

## Evaluating the Financial Health and Sickness of Indian Banking Industry: A Diagnostic Study Based on Z-Score Model

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### Abstract

Banks play a very important role in the development of an economy. If the banking sector is not functioning well then the whole country gets affected. This is when Acts like SICA act and organisations like BIFR becomes an essential element in an economy. In banks these situations usually arise out of high Non-Performing Assets (NPA). This case study uses the Z-Score model for the analysis of 12 banks with very high NPA and low market share. According to the analysis done by us the banks are nearing sickness. According Reserve Bank of India "a sick unit is one which has reported cash-loss for the year of its operation and in the judgment of the financing bank is likely to incur cash-loss for the current year as also in the following year."

**Keywords:** Z-Score model; Non-Performing Assets (NPA); SICA act.

### Introduction

According to, The Sick Industrial Companies (Special Provisions) Act, 1985, defined a sick industrial unit as one that had existed for at least five year and had incurred accumulated losses equal to or exceeding its entire net worth at the end of any financial year. Industrial sickness is defined all over the world as "an industrial company (being a company registered for not less than five years) which has, at the end of any financial year, accumulated losses equal to, or exceeding, its entire net worth and has also suffered cash losses in such financial year and the financial year immediately preceding such financial year".

### Role of Banks in India

Banks play a very useful and crucial role in the economic life of every nation. They have

control over a large part of the supply of money in circulation, and they can influence the nature and character of production in any country. In order to study the economic significance of banks, we have to review the general and important functions of banks.

### *Removing the deficiency of capital formation*

In any economy, economic development is not possible unless there is an adequate degree of capital accumulation (or) formation. Deficiency of capital formation is the result of low saving made by the community. The serious capital deficiency in developing economies is reflected in small amount of capital equipment per worker and the limited knowledge, training and scientific advance. At this juncture, banks play a useful role. Banks stimulate saving and investment to remove this deficiency. A sound banking system mobilizes small savings of the community and makes them available for investment in productive enterprises. The important implications of this activity include Banks mobilise deposits by offering attractive rates of interest and thus convert savings into active capital. Otherwise that amount would have remained idle. Banks distribute these savings through loans among productive enterprises which are helpful in nation building. It facilitates the optimum utilization of the financial resources of the community.

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*Provision of finance and credit*

Banks are very important sources of finance and credit for industry and trade. It is observed that credit is the lubricant of all commerce and trade. Hence, banks become nerve centres of all trade activities and therefore commerce and trade could function in the presence of sound banking system. The banks cover foreign trade transactions also. Big banks also undertake foreign exchange business. They help in concluding deferred payments, arrangements between the domestic industrial undertakings and foreign firms to enable the former import machinery and other essential equipment.

*Extension of the size of the market*

Commercial bankers help commerce and industry in yet another way. With the sound banking system, it is possible for commerce and industry for extending their field of operation. Commercial banks act as an intermediary between buyers and the sellers. Goods are supplied on bank guarantees, making it viable for industry and commerce to cultivate and locate markets for their products. The risks are undertaken by the bank. When the risks have been set free by the banks, the industry can look forward to derive economies of the large size of the market.

*Act as an engine of balanced regional development*

Commercial banks help in proper allocation of funds among different regions of the economy. The banks operate primarily for profits. When the banks lend their funds for more productive uses, their profits will be maximized. Introduction of branch banking makes it possible to choose between different regions. A region with growth potential attracts more bank funds. But in recent years, the approach of banks towards regional growth has been undergoing a change. Banks help create infrastructure essential for economic development. Thus banks are engines of balanced regional development in the country.

*Financing agriculture and allied activities*

The commercial bank helps the farmers in extending credit for agricultural development. Farmers require credit for various purposes like making their produce, for the modernization and mechanization of their agriculture, for providing irrigation facilities and for developing land. The banks also extend their financial assistance in the areas of animal husbanding, dairy farming, sheep

breeding, poultry farming and horticulture.

*For improving the standard of living of the people*

The standard of living of the people is estimated on the basis of the consumption pattern. The banks advance loans to consumers for the purchase of consumer durables and other immovable property, which will raise the standard of living of the people. Stimulating human capital formation, facilitating monetary policy formulation and developing entrepreneurs are some of the other roles played by commercial banks in the economic life of every nation.

*Problems Faced by Banking Sector in India*

Most of the rural branches are running at a loss because of high overheads and prevalence of the barter system in most parts of rural India.

*Large Over-Dues*

The small branches of commercial banks are now faced with a new problem—a large amount of overdue advances to farmers. The decision of the former National Front Government to waive all loans to farmers up to the value of ₹ 10,000 crores has added to the plight of such banks.

*Non-Performing Assets*

The commercial banks at present do not have any machinery to ensure that their loans and advances are, in fact, going into productive use in the larger public interest. Due to a high proportion of non-performing assets or outstanding due to banks from borrowers they are incurring huge losses. Most of them are also unable to maintain capital adequacy ratio (Rajan and Dhal, 2003; Sathye, 2003; Kamath, 2007)

Talking about NPAs the gross non-performing assets (NPAs) of all the banks in the country amounted to ₹ 840, 958 crores in December, led by industry loans followed by services and agriculture sectors. The highest amount of gross NPAs was for country's largest lender State Bank of India (SBI) at ₹201, 560 crores. Among others, Punjab National Bank (PNB) was at ₹55, 200 crores; IDBI Bank ₹44, 542 crores; Bank of India ₹43, 474 crores; Bank of Baroda ₹41, 649 crores; Union Bank of India ₹38, 047 crores; Canara Bank ₹37, 794 crores and ICICI Bank ₹33, 849 crores. Indian Overseas Bank had gross NPAs of ₹31, 724 crores; Central Bank of India ₹32, 491 crores; UCO Bank ₹24, 308 crores;

Allahabad Bank ₹23, 120 crores; Andhra Bank ₹21, 599 crores and Corporation Bank ₹21, 818 crores. Reserve Bank of India (RBI) has issued a Prompt Corrective Action (PCA) framework to maintain sound financial health of banks. RBI has placed eleven PSBs—Dena Bank, Central Bank of India, Bank of Maharashtra, UCO Bank, IDBI Bank,

Oriental Bank of Commerce, Indian Overseas Bank, Corporation Bank, Bank of India, Allahabad Bank and United Bank of India—under the PCA framework.

#### *Advance to Priority Sector*

As far as advances to the priority sectors are concerned, the progress has been slow. This is partly attributable to the fact that the bank officials from top to bottom could not accept nationalisation gracefully, viz., and diversion of a certain portion of resources to the top priority and hitherto neglected sectors. This is also attributable to the poor and unsatisfactory loan recovery rates from the agricultural and small sectors (Dasgupta, 2002; Shajahan, 1998)

#### *Competition from Non-Banking Financial Institution*

As far as deposit mobilisation is concerned, commercial banks have been facing stiff challenges from non-banking financial intermediaries such as mutual funds, housing finance corporations, leasing and investment companies. All these institutions compete closely with commercial banks in attracting public deposits and offer higher rates of interest than are paid by commercial banks.

#### *Competition with Foreign Banks*

Foreign banks and the smaller private sector banks have registered higher increase in deposits. One reason seems to be that non-nationalised banks offer better customer service. This creates the impression that a diversion of deposits from the nationalised banks to other banks has probably taken place.

#### *Gap between Promise and Performance*

One major weakness of the nationalised banking system in India is its failure to sustain the desired credit pattern and fill in credit gaps in different sectors. Even though there has been a reorientation of bank objectives, the bank staff has remained virtually static and the bank procedures and practices have continued to remain old and outmoded.

The post-nationalisation period has seen a widening gap between promise and performance. The main reason seems to be the failure of the bank staff to appreciate the new work philosophy and new social objectives.

#### *Bureaucratisation*

Another problem faced by the commercial banks is bureaucratisation of the banking system. This is indeed the result of nationalisation. The smooth functioning of banks has been hampered by red-tapism, long delays, lack of initiative and failure to take quick decisions (Ahluwalia, 1999; Jhodka, 1995).

#### *Political Pressures*

The smooth working of nationalised banks has also been hampered by growing political pressures from the Centre and the States. Nationalised banks often face lots of difficulties due to various political pressures. Such pressures are created in the selection of personnel and grant of loans to particular parties without considering their creditworthiness.

### **Methodology**

Bankruptcy can be estimated with the help of various models (Grice and Ingram, 2001; Gross and Lacampagne, 1993). A Z-score is a numerical measurement of a value's relationship to the mean in a group of values (Altman, 2000; Economos et al., 2007). If a Z-score is 0, it represents the score as identical to the mean score. Z-score may also be positive or negative, with a positive value indicating the score is above the mean and a negative score indicating it is below the mean. Positive and negative scores also reveal the number of standard deviations that the score is either above or below the mean. The Altman Z-score is the output of a credit-strength test that helps gauge the likelihood of bankruptcy for a publicly traded manufacturing company. The Z-score is based on five key financial ratios that can be found and calculated from a company's annual 10-K report.

#### *Formula of Z-Score*

$Z = 6.56T_1 + 3.26T_2 + 6.72T_3 + 1.05T_4$   
T<sub>1</sub> = Working capital/total assets  
T<sub>2</sub> = Retained earnings/total assets

T<sub>3</sub> = Earnings before interest and taxes (EBIT)/total assets

T4 = Market value of equity/book value of total liabilities

Zones of Discrimination:

Z > 2.6 - "Safe" Zone

1.1 < Z < 2.6 - "Grey" Zone

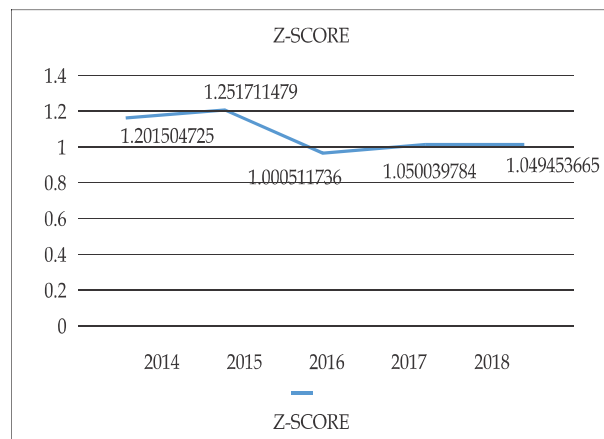
Z < 1.1 - "Distress" Zone

**Result and discussion**

This chapter covers current status and performance in terms of financial health and sickness of selected banks by using Z-Score model. For study purpose five private banks and seven public sector banks were selected and results of the Z-Score of each bank are presented.

**Table 1: Z-Score of Bank of India**

	2018	2017	2016	2015	2014
T1	0.0022	-0.0043	0.0003	0.0190	0.0062
T2	0.0569	0.0488	0.0506	0.0509	0.0521
T3	-0.0140	-0.0038	-0.0130	0.0029	0.0061
T4	0.8989	0.9002	0.8766	0.8957	0.9038
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	2018	2017	2016	2015	2014
6.56 T1	0.0145	-0.0287	0.0025	0.1251	0.0411
3.26 T2	0.1855	0.1591	0.1650	0.1660	0.1698
6.72T3	-0.0945	-0.0256	-0.0875	0.0199	0.0414
1.05T4	0.9439	0.9453	0.9204	0.9405	0.9490
Z-SCORE	1.0494	1.0500	1.0005	1.2517	1.2015



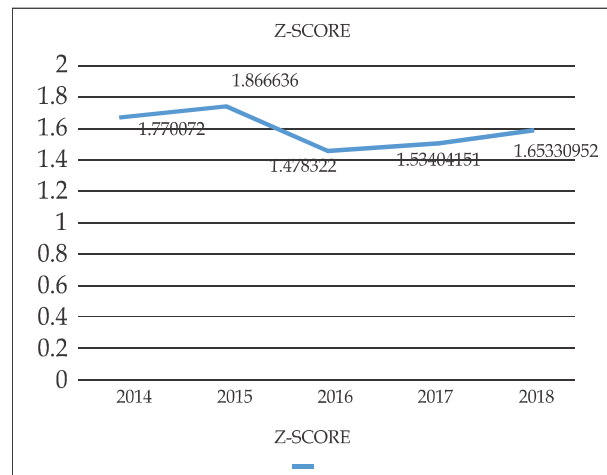
*Interpretation:-* From the analysis of the data it is clear that BANK OF INDIA is in the greyzone i.e. between 1.1 and 2.6. This indicates that the bank is in need of intervention from the RBI. The bank had a z-score of 1.20 IN 2014 which has decreased to 1.005 in 2016. Necessary steps

should be taken by the bank to prevent it from entering into the Red zone. The reason for low

z-score could be high of NPAs or less market share or internal management.

**Table 2: Z-Score of Federal Bank**

	2018	2017	2016	2015	2014
T1	0.0421	0.0252	0.0255	0.0638	0.0575
T2	0.0853	0.0745	0.0843	0.0908	0.0896
T3	0.0100	0.0116	0.0080	0.0184	0.0161
T4	0.9825	0.9973	0.9351	0.9786	0.9452
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	2018	2017	2016	2015	2014
6.56 T1	0.2761	0.1657	0.1673	0.4189	0.3772
3.26 T2	0.2781	0.2429	0.2749	0.2960	0.2921
6.72T3	0.0672	0.0780	0.0542	0.1239	0.1081
1.05T4	1.0316	1.0472	0.9819	1.0276	0.9924
Z-SCORE	1.6533	1.5340	1.4783	1.8666	1.7700

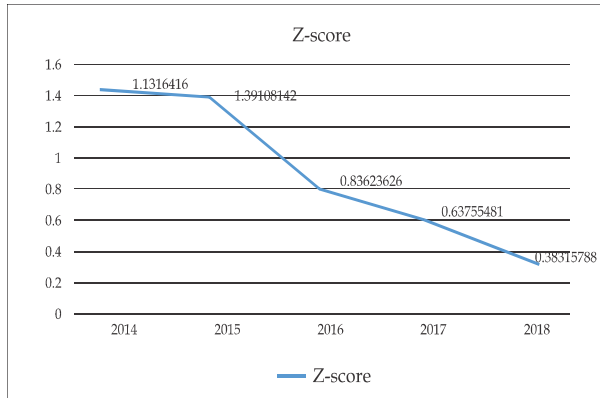


*Interpretation:-* By analysing the above data of Federal Bank, it indicates that the bank is in grey zone between 1.1 and 2.6. Federal Bank should also take necessary steps to come out of the grey zone. This may be because of high NPA of the bank.

**Table 3: Z-Score Of Idbi**

	2018	2017	2016	2015	2014
T1	-0.0904	-0.0618	-0.0404	0.0337	0.0385
T2	0.0536	0.0585	0.0694	0.0639	0.0669
T3	-0.0232	-0.0139	-0.0096	0.0026	0.0035
T4	0.9115	0.9015	0.8954	0.8982	0.8922

	2018	2017	2016	2015	2014
6.56 T1	-0.5936	-0.4057	-0.2654	0.2212	0.2526
3.26 T2	0.1747	0.1907	0.2264	0.2085	0.2182
6.72T3	-0.1561	-0.0940	-0.0650	0.0180	0.0238
1.05T4	0.9571	0.9465	0.9402	0.9431	0.9368
Z-SCORE	0.3821	0.6375	0.8362	1.3910	1.4316

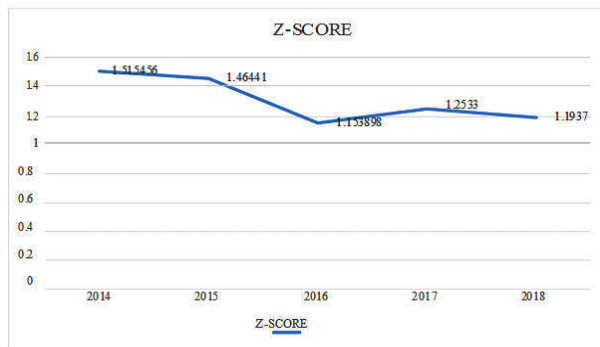


*Interpretation:-* By analysing the above data of IDBI Bank, it indicates that the bank is in Red zone i.e. below 1.1. This shows that the bank is in desperate need of help from RBI. Also IDBI bank should change its loan approval procedure to even stricter norms. Also ensure continuous conformity of the KYC norms of all customers, especially customers who are likely to default.

**Table 4: Z-Score of South Indian Bank**

	2018	2017	2016	2015	2014
T1	-0.00358	0.0032	-0.0083	0.0368	0.0397
T2	0.0612	0.0627	0.0586	0.0584	0.0588
T3	0.0060	0.0080	0.0080	0.0079	0.0132
T4	0.9304	0.9265	0.9170	0.9322	0.9277

	2018	2017	2016	2015	2014
6.56 T1	-0.0234	0.0214	-0.05453	0.2418	0.2605
3.26 T2	0.1995	0.2046	0.1912	0.1904	0.1917
6.72T3	0.0406	0.0542	0.0542	0.0531	0.0890
1.05T4	0.9770	0.9728	0.9629	0.9788	0.9741
Z-SCORE	1.1937	1.2533	1.1538	1.4644	1.5154



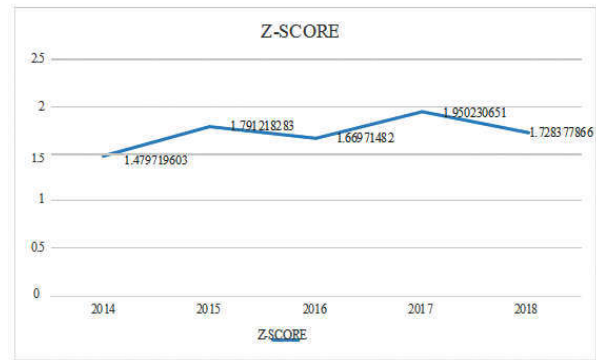
*Interpretation:-* From the analysis of the data above we can see that the South Indian Bank is in grey zone over the period of 5 years. The bank is able to maintain a steady average between 1.1 and 2.6 of the z-score model. The challenges faced by

the South Indian Bank maybe high NPA and low market share.

**Table 5: Z-Score of Yes Bank**

	2018	2017	2016	2015	2014
T1	0.0315	0.0408	0.0226	0.0381	0.0381
T2	0.0809	0.1003	0.0807	0.0826	0.0826
T3	0.0198	0.0234	0.0227	0.0213	0.0213
T4	1.0703	1.1403	1.0527	1.0743	0.7776

	2018	2017	2016	2015	2014
6.56 T1	0.2072	0.2677	0.1483	0.2505	0.2505
3.26 T2	0.2638	0.3271	0.2632	0.2693	0.2693
6.72T3	0.1334	0.1579	0.1527	0.1432	0.1432
1.05T4	1.1238	1.1973	1.1053	1.1280	0.8165
Z-SCORE	1.7283	1.9502	1.6697	1.7912	1.4797

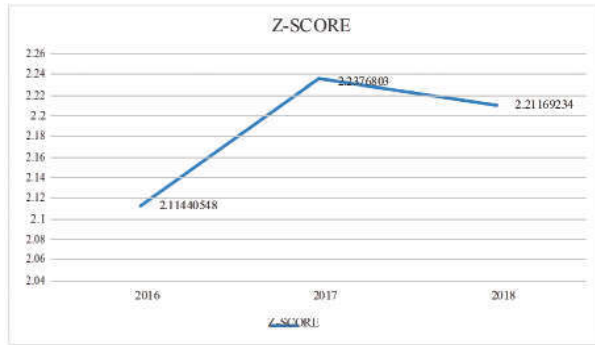


*Interpretation:-* From the analysis of the data above we can see that Yes bank has steadily improved over the past 5 years, but it is still in the grey zone, i.e. between 1.1 and 2.6 on the Z-Score scale. From the last five years it shows that it follows a zigzag pattern. This shows that the bank will perform consistently over the past five years.

**Table 6: Z score of IndusInd bank**

	2018	2017	2016
T1	0.0472	0.0582	0.05273
T2	0.1048	0.1121	0.1220
T3	0.0300	0.0244	0.0163
T4	1.2937	1.2627	1.2009

	2018	2017	2016
6.56 T1	0.3097	0.3822	0.3459
3.26 T2	0.3416	0.3655	0.3977
6.72T3	0.2018	0.1639	0.1097
1.05T4	1.3584	1.3258	1.2610
Z-SCORE	2.2116	2.2376	2.1144



*Interpretation:* From the analysis of the data we can see that Indusind bank is in grey zone. The bank had improved in the year 2016-2017, but later dropped a bit in 2018. The drop maybe due to demonetisation or increase in NPA due to frauds over the past year.

**Table 7: Z score of syndicate bank**

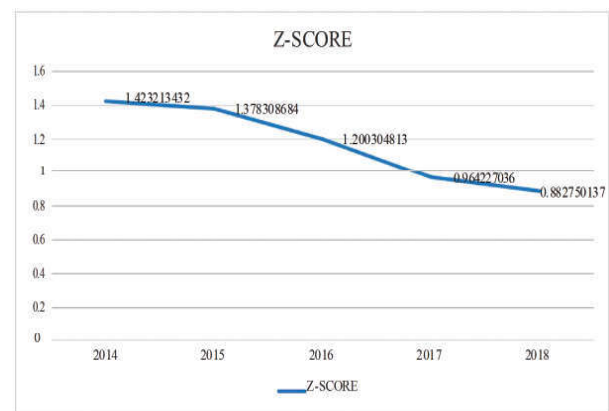
	2018	2017	2016	2015	2014
T1	0.0158	0.0233	0.0184	0.0232	0.0219
T2	0.0465	0.0492	0.0420	0.0448	0.0487
T3	-0.0134	0.0021	-0.0032	0.0065	0.0064
T4	0.9170	0.9027	0.9008	0.9088	0.8889
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	2018	2017	2016	2015	2014
6.56 T1	0.1037	0.1529	0.1207	0.1522	0.1440
3.26 T2	0.1517	0.1606	0.1371	0.1461	0.1589
6.72T3	-0.0905	0.01464	-0.0221	0.0441	0.0436
1.05T4	0.9628	0.9479	0.9458	0.9542	0.9334
Z-SCORE	1.1278	1.2761	1.1815	1.2967	1.2801



*Interpretations:* From the analysis of the data, syndicate bank has shown steady decline in their performance over the years. The bank is in grey zone for now but will soon enter the red zone. Considering 2018 where the Z score is minimum compare to last five years. This proves that the bank must strategize their policy which will prevent them from entering the red zone.

**Table 8: Z-score of Oriental Bank of Commerce**

	2018	2017	2016	2015	2014
T1	-0.0068	-0.0181	0.00926	0.0335	0.0360
T2	0.0478	0.0544	0.0615	0.0584	0.0596
T3	-0.0261	-0.0060	0.0013	0.0039	0.0071
T4	0.9024	0.9009	0.8854	0.8958	0.8990
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	2018	2017	2016	2015	2014
6.56 T1	-0.0451	-0.1187	0.0607	0.2203	0.2367
3.26 T2	0.1558	0.1774	0.2006	0.1906	0.1943
6.72T3	-0.1755	-0.0404	0.0092	0.0266	0.0482
1.05T4	0.9475	0.9459	0.9296	0.9406	0.9439
Z-SCORE	0.8827	0.9642	1.2003	1.3783	1.4232



*Interpretation:* Oriental bank of commerce was in the grey zone till 2016, in 2017 the bank entered into the red zone. RBI must take necessary actions the help the bank come out of the red zone as this bank is likely to default in the near future. The pattern of the graph shows that the z-score has dropped significantly over the years. The gradual drop in the z-score maybe due to poor management, high NPA and poor KYC norms adherence.

**Table 9: Z-Score of Canara Bank**

	2018	2017	2016	2015	2014
T1	-0.0067	0.0040	0.0059	0.0155	0.0220
T2	0.0572	0.0571	0.0565	0.0573	0.0593
T3	0.0155	0.0153	0.0129	0.0127	0.0139
T4	0.8884	0.8941	0.8804	0.8861	0.8739
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	2018	2017	2016	2015	2014
6.56 T1	-0.0443	0.0262	0.0388	0.1017	0.1445
3.26 T2	0.1867	0.1864	0.1842	0.1868	0.1933
6.72T3	0.1042	0.1032	0.0872	0.0859	0.0937
1.05T4	0.9329	0.9388	0.9245	0.9305	0.9176
Z-SCORE	1.1794	1.254	1.2348	1.3050	1.3493

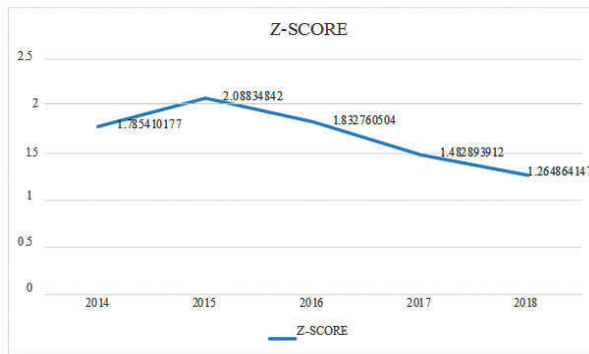


*Interpretation:* Canara bank has shown steady decline in their performance since 2014. Currently it is in grey zone and most likely it will enter the red zone. In order to avoid that the bank should implement some decisions based on the current scenario otherwise the result could be catastrophic.

Table 10: Z- Score of Axis Bank

	2018	2017	2016	2015	2014
T1	0.0104	0.0098	0.0409	0.0684	0.0684
T2	0.0905	0.0914	0.0997	0.0951	0.0951
T3	-0.0228	0.0097	0.0238	0.0239	0.0239
T4	1.0042	1.0043	1.0269	1.1121	0.8236

	2018	2017	2016	2015	2014
6.56 T1	0.0686	0.0648	0.2689	0.4492	0.4492
3.26 T2	0.2950	0.2980	0.3252	0.3103	0.3103
6.72T3	-0.1533	0.0654	0.1602	0.1609	0.1609
1.05T4	1.0544	1.0545	1.0782	1.1677	0.8648
Z-SCORE	1.2648	1.4828	1.8327	2.0883	1.7854



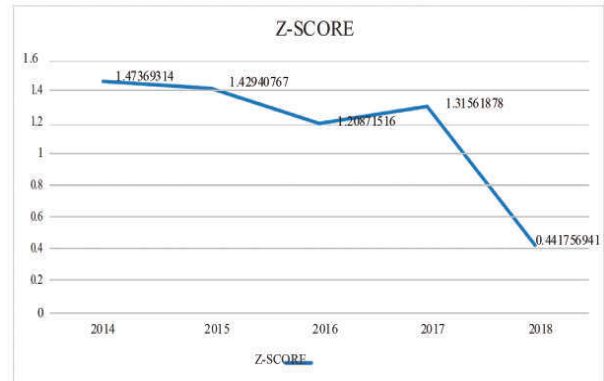
*Interpretation:* From the above data it can be seen that axis bank is in grey zone. The score grew a bit in 2015 but since then it has fallen steadily over the years. Currently the bank is in grey zone but if the company keeps on performing like this soon it will be reaching in the danger zone.

Table 11: Z-Score of Punjab National Bank

	2018	2017	2016	2015	2014
T1	0.0083	0.0242	0.0252	0.0412	0.0449
T2	0.0538	0.0582	0.0580	0.0663	0.0663

T3	-0.0161	0.0012	-0.0051	0.0052	0.0061
T4	0.3051	0.9127	0.8459	0.8641	0.8770

	2018	2017	2016	2015	2014
6.56 T1	0.0546	0.1589	0.1656	0.2703	0.2951
3.26 T2	0.1754	0.1900	0.1893	0.2163	0.2163
6.72T3	-0.1087	0.0082	-0.0345	0.0353	0.0413
1.05T4	0.3203	0.9583	0.8882	0.9073	0.9208
Z-SCORE	0.4417	1.3156	1.2087	1.4294	1.4736

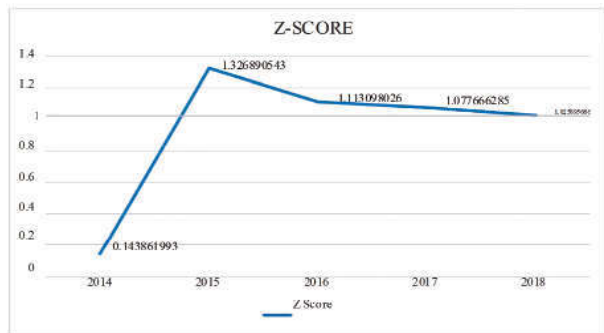


*Interpretation:* From the above data we can see that PNB is in Red zone in 2018. This is because of Recent Nirav Modi Scam of ₹11,500 crores. Before that the bank was performing decently well from 2014-2017 respectively in comparison to performance in 2018. But because of this scam it led PNB into distress.

Table 12: Z-Score of State Bank Of India

	2018	2017	2016	2015	2014
T1	-0.0116	-0.0069	-0.0014	0.0234	-0.2421
T2	0.0634	0.0628	0.0605	0.0594	0.0615
T3	-0.0033	0.0002	0.0061	0.0095	0.0915
T4	0.8748	0.8732	0.8423	0.8713	0.8730

	2018	2017	2016	2015	2014
6.56 T1	-0.0767	-0.0458	-0.0097	0.1537	-1.5883
3.26 T2	0.2068	0.2047	0.1973	0.1939	0.2005
6.72T3	-0.0227	0.0018	0.0411	0.0643	0.6150
1.05T4	0.9185	0.9169	0.8844	0.9148	0.9166
Z-SCORE	1.0258	1.0776	1.1130	1.3268	0.1438



*Interpretation:* It is well known that SBI has the highest NPAs in India of 2, 23,427 Crores. But from year 2014 to 2015. They grew exponentially and

after that they are in a stagnant position. But due to high NPAs they still have to frame a policies which will mitigate their problems accordingly.

**Table 13: Comparison of Bank Performance (Z-Score)**

Particulars	2018	Z	2017	Z	2016	Z	2015	Z	2014	Z
		O		O		O		O		O
		N		N		N		N		N
		E		E		E		E		E
Bank Of India	1.0494	G	1.0500	G	1.0005	G	1.2517	G	1.20150	G
		R		R		R		R		R
		E		E		E		E		E
		Y		Y		Y		Y		Y
Federal Bank	1.6533	G	1.5340	G	1.4783	G	1.86663	G	1.77007	G
		R		R		R		R		R
		E		E		E		E		E
		Y		Y		Y		Y		Y
Idbi Bank	0.3821	R	0.6375	R	0.8362	R	1.39108	G	1.43164	G
		E		E		E		R		R
		D		D		D		E		E
								Y		Y
South Indian Bank	1.1937	G	1.2533	G	1.1538	G	1.46441	G	1.51545	G
		R		R		R		R		R
		E		E		E		E		E
		Y		Y		Y		Y		Y
Yes Bank	1.7283	G	1.9502	G	1.6697	G	1.79121	G	1.47971	G
		R		R		R		R		R
		E		E		E		E		E
		Y		Y		Y		Y		Y
Indusind Bank	2.2116	G	2.2376	G	2.1144	G	-		-	
		R		R		R				
		E		E		E				
		Y		Y		Y				
Syndicate Bank	1.1278	G	1.2761	G	1.1815	G	1.29678	G	1.28011	G
		R		R		R		R		R
		E		E		E		E		E
		Y		Y		Y		Y		Y
Oriental Bank Of Commerce	0.8827	R	0.9642	R	1.2003	G	1.37830	G	1.42321	G
		E		E		R		R		R
		D		D		E		E		E
						Y		Y		Y
CANARA BANK	1.1794	G	1.2546	G	1.2348	G	1.30508	G	1.34934	G
		R		R		R		R		R
		E		E		E		E		E
		Y		Y		Y		Y		Y
Axis Bank	1.2648	G	1.4828	G	1.8327	G	2.08834	G	1.78541	G
		R		R		R		R		R
		E		E		E		E		E
		Y		Y		Y		Y		Y
Punjab National Bank	0.4417	R	1.3156	G	1.2087	G	1.4294	G	1.473693	G
		E		R		R		R		R
		D		E		E		E		E



				Y		Y		Y		Y
State Bank of India	1.0258	G	1.0776	G	1.1130	G	1.3268	G	0.1438	G
		R		R		R		R		R
		E		E		E		E		E
		Y		Y		Y		Y		Y

## Conclusion

This report was prepared with the intension to understand the solvency of selected banks in India. We have chosen the above banks on the basis of very low market share and relative high NPA's. We have used the Z-score model to analyse the banking industry. It is found that the banking sector in India is not performing well. Almost all the banks are in danger of becoming insolvent or sick in the near future, if they don't take the necessary measures to improve their performance. Some of the effective measures which may be taken for revival of sick units are technical help, professional counselling and improved management. Also, the role of professionals and experi-enced management becomes more important in times of sickness. In addition to technical and professional consultants, no sick industry will ever be able to recu-perate without sufficient, timely and soft finance. Bankers are the key to the problem. The role of the bankers needs to be redefined and a new direction needs to be given to support aid and lift sick industrial units from the situations that befall them. It is also the level of service and support in terms of financial advice, assistance in related matter of insurance, release of hypothecated assets and timely finance. The Sick Industrial Companies (Special Provisions) Bill, 1997, passed by Lok Sabha, introduced encouraging changes. It suggested that a time-bound procedure was to be adopted within which the scheme has to be sanctioned and BIFR would play the role of a mediator and not a court. Technical obsolescence and financial mismanagement are also important factors that lead to industrial sickness. As per the new provisions, an opportunity will be given to get an unanimous consent to a scheme from all concerned, failing which secured creditors will attempt to form a scheme and, if all this fails, the undertaking would be sold off. Only if it is not possible to do that, the BIFR may order winding up of the company.

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## References

1. Altman EI. Predicting financial distress of companies: revisiting the Z-score and ZETA models. Stern School of Business, New York University, 2000.pp.9-12.
2. Economos CD, Hyatt RR, Goldberg JP, Must A, Naumova EN, Collins JJ, & Nelson ME. A community intervention reduces BMI z-score in children: Shape Up Somerville first year results. *Obesity*. 2007;15(5):1325-1336.
3. Rajan R & Dhal SC. Non-performing loans and terms of credit of public sector banks in India: An empirical assessment. Reserve Bank of India Occasional Papers. 2003;24(3):81-121.
4. Sathye M. Efficiency of banks in a developing economy: The case of India. *European journal of operational research*. 2003;148(3):662-71.
5. Barathi Kamath G. The intellectual capital performance of the Indian banking sector. *Journal of Intellectual Capital*, 2007;8(1):96-123.
6. Dasgupta R. Priority sector lending: yesterday, today and tomorrow. *Economic and Political Weekly*, 2002.pp.4239-4245.
7. Shajahan KM. Priority sector bank lending: some important issues. *Economic and Political Weekly*, 1998.pp.2749-2756.
8. Ahluwalia MS. Reforming India's financial sector: An overview. *India: A Financial Sector for the Twenty-first Century*, Oxford University Press, New Delhi. 1999.
9. Jodhka SS. Bureaucratisation, corruption and depoliticisation: Changing profile of credit co-operatives in rural Haryana. *Economic and Political Weekly*, 1995;53-56.
10. Grice JS & Ingram RW. Tests of the generalizability of Altman's bankruptcy prediction model. *Journal of Business Research*, 2001;54(1):53-61.
11. Gross JM & Lacampagne S. Bankruptcy Estimation of CERCLA Claims: The Process and the Alternatives. *Virginia Environmental Law Journal*, 1993.pp.235-269.