EFFECTIVENESS OF MOBILE BANKING TECHNOLOGY-ENABLED FINANCIAL SERVICES IN THE PRIVATE SECTOR BANKS (GROWTH AND CUSTOMER PERCEPTION)

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Abstract

A combination of technology and innovative business practices is rapidly changing the way in which people conduct financial transactions particularly banking service through mobile phone. Mobile Banking is a type of Mobile Commerce (M-Commerce) service since it allows consumers to perform the transaction-base and enquiry-base financial information services availed from the banks. The present empirical and analytical research study focuses on the overall impact of M-Banking in the Private Sector Banks (Pvt.SBs) in India through its growth and customer perception. The volume and value of transaction collected from 20109-2010 to 2015-2016 for the purpose of measure the growth of M-Banking in the Pvt.SBs and 363 private bank customers were selected from various Districts of Tamilnadu state for the intention of study the impact of M-Banking like awareness, usage, preference of financial services and reasons for usage of M-Banking. Purposive sampling technique is the most appropriate for this study. Questionnaire is a tool for collection of primary data from the customers. This study reported that growth of M-Banking with respect to its volume and value of transactions in the Pvt.SBs has been positive trend throughout the study periods. Moreover, 3/4th of the Pvt.SBs customers are aware of M-Banking but half of them have been practiced under M-Banking. There exist that the significant relationship on awareness of M-Banking among gender and occupation of the customers. The factors like education, occupation, family income of the customers have been influenced to usage of M-Banking. The most of the customers are preferred enquiry based financial services under M-Banking compared with transaction base.

Keywords : Mobile Banking, Information Technology, Awareness, Perception, Financial Information

INTRODUCTION AND EXECUTION OF THE STUDY

1.1 Introduction

An Information Technology (IT) service is considered as the key driver for the changes taking place around the world. Indian banking sector have been found that the technology-oriented financial services in the year of 1987 through the Automated Teller Machines (ATMs). It was installed by HSBC bank, after 20 years completion of the execution process of cash dispensers for the first appearance in the world made by Barclays bank in UK, 1967. Thereafter, the transformation of the financial information after liberalization period is successive development of innovation base that have resulted in different Self-Service Technology (SST)-enabled information mediums between bankers and customers. They include ATM, Plastic Money, Tele-Banking, Internet Banking, Credit/Debit cards and Mobile Banking. Innovations in mobile technology the banks are conduct fast paced demands among the various group of peoples or customers in the 21st Century through the high-quality of response and M-banking which is an integral part of M-Commerce has become very popular among mobile users ever since its existence in 2007. Mobile Banking (also known as M-Banking, cell phone banking, SMS Banking) is a term used for performing balance checks, account transactions, mini-statements, monitoring of term deposits, access to loan and card statements, mutual funds/equity statements, insurance policy management, status on cheque and stop payment on cheque, domestic and international fund transfers, micro-payment handling, mobile recharging, commercial payment processing, bill payment processing, peer to peer payments etc through a mobile device such as mobile phones. At present, M-Banking is most often performed via SMS or mobile Internet, but can also be used by special programs called clients downloaded to the mobile device. Presently, Reserve Bank of India (RBI) has given approval for M-Banking services to 80 banks of which 67 have commenced

operations which are 11 Co-operative Banks, 3 Regional Rural Banks, 7 Foreign Sector Banks (FSBs). 20 Nationalized banks, 20 private sector banks, 6 State Bank Groups but number of registered customers very low in the nation of India. The growth of customer base availing M-Banking services during 2012-2013 was at 22.51 million compared to 12.96 million during the previous year indicating an increase of 73.69 % over the year of 2011-2012 but 278% over the year of 2010-2011. In 2014, the customer base availing M-Banking facilities crossed at 30 million.

1.2 Evolution of M-Banking

Mobile phone technology driven progress of M-Banking can be depicted as in the following

SMS Banking

SMS Banking is a technology-enabled service offering from banks to its customers, permitting them to operate selected banking services over their mobile phones using SMS messaging. SMS banking services are operated using both push and pull messages. Push messages are those that the bank chooses to send out to a customer's mobile phone, without the customer initiating a request for the information. Pull messages are those that are initiated by the customer, using a mobile phone, for obtaining information or performing a transaction in the bank account. The service is available on all phones (JAVA/non JAVA) with/without GPRS connection. The following financial services are available

Enquiry Services (Balance Enquiry/Mini Statement etc.)

Mobile Top up

IMPS- Mobile to Mobile Transfer

Change MPIN etc.

Wireless Application Protocol (WAP) Banking

In time M-Banking progressed to WAP banking which allowed customers to access their bank accounts using a real time customer experience as information access was now real time and secure data communication mode. This improved the M-Banking service is available on java enabled /Android mobile phones (with or without GPRS) where the user is required to download the application on to the mobile handset. The service can also be availed via WAP on all phones (JAVA/non JAVA) with GPRS connection. The following financial information is available under this service

Funds transfer (within and outside the bank)

Interbank Mobile Payment Services (IMPS)

Enquiry services (Balance enquiry/ Mini statement)

Cheque book request,

Demat Enquiry Service

Bill Payment (Utility bills, credit cards, Insurance premium), Donations, Subscriptions

Mobile Top up etc.

1.3 M-Banking and Rural India

The Indian households can be broadly divided in to two main groups, rural and urban. To have effective financial inclusion, the banks have to always keep in mind these target-groups and bring them to inclusive growth. Census 2011 reported that 45.6% of the rural households who are excluded from banking among them large section of the rural poor still does not have access to the formal banking channel. whereas at present only 0.46 villages out of the 5.92 lakh villages in the country have bank branches. The development of M-Banking to expand access to banking facilities throughout the nation because there were the total wireless subscriber base was 983.21 million out of which, 415.92 million subscribers were from rural India, as on 31st July'2015. Thus, mobile phones could be a major financial inclusion medium because it is providing financial services to all segments of peoples including the vulnerable, poor, unbanked remotest villages without any discrimination.

1.4 Issues raised for the Study

Branch banking system in the Private Sector Banks (Pvt.SBs) is providing financial services mostly to urban India but after technological development in the Pvt.SBs particularly M-Banking offer their financial services to rural India without any restriction. Further, success of M-Banking depends on its growth, awareness, usage of society. For that reason, this study focus on overall

impact of M-Banking in the Pvt.SBs with raising the following questions in the minds of the researchers.

- What is the growth level of M-Banking in India?
- Has the customers' sufficient awareness about M-Banking?
- Who is user segmentation of M-Banking?
- What is the preferred financial service under M-Banking?
- What is the reason for using M-Banking among the customers?

In order to find out the answer for the above questions the researchers has made an attempt to undertake this study on "Effectiveness of Mobile Banking Technology-Enabled Financial Services in the Private Sector Banks (Growth and Customer Perception)".

1.5 Objectives of the study

1. To find out the average growth of M-Banking in the Pvt.SBs in India
2. To analyze the relationship of M-Banking awareness among the various group of customers in the Pvt.SBs
3. To study the M-Banking usage among the customers in the Pvt.SBs
4. To study the customers' preference of financial information services under M-Banking
5. To analyze the various segments of the customers based on their perception about reasons for using M-Banking.

1.6 Hypotheses of the study

Ho1: There is no significant difference on the growth of M-Banking during the study periods in the Pvt.SBs.

Ho2: There is a less relationship between M-Banking awareness, usage among the various groups of customers in the Pvt.SBs.

II. REVIEW OF LITERATURE

Sudalaimuthu and Angamuthu (2011) in theri article reported that M-Banking services are highly developed in terms of volume of transaction but in terms of value is slow progress in the Public sector banks. Moreover, State Bank of India has contributed more than 9/10th of the volume and value in the Public sector banks with respect to its overall growth. This study measure the growth of M-Banking in the public sector banks from May'09 to March' 11. **Akinyele and Olorunleke (2010)** reported that fewer customers adopted mobile technology-enabled banking services than the ATMs and Internet banking among the Nigerian customers. **Cruz and Laukkanen (2010)** in their study found that perception of cost, risk, low perceived relative advantage and complexity were revealed to be the main reasons behind the reluctance to use the M-Banking service among Brazilian. **Kirui, et. al (2010)** concluded that awareness level of M-Banking is high among the farmers and their usage level is much lower in Kenya. There is radio plays a dominant role in creating an awareness among the smallholder farmers because more than half of the farmers learned about the mobile phone –based money transfer service through this media. **Lewis, et. al (2010)** in his research statistically reported that there is a difference of usage of M-Banking between male and female customers because more number of male consumers are more likely to use M-Banking than women consumers in German. **Chu and Dewan (2009)** in his article explains that trust in online banking is important to trigger customers' positive perception about M-Banking. According to **Dewan and Lu Yao-bin (2009)** mobile phone is more preferred channel among young consumers in urban Bangladesh for conduct banking transaction than bank branch, ATM, Internet and Phone. **Laukkanen (2007)** in his empirical finding indicates that education, profession, household income, long internet banking usage and large number of internet banking usage frequency determine the potential to usage of M-Banking. **Brown, et.al (2003)** in their explorative research is to determine that risk and complexity factors are the primary importance for non-adoption of M-Banking in South Africa. **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.

III. RESEARCH METHODOLOGY

This empirical and analytical study were used both secondary and primary data. The secondary data related to volume and value of M-Banking transaction collected from reports of Reserve Bank of India and it is helps to measure the growth of M-Banking in the Pvt.SBs. The primary data were collected from customers of Pvt.SBs branches which are located in Coimbatore, Tirrupur, Erode and Trichrapalli Districts of Tamilnadu State. Totally, 400 questionnaires have been distributed but 363 valid responses are used final study that makes 91% of response rate. Questionnaire has four parts like part one contains the personal factors with six questions; the second part includes awareness of M-Banking and source of awareness. The third part of the questionnaire covers thirteen financial information services related to customer preference under M-Banking through ranking form and fourth part of the questionnaire have fourteen variables as regards reasons for using M-Banking and it is measured on Five-point Likert Scaling technique from Strongly agree, agree, neutral, disagree and strongly disagree with proper scoring technique. Further, theoretical inputs of this work collected from the various journals, books, online free journals and websites. This study measure the growth of M-Banking in the Pvt.SBs through the data collected from following Twenty banks in seven financial years from 2009 – 2010(11 Months) to 2015 – 2016 (Upto December).

Table – 1: Pvt.SBs under M -Banking as on December'15

Axis Bank Ltd	Laxmi Vilas Bank Ltd
City Union Bank	South Indian bank
Federal Bank Ltd.	Yes Bank ltd
HDFC Bank Ltd.	Dhanlaxmi Bank Ltd
ICICI Bank Ltd	Development Credit Bank Ltd
ING Vysya Bank Ltd.	Catholic Syrian Bank Ltd
Karnataka Bank Ltd	Indusind Bank Ltd
Karur Vysya Bank ltd	Tamilnadu Mercantile Bank Ltd
Kotak Mahindra Bank Ltd	Jammu and Kashmir Bank
Maimital Bank Ltd	RBL Bank ltd.

Purposive sampling method is the most appropriate for the current study. After conducting the pilot study the questionnaire was finalized. This study draw the conclusion based on the application of Trend analysis, mean, Annual Growth Rate (AGR), percentage analysis, Chi-square test ($\chi 2$), Phi coefficient (Φ) test, Ceamer's V test, Garret's Ranking Technique and Cluster analysis. The various analyses were done with the help of SPPS 13.0 and MS Excel. The major limitation of this study were (a) Growth of M-Banking is not focus on the enquiry based financial information services (b) Do not measure the individual bank-wise growth of M-Banking.

IV. ANALYSIS AND DISCUSSIONS

This part discuss on the growth of M-Banking in the Pvt.SBs and overall perception about M-Banking among the customers through the application of various statistical tools.

4.1 Growth on volume of M-Banking in the Pvt.SBs

Here, measure the growth of M-Banking with respect to its volume and value of transactions from 2009 – 2010 to 2015 – 2016 through the method of least square trends analysis. The foremost objective of this analysis is to measure the changes of data/observation between the periods and also to forecast of future growth on the basis of past experience. The present research work focuses on secular trend analysis, because it studies the movements of data either upward or downward or constant direction over a period of time using linear trend by the method of least squares. This is the best method for obtaining the trend values. It provides a convenient basis for obtaining the line of best fit in a series. The line of the best fit is a line from which the sum of the deviations of various points on either side is zero (actual values of Y from the computed values of Yc). Further the sum of the squares of the deviations of the actual values of Y and computed values of Yc is least. So, it is called the method of least squares and line obtained by this method is called the line of best fit or straight line trend and it is derived from equation of $Yc = a + bx$

Where,

Yc = Trend values for a period

a= Y intercept / trend value at origin when X = 0

b = the amount of change in trend value per unit (i.e., per year)

x = Time unit (i.e., per year)

The current study covered the following three things

Origin – 2012-2013

X unit – a year

Y unit – M- Banking transactions in volume and value

Moreover, the values of two constants 'a' and 'b' are estimated by solving the equations

? Y = Na + b? X

and ? XY = a? X + b? X2

Where,

N = Number of months for this study

The middle period of this study is considered for origin and deviations are taken from the 2012-2013. So, ? X is to become zero. It says that there is no gap in the available data for this research. Further, ? X = 0, the above normal equations derived for the finding of constants 'a' and 'b' will be

a=? Y/N

and b = ? XY/? X2

This provides that the constant 'a' is simply equal to the means of 'y' values and the constant 'b' gives the rate of change for a particular period.

In addition Compound Annual Growth Rate (CAGR) has been used to the year-over-year growth rate of an investment over a specified period of time. The CAGR is calculated by taking the nth root of the total percentage growth rate, where 'n' is the number of years in the period being considered.

CAGR= (Ending Value/Beginning Value)

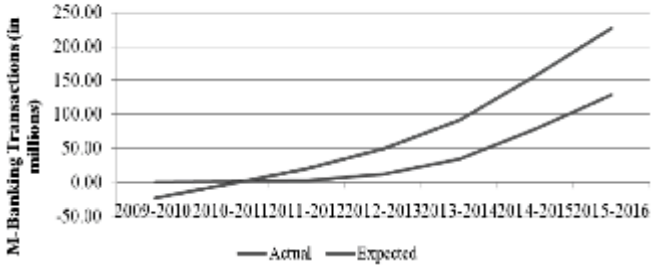
(1/# of years) – 1

Volume of Transaction in Millions

Volume of Transaction in Millions			
Table - 2: Growth of M-Banking in the Pvt.SBs			
Year	**Actual**	**AGR (in %)**	**Expected**
2009-2010	0.50		-24.07
2010-2011	1.27	153.71	-3.70
2011-2012	3.40	166.96	16.67
2012-2013	12.56	269.51	37.03
2013-2014	34.11	171.50	57.40
2014-2015	78.49	130.09	77.77
2015-2016	128.88	64.20	98.14
Average growth	37.03		
Source: Reserve Bank of India			

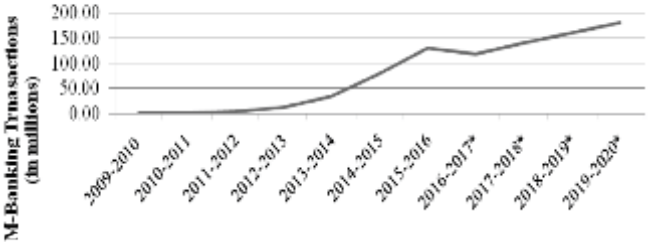
It could be collected from the Table – 2 that annual growth was found to be maximum (269.51%) in the year 2012-2013 and the minimum growth rate (64.20%) was noticed in the year of 2015-2016 whereas the Pvt.SBs provided 128.88 millions of M- Banking transactions during 2015-2016 with a growth rate of 64.20 percent over the year 204-2015. This is followed by average M-Banking transaction in the Pvt.SBs which is 37.03 million during the periods from 2009-2010 to 2015 - 2016. The movement on actual volume of M-Banking transaction in the Pvt.SBs has positive trend throughout the study periods. Further, the actual growth of M-Banking compared to its expected growth and it can be concluded that the actual growth of M-Banking is high compared with expected growth in the last two years because M- Banking users in India account for over 50% of its population (research reports by KPMG and UBS; 2015). Moreover, the growth of M-Banking with respect to its volume of transaction expected to be around 180 million in the year of 2019-2020 with a CAGR of 8.65% over the year of 2015-2016 (Refer Figure – 2).

Figure - 1: Growth of M-Banking Services in the Pvt.SBs (Volume of Transactions)



Source: Reserve Bank of India

Figure - 2: Growth of M-Banking Services in the Pvt.SBs (Volume of Transaction)



*Source: Reserve Bank of India; * Prediction*

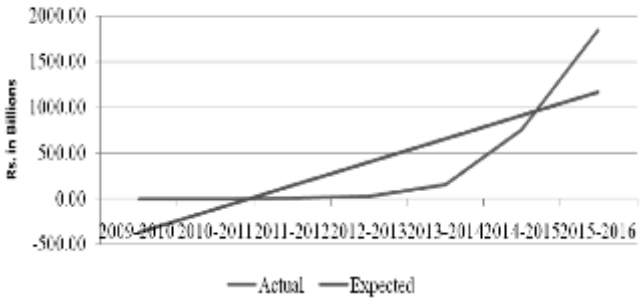
4.2 Growth on Value of M-Banking in the Pvt.SBs

This part discuss on the growth of M-Banking in the Pvt.SBs with respect to its value of transaction from 2009 – 2010 to 2015 – 2016.

Value of Transaction (Rs. in Billions)			
Table - 3: Growth of M-Banking in the Pvt.SBs			
Year	**Actual**	**AGR (in %)**	**Expected**
2009-2010	0.48		-370.03
2010-2011	2.43	407.43	-113.36
2011-2012	6.85	181.67	143.30
2012-2013	31.64	361.62	399.96
2013-2014	158.90	402.20	656.62
2014-2015	757.46	376.68	913.29
2015-2016	1841.96	143.18	1169.95
Average growth	399.96		
Source: Reserve Bank of India			

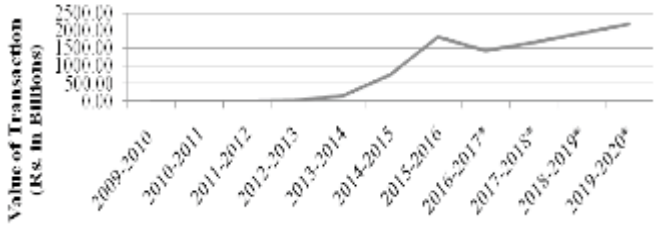
It could be collected from the table -3 that the growth of M-Banking with respect to its value of transaction during 2015-2016 was at Rs. 1841.96 Billions compared to Rs. 757.46 Billion during the previous year (2014-2015) indicating an increase of 143.18% over the year of 2014-2015. The growth of M-Banking in India has grown at an impressive pace during seven years study period from 2009-2010 to 2015-2016. This is followed by average growth on value of M-Banking shows that Rs. 400 Billion. The movement on actual business under M-Banking in the Pvt.SBs has positive trend throughout the study periods but AGR shows that maximum growth (407.43%) was found in 2010 - 2011 and the minimum growth rate (143.18%) was noticed in the year of 2015-2016. The growth of M-Banking with respect to its value of transaction expected to be around Rs. 2200 Billion in the year of 2019-2020 with a CAGR of 4.50% over the year of 2015-2016 (Refer Figure – 4).

Figure - 3: Growth of M-Banking Services in the Pvt.SBs (Value of Transactions)



Source: Reserve Bank of India;

Figure - 4: Growth of M-Banking in the Pvt.SBs From 2009-2010 To 2019-2020



*Source: Reserve Bank of India; * Prediction*

4 .3 Personal factors of the Customers

Distribution of the customers based on their gender, age, education, occupation, family income and frequency of bank visit is given in the table below.

Table - 4: Personal Factors of the Customers			
Character	**Attribute**	**No. of Customers**	**Percent**
Gender	Male	247	68.04
	Female	116	31.96
Age Group (In years)	Upto 25	129	35.54
	26-45	136	37.47
	Above 45	98	27.00
Education	Primary education (I-VIII)	62	17.08
	School education (IX-XII)	123	33.88
	Higher education	178	49.04
Occupation	Public/Private sector Employee	196	53.99
	Businessman	64	17.63
	Professional	77	21.21
	Othes (Student/Housewives/etc.)	26	7.16
Family income (Rs. Per month)	Upto 10,000	130	35.81
	10,001 - 20,000	137	37.74
	Above 20,000	96	26.45
Frequency of Bank visit (In times per week)	Upto 10	94	25.90
	10 - 20	188	51.79
	Above 20	81	22.31
Source: Field data			

Table - 4 shows that highest percent of the customers are male and 32% are female customers. About 37.47% are in the middle age group (26-45 years), 35.54% of the customers belongs to young age group (upto 25 years) and 27% of the customers are elder age group (Above 45 years). Nearly half of the customers have higher level education, 17.08% of the customers have primary

education and remaining (33.88%) customers. Majority (53.99%) of the customers are working in public and private sector, 37.74% of the customers' monthly income is Rs.10,001 – 20,000 and more than half of the customers visit the bank branch 10-20 times per week.

4.4 Awareness of M-Banking

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

Table - 5: Awareness of M-Banking

M-Banking	No. of Customers	Percent
Aware	273	75
Unaware	90	25
Total	363	100

Source: Field data

It is observed from the Figure-1 that out of 363 students taken for the study, 273 (75%) customers are having awareness about M-Banking and 90 (25%) customers are not aware of M-Banking. It is concluded that 3/4th of the customers are aware about M-Banking.

4.5 Source of Awareness of M-Banking

The sources of awareness regarding M-Banking among the customers is given in the table below. In this regard, five variables placed in the questionnaire and the sample customers are requested to given their single response for major sources to get awareness of M-Banking. 273 sample customers those who are having awareness about M-Banking considered for further study.

Table - 6: Source of Awareness of M - Banking

Source	No. of Customers	Percent
Friends and Relatives	73	26.74
Bank employees	81	29.67
Notice board in Banks	39	14.29
Advertisements	57	20.88
Others	23	8.42
Total	**273**	**100**

Source: Field data

It is clear from the table 6 that out of 273 customers, 81 (29.67%) customers are aware of M-Banking through the bank employees, 73 (26.749%) customers of them are aware through friends and relatives, 57 (20.88%) customers are aware of the M-Banking through advertisements, 39 (14.29%) customers are aware through the notice board in banks and 23(8.42%) customers are aware of the M-Banking through others.

4.6 Relationship of Personal factors of the Customers and Awareness of M-Banking

The Chi-square test ($\chi 2$) has been used to find out the relationship between personal factors of the customers and their awareness, usage of M-Banking. The chi-square statistic is an important test among the several tests of significance developed by statisticians. It is statistically measured and used in the context of sampling analysis for comparing an obtained variance to a theoretical variance. As a non–parametric test, it can be used to evaluate the contingencies between two nominal measures. The contingency may involve the comparison of two or more populations on a nominal measure or two nominal variables. In the present study, the Chi-square test is used to test the association between two attributes. The chi-square statistic value can find out through the equation is

$\chi 2 = ?\ (Oi-Ej)\ 2 / EJ$

Where,

$\chi 2$ = Pearson's Chi-square statistic

Oi = an observed frequency

Ei = an expected frequency

The table value of chi-square is calculated by (R-1) (C – 1) degree of freedom at required percent level of significance whereas R and C denote Rows and Columns of the contingency table. If the calculated $\chi 2$ value is greater than the table value, it is concluded that there is a relationship between the two nominal measures and vice-versa. Instead of this concept we can use Asymptotic Significant value. If it comes out to be greater than 0.05, it is concluded that there is no relationship between the two nominal measures and vice–versa. Moreover, Cramer's V [$V = v\ \chi 2 / n\ (k – 1)$] and Phi co-efficient [$\Phi = bc – ad / v(a+b)\ (c + d)\ (a+c)\ (b + d)$] test were used wherever it is required when the number of possible values for the two nominal variables

is unequal and equal respectively. Given the nature of nominal data we calculate each of these statistics; the obtained values for each statistics will always fall along a range from -1 to +1. The calculated value of these statistics is revealed that the magnitude of relationship in the following criteria

Calculated value	Relationship between variables
0.4 to 0.8	Moderate / Medium
>0.8	High / Strong/Close
<0.4	Low / Less

Ho: There is no significant relationship between gender, age group, education, occupation, family income, frequency of bank visit of the customers and their awareness of M-Banking.

Ho1: There is a significant relationship between gender, age group, education, occupation, family income, frequency of bank visit of the customers and their awareness of M-Banking.

Table - 7: Relationship of Personal Factors of the Customers and Awareness of M-Banking

Personal Factor	χ^2	df	Asymp. Sig.	Result
Gender	4.613*	1	0.032	Accept Ho_1, Reject Ho
Age Group (In Years)	1.852	2	0.396	Accept Ho, Reject Ho_1
Education	0.475	2	0.789	Accept Ho, Reject Ho_1
Occupation	9.354*	3	0.025	Accept Ho_1, Reject Ho
Family income (Rs. Per month)	2.155	2	0.340	Accept Ho, Reject Ho_1
Frequency of Bank visit (In times per week)	2.211	2	0.331	Accept Ho, Reject Ho_1
** 'Significant @ 1% level' & * 'Significant @ 5% level'				
Source: Field data				

Table 7 reported that there is no significant relationship between age group ($\chi2=1.852;p>0.396$), education($\chi2=0.475;p>0.789$), family income($\chi2=2.155;p>0.340$), frequency of bank visit ($\chi2=2.211;p>0.331$) of the customers and their awareness of M-Banking because asymptotic significant value comes out greater than the 5% significant level. Hence, accept Ho and reject Ho1.

On the other hand, $\chi2$ value concluded that there is a significant relationship between gender ($\chi2=4.613;*p>0.032$), occupation ($\chi2=9.354;*p>0.025$) of the customers and their awareness of M-Banking because asymptotic significant value comes out lesser than the 5% significant level. Since, accept Ho1 and reject Ho. Moreover, Φ value comes out between gender of the customers and their awareness of M-Banking is 0.113 which is less than the 0.04. The calculated value of V comes out between Occupation and awareness of M-Banking is 0.161 which is less than the 0.04. Finally, these dimensions can be concluded that there is low relationship between gender, occupation of the customers and their awareness of M-Banking.

4.7 Usage of M-Banking

Distribution of the customers based on their usage of M-Banking is given in the table 8 and it can be concluded that 49.8% of the customers in the Pvt.SBs are using M-Banking services and remaining 50.2% do not use.

Table - 8: Customer's Usage of M -Banking

M-Banking	No. of Customers	Percent
User	136	49.8
Non-user	137	50.2
Total	273	100
Source: Field data		

4.8 Relationship of Personal factors of the Customers and Usage of M-Banking

Ho: There is no significant relationship between gender, age group, education, occupation, family income, frequency of bank visit of the customers and their usage of M-Banking.

Ho1: There is a significant relationship between gender, age group, education, occupation, family income, frequency of bank visit of the customers and their usage of M-Banking.

Table -9: Relationship of Personal Factors of the Customers and Usage of M-Banking

Personal Factor	χ2	df	Asymp. Sig	Result
Gender	2.043	1	0.153	Accept Ho, Reject Ho_1
Age Group (In Years)	1.889	2	0.389	Accept Ho, Reject Ho_1
Education	6.996*	2	0.030	Accept Ho_1, Reject Ho
Occupation	8.583*	3	0.035	Accept Ho_1, Reject Ho
Family income (Rs. Per month)	10.273* *	2	0.006	Accept Ho_1, Reject Ho
Frequency of Bank visit (In times per week)	4.366	2	0.113	Accept Ho, Reject Ho_1
** 'Significant @ 1% level' & * 'Significant @ 5% level'				
Source: Field data				

Table 8 reported that there is no significant relationship between gender (χ2=2.043;p>0.153), age group (χ2=1.889;p>0.0.389), frequency of bank visit (χ2=4.366;p>0.0.113) of the customers and their usage of M-Banking because the asymptotic significant value comes out greater than the 5% significant level. Hence, accept Ho and reject Ho1.

On the other hand, χ2 value concluded that there is a significant relationship between education (χ2=6.996;*p>0. 03), occupation (χ2=8.583;*p>0.035), family income (χ2=10.273;**p>0.0.006) of the customers and their usage of M-Banking because asymptotic significant value comes lesser than the 5% level. Therefore, accept Ho1 and reject Ho. Furthermore, the Φ test can be used to measure the extent of relationship between education, occupation, family income of the customers and their usage of M-Banking. The calculated value of all these attributes comes out to be less than the 0.04 [education and usage of M-Banking; 0.160], [occupation and usage of M-Banking 0.177], family income and usage of M-Banking [0.194] and it can be reported that there is a low relationships between these attributes.

4.9 Preference of financial services of the customers under M-Banking

Garrett's Ranking technique has been used to evaluate the preference of financial services of the customers using the sample size of 136. This technique was adopted, where the respondents were asked to rank their preference according to the magnitude of the particular attribute among the several attributes. The orders of merit given by the customers were converted into ranks by using the following techniques.

Percent position=100(Rij-0.5)/Nj

Where,

Rij = Rank given for the ith sources by the jth respondents

Nj = Number of sources ranked by the jth respondents

The percentage position of each rank thus obtained was converted into scores by referring to the table given by Hengry Garrett. Then for each factor of the scores of individual respondents are added together and divided by the total number of respondents for whom the scores were added. These mean scores for all the sources is to consider for the purpose of finds High to Low mean scores and inferences were drawn.

Table - 10: Preference of Financial Services under M-Banking in the Pvt.SBs

Financial information	Garret's Score	No. of Customers	Mean	Rank
Account Balance Enquiry	8382	136	61.63	1
Recent Transaction History Requests	7696	136	56.59	2
Cheque Status Enquiry	7545	136	55.48	3
Cheque Book Requests	7088	136	52.12	4
Fund Transfer between/within Accounts	6732	136	49.50	9
Account Statement Enquiries	7072	136	52.00	5
Bill Payment	5822	136	42.81	11
Credit/Debit card information	5570	136	40.96	12
Information Requests like Interest Rates/Exchange Rates	6758	136	49.69	8
ATM/Branch Locations	5156	136	37.91	13
Helpline and emergency contact	7024	136	51.65	6
Information of stop payment on cheque	6779	136	49.85	7
View fixed deposit details	6673	136	49.07	10

Source: Field data

It could be seen from the table - 10 that "account balance enquiry" was the first preferred financial service under M-Banking with a highest Garrett point compared to with other services. An "account statement enquiry" is the second preferred financial information of the customers with 7696 points in Garrett's Ranking. "Cheque status enquiry" is ranked third and "cheque book requests" are ranked fourth with the next highest Garrett point. On the other hand, "ATM/Branch locations" get the last rank with the lowest score in the Garrett's ranking techniques. Again, more meaningful information regarding preference of financial services under M-Banking of the customers is availed from the table 10.

4.10 Customers perception Reasons for Using M-Banking: Cluster Analysis

K-Means cluster analysis involves deciding on a set number of clusters to extract. Objects are then moved around between clusters so as to make objects within a cluster as similar as possible and objects between clusters as different as possible. It has been conducted in order to analyze the various clusters of customers that exit in our data and how they differ, or are to similar to each other in their perception towards reasons for using M-Banking. The responses against 14 variables were collected from M-Banking user category through Five-point scaling technique which is strongly disagree, disagree, neither agree nor disagree, agree, strongly disagree with ranging from 5 to 1. Cluster analysis grouped that three clusters and the first cluster have been formed with 84.56% of the customers in the Pvt.SBs (Refer Table -11). The first cluster has a large number of customers (115 customers) and they are neutrally agreed about all the reasons for using M-Banking because their score comes out between 2.38 to 2.89 i.e. in the category of neither agree nor disagree. This is followed by fewer number of customers (09 customers) are included in the second cluster, they are agreed (score >3) about most of variables that are represent the reasons for using M-Banking and third cluster of customers (12 customers) agreed about their reasons for using M-Banking is guidance given by banks and reference groups, time saving, cost saving and availability of reliable financial information. Finally, the 'f' statistical value towards various reasons for using M-Banking except direction given by reference group are strongly influenced by the customers regarding their M-Banking practice because the value of 'f' comes out within the one percent significant level.

Table - 10: Segmentation of Customers according to their Perception about Reasons for Using M-Banking

Reasons	Final cluster Centers			Cluster		Error		f
	1 (84.56%)	2 (6.62%)	3 (8.82%)	Mean Square	df	Mean Square	df	
Mobile is always with me	2.83	3.22	1.75	7.333	2	1.160	133	6.319**
Mobile is a familiar device	2.75	2.56	1.58	7.396	2	0.863	133	8.566**
Sufficient guidance given by banks	2.54	1.89	4.50	23.824	2	0.740	133	32.180**
Time and cost saving	2.78	2.22	4.83	25.239	2	0.788	133	32.034**
Direction given by reference group	2.87	3.67	3.17	2.965	2	1.118	133	2.652
Advance technology	2.70	1.33	1.58	13.553	2	0.743	133	18.233**
Conducting banking transaction is fast and	2.61	4.22	2.17	12.576	2	0.922	133	13.641**
Customer-friendly service	2.38	4.22	1.75	17.334	2	0.849	133	20.408**
Punctuality of the service is available	2.88	2.78	1.75	6.916	2	0.783	133	8.836**
Quality of service does not change because it is standardized	2.56	3.44	1.17	14.861	2	0.558	133	26.611**
Reliability of the financial information	2.89	1.33	3.42	12.332	2	0.921	133	13.394**
Using mobile banking is independent	2.82	4.11	2.75	7.127	2	1.130	133	6.307**
Growth in mobile banking services is fast	2.50	4.22	1.83	15.835	2	0.646	133	24.497**
Security is stressed	2.85	3.11	1.50	10.562	2	0.965	133	10.943**
	1=SDA, 2=DA, 3=N, 4=A, 5=SA			* 'Significant @ 5%level' & ** 'Significant @ 1% level'				

V. CONCLUSION

The fast changing IT increases banking environment and exposes liberalization, encourages to permit the unbanked to avail of financial services, advance technological development, and requirements of more customer, reduce the administrative cost, more business demand, growth of mobile phone market, time-saving purpose, reduce the occupational stress of the employees and speed of delivery in financial products is influenced to the implementation of mobile phone technology based financial information system in Banking industry including private sector banks of Indian context. M-Banking in the Pvt.SBs has been tremendous growth rate on year-by-year with respect to its volume and value of transactions. Further, 3/4th of the customers in the Pvt.SBs are aware of M-Banking services whereas among the awareness group half of the customers practiced their financial transactions under M-Banking. Personal factors like education, occupation and family income level of the customers have been influenced to their usage of M-Banking. Most of the customers are preferred enquiry based transactions like account balance enquiry, recent transaction history requests, check status enquiry under M-Banking. In the current era, the customer shows interest in adopting mobile technology to conduct their banking transactions because availability of value added services, penetration of smartphone facility and also to they found that M-banking to be more user-friendly as it provides enhanced and extensive range of service at reduced cost.

References

1. Bryman, A. (2001). Social Research Methods. New York: Oxford University Press.
2. Coroxton F.E, Cowden D.J &et. Al (1974): "Practical Business Statistics", Prentice – Hall of India Private Limited, New Delhi (Fourth Edition).
3. Cruz., P., & Laukkanen., T., (2010): "Mobile banking rollout in emerging markets: evidence from Brazil", International Journal of Bank Marketing, Vol. 28 No. 5, pp. 342-371
4. Gurusamy (2007): "Merchant Banking and Financial services", Second Edition, Vijay Nicole imprints Private Ltd, Chennai.
5. Yong J. John., et.al (2002), Internet Use in South Korea, Journal of Online Information Review, Volume 26, Number 5, p335-344.
6. Sudalaimuthu. S., and Angamuthu. B., (2011), Present Scenario on Self-Service Technology Enabled Financial Services in Select Public Sector Banks with special reference to Mobile Banking, In

the Book Titled- Financial Inclusion – Issues, Opportunities and Challenges of Indian Commercial Banks, Virutcham Publications, Nagercoil, Tamilnadu, India.

7. Akinyele., S.T., & Olorunleke., K., (2010): "Technology and Service Quality in the Banking Industry: An Empirical Study of Various Factors in Electronic Banking Services", International Business Management, Vol. 4, No. 4, pp. 209-221
8. Kirui, O.K, Okello, J.J, and Nyikal, R.A (2010): "Awareness and use of m-banking services in agriculture: The case of smallholder farmers in Kenya", Paper prepared for presentation at the 3rd African Association of Agricultural Economics, AAEA/ AEASA Conference, Cape Town, South Africa, 19-23 September.
9. Lewis., N.K., Palmer., A., and Moll., A., (2010): "Predicting young consumers' take up of mobile banking services", International Journal of Bank Marketing, Vol. 28 No. 5, pp. 410-432
10. Chu., S., & Lu yao-bin (2009): "Trust transference in mobile banking: an investigation of the initial trust", IEEE Computer Society, IITA International Conference Proceedings on Services Science, Management and Engineering, pp. 204-208
11. Dewan., S.M., & Dewan., A.M., (2009): "Young Consumers' M-banking Choice in Urban Bangladesh: Preliminary Indication", Proceedings of 12th International Conference on Computer and Information Technology (ICCIT 2009),December, Dhaka, Bangladesh, pp. 121-126.
12. Laukkanen., T., (2007): "Customer preferred channel attributes in multi-channel electronic banking", International Journal of Retail & Distribution Management, Volume 35, No. 5, pp 393-412.
13. Brown., I., Cajee., Z., & et.al., (2003): "Cell phone banking: predictors of adoption inSouth Africa—an exploratory study", International Journal of Information Management, Volume 23, No.5, pp 381–394.

Websites

1. Bank-led mobile banking model is right for India, http://www.banktechindia.com/news/12-08-06/Bank-led_mobile_banking_model_is_right_for_India.aspx, Retrived on June 08/ 2012.
2. Business Line : "Mobile banking for financial inclusion", http://www.thehindubusinessline.com/features/mentor/article2565331.ece?homepage=true&ref=wl_home,
3. Convergence of mobile banking, financial inclusion and consumer protection-trend, http://www.bis.org/review/r111114d.pdf, Retrived on November 9, 2011.
4. e-governance, http://www.indg.in/e-governance/mobilegovernance/mobile-banking, Retrived on July 02, 2012.
5. Kiran., K.SR., Evolution of Mobile Banking, http://www.infosys.com/finacle/solutions/thought-papers/Documents/evolution-mobile-banking.pdf
6. Mobile Banking for financial inclusion, http://telecomtalk.info/mobile-banking-for-financial-inclusion/45095/, Retrived on October 21, 2010. And other Various websites
7. Mobile Commerce, M-Commerce Services, Mobile commerce in India, Advantages and History of Mobile Commerce, http://www.roseindia.net/services/m-commerce/mobile-commerce.shtml,
8. Sahil Shah,Imedia connection (2011): "Mobile Banking in India: The Next Big Thing" http://www.imediaconnection.in/article/457/Digital/Mobile/mobile-banking-in-india-the-next-big-thing.html,Septenber 20,2011.
9. Tech Mahindra Ltd (2011): "State of Indian Mobile Banking", http://www.techmahindra.com/Documents/presscoverages/2011/August/Express Computers.pdf,
10. The Economic Times(2012): "Mobile banking has failed to take off in India: RBI", http://articles.economictimes.indiatimes.com/2012-07-

24/news/32828257_1_financial-inclusion-mobile-mn-transactions, July 24, 2012

11. The time for mobile banking for financial inclusion is now, http://www.sksindia.com/downloads/HT-article.pdf, Retrived on August 07, 2009.
12. RBI Payment System Vision Document (2012-15)- http://www.rbi.org.in/scripts/PublicationVisionDocuments.aspx?Id=664
13. Mobile Banking Transactions in India – Operative Guidelines for Banks - http://www.rbi.org.in/scripts/NotificationUser.aspx?Id=6387&Mode=0
14. List of Banks permitted to provide Mobile Banking service in India - http://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=2463
15. TRAI consultation paper on 'USSD Based mobile banking services for financial inclusion' - http://www.trai.gov.in
16. Financial inclusion, Department of Financial Services, June 2013, website –http://financialservices.gov.in/banking/overviewofefforts.pdf
17. GSMA "The India Mobile Economy Report", Oct 2013 http://www.gsmamobileeconomyindia.com/

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