated by scholars examining banks' financial health.

The financial area is indispensable to the economy of the US and the world. Albeit some might have a more extensive definition, the U.S. Division of Business considers it as a subsector of the bigger monetary administrations industry, which likewise incorporates resource the executives, protection, investment, and confidential value. This study means to evaluate the Altman model's materialness to the Indian financial area.

2. Review of Literature

- Dutta Purkayastha, Rajashree (2022): The Paper explained the argument that "Empirical analysis of commercial banks' credit risk management" can be found. The findings of the analysis are of significance both for theoretical and practical development. In total, 520 Ahmedabad District participants were invited to conduct a survey focusing on various aspects of credit-risk management in a structured banking environment that mould and reduce the risk profile. Based upon the findings of the report, the relationship of management commitment to credit risk management appears to be positive. Due to the mild impact this should be expected.
- Chintan Arunkumar Vora (2021): The Study Explain importance with regard to changing trends in the financial and economic climate and business banks' operations in India. This analysis is divided into three parts. The analysis begins with the changes since 2009 in the banking scenario and in the Indian Banking sector, the implementation of Basel III. A shift from Basel II to Basel III is necessary to impose safeguards and security requirements that will make banks more robust during financial crises, as discussed in Part II. Part III addresses the Basel III conformity mechanism and the Indian banks' internal evaluation exercises. The conclusion is that there are emerging problems for the Indian Banking sector.
- Turgut Tursoy (2020): A study conducted by the author proposes that the new Basel Committee recommendations, which create tougher measures to tackle the growing risks associated with banking, form the latest revisions applied by the committee. BIS application should be introduced in banks to deal with losses suffered when performing banking activities. In the aftermath of the Lehman bankruptcy, the recent crises led the Basel Committee to establish a new paradigm for low liquidity coverage in banks to achieve high and stable levels. This report found some substantial findings with respect to the application by the Basel monetary authority: First, it is important for international banks to fund their business in a healthy way that a financially stable financial authority is formed.
- Sharad Kumar (2019): The author explained the Risk Management that is applied to schedule, lead, coordinate, and monitors the broad range of risks that are present in the daily and long-term functioning of the company. This research aims to identify the risks that are related to the banking industry, as well as the strategies used for risk management. Finally, the author draws the conclusion that, when banks deal with risk carefully, it is a benefit to successful management of the banking industry.
- Eatessam Al-shakrchy (2018): This Study empirically tests the effect of commercial banks on credit risk management's profitability in Sweden's leading place with an emphasis on the 2008 financial crisis. Author explores the risk of a bankruptcy being reduced by the danger of financial ruin and how the Swedish bank can cope with its credit crises. Finding the root causes of banks lending and the resulting financial instability was the goal of this research.
- AnwenMd. Shafiqul Bari (2018): The author explains that it is true that the industry is benefiting from the recession, which somewhat protects it, credit risk management is much more important for financial institutions because of the success of financial transactions. In addition, it is a tool or philosophy that affects the stability and development of a company's profits over time. This article's goal is to investigate how credit risk management and the financial performance of Ethiopia's commercial banks are related.
- Waemustafa, SurianiSukri (2017): This study explores the connection between macroeconomic and bank-specific credit risk factors in Islamic and traditional banks. The multivariate regression used in this study is applied between 2000 and 2010 on the sample of 15 traditional banks and 13 Islamic banks in Malaysia. This result indicates that financial institutions exert a unique impact on the formation of Islamic and traditional banks' credit risk. Credit risk for conventional banks may be evaluated based on a number of criteria. These include loan loss allowance, debt-to-total asset ratio, regulatory capital, duration, earnings administration, and liquidity.
- Boris Siljkovic (2016): The author demonstrated that while the public is aware of risk management in banks during periods of global economic crisis, it has not been followed. Risk management has now become a vital feature in the banking sector, and banking regulators are putting checks in place between financial institutions to reduce potentially adverse effects for the industry as a whole. Therefore, this report provides details on market risks, as well as how banks use those risks to their advantage.
- Rob Nijskens, Wolf Wagner (2016): The author assesses both the systemic risk preceding the crisis and how credit-default swap (CDS) and collateralized loan bond (CLB) exposure differs between banks (CLOs). As a result, the price beta of the business rises dramatically following their initial use of either risk transfer form. The results support the idea that the consumer was aware of the risks associated with these approaches well before the crisis. In other words, while banks are holding back on their own credit risk, they potentially present a greater systemic risk. As a result, it poses a new challenge with regard to financial regulation, which is normally based on each institution.
- Somanadevi Thiagarajan, *et al* (2015): In this study, the author has assigned to both public and private banks, a broad R-square and health model as well as its ability to forecast the financial situation of the organizations, which models. The results indicate that late assets have a substantial and virtually essential positive impact on current non-performing assets. Banks and governments have changed their positions in the economy drastically with GDP and credit risk shifting in the opposite directions of public and private banking sectors. The research has found that macroeconomic and credit quality conditions of

commercial banks are important in the assessment of the risk of the business banking sector.

3. Statement of the Problem

Risk analysis and risk management have become increasingly relevant in the Indian economy during this period of liberalization. The most pressing issue facing the banking industry today is the challenge of identifying and managing risk. The banking industry's very presence instills the threat of risk. To put it simply, banks connect individuals with money to others who need it. As a result, operating risk must be assessed alongside other credit and market risk factors in order to determine the required composite estimate.

4. Research Gap

In order to assess the financial hardship of RSE-listed firms from 2017-18 to 2021-22, this study employed Altman's Z Score. The research is distinct from others that evaluate India's public sector banks by use of ratios.

5. Objectives of the Study

- To analyse Union Bank of India's financial soundness using Altman's Z-Score model.
- To Study the Relationship between Altman's z score NPAs and Net Profits Union Bank of India during this Period
- To estimate the differences in the Altman's Z Score Values of the Union Bank of India.

6. Hypotheses of the Study

H0: There is no Relationship between Altman's z score and Net Profits Union Bank of India during this Period.
H1: There is no Relationship between Altman's z score and Net Profits Union Bank of India during this Period.
H0: There is no Impact on Altman's z score and Net Profits Union Bank of India during This Period.
H1: There is no Impact on Altman's z score and Net Profits Union Bank of India during This Period

7. Research Methodology

- The study uses an Indian Small Finance Bank and the Altman Z score technique. Working Capital, Retained Earnings, Earnings before Interest and Tax, Book Value of Equity, Total Liability, and Total Assets are the four variables used in this hybrid model to calculate the corporate house's Z score. In order to conduct the study, secondary data from "Economics Times, Money Control, and Annual Financial Reports of Small Finance Banks" was used. The calculation of the Z score has finished.
- **Z = 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4**
- **X1** = "Working Capital/Total Assets"
- **X2** = "Retained Earnings/Total Assets"
- **X3** = "Earnings before Interest and Taxes/Total Assets"
- **X4** = "Book value of Equity/Total Liabilities".
- **X5** = "Sales/Total Assets"

8. Statistical Tools Used

- **Correlation:** Measurements alludes to any relationship, causal or not, between two arbitrary factors or bivariate information as connection or reliance.
- **Regression:** The statistical technique known as regression is utilized in a variety of fields, including finance, investment, and others, in order to ascertain the nature and degree of the connection that exists between a single dependent variable (typically denoted by Y) and a number of other variables, which are also referred to as independent variables.
- **Unit root test:** With the aid of the following procedure, it is utilised to determine the stationary of the data.
- **Ordinary Lest Square Method:** It's a tool for figuring out how one variable affects another. This analysis treats credit risk (as measured by a Z bank score) as an independent variable and bank stability (as measured by operating profit) as a dependent variable.

9. Scope of the Study

Delhi-based Punjab National Bank is a public sector bank in India that is owned by the government of that country. It was established in May 1894 and has since grown to become India's second-largest government-owned bank in terms of assets and branch locations.

10. Limitations of the Study

- The present study is limited to four Small Finance Banks.
- The study relied heavily on secondary sources, therefore the usual caveats about such research also apply here.
- Research on Banking Industry Publications
- Success stories drawn from secondary sources of information were the primary emphasis.

11. Result and Discussion

Table 1: To Study the Financial Soundness of Union Bank of India using Altman's Z-Score Model.

Years	Union Bank of India With Z-Score Model					
	X1	X2	X3	X4	X5	Altman Z score
	Working Capital/Total Assets	Retained Earning/Total Assets	EBIT/Total Assets	Equity/Total Liability	Sales/Total Assets	Risk Factor/Indicator
2021-2022	0.702	0.085	0.021	0.012	0.090	1.127
2020-2021	0.746	0.070	0.014	0.021	0.085	1.138
2019-2020	0.743	0.077	0.018	0.019	0.081	1.150
2018-2019	0.740	0.078	0.018	0.016	0.074	1.141
2017-2018	0.670	0.071	0.021	0.017	0.081	1.065

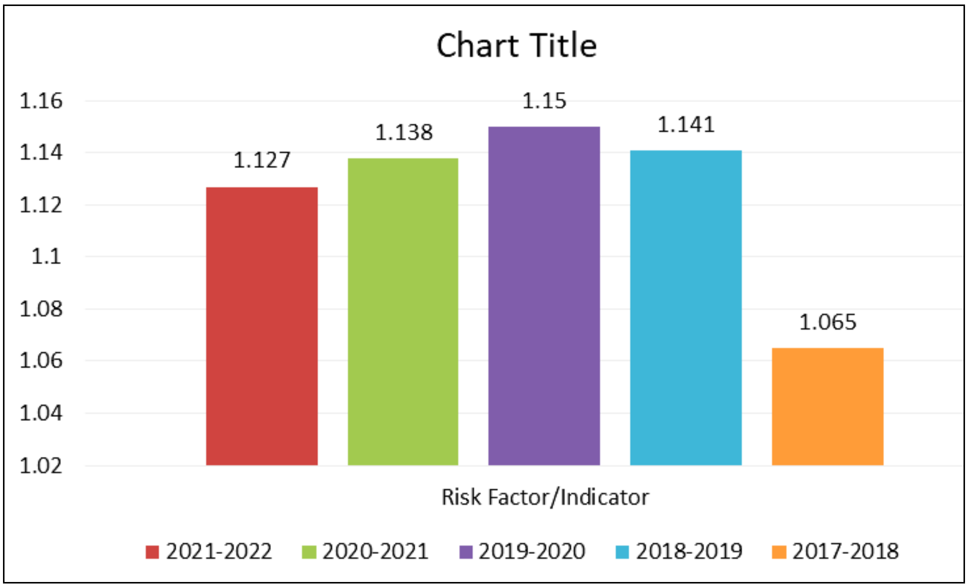

Fig 1: Union Bank of India with Z-Score Model

Above Table here describes regarding the Altman Z score Canara Bank from the year 2017-18 to 2021-22. The outcome of the study indicates about the highest chances of risk pertaining to be in the year 2017-18, 2018-19 and 2020-21 with the credit risk as 2.080, 1.403and 1.300. The further year's Altman Z score also decreased with the score as 1.403 meaning there are the high chances of risk for the Canara Bank. The results of the study implies the less bankruptcy in the year 2020-22 with the credit risk of 2.080 which implies the less risk comparatively than other years.

Table 2: Table Shows Z score and Correlations of Union Bank of India from 2017-18 to 2021-22.

Union Bank of India				
Year	**Altman's z score (X)**	**Advance**	**Deposits**	**Correlations (r)**
2021-2022	1.127	627,895.96	420,841.79	-0.258538994
2020-2021	1.138	627,113.56	365,686.52	-0.637822447
2019-2020	1.150	555,504.98	368,883.30	4.159215956
2018-2019	1.141	520,862.35	341,005.94	0.097202628
2017-2018	1.065	520,854.38	341,380.19	1.902401465

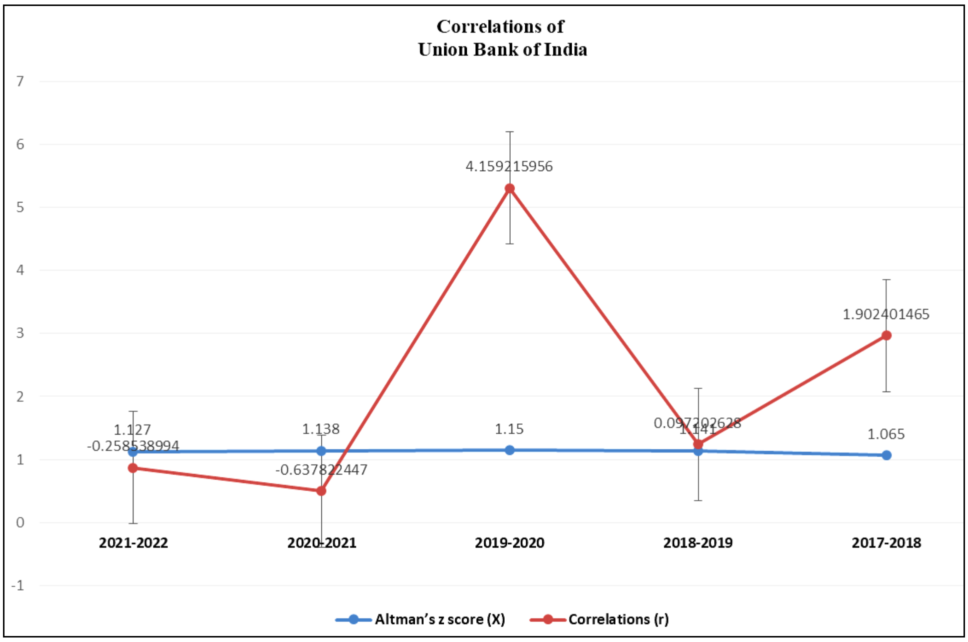

Fig 3: Graph Shows Z score and Correlations of Union Bank of India from 2017-18 to 2021-22.

Above Table and explain regarding the State Bank of India of Five years from 2016-17 to 2021-22 respectively. I identifying Altman Z Score and Correlation (r) Values of Indian Bank of Five years shows that the values are-0.258538994,-0.637822447, 5.159215956, 0.102026278, 1.102401465 respectively. Here I observed in the year of 2019-20 the Correlation (r) value of 5.159215956, so the correlation of Panjab National Bank is positively associated with Bank.

Table 3: Table Shows Z score and Regression of Union Bank of India from 2017-18 to 2021-22.

Union Bank of India				
Year	**Altman's z score (X)**	**Advance**	**Deposits**	**Regression (a/b)**
2021-2022	1.127	627,895.96	420,841.79	0.4672273
2020-2021	1.138	627,113.56	365,686.52	-0.2522938
2019-2020	1.150	555,504.98	368,883.30	-0.5981322
2018-2019	1.141	520,862.35	341,005.94	-0.003768
2017-2018	1.065	520,854.38	341,380.19	5.6409165

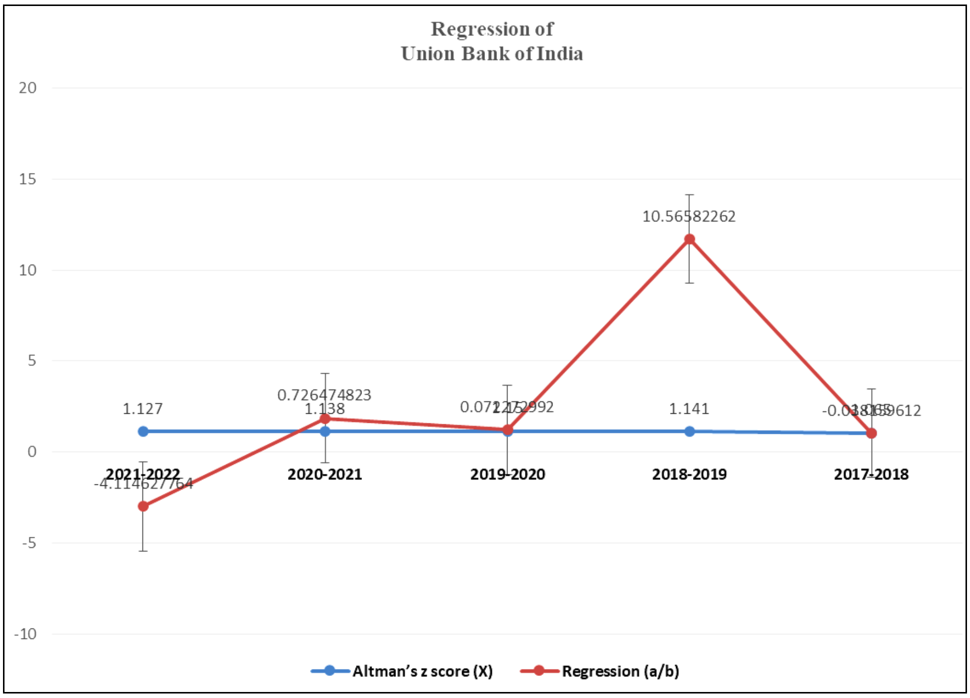

Fig 3: Graph Shows Z score and Regression of Union Bank of India from 2017-18 to 2021-22.

Above Table and explain regarding the Indian Bank of Five years from 2016-17 to 2021-22 respectively. I identifying Altman Z Score and Regression (a/b) Values of Punjab National Bank of Five years shows that the values are-0.258538994,-0.637822447, 4.159215956, 0.097202628, 1.902401465respectively. Here I observed in the year of 2019-20 the Regression (a/b) value of 4.159215956, so the correlation of Indian Bank is positively associated with Bank

Table 4: Shows Gross and Net NPAs Parameters of Union Bank of India from 2017-18 to 2021-22.

CANARA Bank					
Year/Particulars	**2022**	**2021**	**2020**	**2019**	**2018**
Gross NPA	54,059.39	66,670.99	69,381.43	48,232.77	56,480.39
Net NPA	13,364.65	21,799.88	21,576.59	15,609.50	23,482.65
Total					
Percentage of Gross NPA	0.07	8.87	9.40	9.61	12.26
Percentage of Net NPA	0.02	3.09	3.13	3.33	5.49
Percentage Return on Assets	0.01	0.07	0.06	0.06	-0.34
Ratios:					
Return on Capital employed	1.85	1.77	1.78	1.72	1.63
Net Profit Margin	1.17	0.71	0.87	-5.57	3.27
Operating Profit Margin	-16.36	-12.85	-11.77	-20.82	-12.73
Return on Assets	0.07	0.04	0.05	-0.33	0.19
Return on Equity	1.07	0.76	0.94	-5.6	3.43

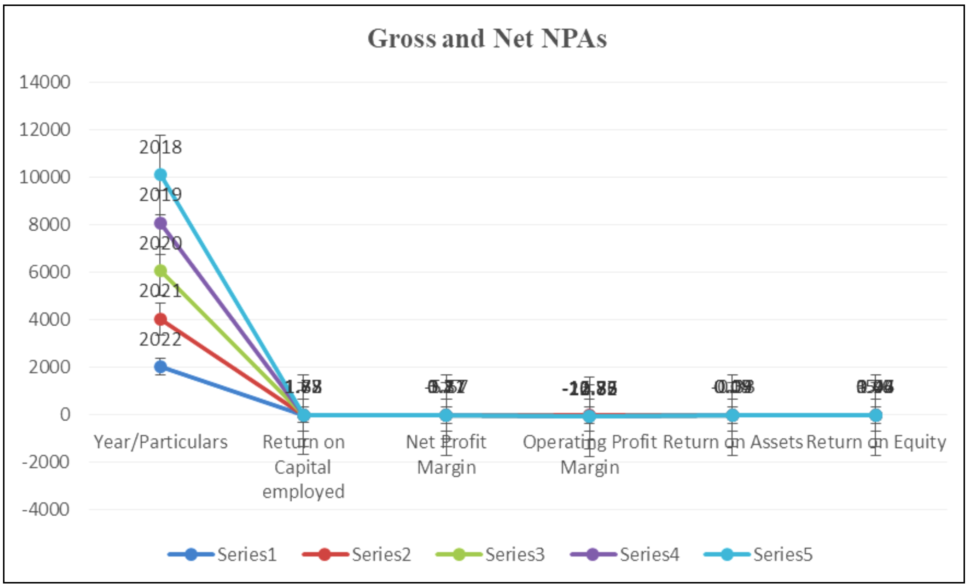

Fig 4: Shows Gross and Net NPAs Ratios Parameters of Union Bank of India from 2017-18 to 2021-22.

From the above table and chart, we can outline the ratios, the relationship between NPA and Profitability. In the year from 2016-17 to 2020-21, the ratios are Return on Capital employed, Net Profit Margin, Operating Profit Margin, Return on Assets, Return on Equity. Return on Capital employed is highest for the year 2016-17 i.e., 2.06 and lowest in 2017-18 i.e, 1.38. So, the NPA of 2020-21 indicates of Rs. 142999.12, Net Profit Margin is highest for the year 2016-17 i.e 2.80, Operating Profit Margin is highest for the year 2020-21 i.e,-13.36, Return on Assets is highest for 2016-17 i.e, 0.18 and Return on Equity is highest in the year 2016-17 i.e,3.47.

Table 5: Table Shows Profitability and Dividend Parameters of Union Bank of India from 2017-18 to 2021-22.

CANARA BANK						
Year	**Net Profit**	**Equity Share Capital**	**Earnings Per Share**	**Dividends Per Share**	**Deposits**	**Advances**
2022	31,675.98	892.46	35.49	35.49	627,895.96	420,841.79
2021	20,410.47	892.46	22.87	22.87	627,113.56	365,686.52
2020	14,488.11	892.46	16.23	16.23	555,504.98	368,883.30
2019	862.23	892.46	0.97	0.97	520,862.35	341,005.94
2018	6,547.45	892.46	7.67	-7.67	520,854.38	341,380.19

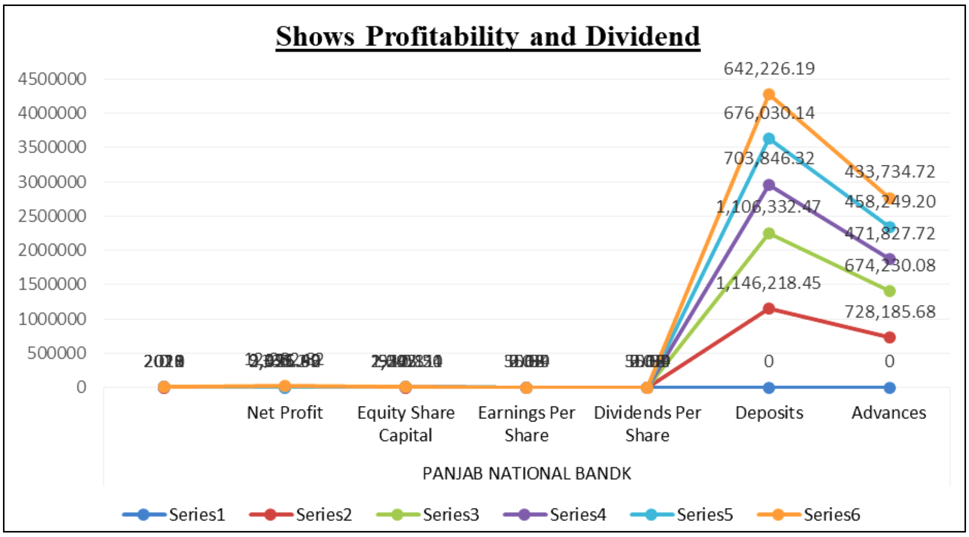

Fig 5: Shows Profitability and Dividend Parameters of Union Bank of India from 2017-18 to 2021-22.

From the above table and chart, we can outline the ratios, the relationship between NPA and Profitability. In the year from 2016-17 to 2020-21, the ratios are Return on Capital employed, Net Profit Margin, Operating Profit Margin, Return on Assets, Return on Equity. Return on Capital employed is highest for the year 2016-17 i.e., 2.06 and lowest in 2017-18 i.e, 1.38. So, the NPA of 2020-21 indicates of Rs. 142999.12, Net Profit Margin is highest for the year 2016-17 i.e 2.80, Operating Profit Margin is highest for the year 2020-21 i.e,-13.36, Return on Assets is highest for 2016-17 i.e, 0.18 and Return on Equity is highest in the year 2016-17 i.e,3.47.

Table 6: To estimate the differences in the Altman's Z Score Values between the Canara Bank Ordinary Least Square Union Bank of India

Dependent Variable: OPERATING_PROFIT_UBI				
Method: Least Squares				
Sample: 1 5				
Included observations: 5				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	67.36901	39.28443	1.714904	0.1849
Altman's z score of _UBI	-51.18783	34.93120	1.465390	0.0391
"R-squared"	0.417178	"Mean dependent var"	116.2639	
"Adjusted R-squared"	0.222904	"S.D. dependent var"	3.637733	
"S.E. of regression"	2.367238	"Akaike info criterion"	5.609793	
"Sum squared resid"	16.81145	"Schwarz criterion"	5.453569	
"Log likelihood"	-10.12625	"Hannan-Quinn criter.	5.190501	
"F-statistic"	6.147368	"Durbin-Watson stat"	2.515824	
"Prob(F-statistic)"	0.000058			

12. Conclusion

The study form Altman Z score result indicated that, Z score for the selected Small Finance bank is below the 1.8, which states that the Credit risk is observed to be higher for selected SFB. Hence the study suggests the Small Finance banks should work to improve the working capital ratio, so that the Credit risk management will improve significantly.

The study result indicated that the change in Credit risk will have the adverse effect on the Operating profit of Small Finance bank. Hence the study suggests the bankers should focus on the management of the credit activities in order to reduce improper loans, which would ultimately reduce risk in a bank and increase the capital base. To safeguard bank capital and reduce insolvency risks, financial institutions should use cutting-edge credit risk management strategies. In order to avoid these risks, banks should generate credit derivatives markets.

The findings of the Basel III preparation highlighted the need for banks to be prepared with comprehensive tools in advance so that problems do not hinder effective execution. Therefore, considering the impact of distinct dimensions on bank preparedness, they need to devise methods to control expenses and overcome problems while at the same moment deriving maximum execution benefit.

References

1. Agrawal MR, Financial Management, 1st Edition, RBSA Publishers, Jaipur, 2003, 386.
2. Brigham Eugene F, Houston Joel F. Fundamentals of Financial Management, 10th Edition (Indian), Cengage Learning, New Delhi, 2009, 565.
3. Rama Gopal CA C. Financial Management, 4th Edition, New Age International (P) Ltd. Publishers, New Delhi, 2008, 341.
4. Hossain Syed Zabid. Evaluation of Working Capital Management Through Accounting Ratios-A Suggested Framework, Working Capital Management, Edited by Rao Mohana D and Pramanika Alokkumar, Deep and Deep Publications Pvt. Ltd, New Delhi, 1999.
5. Khan AA. Working Capital Analysis, 1stEdition, Print well Publishers, Jaipur, 1990, 82
6. Khandelwal NM, Working Capital Management in Small Scale Industries, 1st Edition, Ashish Publishing House, New Delhi, 1985, 3.
7. Kulkarni PV, Satyaprasad BG. Financial Management - A Conceptual Approach, 13th Edition, Himalaya Publishing House, Mumbai, 2011, 704.
8. Reddy Sudarshan G. Financial Management-Principles and Practice, 3rd Revised Edition, Himalaya Publishing House, Mumbai, 2013, 526.
9. Roy Suvendu Narayan. Financial Management with New approach, 1st Edition, Himalaya Publishing House, Mumbai, 2013, 144.
10. Dr. RS Ch Murthy Chodisetty & Dr. Vijaykumar Kaluvala. Role Of Financial Performance on Banking Sector In India By Using Camel Model Analysis-With Special Reference To Axis Bank-An Empirical Evidence, Manager-*The British Journal of Administrative Management,* ISSN-1746 1278, 2022, 58(15).
11. Dr. RS Ch Murthy Chodisetty & Dr. Deepthi Kuppuswamy. Impact Of Employee Desertion On Productivity-With Special Reference To Zomato-An Empirical Evidence, Manager-*The British Journal of Administrative Management*, ISSN-1746-1278, 2022, 58(152).
12. Dr. RS Ch Murthy Chodisetty, Dr. Renuka N. Role Of Financial Soundness Of Banking Industry In India By Using Altman Z-Score Model-With Special Reference Punjab National Bank - Empirical Evidence, Manager-*The British Journal of Administrative Management*, ISSN-1746 1278, 2022, 58(152),
13. Dr. RS Ch Murthy Chodisetty, Sarika Koluguri. Impact Of Digital Marketing Strategies Adopted By The Companies-An Indian Perspective, Manager-*The British Journal of Administrative Management*, ISSN-1746 1278, 2022, 58(152).
14. Dr. R S Ch Murthy Chodisetty & Rajyalakshmi Sangisetty. Impact Of Micro Finance On Agricultural Sector In India-With Special Reference Kona Seema District Of Andhra Pradesh, India-An Empirical Evidence, Manager-*The British Journal of Administrative Management*, ISSN-1746 1278, 2022, 58(152).
15. Dr. RS Ch Murthy Chodisetty, Prof P. Raja Babu. Effects of Foreign Direct Investment (FDI) on Indian Economic Growth with Special reference Telecommunication Sector-*An Empirical Analysis-An Empirical Evidence, Journal of Interdisciplinary Cycle Research*, ISSN No: 0022-1945, 2022.
16. Dr. RS Ch Murthy Chodisetty & Prof P. Raja Babu. A Systematic Observation On Systematic Investment Plan (SIP) And Lump Sum Investment Plan(LIP) In Mutual Funds-With Special Reference to Kotak Bank Equity Fund Nippon India Equity Fund, *Journal of Interdisciplinary Cycle Research*, ISSN No: 0022-1945, 2022.
17. Dr. RS Ch Murthy Chodisetty, Prof. R Nageswara Rao. Impact of Foreign Direct Investment (FDI) on Indian Economic Growth with Special reference Infrastructure Sector-*An Empirical Analysis, Journal of Interdisciplinary Cycle Research*, ISSN No: 0022-1945, 2022.
18. Dr. RS Ch Murthy Chodisetty, Mrs. Addanki Sirisha. A Systematic Observation On SIP And LIP In Mutual Funds-With Special Reference to AXIS Bank Equity Fund& HDFC Bank Equity Fund, *Journal of Interdisciplinary Cycle Research*, ISSN No: 0022-1945, 2022.
19. Dr. RS Ch Murthy Chodisetty & Dr. L Srinivas Reddy. A Systematic Observation On Systematic Investment Plan

(SIP) And Lump Sum Investment Plan(LIP) In Mutual Funds-With Special Reference to ICICI Prudential Mutual Fund &Aditya Birla Sunlife Mutual Fund, *Journal of Interdisciplinary Cycle Research*, ISSN No: 0022-1945, 2022.
20. Dr. RS Ch Murthy Chodisetty & Mr. S Sreekanth. The Role of Consumer Behaviour Towards Online Shopping-An Empirical Evidence of Amazon, Flipkart., E-Bay, Myntra, *The International journal of analytical and experimental modal analysis*, 2022, XIV(III), ISSN NO: 0886-936, 2022.
21. Dr. RS Ch Murthy Chodisetty & Mr. S Sreekanth. The Impact of Shopper Social Etiquette Towards Online Shopping in India-An Empirical Study, *The International journal of analytical and experimental modal analysis*. Volume XIV, Issue III, March/2022, ISSN NO: 0886-936.
22. Dr. RS Ch Murthy Chodisetty, Dr. L Srinivas Reddy. Impact of Seasonal Crop Management on Agriculture Sector in India. (With Special Reference to East Godavari District of Andhra Pradesh-An Empirical Evidence), *The International journal of analytical and experimental modal analysis*. March/2022, ISSN NO: 0886-936, 2022, XIV(III).
23. Dr. RS Ch Murthy Chodisetty, Mr. P Arjun. Impact of Seasonal Crop Management on Agriculture Sector in India-(With Special Reference Eastern Districts of Andhra Pradesh-An Empirical Study). *The International journal of analytical and experimental modal analysis* March/2022, ISSN NO: 0886-936, 2022, XIV(III).
24. Dr. RS Ch Murthy Chodisetty, Mr. P Arjun, Mr. K Sreenivasa Charyulu. The Role of Agriculture Sector in India Using Crop Management Strategy-(With Special Reference to Costal area of East Godavari District, Andhra Pradesh, India-A Multiple Approach).The *International journal of analytical and experimental modal analysis*. March/2022, ISSN NO: 0886-936, 2022, XIV(III).
25. Dr. RS Ch Murthy Chodisetty. The Indian Economic Factors Impact on Foreign Direct Investment (FDI) On Indian Economic Growth, High Technology Letters, 2021, 27(1), ISSN NO: 1006-6748, http://www.gjstx-e.cn/.
26. Dr. RS Ch Murthy Chodisetty, Mr. N Satish Kumar. The Sectoral Investments Impact On Foreign Direct Investment In India, High Technology Letters, 2021, 27(1). ISSN NO: 1006-6748, http://www.gjstx-e.cn/.
27. Dr. RS Ch Murthy Chodisetty. The Institutional Factors Impact on Foreign Direct Investment (FDI) On Indian Economic Growth., High Technology Letters, 2021, 27(1), ISSN NO : 1006-6748, http://www.gjstx-e.cn/
28. Dr. RS Ch Murthy Chodisetty & Mr. S Sreekanth. The Role of Consumer Behaviour towards Online Shopping. (A Case Study on Amazon, Flipkart., E-Bay, Myntra)., High Technology Letters, 2021, 27(1). ISSN NO : 1006-6748, http://www.gjstx-e.cn/
29. Dr. RS Ch Murthy Chodisetty, Pentkar Arthi. Role of Foreign Direct Investment (FDI) on Indian Economic Growth with Special reference Chemical Sector, High Technology Letters, 2021, 27(6). ISSN No: 1006-6748, http://www.gjstx-e.cn/.
30. Dr. RS Ch Murthy Chodisetty, Pentkar Arthi. Role of Foreign Direct Investment (FDI) on Indian Economic Growth with Special reference Drugs and Pharmaceutical sector, High Technology Letters, 2021, 27(6). ISSN No: 1006-6748, http://www.gjstx-e.cn/.
31. RS Ch Murthy Chodisetty, Prof P Raja Babu. Role of Customer Brand Loyalty with Reference to Big Bazaar-An Empirical Research, *International Journal of Innovative Technology and Exploring Engineering (IJITEE)* ISSN: 2278-3075, 2019, 8(6S4).
32. RS Ch Murthy Chodisetty & Siddhani Reddy. Impact of Institutional Indicators Influence on FDI Flows with Reference to BRICS Countries-*An Empirical Research International Journal of Innovative Technology and Exploring Engineering (IJITEE)* ISSN: 2278-3075, 2019, 8(6S4).
33. RS Ch Murthy Chodisetty & L Deepshika Reddy. Impact of Institutional Indicators Influence on FDI Flows with Reference to BRICS Countries-An Empirical Research, *International Journal of Innovative Technology and Exploring Engineering (IJITEE)* ISSN: 2278-3075, 2019, 8(6S4).
34. RS Ch Murthy Chodisetty, L Deepshika Reddy. Impact of Global Economic Factors on FDI Flows in to India-*An Empirical Research, International Journal of Innovative Technology and Exploring Engineering* (IJITEE) ISSN: 2278-3075, 2019, 8(6S4).
35. RS Ch Murthy Chodisetty & B Harshini Reddy. The Pivotal Part of Global Direct Investment. A Research Pre & Post Liberalization Era, *International Journal of Innovative Technology and Exploring Engineering* (IJITEE) ISSN: 2278-3075, 2019, 8(6S4).
36. RS Ch Murthy Chodisetty & Prof P. Raja Babu. A Study of Global Foreign Direct Investment (GFDI) Impact on Indian Foreign Direct Investment (IFDI), *Journal of Adv Research in Dynamical & Control Systems*, 2018, 10(8-Special Issue).
37. RS Ch Murthy Chodisetty & Prof P. Raja Babu. A Study on Role of Dollar Index in Foreign Direct Investments and Foreign Institutional Investments of Select Countries, *Journal of Adv Research in Dynamical & Control Systems*, 2018, 10(8-Special Issue).
38. RS Ch Murthy Chodisetty & Prof P. Raja Babu. A Study on Foreign Direct Investments (FDI) Inflows Impact on Select Sectoral Investment Growth in India, *Journal of Adv Research in Dynamical & Control Systems*, 2018, 10(8-Special Issue).