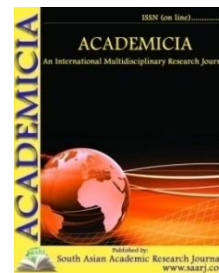




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MOBILE BANKING: ITS GROWTH, AWARENESS AND PERCEPTION OF CUSTOMERS IN THE PUBLIC SECTOR BANKS (PSBs)

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ABSTRACT

Banking sector of India has designed and offered various information technology-oriented financial products and services like ATMs, Tele-banking, internet banking, card banking, M-Banking. Among the various technology-enabled services, M-banking service is more convenient than other services but it is not easy to implement because it has some issues related to security, privacy, mobile phone compatibility and customer awareness. So, the progress of m-banking in India takes place slowly. The present analytical and empirical research design carry out with the purpose to find out the growth of M-Banking and customers' awareness of M-Banking & expectations under M-Banking. Sampling banks and customers are selected using purposive sampling method. Secondary data were used to measure the growth of M-Banking with respect to volume and value of M-Banking transaction using trend analysis and data collected from May'09 to Jul'12. It is reported that actual volume of M-Banking in the PSBs has high growth compared with expected growth from Sep'11 to July'12. Further, actual value of M-Banking in the PSBs is highly growing than the expected growth from Dec'11 to Jul'12. Further, Primary data was collected through the questionnaire from bank customers in Tamilnadu regarding perception towards M-Banking. It is reported that nearly half of the customers have awareness of M-Banking. Awareness of customers in the PSBs is connected with their educational qualification, place of living and frequency of bank visit. Finally, bank customers are expecting education about M-Banking, effective and efficient services of M-Banking from the bankers.

KEYWORDS: *Information technology, Mobile banking, Internet banking, ATMs, Tele-banking, Card banking.*

1.1 INTRODUCTION

The fast changing information technology increases banking environment and exposes liberalization, encourages to permit the unbanked to avail of financial services, advance technological development helps to Banking sector of India regards develop new technological-oriented financial services for their customers after liberalization like Automated Teller Machine (ATM), Telephone Banking, Internet Banking, Card Banking and Mobile Banking (M-Banking). In the year of 2008, growing usage of mobile phones in India has encouraged to initiatives of M-Banking based financial services/informations between bankers and customers. M-Banking can be made through Short Message Service (SMS) or Wireless Application Protocol (WAP) with the feature of “Anytime-Anywhere Banking”. According to RBI's numbers, as of July, 2012, 52 banks are providing M-Banking services with an aggregate customer base of 14.75 million. Among the banking sector, all the Public Sector Banks (PSBs) except Punjab and Sind bank in India have started providing different financial services through mobile phone. Further, bank gains a vital competitive advantage by having a door marketing of their financial products and accountable customer service environment as well as banking sector of India offer M-Banking as a less expensive alternative to branch banking and other technology-oriented services. So, it is accepted for financial inclusion medium.

M-BANKING BUSINESS MODELS IN INDIA

Three different M-Banking business models are available. They are, i) bank-focused model: It emerges when a traditional bank uses non-traditional low-cost delivery channels to provide banking services to its existing customers. This model is additive in nature and may be seen as a modest extension of conventional branch-based banking. ii) Bank-led model: It offers a distinct alternative to conventional branch-based banking in that customer conducts financial transactions at a whole range through mobile phone instead of at traditional branch banking system. This model promises the potential to substantially increase the financial services outreach by using a different delivery channel (retailers/ mobile phones), a different trade partner having experience and target market distinct from traditional banks, and may be significantly cheaper than the bank-based alternatives. iii) Non-bank-led model: This model is where a bank has a limited role in the day-to-day account management. Typically its role in this model is limited to safe-keeping of funds. Account management functions are conducted by a non-bank who has direct contact with individual customers. Banking sector of India, has accepted the bank-led model because the customers of the banks get full protection for effecting transactions through this delivery channel compared with any other banking transaction.

M-BANKING FINANCIAL INFORMATION SERVICES IN INDIA

M-Banking service allows consumers to perform the following transaction and enquiry based financial services from the banks through the mobile device



ACCOUNT INFORMATION: Mini-statements and checking of account history, Alerts on account activity or passing of set thresholds, Monitoring of term deposits, Access to loan and card statements, Mutual funds/equity statements, Insurance policy management, Pension plan management, Status on cheque and stop payment on cheque.

OTHER INFORMATION: Ordering check books, Balance checking in the account, Recent transactions, Due date of payment, PIN provision, Change of PIN and reminder over the Internet, Blocking of lost/stolen cards.

PAYMENT AND TRANSFERS: Domestic and international fund transfers, Micro-payment handling, Mobile recharging, Commercial payment processing, Bill payment processing, Peer to Peer payments, Withdrawal and Deposit at banking agent.

M-BANKING AND BANKS IN INDIA

Now, six co-operative bank, four foreign sector banks, nineteen nationalized banks, seventeen private sector banks and all State Bank Groups implemented the M-Banking services to their customers. Among the various sector banks PSBs contribute high percentage to bank branches compared with other sector banks. In our nation technology development is not affected by traditional banking system but technology usage is increased in the PSBs. In fact, in the year of 2011 PSBs have 62,211 bank branches with 49,487 ATMs compared with total of 74,130 branches and 74,505 ATMs.

1.2 STATEMENT OF THE PROBLEM

PSBs has high responsible to the society improvement particularly providing financial services to the all segment of people. Now-a-days, most of the PSBs are providing M-Banking services. So, this study tries to find out the growth of M-Banking in the PSBs. In addition, the improvement of registered customers of M-Banking in India takes place slowly. M-Banking requires of more customer through the usage of more number of financial services but it is fully depends on the awareness of customers/public. For that reason this study tries to find out awareness of M-Banking by the bank customers of PSBs.

1.3 OBJECTIVES OF THE STUDY

1. To measure the growth of M-Banking in the PSBs
2. To find out awareness of M-Banking among the customers in the PSBs and also find sources of awareness

3. To study the relationship of M-Banking awareness among the various group of customers in the PSBs
4. To observe the customer expectation under M-Banking in the PSBs

1.4 HYPOTHESES OF THE STUDY

Ho₁: There is slow growth of M-Banking in the PSBs

Ho₂: There is no significant relationship between M-Banking awareness among the various groups of customers in PSBs.

2. REVIEW OF LITERATURE

Sudalaimuthu, S., and Angamuth, B., (2011) conclude that M-Banking technology-enabled financial services is highly developed in terms of volume of transaction but in terms of value is slow progress in the PSBs. Moreover, it says that M-Banking technology-enabled financial services both in terms of volume and value are high in the State Bank Groups compared to Nationalized Banks. This study has limitation of Growth of M-Banking measured from May'09 to March' 11. Thomas O. Ombati., et.al (2010) in their study revealed that more than 7/10th of the customers in Nairobi do not use M-Banking facilities. Dewan S.M., et.al (2009) identified mobile phone is more a preferred channel of conduct banking transaction than bank branch, ATM, Internet and Phone among youngsters in Bangladesh. Kum C. Lee., et.al (2009) reported that trust and satisfaction of customers depends upon the availability of reliable and appropriate system and information quality. Ann S. Yang (2009) in his study concludes that speed of transactions and special reductions in transaction services are motivating factors among the students for mobile phone based banking transactions. Yong J. John., et.al (2002) in their article found that the level of M-Banking service use had increased by 400% within fifteen months from December 2000 to March 2002 in Korea. Valarie A. Zeithaml., et.al (1987) in their research found that elderly consumers were more likely than younger consumers to prefer the customary way of conducting financial information and to enjoy the personal interactions with the bank employees

3. METHODS AND MATERIALS

The present study is both analytical and empirical in nature using secondary and primary data. The secondary data related to volume and value of M-Banking transaction of the PSBs collected by authorized website of banks. The primary data relating to the awareness and perception of M-banking were collected from 246 valid customers of PSBs through the questionnaire with the response rate of eighty two percent. The tools for collecting primary data were constructed by the Researchers and it has three parts. Part one contains the personal factors with seven questions; the second part includes awareness of M-Banking and its sources. The third part of the questionnaire covers fifteen items related to customer expectations of M-Banking and it is measured on Five-point Likert Scaling technique from Strongly agree to strongly disagree from five to one respectively. Further, theoretical information of this work collected from the various websites, books and journals. The selection of sample banks (All State Bank Groups and 19 nationalized banks) and customers of public sector bank branches from Coimbatore, Tirrupur and Erode Districts using Purposive sampling method. The pilot study

conducted in March'2012 covered fifty customers. Thereafter, the questionnaire was finalized and the field work for the study was conducted during the period from April to July'2012. But, month-wise data related to volume and value of M-Banking transaction collected from May'2009 to July'2012. The secondary data was analyzed by using Trend analysis, Mean, Standard Deviation (SD) and t-test. The collected primary data was analyzed through the percentage analysis, Chi-square test (χ^2), Cramer's V test, Phi coefficient (Φ) test. Further, factor analysis was used based on the suggestion given by Kaiser-Meyer-Olkin Sampling Measure (0.887) and Bartlett's Test of Sphericity (1303.221, df 105, $p < .001$). The major limitation of this study consist growth of M-Banking is studied through transaction based services not for enquiry based services under M-Banking.

4. ANALYSIS AND DISCUSSIONS

This part discusses the growth of M-Banking in the PSBs with respect to its volume and value of M-Banking transaction from May'09 to July'12 using trend analysis, mean and t-test. Further, customer perception also analyzed.

4.1 GROWTH ON VOLUME OF M-BANKING IN THE PSBS

TABLE - 1: VOLUME OF M-BANKING IN THE PSBS					
Year& Month	Actual Growth	Expected Growth	Year& Month	Actual Growth	Expected Growth
May'09	6684	-570646	Dec'10	533479	1000464
Jun,09	15477	-487956	Jan'11	584953	1083154
Jul'09	17340	-405266	Feb'11	578872	1165844
Aug'09	33074	-322576	Mar'11	891423	1248534
Sep'09	41465	-239886	Apr'11	916839	1331224
Oct'09	53843	-157196	May'11	1093520	1413914
Nov'09	67668	-74506	Jun'11	1156109	1496604
Dec'09	91959	8184	Jul'11	1456995	1579294
Jan'10	122153	90874	Aug'11	1644307	1661984
Feb'10	141442	173564	Sep'11	1747616	1744674
Mar'10	191065	256254	Oct'11	1891237	1827364

Apr'10	203755	338944	Nov'11	1949425	1910054
May'10	247430	421634	Dec'11	2233512	1992744
Jun'10	272140	504324	Jan'12	2479556	2075434
Jul'10	350522	587014	Feb'12	2460629	2158124
Aug'10	408738	669704	Mar'12	2695666	2240814
Sep'10	396797	752394	Apr'12	2721473	2323504
Oct'10	444449	835084	May'12	2730545	2406194
Nov'10	491763	917774	Jun'12	2730035	2488884
			Jul'12	2924140	2571574
Mean Volume of M-Banking: 1000464					
Source: Computed from secondary data					

It is inferred from the table that PSBs provided 6684 M- Banking transactions in May'09 and it increased to 2924140 transactions in Jul'12 with a growth of 436 times. This is followed by average M-Banking transaction which is 1000464. The volume of M-Banking transaction in India increased every month during the study period except in the month of Sep'10, Feb'2011 & 2012 and Jun'12.

The growth of M- Banking service with respect to its volume of transaction is studied using the trend analysis among the study period of thirty nine months from May'09 to Jul'12. The actual and expected growth on volume of M-Banking transactions explained that both up and down ward but in the month of Jul'12 the actual volume of M-Banking transaction 2924140 and expected growth volume of M-Banking transaction is 2571574. It reveals that positive deviation which is the actual growth is higher than the expected growth.

4.2 GROWTH ON VOLUME OF M-BANKING TRANSACTION IN THE STATE BANK GROUPS AND NATIONALIZED BANKS

Here, t-test was used to find out the difference on average growth of M-Banking with respect to its volume of transaction through the testing of following hypothesis.

Ho: There is no significant difference between growth on volume of M-Banking between State Bank Groups and Nationalized banks.

H_{01} : There is a significant difference between growth on volume of M-Banking between State Bank Groups and Nationalized banks.

TABLE - 2: VOLUME OF M-BANKING IN THE STATE BANK GROUPS AND NATIONALIZED BANKS

Bank	N	Mean	SD	t	df	Sig. (2-tailed)
State Bank Groups	39	974044.56	971093.90	6.092	76	.000
Nationalized Banks	39	26419.41	27070.63			

Table – 2 explains that difference on growth of volume of M-Banking transaction between State Bank Groups and Nationalized banks based on the t-test (Accept H_{01} , $p < 0.001$ @ 1% level). It is concluded that there is a significant difference between growth on volume of M-Banking between State Bank Groups and Nationalized banks. Further, State Bank Groups has high growth of volume of M-Banking compared with nationalized banks.

4.3 GROWTH ON VALUE OF M-BANKING IN THE PSBS

Here discuss on the growth of M-Banking in the PSBs with respect to its volume transaction from May'09 to July'12.

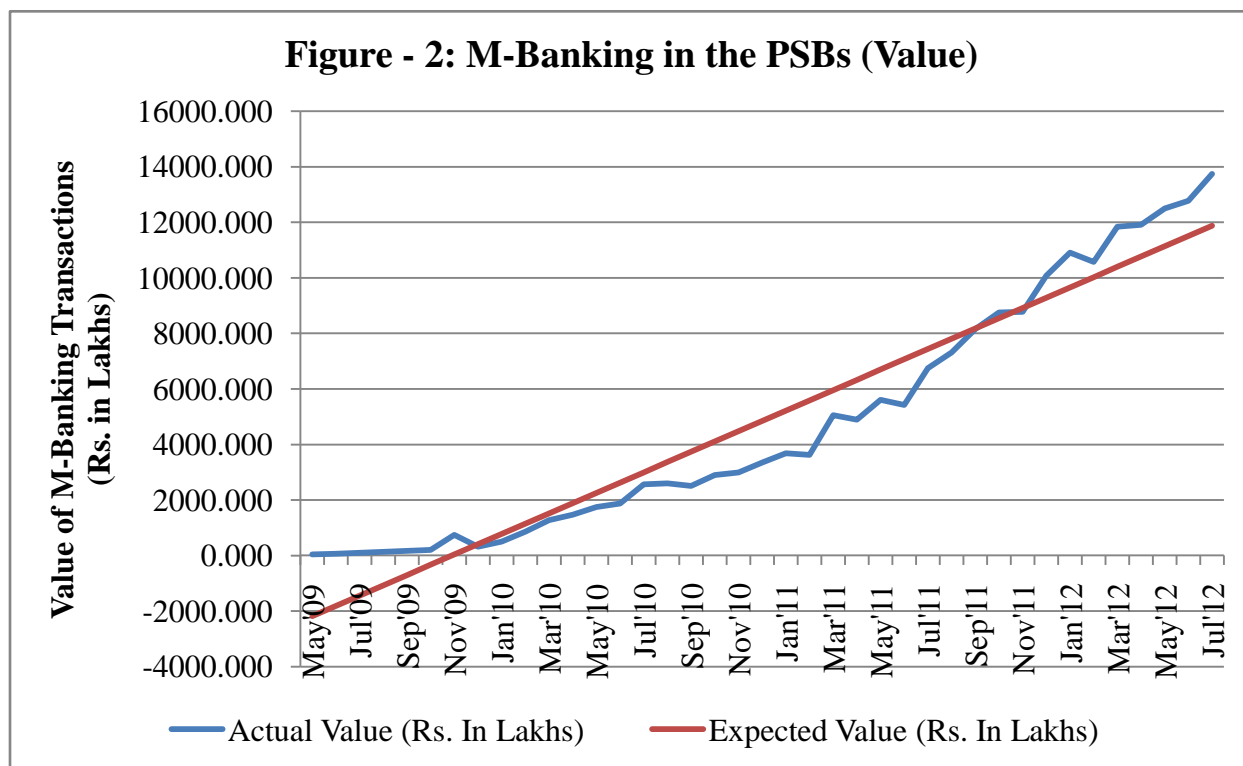
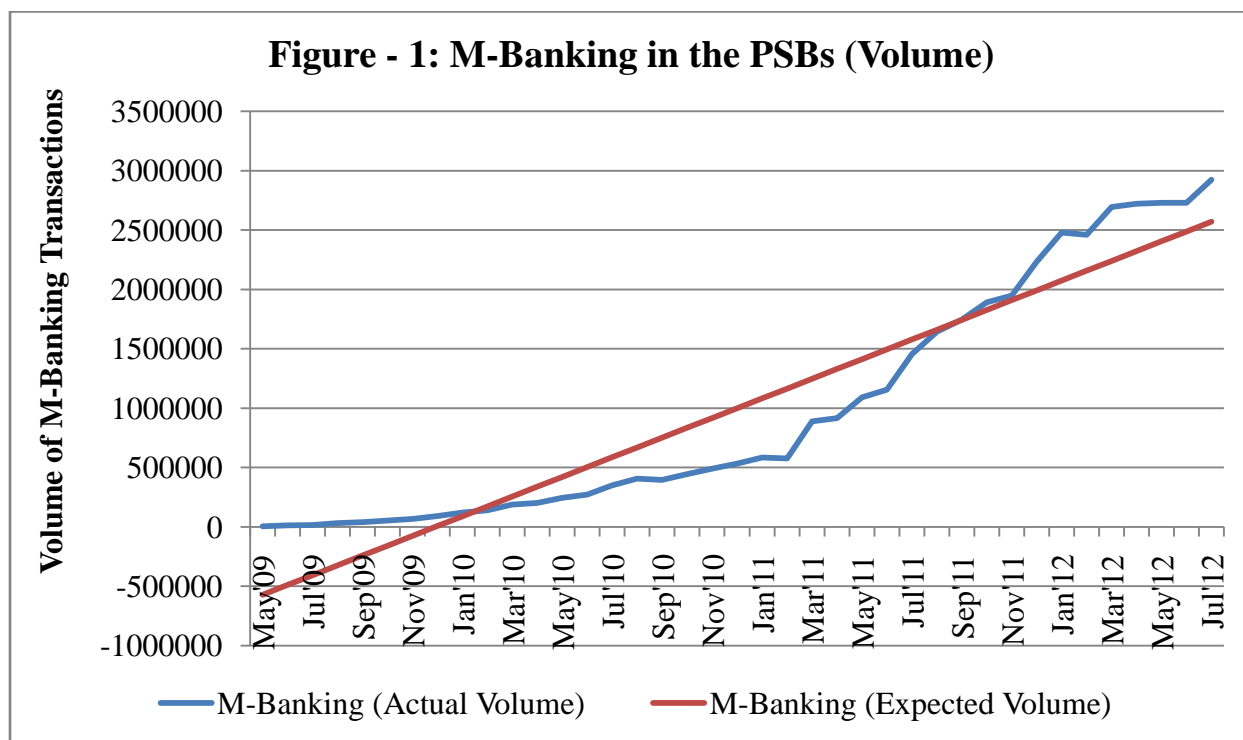
TABLE - 3: VALUE OF M-BANKING IN THE PSBS

Month& Year	Actual Value (Rs. In Lakhs)	Expected Value (Rs. In Lakhs)	Month& Year	Actual Value (Rs. In Lakhs)	Expected Value (Rs. In Lakhs)
May'09	40.7913	-2188.44	Dec'10	3344.180	4840.8
Jun,09	62.9435	-1818.48	Jan'11	3677.648	5210.76
Jul'09	96.015	-1448.52	Feb'11	3620.049	5580.72
Aug'09	135.2208	-1078.56	Mar'11	5055.102	5950.68
Sep'09	166.1912	-708.6	Apr'11	4890.821	6320.64
Oct'09	206.9603	-338.64	May'11	5608.790	6690.6
Nov'09	744.9511	31.32	Jun'11	5420.107	7060.56
Dec'09	316.3572	401.28	Jul'11	6752.481	7430.52

Jan'10	499.8113	771.24	Aug'11	7310.092	7800.48
Feb'10	860.2155	1141.2	Sep'11	8151.761	8170.44
Mar'10	1276.0897	1511.16	Oct'11	8756.791	8540.4
Apr'10	1469.8364	1881.12	Nov'11	8778.853	8910.36
May'10	1751.2757	2251.08	Dec'11	10082.823	9280.32
Jun'10	1873.2731	2621.04	Jan'12	10914.654	9650.28
Jul'10	2568.8076	2991	Feb'12	10578.395	10020.24
Aug'10	2596.3325	3360.96	Mar'12	11849.087	10390.2
Sep'10	2507.9524	3730.92	Apr'12	11916.412	10760.16
Oct'10	2894.374	4100.88	May'12	12501.300	11130.12
Nov'10	2991.271	4470.84	Jun'12	12777.342	11500.08
			Jul'12	13746.007	11870.04
Mean value of M-Banking : Rs.4840.80 Lakhs					
Source: Computed from secondary data					

It can be inferred from the table-2 that the average value of M-Banking transaction is Rs.4840.80 lakhs and the last nineteen months of its value of service is greater than the mean value. Furthermore, monthly growth rate of M-Banking shows that both up and down growth for value of m-banking transaction.

Further, table-2 shows the actual and expected growth of M-Banking service during the period from May'09 to Jul'12. It gets underway from actual value of M-Banking service is more than the expected growth from Dec'11 to Jul'12.



4.4 GROWTH ON VOLUME OF M-BANKING TRANSACTION IN THE STATE BANK GROUPS AND NATIONALIZED BANKS

Here, t-test was used to find out the difference on average growth of M-Banking with respect to its value of transaction through the testing of following hypothesis.

Ho: There is no significant difference between growth on value of M-Banking between State Bank Groups and Nationalized banks.

Ho₁: There is a significant difference between growth on value of M-Banking between State Bank Groups and Nationalized banks.

TABLE - 4: VALUE OF M-BANKING IN THE STATE BANK GROUPS AND NATIONALIZED BANKS (RS. IN LAKHS)						
Bank	N	Mean	SD	t	df	Sig. (2-tailed)
State Bank Groups	39	4542.48	4031.79	6.548	76	.000
Nationalized Banks	39	298.36	359.43			

Table – 4 explains that difference on growth of value of M-Banking transaction between State Bank Groups and Nationalized banks based on the t-test (Accept Ho₁, $p < 0.001$ @ 1% level). It is concluded that there is a significant difference between growth on value of M-Banking between State Bank Groups and Nationalized banks. Further, State Bank Groups has high growth on value of M-Banking compared with nationalized banks.

4.5 PERSONAL FACTORS OF THE CUSTOMERS

Distribution of the sample customers based on their selected personal factors is given in the table below.

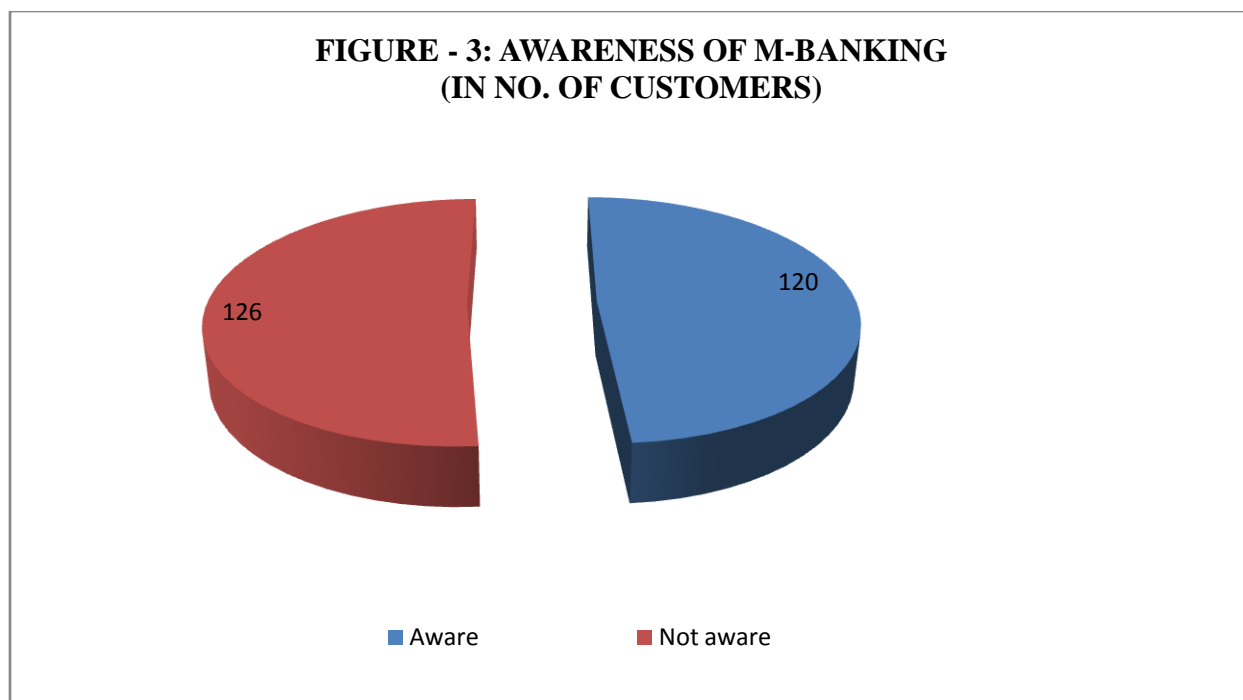
TABLE - 5: PERSONAL FACTORS OF THE CUSTOMERS			
Variable	Group	No. of the Customers	%
Gender	Male	162	65.85
	Female	84	34.15
Age group (In Years)	Upto 25	77	31.30
	26-50	83	33.74
	More than 50	86	34.96

Educational Qualification	Higher Education	99	40.24
	School Education (VIII-XII)	112	45.53
	No formal Education (I-VII)	35	14.23
Occupational status	Private and Public Sector employee	144	58.54
	Businessman	40	16.26
	Retired/VRS	44	17.89
	Others (Housewife/Student etc.)	18	7.32
Place of Living	Urban	145	58.94
	Rural	101	41.06
Frequency of bank visit (Per week)	Less than 10	123	50.00
	11-20	111	45.12
	21 & More	12	4.88
Family Income (Rs. Per Month)	Below 10,000	36	14.63
	10,001 - 20,000	175	71.14
	More than 20, 000	35	14.23
Source: Primary data			

It is observed from the table-5 regards personal factors of the customers that 65.85% of the respondents are male and 34.15% of the customers are female. This is followed by highest percent (34.96%) of the customers are in the age group of more than 50, majority (45.53%) of the customers are completed their education is school level and nearly 6/10th of the customers are employees category. Out of the 246 customers for the study 58.94 percent of the customers from urban area, half of the customers visit to bank branch less than 10 times per week and 71.14% of the customers belong to the monthly income of Rs. 10,001 – 20,000.

4.6 AWARENESS OF M-BANKING OF THE CUSTOMERS

Distribution of the sample customers based on their awareness of M-Banking is given in the figure below



It could be collected from the figure-3 that out of 246 customers taken for the study 120 (48.78%) customers have awareness of M-Banking and 126 (51.22%) customers do not have.

4.7 SOURCES OF AWARENESS OF M-BANKING

Distribution of the customers based on their sources of awareness of M-Banking is given in the table below

TABLE - 6: SOURCES OF AWARENESS ON M-BANKING		
Source	No. of Customers	%
Friends and Relatives	52	43.33
Bank employees	28	23.33
Notice board in the Banks	13	10.83
Advertisements	18	15.00
Others	9	7.50
Total	120	100.00
Source: Primary data		

It is inferred from the table-6 that out of 120 customers, 52 (43.33%) customers are aware of M-Banking through their friends and relatives, 28 (23.33%) of them are aware through the bank employees, 13 (10.83%) customers through notice board in the bank branches and 18 (15%) gathered it through advertisements.

4.8 RELATIONSHIP OF PERSONAL FACTORS OF THE CUSTOMERS AND AWARENESS OF M-BANKING

χ^2 helps to find out the relationship between personal factors (Gender, Age group, Educational qualification, Occupational status, Place of Living, Frequency of Bank visit, Family income) of the customers and their awareness of M-Banking with the testing of following hypothesis.

Ho: There is no significant relationship between personal factors of the customers and their awareness of M-Banking in the PSBs

Ho₁: There is a significant relationship between personal factors of the customers and their awareness of M-Banking in the PSBs

TABLE - 7: RELATIONSHIP OF PERSONAL FACTORS OF THE CUSTOMERS AND AWARENESS OF M-BANKING				
Variable	χ^2	df	p value	Result
Gender and Awareness of M-Banking	0.641	1	0.423	Accept Ho
Age group (In years) and Awareness of M-Banking	1.146	2	0.564	Accept Ho
Educational qualification and Awareness of M-Banking	86.31	2	0.000	Accept Ho ₁
Occupational status and Awareness of M-Banking	0.204	3	0.977	Accept Ho
Place of Living and Awareness of M-Banking	7.089	1	0.008	Accept Ho ₁
Frequency of Bank visit (Per week) and Awareness of M-Banking	14.601	2	0.001	Accept Ho ₁
Family income (Rs. Per month) and Awareness of M-Banking	0.574	2	0.354	Accept Ho
Source: Primary data				

It could be collected from the table-7, χ^2 inferred that personal factors of the (gender: $p>0.05@5\%$ level, age group: $p>0.05@5\%$ level, occupational status: $p>0.05@5\%$ level, and family income: $p>0.05@5\%$ level) customers do not related to awareness of M-Banking i.e Ho Accepted between gender, age group, occupational status, family income of the customers and awareness of M-Banking.

On the other hand, educational qualification ($p<0.01@1\%$), place of living ($p<0.05@5\%$ level) and frequency of bank visit ($p<0.05@5\%$ level) of the customers related to their awareness of M-Banking i.e, Ho is Rejected and H_{o1} is Accepted. This is followed by Cramer's V (<0.05) report that moderate relationship between education and awareness. Further, Cramer's V low relationship between frequency of bank visit (>0.02 but >0.05), frequency of bank visit ($\Phi>0.02$) and awareness of M-Banking.

4.9 CUSTOMER EXPECTATIONS UNDER M-BANKING

Factor analysis is a data reduction technique that tries to explain observed relationships among multiple outcome measures as a function of some underlying components, or variables or factors. On the extraction initially, the factor one is able to explain 49.737% of variance, the factor 2 explains 9.669% and the factor three explains 8.412%. all the three factors are able to explain 67.818%. On the variance of factor one (effective and efficient service) explains high percentage of total variance and also explains more variance comparative to other two factors. So, it is considered more expectation of the customers in the PSBs under M-Banking (Refer Table – 8).

TABLE – 8: CUSTOMER EXPECTATIONS UNDER M-BANKING				
Expectations (E)	Clustering Expectations of Customers in the PSBs			Communalities
	Effective & Efficient service	Financial Inclusion medium	Education	
(E ₁) Mobile banking is allow me to conduct banking transactions more efficiently	0.593	0.451	- 0.104	0.566
(E ₂) I think Mobile banking minimizes inconvenience of the bank employees	0.831	0.186	0.050	0.728
(E ₃) I think mobile banking is cost saving and less time consuming system	0.886	0.183	0.003	0.819
(E ₄) I trust the benefits provided by mobile banking	0.888	0.122	- 0.055	0.807

(E ₅) Propose to use mobile banking in future	0.601	0.139	0.07 5	0.386
(E ₆) To conducting bank business is fast and effortless	0.737	0.180	- 0.03 1	0.577
(E ₇) Mobile banking system helps to gather knowledge of all products provided by Indian Banks	0.029	0.712	0.35 1	0.631
(E ₈) I feel that possibility of error is less	0.841	0.305	0.07 4	0.805
(E ₉) Learning and operate mobile banking is simplicity	0.868	-0.082	0.12 9	0.777
(E ₁₀) I can expect the future service offered by Indian Banks must be reliable to use	0.000	0.006	0.81 8	0.670
(E ₁₁) I can assume effectiveness of the new products and its services	0.831	0.135	0.12 3	0.725
(E ₁₂) Security is stressed under Mobile banking system	0.872	-0.043	0.19 3	0.800
(E ₁₃) Mobile banking system attracting new customers	0.158	0.695	- 0.21 5	0.554
(E ₁₄) Mobile banking provides simple operational procedures	0.855	0.054	0.17 7	0.765
(E ₁₅) I believe that banks are conducting seminar to educate about mobile banking system	0.520	-0.013	0.54 2	0.564
Eigen Value	7.461	1.45	1.26 2	10.173
% of Variance	49.737	9.669	8.41 2	
Cumulative % of Variance	49.737	59.406	67.8 18	
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				

Table – 8 concludes based on the Principal Component Analysis, Rotation method adopted and Varimax with Kaiser Normalization, it can classify the three expectations (factors) of the customers among several. They are, 11 variables were loaded on expectation one and it is labeled as effective and efficient service of M-Banking. Two components were loaded on expectation two on the basis of factor loading and the factor was labeled as M-Banking is financial inclusion medium and another two components was loaded in factor three on the basis of factor loading the factor was labeled as education of M-Banking i.e, customers are expected education about M-Banking.

5. CONCLUSION

The completed research work report that actual volume and value of M-Banking transaction in the PSBs has increased during the study period. The average volume of M-Banking transaction crossed at a million of per month with its value of Rs.4840.80 Lakhs. Further, State bank groups highly contributed to growth of M-Banking in terms of volume and value of transaction compared with nationalized banks. Moreover, nearly half of the customers in the PSBs have knowledge about M-Banking. They are expecting education about M-Banking, effective and efficient service through M-Banking from the bankers.

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