



Market Based Mergers- Study on Indian & Saudi Arabian Banks

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Abstract

This paper analyses the efficiency and performance of post merger using CAMEL-type variable of selected banks in India & Saudi Arabia which are initiated by the market forces. The results suggest that the mergers did not seem to enhance the productive efficiency of the banks as they do not indicate any significant difference. The financial performance suggests that the banks are becoming more focused on their retail activities (intermediation) and the main reasons for their merger is to scale up their operations. However, it is found that the Advances to total Assets and the profitability are the two main parameters which are to be considered since they are very much affected by mergers. Also, the profitability of the firm is significantly affected after merger.

Keywords: Bank Mergers, Efficiency, Post Merger Performance, Mergers and Acquisitions, Forced mergers, financial performance, Market mergers

1. Introduction

Mergers and Acquisition are not unknown phenomena in Indian Banking. It started way back in 1920 when the Imperial Bank of India was born out of three presidency banks and several Mergers and Acquisitions (M&A) activities were reported in pre-independence period. In 1949, proper regulation was passed by the regulator to control the banking activities which provided a relief to investors and improved the depositor confidence in the banking system. The first half of the sixties witnessed 45 forced mergers under Section 45 of Banking & Regulation Act. Interestingly, all the M&A activities were of failed private banks with one of the public sector banks. After 1980, the consolidation fever started in both commercial and rural banks. There were about 196 rural banks in 1989 which got consolidated into 103 by merging themselves into commercial banks within the state and in 2000 about 17 urban co-operative banks got merged within the state owned commercial banks. Since about 75% of the Indian banking system consists of public sector banks, there were more consolidations started happening in the late 2000.

Saudi Arabia witnessed only one merger that was between Cairo Saudi Bank and the United Saudi Bank. This was further merged with Saudi American Bank in 1999 and the merged entity was called as SAMBA Bank.

1.1 Evolution of SAMBA

SAMBA was formed in accordance with a program adopted by the Kingdom in the mid-1970s and it was forced to sell majority equity interests to Saudi nationals. SAMBA commenced business on February 12, 1980 and closed its first fiscal year on December 31, 1980. Saudi nationals held 60% of the total share capital and Citibank acquired the remaining 40% of the equity in exchange for assets of its Riyadh and Jeddah branches. Citibank entered into a Technical Management Agreement under which it agreed to manage the new bank.

This agreement provided that Citibank would second staff to the new bank and provide technical support, and that it would not receive compensation for these services other than as a shareholder (except for reimbursement of actual expenses). Towards the end of 1991, Citibank sold part of its equity ownership in SAMBA to two Saudi national agencies for social welfare. As a result, 70% of the share capital of SAMBA was held by Saudi nationals and institutions while Citibank retained 30% ownership of the share capital of Samba. On July 3, 1999, SAMBA merged with the United Saudi Bank (USB) by exchanging 1 new share in SAMBA for each 3.25 existing shares in the USB. The merged bank retained SAMBA name and there was no change in the composition of the Board of Directors. The merger did not affect the Technical Management Agreement with Citibank.

This resulted in Citibank holding 22.83% of the merged bank shares. However, near the end of 2002, Citibank sold 2.83% of its shareholding to a Saudi agency. As a result, Citibank held 20% of the share capital of Samba. On September 14, 2003, SAMBA moved to a full local management, culminating a transition plan previously agreed with

Citigroup. On December 14, 2003, the Extraordinary Shareholders Meeting was held and resolved to amend several of the company's Articles of Association including changing the name of the company to "Samba Financial Group". On May 26, 2004, Citibank sold its 20% share capital to a Saudi agency. On March 9, 2005, the Extraordinary Shareholders Meeting decided to increase the share capital of the company from SR 4.000.000.000 to SR 6.000.000.000 divided into 600.000.000 of equal nominal value of fifty Saudi Riyals cash shares, all of which will be ordinary and as one class in all respects.

2. Materials and Methods

The literature that will be surveyed addresses the question of whether or not under what conditions bank mergers have the potential to produce real efficiency gains. Adel, KabirHassan & Shari Lawrence (2008) investigates the cost and profit efficiency effects of bank mergers on the US banking industry. He used non-parametric technique of Data Envelopment Analysis (DEA) to evaluate the production structure of merged and non-merged banks. The empirical results indicate that mergers have improved the cost and profit efficiencies of banks. Further, evidence shows that merged banks have lower costs than non-merged banks because they are using the most efficient technology available (technical efficiency) as well as a cost minimizing input mix (allocative efficiency).

Ahmad Ismail, Ian Davidson & Regina Frank (2009) concentrates on European banks and investigates post-merger operating performance and found that industry-adjusted mean cash flow return did not significantly change after merger but stayed positive. Also find that low profitability levels, conservative credit policies and good cost-efficiency status before merger are the main determinants of industry-adjusted cash flow returns and provide the source for improving these returns after merger. Anthony (2008) investigates the effect of acquisition activity on the efficiency and total factor productivity of Greek banks. Results show that total factor productivity for merger banks for the period after merging can be attributed to an increase in technical inefficiency and the disappearance of economies of scale, while technical change remained unchanged compared to the pre-merging level.

Benjamin Liu & David Tripe (2002) used accounting ratios and DEA (Data Envelopment Analysis) to explore the efficiency impacts of 6 bank mergers in New Zealand between 1989 and 1998. Acquiring banks were found to be generally larger than their targets, although they were not consistently more efficient. In a majority of cases the merger led to an increase in efficiency, consistent with a trend observed for the banking sector as a whole. Bisceglia (1995) studied the merger-related cost savings and found that No evidence for economies of scale was found. A wide dispersion of average costs was found for banks of similar size. X-efficiency, or managerial, differences were found to be very large relative to scale efficiency differences. Carl Felsenfeld (2008) studied the Antitrust Aspects of Bank Mergers conference -- Banking and the Antitrust Laws -- has received insufficient attention in the legal literature.

Elena Carletti, Philipp Hartmann & Giancarlo Spagnolo (2007) modelled the impact of bank mergers on loan competition, reserve holdings, and aggregate liquidity. The merger also affects loan market competition, which in turn modifies the distribution of bank sizes and aggregate liquidity needs. Mergers among large banks tend to increase aggregate liquidity needs and thus the public provision of liquidity through monetary operations of the central bank.

George E Halkos & Dimitrios (2004) applied non-parametric analytic technique (data envelopment analysis, DEA) in measuring the performance of the Greek banking sector. He proved that data envelopment analysis can be used as either an alternative or complement to ratio analysis for the evaluation of an organization's performance. Marc J Epstein. (2005) studied on merger failures and concludes that mergers and acquisitions (M&A) are failed strategies. However, analysis of the causes of failure has often been shallow and the measures of success weak.

Morris Knapp, Alan Gart & Mukesh Chaudhry (2006) research study examines the tendency for serial correlation in bank holding company profitability, finding significant evidence of reversion to the industry mean in profitability. The paper then considers the impact of mean reversion on the evaluation of post-merger performance of bank holding companies. The research concludes that when an adjustment is made for the mean reversion, post-merger results significantly exceed those of the industry in the first 5 years after the merger.

Ping-wen Lin (2002) findings proves that there is a negative correlation and statistical significance exist between cost inefficiency index and bank mergers; meaning banks engaging in mergers tend to improve cost efficiency. However, the data envelopment analysis empirical analysis found that bank mergers did not improve significantly cost efficiency of banks. In another study, he found that (1) generally; bank mergers tend to upgrade the technical efficiency, allocative efficiency, and cost efficiency of banks; however a yearly decline was noted in allocative efficiency and cost efficiency. (2) In terms of technical efficiency and allocative efficiency improvement, the effect of bank mergers was significant; however, in terms of cost efficiency improvement, the effect was insignificant.

Robert DeYoung (1997) estimated pre- and post-merger X-inefficiency in 348 mergers approved by the OCC in 1987/1988. Efficiency improved in only a small majority of mergers, and these gains were unrelated to the acquiring bank's efficiency advantage over its target. Efficiency gains were concentrated in mergers where acquiring banks made frequent acquisitions, suggesting the presence of experience effects. SU WU (2008) examines the efficiency

consequences of bank mergers and acquisitions of Australian four major banks. The empirical results demonstrate that for the time being mergers among the four major banks may result in much poorer efficiency performance in the merging banks and the banking sector.

Suchismita Mishra, Arun, Gordon and Manfred Peterson (2005) study examined the contribution of the acquired banks in only the non conglomerate types of mergers (i.e., banks with banks), and finds overwhelmingly statistically significant evidence that non conglomerate types of mergers definitely reduce the total as well as the unsystematic risk while having no statistically significant effect on systematic risk. Xiao Weiguo & Li Ming (2008) paper uses DEA (Data Envelopment Analysis) for analyzing commercial banks' efficiency, top five American banks and four Chinese banks and concluded that merger and acquisition (M&A) has greater impact on banking efficiency of Chinese banks than that of American banks. Ya-Hui Peng & Kehluh Wang (2004) study addresses on the cost efficiency, economies of scale and scope of the Taiwanese banking industry, specifically focusing on how bank mergers affect cost efficiency. Study reveals that bank merger activity is positively related to cost efficiency. Mergers can enhance cost efficiency, even though the number of bank employees does not decline. The banks involved in mergers are generally small were established after the banking sector was deregulated.

2.1 Data and Methodology

This paper seeks to analyze the efficiency of the banks which are merged due to market forces (not forced by the regulator) and a comprehensive study was undertaken to investigate the performance of those banks. For this research we have considered three private banks and four nationalized banks in India (only 7 banks have merged due to market forces with in 2000) and one bank in Saudi Arabia (since only one merger has been witnessed during this period) has been taken to have a comprehensive study of the framework of entire banking industry. After considering various efficiency techniques, we have used CRAMEL model to assess the firms and also we have used Factor Analysis using Kaiser Normalization method to find out the parameters that we should look for after merger.

The data used in this study is gathered from the annual reports of banks for the post merger period 2000 to 2007. Post Merger financial Performance of the banks was taken in to consideration. The analysis is divided into two parts; namely, Regression Analysis & Factor analysis using Kaiser Normalization method was used with CRAMEL variables as the basic input. 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 the following:

- Capital Adequacy
- Resource raising ability
- Asset Quality
- Management and systems evaluation
- Earning Potential
- Liquidity / Asset Liability Management

By performing tests on mean differences for the CRAMEL variables it can be determined whether there are significant differences in the average values of those variables during the post-merger period. Based on the CRISIL (**Credit Rating Information Services of India Limited**) methodology, the following variables are taken into consideration for this current study:

Capital Adequacy: Capital Adequacy, Debt- Equity, Advances to Total Assets, Capital buffer Ratio

Resources: Cost efficiency (CE), Cost/Total Asset

Asset Quality: Loans/ Deposits

Management Quality: Total Advances / deposits

Earnings Quality: Earnings per share, Interest Earning Ratio, Profit Margin (%), Return on Shareholders Funds (%)

Liquidity: Current Ratio, Solvency Ratio (%), Liquid Asset / Deposits, Liquid Asset / Total Advances

An examination of the impact of the CRAMEL model variables is done by data reduction using Factor analysis. By performing Regression analysis and t tests on the CRAMEL variables it can be determined whether there are significant relationship of those variables during the post-merger periods. Detailed description of the variables will be provided in the following section when the empirical findings are discussed. An examination of the impact of the CRAMEL-type variables is done by data reduction using factor analysis.

3. Empirical Findings

The results of the regression analysis conducted on CAMEL type variables (Table1) infers that, out of 16 variables considered for the study only five variables such as cost efficiency, Advances to Total Assets, interest earning ratio, Profit margin, current ratio, solvency ratio were found to be highly significant, which is evident from (table no.1) the t test. Also from the analysis of variance (ANOVA) conducted on those significant variables infers that there is a significant relationship between those variables.

Table 1: Regression Analysis

A regression equation has been developed on the significant variables which are shown below:

Regression Equation:

$$\text{ROSF} = 0.310 - 3.755 (\text{CE}) + 2.733 (\text{ADVTA}) - 0.0032 (\text{PM}) + 10.584 (\text{CR}) - 2.803 (\text{IER})$$

$$(4.577) \quad (-17.052) \quad (3.034) \quad (-10.357) \quad (13.729) \quad (-19.127)$$

* note the number in brackets denote the t- values.

The regression equation infers that there is a positive relationship between ROCE and Advances to Total Assets & Current Ratio and there is negative relationship with CE, PM and IER.

3.1 Factor Analysis on the CAMEL Variables

Factor analysis attempts to identify underlying variables, or factors, that explain the pattern of correlations within a set of observed variables. Factor analysis is often used in data reduction to identify a small number of factors that explain most of the variance observed in a much larger number of manifest variables. Factor analysis can also be used to generate hypotheses regarding causal mechanisms or to screen variables for subsequent analysis (for example, to identify collinearity prior to performing a linear regression analysis). The table No.2 shows the factor analysis undertaken on the CAMEL-type variables before bank merger. The variables are rotated through varimax with Kaiser Normalization method and extracted using principal component analysis. Three factors are evolved through this factor analysis.

Table 2: Factor Analysis of CAMEL-type variables on Post merger performance of Indian and Saudi Banks

From the factor analysis on the post merger performance of the Indian and Saudi banking institutions, it is found that three major factors are identified and they are interlinked. In the first factor variables like capital adequacy, Debt- equity, Cost to total Asset , Cost Efficiency and all liquidity ratios join together to form this factor. In the second factor variables like, Total advances to deposits, Capital Buffer Ratio, Loans to deposits, EPS, Return on share holders fund and interest earning ratios joined together. In the last group variables like, Advances to Total Assets, and Profit Margin ratios are joined to-gether which interprets again the profitability is majorly linked with advances and deposits.

To summarize the factors, the CAMEL type variables appropriately combine together to and clearly indicate us which are the variables that we should closely monitor. Variables such as advances to total assets, profit margin, which are grouped together is found to be highly significant variables identified through T-test. So the banks that tend to merge have to carefully analyze those two variables after merger, since they are closely associated with the performance of the banks.

4. Conclusion

This paper attempts to analyze the parameter which affects the post merger performance of the banks. The analysis of CAMEL-type variables using t test and further by factor analysis tends to identify the important variables such as CBR, EPS, capital adequacy and profit margin which significantly affect the performance of the mergers after the bank mergers. Also the PROXSCAL multi dimensional analysis confirms the same.

In conclusion, the results on the post merger performance of Indian and Saudi banking Institutions suggests that banks are becoming more focused on their high net interest income activities and the main reason for their mergers are to scale up their operation. Also the performance of various CAMEL type variables suggests that those banks tend to improve on various variables after the merger.

So from the analysis of CAMEL variables on the post merger performance of banks suggest that the profitability is in stake after the merger. Even though the banks tend to improve their operational efficiency, the banks have to concentrate on their profits which must be one of their merger objectives.

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Table 1. Regression Analysis on CRAMEL-type variables

Coefficients					
CRAMEL- type variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 ROSF(Constant)	.311	.538		4.578	.067
Cost Efficiency (CE)	-3.756	.220	-1.144	-17.052	.037
Advances to total Assets (ADVtoTA)	2.734	.901	.380	3.035	.023
Profit Margin (PM0	-.033	.003	-.873	-10.357	.061
Current Ratio (CR)	10.584	.771	2.001	13.730	.046
Interest Earning ratio (IER)	-2.803	.147	-1.794	-19.127	.033
Adjusted R Square	.995				
Durbin-Watson Score	2.266				

ANOVA					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.473	5	.095	256.391	.047
Residual	.000	1	.000		
Total	.474	6			

From the Regression analysis of CRAMEL type variables keeping return on shareholders funds (ROSF) as constant since performance is assumed to be based on the return on the funds employed. From the t values we find that out of 16 CRAMEL type variables considered for the study only 5 variables seems to be significant. Also the adjusted R Square (0.995) and Durbin- Watson Score (2.266) were found to be highly significant. Also the F test signifies that there is a significant relation between the variables.

Table 2. Factor Analysis of CRAMEL-type variables on Post merger performance of Indian and Saudi Banks

Component Matrix

	Component			
	1	2	3	4
Capital Adequacy (CA)	0.960	0.069	0.206	0.136
Debt- Equity (DE)	0.987	0.059	0.151	0.005
Advances to Total Assets (ADTA)	0.314	0.878	0.141	0.266
Capital buffer Ratio (CBR)	0.011	0.911	0.388	0.106
Cost efficiency (CE)	0.795	0.113	0.444	0.310
Cost/Total Asset (CTA)	0.961	0.236	0.046	0.097
Loans/ Deposits (LD)	0.286	0.708	0.543	0.289
Total Advances / deposits (TAD)	0.400	0.492	0.341	0.646
Earnings per share (EPS)	0.148	0.935	0.103	0.029
Interest Earning Ratio (IER)	0.424	0.640	0.607	0.107
Profit Margin (%) (PM)	0.048	0.064	0.315	0.810
Return on Shareholders Funds (%) (ROSF)	0.057	0.978	0.178	0.030
Current Ratio (CR)	0.833	0.163	0.426	0.210
Solvency Ratio (%) (SR)	0.098	0.100	0.949	0.279
Liquid Asset / Deposits (LAD)	0.147	0.835	0.425	0.210
Liquid Asset / Total Advances (LATA)	0.183	0.926	0.068	0.151

From the Factor Analysis on the CRAMEL- type variables it is found that 3 major factors are evolved. In the first factor variables like capital adequacy, Debt- equity, Cost to total Asset , Cost Efficiency and all liquidity ratios join together to form this factor. In the second factor variables like, Total advances to deposits, Capital Buffer Ratio, Loans to deposits, EPS, Return on share holders fund and interest earning ratios joined together. In the last group variables like, Advances to Total Assets, and Profit Margin are joined together. The Factors are grouped based on certain significance and we find that the ADTA and PM have formed a factor which is the important finding of the study, since those two variables are seemed to highly significant in regression.