

# Performance Evaluation of Banking Sector in Pakistan: An Application of Bankometer

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## Abstract

Ability to predict which bank is vulnerable to financial distress is of critical importance to investors, creditors, accountholders and many other stakeholders. An effort has been made to develop and evaluate a new model called 'bankometer'. To confirm the accuracy of bankometer, it has been applied on individual banks covering the period 1999-2002 for gauging the solvency of each bank in Pakistan and the results has been compared with CAMEL and CLSA-stress test. This is an initial attempt to develop a scale which could be applied at global level and prescribes a procedure to gauge the vulnerability of an individual bank.

**Keywords:** Performance and efficiency of banking, CAMEL, CLSA-stress test, Bankometer

## 1. Introduction

The first program of nationalization that was started in Pakistan in 1974 was suspended in 1980 due to change of government in the country. Banks were treated as employment exchanges rather than financial institution. More people were employed on political basis and more number of branches was opened around the country, which resulted in loss of devotion in trained personnel and shift of loyalties to the private sector banks and establishment of their own business out of the country. On the top of that politicians had drawn huge loans which were declared irrecoverable ultimately. This behavior led to institutional fall down, budget deficit, foreign debt burden, extended pressures, increased trade deficit, disequilibrium in balance of payment and alarming current account position. The banking industry affected by over employment, over branching and non-performing loans (NPLs) and ultimately huge bad debts. These were the main reasons of denationalization of banking industry and it was thought the only way to save the financial sector and development finance institution (DFIs) of Pakistan. Many loss making branches were closed leading to a system of financial apprehensions and healthy competition between private financial institutions and state owned banking sector with modified culture and behavior. At the end, this vulnerability of banking led to crisis in the financial market.

The main objective of this study is to develop a scale 'bankometer' which could measure the vulnerability of a financial institution better than conventional models, i.e. CAMEL, Credit Leona's Securities Asia stress test (CLSA-stress test) etc. That could ultimately be used to improve the performance and soundness of banks operating in Pakistan. The study would concentrate on developing 'bankometer' and evaluating the soundness of banking institutions during 1999-2002 in Pakistan. The study also compares the results of bankometer with CAMEL and CLSA-stress test. By applying the parameters of the bankometer; capital adequacy, non performing loans, and human capital efficiency etc. are examined in detail.

This study will assist potential investors, account holders and bank management in decision making and controlling the whole financial system to avoid possible future financial crisis.

## 2. Literature Review

Financial system crisis 2008-09 in the advanced economies has been the main idea behind developing this model 'bankometer'. Following the suggestions of International Monetary Fund (IMF, 2000) to control the

vulnerability of financial system, it was thought appropriate to develop a bankometer by using minimum number of parameters with maximum accuracy in results.

CAMEL model has been used very successfully by many researchers to evaluate the operational and financial performance of banks; one of the latest studies done by Sangmi and Nazir (2010). They have used the CAMEL parameters to highlight the position of banks in northern India after evaluating their capital adequacy, asset quality, management capability and liquidity. CAMEL has been found very useful in measuring the performance of banks. There are some other methods to evaluate the performance of banks, i.e. VAIC<sup>TM</sup>, an intellectual capital efficiency based method that is successfully applied by Bharathi (2010), who argues that intellectual capital based method may give better picture of measuring performance of banking system.

Bandt and Oung (2004) in their report used CLSA-stress testing and discuss principal characteristics of stress test which were developed using macroeconomic model and financial models for measuring risks in French banking system. Haldane (2009) elaborates in his study that stress testing for banking industry is very useful and due to extraordinary financial crisis in 2008-09 many banks failed in stress testing.

After analyzing different models of measuring banking performance and vulnerability (CAMEL, CLSA-stress test and VAIC, etc.), it has been tried to develop a new model with slight changes in their limits and percentage weights, herein after called bankometer.

### 3. Bankometer

Following IMF (2000) recommendations, we took initiative and introduced a comprehensive procedure named bankometer. This procedure has the quality of minimum number of parameters with maximum accurate results.

#### 3.1 Parameters

1. Capital Adequacy Ratio      40 %= $\leq$  CAR $\geq$ 08%
2. Capital to Assets Ratio      Capita / Asset  $\geq$ 04%
3. Equity to total Assets      Equity / Asset  $\geq$  02%
4. NPLs to Loans              NPLs / Loans  $\leq$ 15%
5. Cost to Income ratio      Cost / Income $\leq$ 40%
6. Loans to Assets              Loan / Asset  $\leq$  65%

These percentages explain a bank that;

- has capital adequacy ratio between 8% to 40%,
- has more than 4% capital to assets ratio,
- has equity to assets ratio greater than 2%,
- has controlled non-performing loans (NPLs) ratio below 15% and
- has maintained liquidity by controlling loans to assets ratio below 40%,

may be categorized as solvent (to super sound) bank under the bankometer procedure. The ability to predict which banks are vulnerable to financial distress is of critical importance to central banks, creditors and to equity investors. When a bank goes insolvent, creditors often lose portion of principal and interest payments, while equity investors can potentially lose all of their investment. Additionally, even if the bank survives after a financial distress, the survival costs will significantly reduce the future growth outlook. It is therefore important for management to focus more on trying to predict the banks that are vulnerable to financial distress in near future using bankometer ratio, which is:

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

Where 'S' stands for solvency

**CAR** stands for capital adequacy ratio

**CA** stands for capital assets ratio

**EA** stands for equity to assets

**NPL** stands for non performing loans to loans

**CI** stands for cost to income

**LA** stands for loans to assets

and  $50 < S < 70$

All banks having 'S' value greater than 70 are solvent and termed as super sound banks, while those banks having 'S' value below 50 are not solvent. The area between 50 and 70 is defined as gray area because of the susceptibility to error classification (Altman, 1968).

#### 4. Data Collection and calculations

To conduct this study secondary data has been derived from the statistics department of the State Bank of Pakistan and from balance sheet and profit and loss account analysis report published by the State Bank of Pakistan. Further data were also collected through published audited annual reports of all banks operating in Pakistan. To supplement the analysis, however, certain data from FSA-2002, banking supervision department of the State Bank of Pakistan was also taken. From each bank's historical data, profit and loss account and balance sheet, individual ratios of bankometer are calculated.

#### 5. Analyses, results and discussion

##### 5.1 Application of Bankometere Procedure 1999-2002

Bankometer procedure has been applied on all banks' data for the years 1999, 2000, 2001 and 2002.

#### 6. Findings, limitations and future study directions

To confirm the accuracy of bankometere, we had applied this procedure on individual banks from 1999 to 2002 for gauging the solvency of the banks. The results through adjusted criteria for stress test authenticate the bankometer results. Banks that were under stress previously are also categorized as insolvent using bankometere procedure while sound banks of previous analysis found solvent under this new procedure as well. Banks that were sound under stress test but could not pass bankometere criteria were insolvent mainly due to capital inadequacy. The capital to assets ratio of these insolvent banks was below 4%. Most of the banks that were sound under the CLSA stress test are also found solvent under bankometere solvency criteria, while few banks that were sound according to CLSA stress test could not pass bankometere solvency criteria.

For instance the big 5 banks that have passed the soundness test Under CLSA stress test analysis, could not fulfill the bankometere solvency requirements. Same results were observed during scrutiny of private banks and foreign banks. The main reason of insolvency of CLSA sound banks during the period was the adjustment of percentages of bankometere ratios. These limitations of the bankometer procedure need further work to improve it. The study is a pioneering attempt to apply bankometer on banks operating in Pakistan and confirms a procedure to gauge solvency of individual banks.

Bankometer ratios were derived both from CAMELS framework and CLSA stress test parameters with slight changes in their limits and percentages. The percentages of the selected ratios were changed only to synthesize the measurements of banks soundness. Though, as compared to this newly introduced method, there are other methods available for solvency measures, they involve a lot of ratios which are lengthy in calculations. We are confident that this newly introduced procedure can be used by individuals as well as by supervisory bodies to have an instant look over any bank's soundness / solvency. This procedure may also be helpful to the banks internal management to avoid insolvency issues. It is possible for them to eradicate the shortcomings, pointed out by bankometer, with a proper control over operations. The new procedure facilitates to gauge the solvency of any bank after feeding few entries from annual financial statement into our model.

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Table 1. Super Sound Banks

31-12-1999 (12)	31-12-2000 (11)	31-12-2001 (15)	31-12-2002 (13)
ABN Amro Bank	ABN Amro Bank	Al-Baraka Islamic Investment Bank	ABN Amro Bank Al-Baraka Islamic Investment Bank
Al-Baraka Islamic Investment Bank	American Express Bank Limited	American Express Bank Limited	American Express Bank Limited Citi Bank N.A Habib Bank Limited
American Express Bank Limited ANZ Grindlays Bank Limited	Bank of Punjab	Citi Bank N.A	Credit Agricole Indosuez Bank
	Citi Bank N.A	Credit Auricle Indosuez Bank	
	Emirates Bank Ltd.	Emirates Bank Ltd Habib Bank	
Bank of America	Faysal Bank Limited	A.G. Zurich	Faysal Bank Limited
		Hong Kong Shang Banking Corp	
Citi Bank N.A.	A.G.Zurich	IFIC Bank Limited PICIC Comm. Bank	Habib Bank A,G Zurich
Credit Agricole Indosuez Bank	IFIC Bank Limited	Prime Commercial Bank Limited Standard Chartered Grindlays Bank Ltd.	Habib Bank Limited Hong Kong Shang Banking Corp.
Emirates Bank Ltd. IFIC Bank Limited	Prime Commerical Bank Limited	Societe Ge. Bank	IFIC Bank Meezan Bank Ltd.
Platinum Bank	Standard Chartered Bank Limited	Soneri Bank Ltd. Standard Chartered Bank Limited	Soneri Bank Ltd. Standard Chartered Bank Limited
Standard Chartered Bank Limited			

Table 2. Bankometer Final Results for 1999

Sr. No.	Percent Bank	40%<CAR>08%	>=04%	>02%	<=15%	<40%	<=65%	S
		Capital Adequacy Ratio	Capital to Assets Ratio	Equity to total Assets	NPLs to Loans	Cost to Income Ratio	Loans to Assets	MIN=50 & MAX=70
1	ABN AMRO Bank	15	6	8	6	15	12	82
2	Al-Barka Islamic Investment Bank	10	6	9	11	19	13	74
3	American Express Bank Ltd.	17	11	9	9	34	56	126
4	ANZ Grindlays Bank Ltd.	16	7	11	11	24	22	102
5	Bank of America	22	8	10	3	17	30	120
6	Citi Bank N.A	22	8	7	13	33	32	128
7	Credit Agricole Indosuez	18	9	10	6	11	30	107
8	Emirates Bank International	13	7	10	8	22	24	90
9	I.F.I.C. Bank Limited	22	10	11	9	23	28	131
10	Platinum Commercial Bank Ltd.	17	7	9	12	15	26	103
11	Standard Chartered Bank	11	6	7	14	20	19	79

Table 3. Bankometer Final Results for 2000

Sr. No.	Percent Bank	40%<CAR>08%	>=04%	>02%	<=15%	<40%	<=65%	S
		Capital Adequacy Ratio	Capital to Assets Ratio	Equity to total Assets	NPLs to Loans	Cost to Income Ratio	Loans to Assets	MIN=50 & MAX=70
1	ABN AMRO Bank	13	4	6	1	15	54	86
2	American Express Bank Ltd.	15	9	8	3	30	50	105
3	Bank of Punjab	18	4	11	15	37	32	114
4	Citi Bank N.A	23	9	9	4	25	52	135
5	Emirates Bank International	19	6	8	3	27	43	113
6	Faysal Bank Limited	14	6	10	25	16	50	109
7	First Women Bank Limited	15	5	2	20	9	16	83
8	Habib Bank A.G. Zurich	10	5	6	2	14	55	78
9	I.F.I.C. Bank Limited	25	9	11	3	20	65	149
10	Prime Commercial Bank Ltd.	16	6	10	15	33	62	120
11	Standard Chartered Bank	18	6	7	6	26	55	114
12	The Bank of Punjab	18	4	11	15	37	32	114

Table 4. Bankometer Final Results for 2001

Sr. No.	Bank	40%<CAR>08%	>=04%	>02%	<=15%	<40%	<=65%	S
	Percent	Capital Adequacy Ratio	Capital to Assets Ratio	Equity to total Assets	NPLs to Loans	Cost to Income Ratio	Loans to Assets	MIN=50 & MAX=70
1	Al-Baraka Islamic Bank Ltd.	18	11	13	3	14	59	125
2	American Express Bank Ltd.	16	8	7	3	29	37	104
3	Citi Bank N.A	26	7	9	3	21	45	139
4	Credit Agricole Indosuez	11	5	6	2	18	42	76
5	Emirates Bank International	17	5	6	4	26	37	100
6	Habib Bank A.G. Zurich	11	4	7	4	13	51	81
7	Habib Bank Limited	9	6	3	1	37	60	79
8	HongKong Shanghai Bank	11	8	7	7	19	43	88
9	I.F.I.C. Bank Limited	36	17	19	4	22	61	207
10	PICIC Commercial Bank Ltd.	13	4	6	7	23	49	88
11	Prime Commercial Bank Ltd.	17	6	10	12	26	47	115
12	Societe Gen. The French Intl' Bank	21	15	13	8	15	45	139
13	Soneri Bank Limited	12	4	8	3	15	57	86
14	Standard Chartered Bank	10	4	6	3	13	54	75
15	Standard Chartered/Grindlays Bank	16	7	8	6	22	46	104

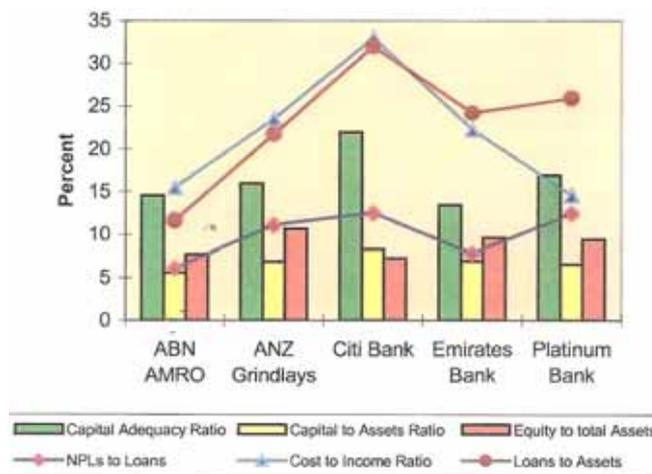


Figure 1. Super Sound Banks in 1999

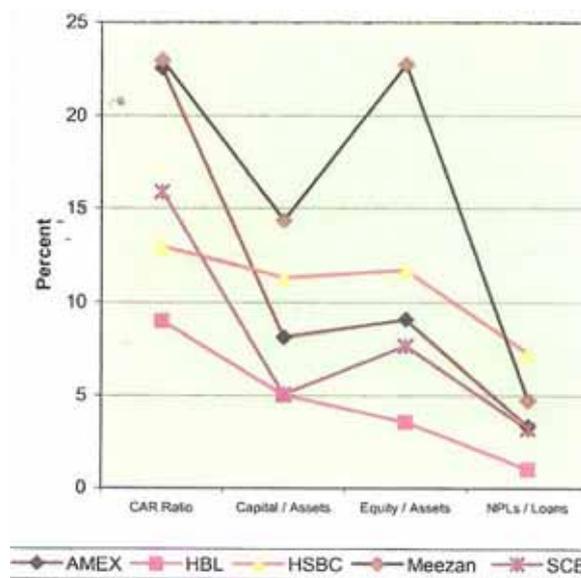


Figure 2. Super Sound Banks in 2002

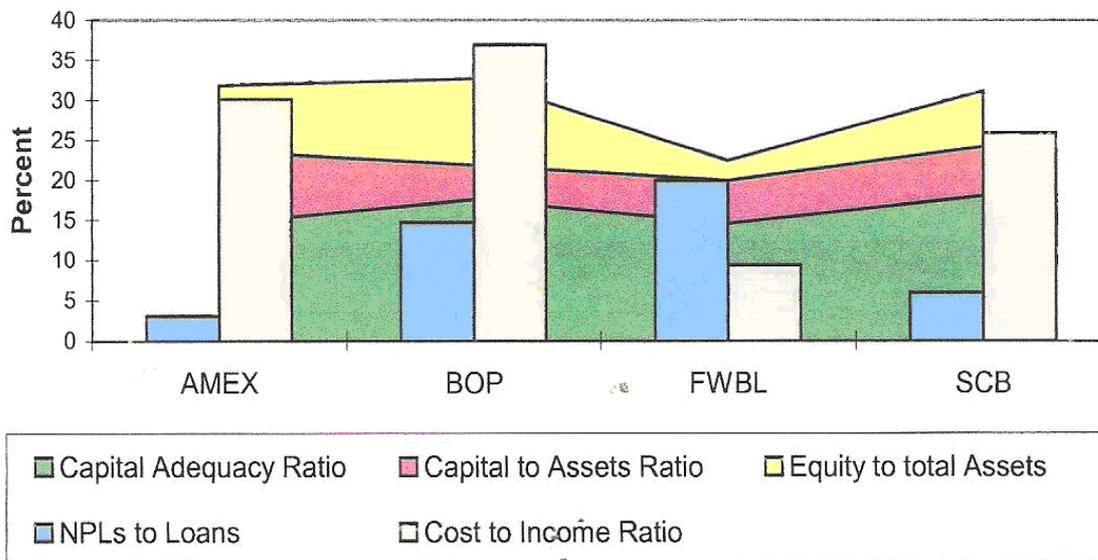


Figure 3. Super Sound Banks in 2000

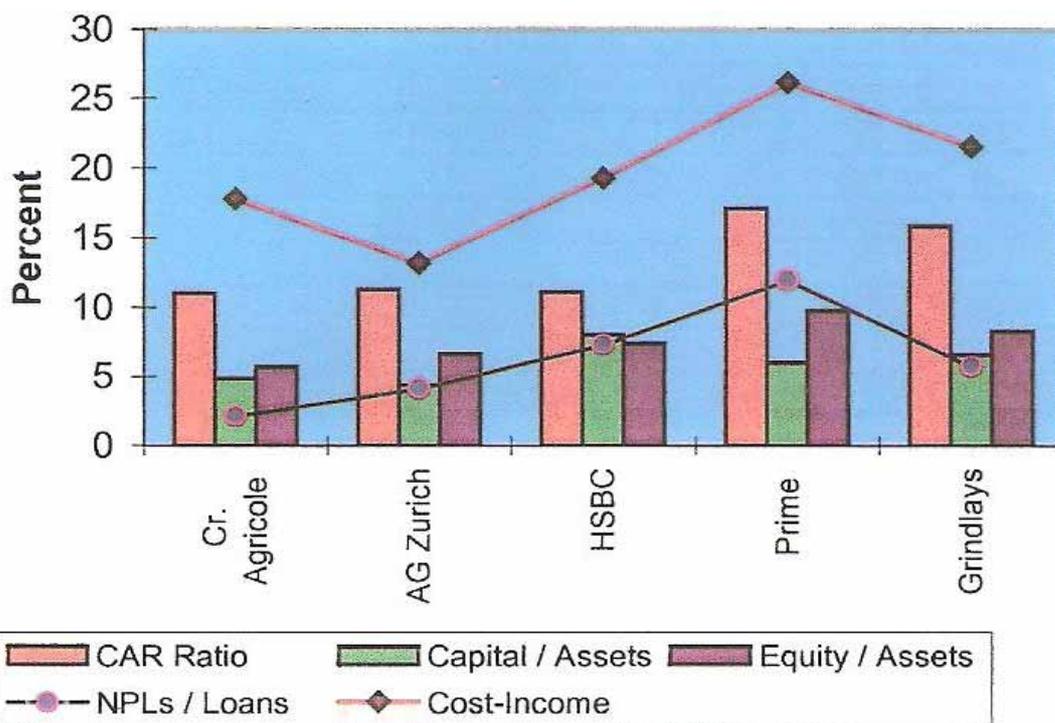


Figure 4. Super Sound Banks in 2001