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Financial soundness of Indian banking industry: bankometer analysis

Dr. K Abirami

Abstract
Financial soundness plays a major role in creating an image for a business, which helps the stakeholders to assess the performance of the concern. Soundness of a business has a great impact on the owners' return. It is imperative that business owners concentrate more on financial soundness as the market is more competitive. The study is an attempt to analyse the soundness of select public sector and private sector banks in India for a period of ten years (2005-06 to 2014-15). Secondary data are collected from Capitaline Plus Database and annual reports of the banks. Bankometer test has been applied to analyse the solvency status of the banks to avoid the bankruptcy in the dynamic business environment.

Keywords: Financial soundness, banks, bankometer

Introduction
Financial system of a country is broadly the mechanism in the financial market which deals with money transactions. In the present scenario, banking sector has been integrated for financial services due to stiff competition with innovative technology. Soundness of the banks state the economic development in a country which can be measured through various indicators, namely, profitability, liquidity, productivity and solvency. Ability to predict a banks' vulnerability to insolvency is an essential factor to investors and other stakeholders and efficient management system with cost control strategies contribute to the financial soundness of a business.

The banking system in India, though not hassle free, is able to meet the new challenges posed by the technology and any other external and internal factors. For the past three decades, India's banking system has several outstanding achievements to its credit and has modernized its service point by providing various financial and insurance products. Nevertheless, banks continue to maintain and perform their primary role of accepting deposits and lending funds from these deposits. In the current trend, banking industry has adopted numerous changes as a result of reforms in financial sector in world economy. The present study is an effort to analyse the financial strength of the Indian banking industry.

Review of Literature
Amir Hussain *et al*. (2010) [1], in their research paper "Performance Evaluation of Banking Sector in Pakistan: An Application of Bankometer", have provided the solvent score for all the select banks that showed the banks were super sound during the study period. Saibal Ghosh (2010) [2], in the article "Credit Growth, Bank Soundness and Financial Fragility: Evidence from Indian Banking Sector" has examined the interconnection among credit growth, bank soundness and financial fragility for all the banks in India. The results of the study have indicated that higher credit growth amplifies bank fragility and credit growth has been found higher in public sector banks compared to private sector banks in India. Urvashi *et al*. (2011) [3], in their research paper "Evaluating the Performance of Axis Bank in terms of Capital Adequacy using Financial Indicators" have examined the financial strength and soundness of Axis Bank in terms of Capital Adequacy ratio (CAR) by using financial ratios. It has been suggested that proper mapping of credit, operational and market risks to projected business growth would enable the capital to cover Basel norms of RBI for capital requirement.

Makkar and Singh (2012) [4], have evaluated the solvency of 37 Indian commercial banks by applying bankometer model for a period of five years from 2006-07 to 2010-11.The analysis reveals that private sector banks have performed much better than public sector banks in terms of financial soundness. Muhammad Hanif *et al*. (2012) [5], in their paper "Comparative Performance Study of Conventional and Islamic Banking in Pakistan" have analysed Islamic and Conventional banks in Pakistan with a sample of 22 Conventional banks and 5 Islamic banks. Bankometer model has been applied to gauge the solvency of banks. It has been found that in terms of profitability and liquidity Conventional banking is better and in terms of credit risk and solvency Islamic banking is found to be much better. Nimalathasan *et al*. (2012) [6], have made an attempt to evaluate the financial soundness of select Commercial Banks in Sri Lanka by applying Bankometer Model. The public sector banks include Bank of Ceylon (BOC), People's Bank (PB) and private sector banks include Commercial Bank of Ceylon Plc (CBC), Hatton National Bank Plc (HNB). The results confirm that all the banks selected have been found to be in a healthy financial position as they had solvency scores between 50-70 percent. Based upon the Bankometer Test, it has been found that public sector banks are in safer zone compared to private sector banks selected for the study. Senthilkumar (2012) [7], has examined the financial soundness of public and private sector banks in India by applying Bankometer Model. The researcher has concluded that private sector banks have been found to be performing better than public sector banks in India. The researcher has suggested that bankometer model would be the right measurement tool to know the internal management of banks to avoid issues regarding insolvency and S-score value of bankometer model is the alarm for banks to improve the soundness of banks financially through right control on their operations. Anita Erari *et al*. (2013) [8], have made an attempt to assess the financial performance of Bank of Papua by using CAEL (Capital, Asset, Efficiency, Liquidity), Z-score and Bankometer model. The study has determined the quality of asset growth in PT Bank of Papua and has compared the prediction models of financial distress of banks. The results reveal that Bank of Papua has sound financial position. The researchers have concluded that among the three models used to assess the financial performance of Bank of Papua, Bankometer model is the precise and accurate model.

Objectives

The objectives of the study are as follows:

- To analyze the financial strength of select banks in India
- To compare the financial position between the select banks.

Research Methodology

The following method has been applied to analyse the financial strength of the select banks in the study.

Sample Design

To achieve the objectives of the study, public and private banks listed in Bombay Stock Exchange (BSE) in India as on March 2005 and with data for a continuous period of ten years from 2005-06 to 2014-15 have been considered. Accordingly, out of 27 public sector banks, 20 public sector banks and out of 20 private sector banks, 12 banks under the Indian Banking Industry have been chosen as the sample for analysis, applying purposive sampling method. The select public sector banks in the study are: Allahabad Bank (ALBK), Andhra Bank (ANBK), Bank of Baroda (BOB), Bank of India (BOI), Bank of Maharashtra (BOM), Canara Bank (CAN), Corporation Bank (CORP), DevkaranNanjee Bank (DENA), Indian Overseas Bank (IOB), Oriental Bank of Commerce (OBC), Punjab National Bank (PNB), Syndicate Bank (SYND), Union Bank of India (UNION), United Commercial Bank (UCO), Vijaya Bank (VB), Industrial Development Bank of India (IDBI), State Bank of India (SBI), State Bank of Bikaner and Jaipur (SBBJ), State Bank of Mysore (SBM), State Bank of Travancore (SBT). The private sector banks in the study are: City Union Bank (CUB), Dhanlaxmi Bank (DHAN), Federal Bank (FED), Jammu and Kashmir Bank (J & K), Karnataka Bank (KTK), KarurVysya Bank (KVB), South Indian Bank (SIB), Axis Bank (AXIS), Housing Development Finance Corporation Bank (HDFC), Industrial Credit and Investment Corporation of India Bank (ICICI), IndusInd Bank (INDUS), Kotak Mahindra Bank (KMB).

Model applied

The following model has been applied to analyse the financial soundness of select banks in the study.

Bankometer Model

International Monetary Fund (IMF) has developed a model with norms to identify the financial soundness of the firms. This chapter deals with analysis of financial soundness of select banks and identification of the factors that determine the financial soundness of select banks in India through Bankometer model. Bankometer model is applied at global level which prescribes a procedure to gauge the weakness of an individual bank. The Model helps to find the solvency scores of the banks to avoid insolvency issues and to measure the financial position by taking into account the contribution of each ratio in the model according to the IMF (2000) norms.

S =1.5*CA +1.2*EA +3.5*CAR +0.6*NPL +0.3*CI +0.4*LA

'S' stands for solvency score.

Capital to Assets Ratio (CA) measures the extent of the assets being financed by total capital (equity and retained earnings) of the bank. Higher ratio indicates that the bank is more secure because the assets are financed by long term funds.

Equity to Assets Ratio (EA) measures the extent to which the assets are financed by equity capital. Higher this ratio, more secure is the financial position of the bank in the long run because more assets could be financed by bank's equity capital and is less dependent on external funding.

Capital Adequacy Ratio (CAR) measures the bank's capital position and also known as capital to risk-weighted assets ratio. High CAR indicates that the banks are safe and likely to meet its financial obligations. The S-scores of the banks are mainly influenced by capital adequacy rates.

Non PerformingLoans to Loans Ratio (NPL) measures the proposition of NPL to total loans. A higher ratio indicates higher non-productive loans given by a bank.

Cost to Income Ratio (CI) compares the operating expenses excluding non-cash expenses and the operating income. Lower the ratio, higher is the level of bank profits.

Loans to Assets Ratio (LA) ratio measures the long term credit issued with respect to the amount of assets. Higher ratio indicates high earnings for the banks as return on long term credit which in turn may affect bank liquidity and vice versa.

To analyze the bankometer parameters individually, IMF has laid down the limits for a financially sound bank as follows:

Bankometer parameters and IMF limits

Capital to Assets Ratio : More than or equal to 4%
Equity to Asset Ratio : More than or equal to 2%
Capital Adequacy Ratio : Between 8% to 40%
NPLs to Loans Ratio : Less than or equal to 15%
Cost to Income Ratio : Less than or equal to 40%
Loans to Assets Ratio : Less than or equal to 65%

According to all banks having 'S' value greater than 70 percent are solvent and are termed as super sound banks, while those banks having 'S' value below 50 percent are not solvent. The area between 50 and 70 percent is defined as grey area because of the susceptibility to error classification.

S-Score

As per banks found with 'S' score greater than 70 percent are solvent and termed as super sound banks, while those banks having 'S' score below 50 percent are said to be not solvent. The area between 50 and 70 percent is defined as gray area because of the susceptibility to error classification.

❖ **S-Score: Public Sector Banks**

The table 1 presents the descriptive statistics and the growth rates of S-score of select public sector banks from 2005-06 to 2014-15.

Table 1: S-score - Public Sector Banks

S. No	Bank	Mean	S.D	C.V (%)	AGR (%)	LAGR	CAGR (%)
1.	ALBK	100.47	2.59	2.57	-0.26	-0.54	-0.55
2.	ANBK	101.03	2.80	2.77	0.55	0.39	0.40
3.	BOB	99.77	2.44	2.44	1.10	0.65	0.66
4.	BOI	97.13	3.08	3.17	0.92	0.10	0.11
5.	BOM	95.10	3.74	3.93	1.05	1.03	1.07
6.	CAN	102.38	4.86	4.75	-0.64	-0.82	-0.82
7.	CORP	102.65	2.56	2.50	0.17	-0.04	-0.04
8.	DENA	94.88	3.67	3.87	1.10	1.02	1.05
9.	IOB	99.34	3.38	3.40	0.00	-0.02	-0.02
10.	OBC	100.64	2.61	2.59	-0.25	-0.24	-0.23
11.	PNB	98.29	2.97	3.02	0.92	0.64	0.65
12.	SYND	95.68	3.03	3.17	0.63	0.82	0.85
13.	UNION	98.35	1.34	1.36	-0.05	0.17	0.17
14.	UCO	95.37	5.32	5.58	0.77	1.35	1.41
15.	VB	96.84	3.18	3.28	1.20	0.52	0.55
16.	IDBI	106.72	5.27	4.94	-0.31	0.33	0.33
17.	SBI	100.03	4.41	4.41	0.88	0.58	0.57
18.	SBBJ	100.68	3.13	3.11	0.59	0.54	0.54
19.	SBM	98.25	3.06	3.11	1.20	0.88	0.91
20.	SBT	97.43	2.43	2.49	0.84	0.40	0.41

Source: Computed

The table 1 reveals that, the mean S-score of IDBI (106.72 percent) is the greatest among the select public banks in the study, followed by CORP (102.65 percent) and CAN (102.38 percent) which implies that the banks are solvent and super sound in their financial strength. It is understood from the analysis that the S-score of all the select public sector banks have been found above 94 percent. The least mean S-score is found in DENA (94.88 percent), followed by BOM (95.10 percent) and UCO (95.37 percent). The select banks have performed the best as the S-score of the banks are found above IMF norms which indicates that all the public sector banks selected for the study are said to be super sound and solvent. The highest co-efficient of variance has been found to be 5.58 percent for UCO, followed by IDBI (4.94 percent) and CAN (4.75 percent) showing that S-score of the banks are not consistent. The least co-efficient of variance of S-score has been found for UNION at 1.36 percent, followed by BOB (2.44 percent) and SBT (2.49 percent) and S-score of the banks is highly consistent during the study period.

The highest AGR of S-score is found for VB and SBM at 1.20 percent, followed by BOB (1.10 percent). The results also reveal that highest LAGR and CAGR have been found for UCO at 1.35 and 1.41 percent, followed by BOM. The least AGR (-0.64 percent), LAGR (-0.82) and CAGR (-0.82 percent) have been found for CAN.

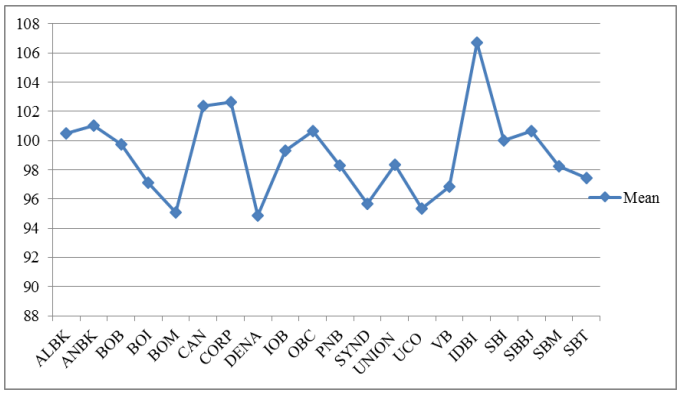

Chart 1: S-score - Public Sector Banks

From the computed summary statistics, it could be concluded that all the select public sector banks in the study are found to be super sound in their financial position as per the IMF norms. The highest mean of S-score has been found for IDBI while the highest AGR of S-score has been for VB and SBM. BOM has been found with the highest LAGR and CAGR of S-score.

❖ S-score: Private Sector Banks

The table 2 presents the descriptive statistics and the growth rates of S-score of select private sector banks from 2005-06 to 2014-15.

Table 2: S-score - Private Sector Banks

S. No	Bank	Mean	S.D	C.V (%)	AGR (%)	LAGR	CAGR (%)
1.	CUB	107.70	9.16	8.51	2.80	2.47	2.20
2.	DHAN	94.32	8.41	8.92	1.59	0.30	0.43
3.	FED	117.67	12.73	10.82	2.91	-1.20	-0.81
4.	J & K	104.70	3.03	2.90	0.19	-0.32	-0.31
5.	KTK	103.01	2.95	2.86	0.90	0.85	0.83
6.	KVB	109.43	5.01	4.57	0.42	0.23	0.20
7.	SIB	104.45	5.33	5.10	1.50	0.34	0.38
8.	AXIS	105.55	8.59	8.13	2.86	2.34	2.24
9.	HDFC	107.47	7.60	7.08	2.71	2.50	2.35
10.	ICICI	120.33	9.61	7.99	2.96	1.98	1.77
11.	INDUS	105.11	5.20	4.95	0.32	0.98	0.91
12.	KMB	123.14	8.95	7.27	2.73	0.99	0.87

Source: Computed

The table 2 depicts that the mean S-score of KMB (123.14 percent) is the highest among the select private sector banks in the study, followed by ICICI (120.33 percent) and FED (117.67 percent). The least mean S-score has been found for DHAN at 94.32percent, followed by KTK (103.01percent) and SIB at 104.45percent. The analysis reveals that the select private sector banks are found to be super sound as the S-score of the banks are above 94 percent. The highest co-efficient of variance has been found at 10.82 percent for FED, followed by DHAN (8.92 percent) and CUB (8.51 percent) which indicates that the S-score of the banks are inconsistent. The least co-efficient of variance is found in KTK at 2.86 percent, followed by J & K (2.90percent) and KVB (4.57 percent) showing consistency in their performance.

The highest AGR of the S-score is found for ICICI (2.96 percent), followed by FED (2.91 percent) and AXIS (2.86percent). The highest LAGR and CAGR have been found for HDFC Bank during the study period. The least AGR is found for J & K at 0.19 percent and the least LAGR (-1.20) and CAGR (-0.81percent) have been found for FED.

The above summary statistics prove that the select private sector banks are solvent and super sound as the banks have outperformed by gaining S-score above 70 percent (IMF norms). The highest mean value of S-score has been found for KMB and the highest LAGR and CAGR have been found for HDFC.

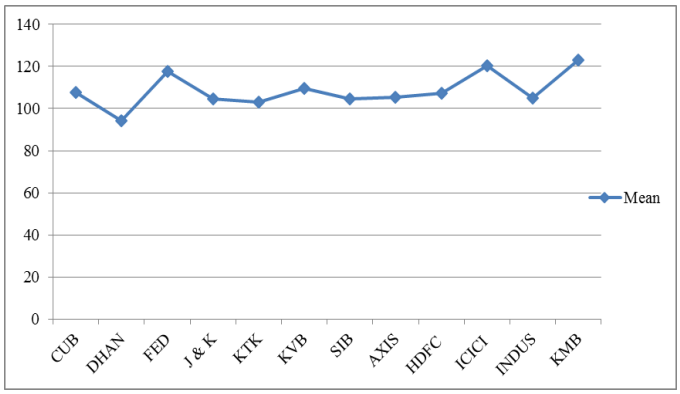

Chart 2: S-score - Private Sector Banks

❖ S-score: Year wise Analysis

The table 3 presents the year wise descriptive statistics of S-score for select public and private sector banks during the study period.

Table 3: S-score Year wise Analysis (Public and Private Sector Banks)

Year	Sector			
	Public		Private	
	Mean	S.D	Mean	S.D
2006	95.61	7.22	99.27	7.99
2007	97.23	5.07	99.95	7.74
2008	98.49	4.23	109.08	15.41
2009	99.68	4.61	112.55	11.72
2010	99.17	4.14	112.13	9.92
2011	98.55	4.52	108.34	10.45
2012	99.52	4.12	105.86	8.89
2013	101.49	3.15	112.99	8.18
2014	100.16	3.43	112.55	10.47
2015	100.62	3.01	113.01	10.89

Source: Computed

The mean S-score has been above 95 percent which is greater than IMF norms in respect of public sector banks in all the years of the study period. It has been consistent from 2006 to 2013 whereas variations are found during 2014 and 2015. S-score is found to be highest in the year 2013 with 101.49 percent, followed by 2015 with 100.62 percent and 2014 with 100.16percent. The S-score of the public sector banks is inconsistent in 2006 with a high SD of 7.22.

In respect of private sector banks, the mean S-score has been above 99 percent in all the years of the study period. It has been the highest with 113.01 percent in 2015, followed by 112.99 percent in 2013. The maximum inconsistency in S-score is found in 2008 with a SD of 15.41.

On comparing the public and private sector banks during 2006-15, it is found that in all the years the mean S-score of private sector banks have been higher than public sector banks.

From the above summary statistics, it could be concluded that the S-scores of private sector banks are greater when

compared to public sector banks during the study period which denotes that private sector banks are super sound and solvent in their financial position.

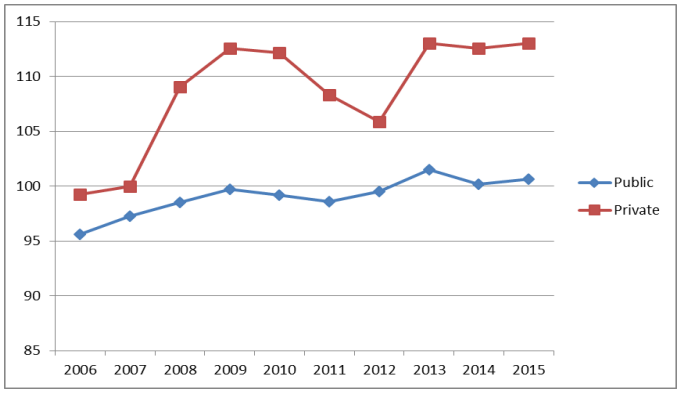

Chart 3: S-score Yearwise Comparison (Public and Private Sector Banks)

Repeated Measures ANOVA has been carried out to find the difference if any in the S-scores between the years of the study, between the sectors and with the interaction effects on sectors and years. Respective null hypotheses have been framed as follows:

H_{01}: S-score of select banks does not vary significantly between the public and private sector banks.

H_{02}: S-score of select banks does not vary significantly across the years of study.

H_{03}: S-score does not vary significantly between the public and private sector banks and the years of the study period. (No interaction effect between sectors and years).

Table 4: S-score -Repeated Measures ANOVA

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Sectors	635.274	1	635.274	21.163	**
Error	900.555	30	30.019		
Between years	2281.920	8	285.240	11.147	**
Years vs Sectors	946.589	8	118.324	4.624	**
Error (Years)	6141.495	240	25.590		

Source: Computed, NS- Not Significant, ** Significant at 1%, * Significant at 5%.

The table 4 indicates that the computed F-ratio 'between sectors' is 21.163 which identifies the equality of mean of S-scores among two sectors. The F-ratio is found to be significant and shows that S-score varies significantly at 1 percent between the two banking sectors. Hence, the hypothesis H_{01} is rejected.

The F-ratio comparing the mean S-scores 'between years' is 11.147which is significant at 1 percent. This shows that S-scores vary significantly across the years during the study period. Hence, the hypothesis H_{02} is rejected.

The significant variation in S-scores 'between years and sectors' is analysed and the F-ratio (4.624) has been found to be significant at 1 percent. Therefore, the hypothesis H_{03} is also rejected.

The analysis reveals that S-scores of private sector banks have been better than public sector banks during the period of study.

The analysis reveals that S-scores of both the public and private sector banks have been found to be more than 90 percent (IMF limit 70 percent) indicating that the select banks are super sound and solvent. On comparison, private sector banks have been better than that of public sector banks during the period of study. The top performers in respect of S-scores in private and public sector banks are KMB and IDBI respectively.

Conclusion

S-score is an indicator of solvency as expressed by bankometer, which helps in understanding financial soundness of banks. All the select public sector banks in the study are found to be super sound in their financial position as per the IMF norms. The high performers in respect of S-score in private and public sector banks are KMB and IDBI respectively. The IMF prescribes that any bank whose S-score is more than 70 percent is considered super sound and solvent. The results indicate that the S-score of both the public and private sector banks have been more than 90 percent. Accordingly, all the banks, both public and private sector, are super sound and solvent. On comparison, private sector banks have been better than public sector banks during the period of study. As the business environment is more dynamic and competitive, the banks in Indian Banking Industry should apply right policies to utilize the capital and to control the cost, as these factors have a great impact on profitability and effective operating system. Along with the government policies, effective and efficient management adequate capital and cost control will increase the profitability of the banks. Bankometer helps the internal management to evaluate and predict the solvency growth of their banks and gives a caution against bankruptcy too.

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