A Study on The Impact of Nationalized Banks on Economic Development Using Cramel Model

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INTRODUCTION

Banks play a very significant role in the economic development of a country. They have control over a major part of the supply of money in circulation. In this way, they influence the nature and character of production in the country. In fact, banks are the main stay of the economic development of a country. The contribution of the banking sector in the process of economic development can be summarized as - Creator of Money, they help in Capital Formation, act as a link between the organized and unorganized sectors, assist in the development of agriculture and industries. Banks act as catalyst in social change by helping in the development of entrepreneurship; regulate the flow of national savings and mitigating the effects of trade cycles to maintain the positive balance of trade.

From the above, it becomes clear that the banking system occupies an important position in an economy. Bankers are regarded as, "Public Conservators of Commercial Virtues." A country with an effective banking system has a secure foundation of economic development. Traditionally, analysts often measures banks financial performance and management quality based on financial ratios and stock price. Traditional financial measures such as profitability, liquidity and asset turnover are not enough to evaluate banks performance. This has reference to the study conducted by Dr.K.Ravichandran[1] et.al, on the topic of Ranking of Saudi Banks using CRAMEL Model. He also mentioned that "Nowadays, measuring bank efficiency and bank performance has become complicated, especially in the presence of agency problems and conflict of interest among stakeholders. A unique technique that can capture financial and non-financial information to measure bank efficiency and bank performance is the current need of this complicated environment".

Banking is the fulcrum of an Economy. The Banking Industry is one of the basic instruments of economic growth. It must be on a sound footing as it constitutes an important link in various socio-economic activities. Since it is considered the backbone of economic development, any change in its processes is deemed to have repercussions on the country's growth. The essential part of the banking system is its financial viability. It is not only necessary for its survival but also to discharge its various obligations.

The Indian Banking Systems operated primarily in the private sector. From very ancient days, indigenous banking as different from the modern Western Banking had been organized in the form of family or individual business. The basic inability of the Indian Banking Sector to help, develop the economy and serve the society to the desired level, led to a demand for restructuring of the banking system.

Here an attempt is made to provide a brief sketch on the available review of related studies on the credit by financial institutions and their performance.

According to V Subramanian and K U Umakrishnan[2], financing pattern of firms is dependent to a great extent on the degree of maturity of the financial system within which they function. Sources of funds for firms can be classified as internal and external. Internal sources include re-invested earnings while external sources include: (i) equity capital and equity premium, (ii) bonds, and (iii) borrowings (from banks and financial institutions). According to theory, with growing maturity of the financial system, the financing pattern of firms undergoes change. A shift from internal to external mode of financing of firms is expected with the deepening of financial sector. Also with firms able to bypass the banking system or other intermediaries and directly access the securities market for their fund requirements, the share of intermediaries as providers of capital to firms is expected to come down.

Cobham and Subramaniam[3] in his study on the financing pattern of firms during the pre-reform period have pointed out bank loans and internal sources as being the most important financing sources of firms in India. This is not surprising as capital markets were underdeveloped during that period. However, since the 1990s the government has launched reform programmes for the capital market, which have enabled firms to raise funds cheaply and contributed to some extent in the diversification of corporate finance.

Shirai[4] in his study concluded that it is interesting to note that despite reforms to deepen the capital markets in India, the expected changes in financing pattern of firms have not been witnessed in the Indian context.

Kajal Chaudhary and Monika Sharma (2011)[5] published a article *performance of Indian public sector banks and private sector banks:* A comparative study   focused on the combative study of performance of various public sector banks

objectives
The objectives are

• To evaluate the role of Nationalized banks contribution towards economic development.
• To understand the inequality that exists among the banks based on financial indictors.

Scope and Limitations
As far as scope of the study is concerned, it covers 19 Public sector banks functioning in India. These are: Allahabad Bank, Andhra Bank, Bank of Baroda, Bank of India, Bank of Maharashtra Canara Bank, Central Bank of India, Corporation Bank, Dena Bank, Indian Bank, Indian Overseas Bank, Oriental Bank of Commerce, Punjab & Sind Bank, Punjab National Bank, Syndicate Bank, UCO Bank, Union Bank of India, United Bank of India and Vijaya Bank. In the present study, only the quantitative aspects of productivity have been examined. Qualitative aspects such as motivation of employees, customer satisfaction, image of the bank have not been considered which play definite role in performance of a bank can be considered as a major limitation.

METHODOLOGY ADOPTED
The study has been conducted using of secondary data and it formed the major source of the study. The secondary data has been compiled from statistical tables relating to banks, RBI bulletins, CMIE reports, economic surveys of various years, PNB monthly review, reports on currency and finance, Prajnan, abhigyan, agenda and proceeding of state level bankers committees, and other published resources.

An entity specific analysis of the risk profile is done through qualitative cum quantitative approach following a structured methodology called the "CRAMEL" model. Based on the rating criteria, relative strengths and weakness of each entity in comparison to its peer group are evaluated. The CRAMEL model consists of Capital Adequacy, Resource raising ability, Asset Quality, Management and systems evaluation, Earning Potential and Liquidity / Asset Liability Management. The period of the study is 10 years spanning from 2002 to 2012. Studies which have been carried out and bifurcated into two segments i.e. before 2007 and after 2007.

Even though, the performance of a bank can be measured by number of indicators. Profitability is the most important indicator because it gives an insight into the broad indication of the capability of a bank to increase its earnings. However, based on the CRAMEL Model that consists around 30 ratios, only the following variables which are considered important ratios was taken for the study to conduct the Factor Analysis.

Capital Adequacy (Capital Adequacy Ratio),

Resource raising ability (Ratio of Investments to Assets),

Asset Quality (Return on Investment),

Management and systems evaluation (Business per Branch Ratio),

Earning Potential (Return on Total Assets) and

Liquidity / Asset Liability Management (Liquidity Assets to Total Assets)

Regression Analysis is used to conduct and analyse the Type-1 Indicator of the CRAMEL Model of the said 19 banks listed for the study.

REGRESSION MODEL
The linear regression model assumes that there is a linear, or "straight line," relationship between the dependent variable and each predictor. This relationship is described in the following formula.

$$y_i = b_0 + b_1 x_{i1} + \ldots + b_p x_{ip} + e_i$$

where

y_i is the value of the ith case of the dependent scale variable

p is the number of predictors

b_j is the value of the jth coefficient, j=0,…,p

x_{ij} is the value of the ith case of the jth predictor

e_i is the error in the observed value for the ith case

The model is linear because increasing the value of the jth predictor by 1 unit increases the value of the dependent by b_j units and b_0 is the intercept, the model-predicted value of the dependent variable when the value of every predictor is equal to 0.

Table 1.1: Trend Equation for the period between 'Before 2007' and 'After 2007' performance of all banks based on the Capital Adequacy (Type-I) with CRAMEL Variables

S. No	Name of the Bank	Regression Equation	R^2
1	Allahabad Bank (B1)	Y = 32.982+0 .047X	0.132
2	Andhra Bank (B2)	Y = 68.498- 0.422X	0.656
3	Bank of Baroda (B3)	Y = 15.904+0 .438X	0.554
4	Bank of India (B4)	Y = 42.345+0 .212X	0.736
5	Bank of Maharashtra (B5)	Y = 37.665+0 .085X	0.065
6	Canara Bank (B6)	Y = 22.031+0 .282X	0.378
7	Central Bank of India (B7)	Y = 27.551+0 .149X	0.681
8	Corporation Bank (B8)	Y = 35.579+0 .155X	0.494

9	Dena Bank (B9)	Y = 28.271+0 .220X	0.262
10	Indian Bank (B10)	Y = 1.989+ 0.966X	0.136
11	Indian Overseas Bank (B11)	Y = 26.163+0 .248X	0.295
12	Oriental Bank of Commerce (B12)	Y = 45.032 -0.158X	0.627
13	Punjab & Sind Bank (B13)	Y = 64.245-0.225X	0.087
14	Punjab National Bank (B14)	Y = 18.212+0 .427X	0.816
15	Syndicate Bank (B15)	Y = 33.330+0 .111X	0.326
16	UCO Bank (B16)	Y = 10.399 +0 .605X	0.511
17	Union Bank of India (B17)	Y = -9.326+ 1.019X	0.812
18	United Bank of India (B18)	Y = 29.763+ 0.162X	0.241
19	Vijaya Bank (B19)	Y = 51.932 -0.226X	0.276

Source: Collected & Calculated

Trend Equation and Square of correlation coefficient (R^2) have been tested for the period between 'Before 2007' and 'After 2007' performance of all banks with Type I (C1, C2, C3, C4 and C5) CRAMEL variables. The Table 1.1 shows that the R^2 of all the selected ratios are positive and goodness of fit of the equations are high for 8 banks more than 0.50 and for the rest of the banks it is below 0.50 furthermore the Punjab National Bank (B14) is very high i.e. 0.816. The R^2 of ratios are less than 0.5 which indicates the prospect of 'Before 2007' and 'After 2007' performance of banks with Type I CRAMEL is not bright.

Hence it may be inferred that the performance of most of the banks are not very satisfactory which due to the slowdown of the economic development of the country because of the global financial crisis.

FACTOR ANALYSIS
Table 1.2: Descriptive Statistics

	Mean	Std. Deviation	Analysis N
Capital Adeuacy Ratio	12.7149	1.47517	190
Resource Raising Ability	31.8003	7.26748	190
Asset Quality	7.9694	1.15539	190
Management and Syndicate Evaluation	185.1584	198.69108	190
Earning Potential	.9894	.37812	190
Liquidity Asset/Liability Management	8.1224	1.91871	190

Source: Collected & Calculated

The descriptive statistics of the banking sector show table 1.2 indicate that Management and Syndicate Evaluation have higher standard deviation, revealing that the banks have constituted with varied return on total assets. The banks range from firms lowest mean towards earning potential i.e. Total Asset Ratio and the highest mean was found with Management and Syndicate Evaluation thus the all banks are capable of using their assets effectively for generating profit.

Hence it can be concluded that banks are contributing to the economic development of the country by generating profit.

Table 1.3 CORRELATIONS

	Capital Adequacy Ratio	Resource Raising Ability	Asset Quality	Management and Syndicate Evaluation	Earning Potential	Liquidity Asset/Liability Management
Capital Adequacy Ratio	1					
Resource Raising Ability	-.004	1				
Asset Quality	-.111	.738(**)	1			

Management and Syndicate Evaluation	.266(**)	-.430(**)	-.480(**)	1	
Earning Potential	.481(**)	-.003	.094	.093	1
Liquidity Asset/Liability Management	-.120	.007	.141	-.052	.050	1

Source: Collected & Calculated
** Correlation is significant at the 0.01 level (2-tailed).

The correlation matrix result of all the banks taken for the study in Table 1.3 reveals that there is a positive significant correlation (0.481) with Earnings Potential (Business per Branch Ratio), which shows that the banks return on total assets has efficient to increase profitability. Whereas the liquidity shows highly negative -0.120. The Management and Syndicate Evaluation (Return on Total Assets) shows positive significant correlation (0.266) while the asset quality and resource raising ability reveals negative correlation at -0.111 and -0.004 respectively.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.552
Bartlett's Test of Sphericity	Approx. Chi-Square	288.662
	df	15
	Sig.	.000

Source: Collected & Calculated

The Kaiser-Meyer-Olkin measure (see table) is only 0.55, which does not support to conduct of factor analysis, however the Bartlett's test χ2 value (288.66) is highly significant, hence the correlation matrix is not an identity matrix and so factor analysis can be carried out.

Factors	Eigen Value	Variable Convergence	Factor Loadings
Factor-1	2.171	Asset Quality	0.900
		Resource Raising Ability	0.885
		Management and Syndicate Evaluation	-0.714
Factor-2	1.503	Earning Potential	0.852
		Capital Adequacy Ratio	0.849
Factor-3	1.023	Liquidity Asset/Liability Management	0.981

Source: Collected & Calculated

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 4 iterations.

The factor formation shows that Asset Quality, Resource Raising Ability and Management and Syndicate Evaluation converge to form factor 1 and the resultant Eigen Value is 2.171 i.e. the majority (78.291%) cumulative percentage by these three variables of convergence in the

Factor-1. Whereas the rest of the convergence was by Earning Potential and Capital Adequacy in Factor 2 and the resultant eigen value was found to be 1.503 and the Cumulative percentage shows (18.01%). Factor 3 comprises of the variable Liquidity Asset / Liability Management as per the CRAMEL Model.

SUMMARY, CONCLUSION AND IMPLICATIONS

The main challenge before a developing nation is to foster sustainable growth for which the nation's productive capacity has to be strengthened and expanded as it constitutes an important link in various socio-economic activities. Since, it is considered as the backbone of economic development, any change in its processes is deemed to have repercussions on the country's growth.

Based on the performance of the banks on CRAMEL model ratio (Type-1) i.e. Capital Adequacy Ratio it is found that R^2 of all the selected ratios are positive and goodness of fit of the equations are high for 8 banks more than 0.50 and for the rest of the banks it is below 0.50 furthermore the Punjab National Bank (B14) is very high i.e. 0.816. The R^2 of ratios are less than 0.5 which indicates the prospect of 'Before 2007' and 'After 2007' performance of banks with Type I CRAMEL is not bright.

The results of factor analysis reveals that the Return on Investment Ratio, Ratio of Investment to Assets and Business per Branch Ratio it is found that the majority (78.291%) cumulative percentage was converged by these three variables.

As per the CRAMEL Model the Asset Quality, Resource Raising Ability and Management and Syndicate Evaluation shows highest impact on the 19 banks taken for the study that has more influence over the performance of the banks when compared with the other three variables i.e. Capital Adequacy (Capital Adequacy Ratio), Earning Potential (Return on Total Assets) and Liquidity / Asset Liability Management (Liquidity Assets to Total Assets).

Suggestions and Future Scope of profitability

The public sector banks shall find the Break Even Point of rural branches and should try to achieve the same. Financial analysis, study of break even volumes of business and profitability analysis of he bank as a whole, regionwise and productwise should be made thoroughly. The banks should try to restructure their organizational functioning and it should move from deposit orientation to profit orientation. In order to attract more and more customers, it should become market savvy, but the cost of deposits and deployment plans should be kept in mind. Better management information system, credit monitoring and cash management can result in increasing productivity thereby contribute to the economic development of the country.

Researchers may study the impact of recent developments (like enactment of the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, creation of Credit Information Bureau of India Ltd. etc.) on the performance of banking sector.

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