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A STUDY OF THE RELATIONSHIP BETWEEN INCREASING NETWORK OF AUTOMATED TELLER MACHINES (ATMs) AND BANKS' PROFITABILITY

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ABSTRACT

This research paper seeks to examine whether a relationship can be established between the growing proportion Automated Teller Machines (ATMs) and the profitability of banks taking into account the parameter of profit per employee (PPE). The research methodology relies upon collection and analysis of secondary data. The results and findings show that there is a significant relationship between ATM/Branch ratio and profit per employee (PPE) of banks. The findings would be useful in evolving appropriate strategies to promote the use of ATMs as the preferred channel for distribution of banking products and services to cater to the needs of clientele, enhance market share and ultimately boost profits.

KEYWORDS

alternate delivery channels, Automated Teller Machines (ATMs), Profit Per Employee (PPE)

INTRODUCTION

In India, the traditional model for banking has been through branch banking. Over the past two decades or so, technology enabled alternate delivery channels of banking, also known as electronic or e-banking have gained popularity. Automated Teller Machines (ATMs) are an important alternate delivery channel. During the last decade or so, Banks have aggressively promoted ATMs as a cost-effective alternative to branches. The total number of ATMs installed in the country, which was 17,642 at end-March 2005 has crossed 1,00,000 as of March 2013. The table below gives a bank-wise break-up.

TABLE 1: ATMS OF SCHEDULED COMMERCIAL BANKS (AS AT END-MARCH 2013)

Sr. No	Bank group	On-site ATMs	Off-site ATMs	Total number of ATMs
1	2	3	4	5
I	Public sector banks	40,241	29,411	69,652
	1.1 Nationalised banks*	20,658	14,701	35,359
	1.2 SBI Group	18,708	13,883	32,591
II	Private sector banks	15,236	27,865	43,101
	2.1 Old private sector banks	4,054	3,512	7,566
	2.2 New private sector banks	11,182	24,353	35,535
III	Foreign banks	283	978	1,261
IV	All SCBs (I+II+III)	55,760	58,254	1,14,014

Source: Report on Trend and Progress of Banking in India 2012-13

Note: *: Excluding IDBI Bank Ltd.

The above data reveals that off-site ATMs, which are more cost efficient account for more than half the total ATMs in the country. On scrutiny of the bank-wise data available with IBA, it is observed that 13 (out of 26) private sector banks had more number of ATMs than branches as on 31st March 2013. In case of public sector banks, the number is 6 (out of 26 PSBs).

However, the deployment of ATMs has been predominantly in Tier I & II centres. With a view to expanding the reach of ATMs to Tier III to VI centres, RBI has permitted nonbank entities to set up and operate ATMs – White Label ATMs (WLAs). The first WLA became operational in Chandrapada, a Tier V town, in Thane district, Maharashtra in June 2013. At present, there are seven White Label ATM Operators in the country.

Recent additions to the family of ATMs include innovative ATMs such as micro ATMs, mobile ATMs and card-less biometric ATMs.

REVIEW OF LITERATURE

E-banking has redefined the banker-customer relationship and taken it to new heights. According to Meuter et al., 2000, technology is capable of providing unexpected pleasant surprises to the customers thereby delighting them. Wind (2001) opines that e-banking offers alternative approaches by which banks can provide individual offerings and services to attract customer interests, increase customer loyalty, and repeat transaction. There is faster delivery of information from the customer and service provider, thus differentiating Internet enabled electronic banking system from the traditional banking operation. (Singhal and Padhmanabhan, 2008; Salawu et al. 2007). E-banking has thus become an important channel to sell products and services; leading to a paradigm shift in marketing practices, resulting in high performance in the banking industry (Christopher et al. 2006; Brodie et al 2007; Singhal and Padhmanabhan, 2008). E-banking also offers cost benefits to banks. Electronic banking would help financial institutions to lower cost which is very crucial for the long term survival of the banks (Burnham, 1996).

Galal et al. (1994), World Bank (1995), and La Porta and Lopezde-Silanes (1997) support the view that privatization helps improve performance. The RBI (2003) did present a comparative position of the performance and efficiency ratios of five government owned PSBs, five partially privatized government-owned banks (divested PSBs), and those banks that were already in the private sector. However, statistical significance was not tested.

Although some studies have measured the efficiency of Indian banks, their analysis is restricted either to the pre-liberalization period (see Bhattacharyya et al., 1997) or to a single year in the post-liberalization period (see Sathye, 2003).

Only a recent study by Kumbhakar and Sarkar (2003) investigates the impact of financial liberalization by calculating growth in the total factor productivity (TFP) of 23 public sector banks and 27 private domestic banks during 1985–1996 (their study excludes foreign banks). Kumbhakar and Sarkar (2003) measure TFP growth by estimating a translog cost function, and decompose TFP growth into a technological change, a scale, and a miscellaneous component. They find considerable over-employment of labour in Indian banks and find little evidence to suggest that the liberalization enhanced the productivity of banks, especially that of public sector banks. Kumbhakar and Sarkar suggest that public sector banks in India have become too dominant to feel the impact of changes in the economic environment brought about by financial liberalization.

Bhattacharyya et al (1997) studied the impact of the limited liberalization initiated before the deregulation of the nineties on the performance of the different categories of banks, using DEA. Their study covered 70 banks in the period 1986-91. They constructed one grand frontier for the entire period and measured technical efficiency of the banks under study. The authors use advances, investments and deposits as outputs and interest expense and operating expense as inputs. They found public sector banks had the highest efficiency among the three categories, with foreign and private banks having much lower efficiencies. However, public sector banks stated showing a decline in efficiency after 1987, private banks showed no change and foreign banks showed a sharp rise in efficiency.

The main results accord with the general perception that in the nationalized era, public sector banks were successful in achieving deposit and loan expansion. It should be noted, however, that the use of one grand frontier for the entire period implies that technical change is not separately accounted for.

Das (1997) analyses overall efficiency- technical, allocative and scale- at PSBs. In the period 1990-96, the study found a decline in overall efficiency. This occurred because there was a decline in technical efficiency, both pure and scale, which was not offset by an improvement in allocative efficiency. The study, however, pointed out that the deterioration in technical efficiency was mainly on account of four nationalised banks.

Further, Das (1999) compares performance among public sector banks for three years in the post-reform period, 1992, 1995 and 1998. He finds a certain convergence in performance. He also notes that while there is a welcome increase in emphasis on non-interest income, banks have tended to show risk-averse behaviour by opting for risk-free investments over risky loans.

Sarkar, Sarkar and Bhaumik (1998) compared performance across the three categories of banks, public, private and foreign, in India, using two measures of profitability, return on assets and operating profit ratio, and four efficiency measures, net interest margin, operating profit to staff expense, operating cost ratio and staff expense ratio (all ratios except operating profit to staff expense having average total assets in the denominator). The authors attempted these comparisons after controlling for a variety of non-ownership factors that might impact on performance: asset size, the proportion of investment in government securities, the proportion of directed credit, the proportion of rural and semi-urban branches, and the proportion of noninterest income to total income. They found that, in the comparison between private banks and PSBs, there was only a weak ownership effect.

Ram Mohan (2002) found a trend towards convergence in performance among the three categories of banks- public, private and foreign- using financial measures of performance. Ram Mohan (2003) found that this result was reinforced by a comparison of returns to stocks in the three categories- the evidence was that returns to public sector bank stocks were not significantly different from returns to private sector bank stocks.

T. T. Ram Mohan & Subhash Ray (September 2004) made a comparison between PSBs and their private sector counterparts based on measures of productivity that use quantities of outputs and inputs. They used Tornqvist and Malmquist indices of total factor productivity to measure of performance. They used loan income, investment income and non-interest income as outputs. For inputs, they used interest cost and operating cost (which includes labor and non-labor, noninterest costs). The period of study was 1992-2000. They concluded that there was little evidence to support the proposition that productivity is lower in public sector banks relative to their peers in the private sector.

OBJECTIVE

To study whether a relationship can be established between the ATM/Branch Ratio and Profit Per Employee (PPE) of Indian Banks

HYPOTHESIS

H0: There is no significant relationship between ATM/Branch Ratio and PPE ($r=0$).

H1: There is a significant relationship between ATM/Branch Ratio and PPE ($r\neq 0$).

RESEARCH METHODOLOGY

Type of Research: Descriptive Research

Type of Data: Secondary Data

Sampling Unit: Banks

Sample Size: 44

Statistical Test: Bivariate Correlation

DATA COLLECTION

The Bank-wise data of number of Automated Teller Machines (ATMs) and branches was compiled from publications of Indian Banks' Association (IBA) entitled "Performance Highlights of Private Sector Banks-2012-13" and "Performance Highlights of Public Sector Banks-2012-13".

RESULTS & DISCUSSION

Data has been analysed with the help of IBM SPSS Version 20.0.

Level of Significance: $\alpha = 0.05$

TABLE 1: CORRELATIONS- ATM/BRANCH RATIO & PPE

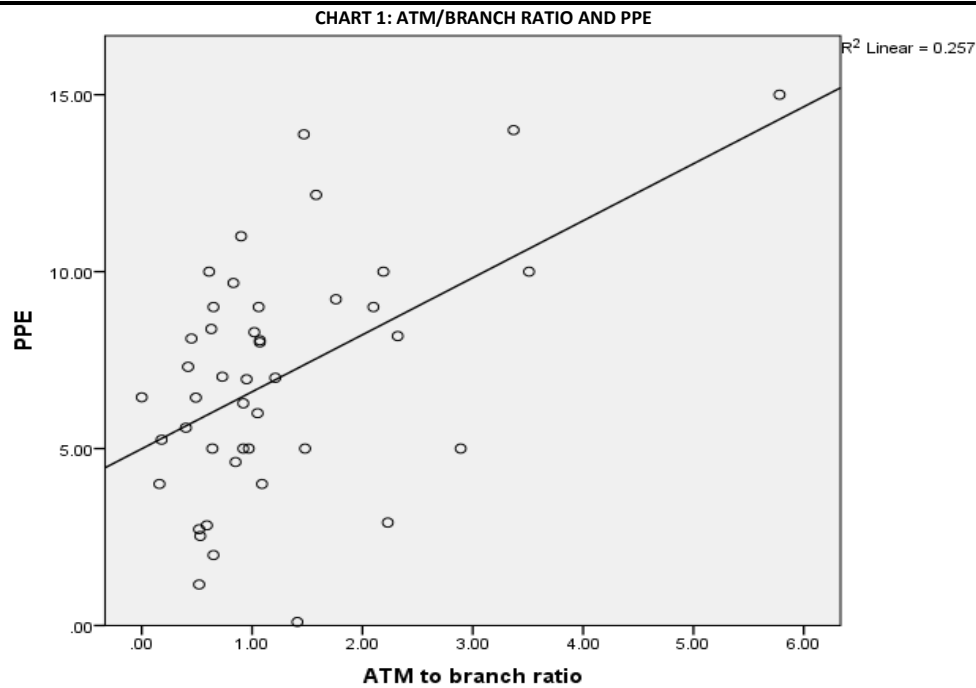
		ATM to branch ratio	PPE
ATM to branch ratio	Pearson Correlation	1	.507**
	Sig. (2-tailed)		.000
	N	44	44
PPE	Pearson Correlation	.507**	1
	Sig. (2-tailed)	.000	
	N	44	44

Observation

$r=0.507$

$P=0.000$

$N=44$



Source: RBI Data & Performance Highlights of Public & Private Sector Banks- 2012-13- IBA Publication

CONCLUSION

Since P value (0.000) is less than level of significance (0.05), the null hypothesis is rejected. Hence, it is concluded that there is a relationship between ATM/Branch Ratio and PPE. The ratio $r=0.507$ suggests a positive moderate relationship between the two variables.

RECOMMENDATIONS

Banks should evolve appropriate strategies for installation of more Automated Teller Machines (ATMs) as the study has found that a higher ATM/Branch ratio has a positive moderate impact on profitability as measured by Profit Per Employee (PPE).

LIMITATIONS

The study is restricted to public and private sector banks only. Foreign banks, co-operative banks and regional rural banks have been excluded from the study due to time and financial constraints.

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