Perspective of CRM scale development & validation in view of Indian Banking Sector

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Abstract: *This paper depicts a reliable & valid Customer Relationship Management Scale serving only to Banking Sector of India. Exploratory factor analysis has been followed by confirmatory factor analysis represented in three forms. The model of covariance depicts Customer relationship management as multidimensional construct. It comprises of various factors like organization structure, support of customer, trust, service quality, technology & orientation of market. The structural model validated the extracted factors. The study confirms that Customer Relationship management is multidimensional construct & acts as successful variable for performance of business. This study provided a validated customer relationship management scale adhering to banking sector of India only, which in turn can be helpful to managers in implementation of CRM effectively and also will assist in providing areas requiring attention.*
Keywords: *Customer relationship management, scale, banking sector, exploratory factor analysis, confirmatory factor analysis.*

I. Introduction

In the modern times, the existence of the civilized world, even dreaming of it, cannot be imagined without banks. The banking activities have become not only an integral part of the human civilization but also have directed the flow of progress over the lifetime of human civilization so far. Bank, the four letter word has in fact transformed the way we lead our lives, the way we run the business, and the way the country develops.

1991 reforms changed economy of India significantly. In emerging economies new phase started off which included LPG i.eLiberalisation, Privatisation&Globalisation. The banking index represented annual growth rate of above 51% since 2001. The banking sector contribution in GDP increases to 4.8%.

The change in competitive world and the expectations of consumer has resulted in shift to long term relationship rather than going for one time transaction.

Indian banks have realized the importance of implementation of CRM for acquiring & retention of customers. This indicated the requirement of identification and labeling of dimensions which plays an important role in Customer Relationship management implementation.

S.No.	Author	Context
1.	Arjan*et al.*(2000)	Developed a scale for identifying important customer expectation dimensions in respect to CCR behaviour prevailing in Netherlands.
2.	Sweeney and Soutar (2001)	Scale was developed in view of perceived value of consumer by considering product as consumer durable in UK.
3.	Sin *et al.*(2002)	Scale formulated to understand relationship marketing dimensions in financial sector in China.
4.	Zhilin et al.(2004)	Service quality perceived by customer has been measured by formulating scale in banking sector in USA & 17 different countries.
5.	Jurgen and Yu (2005)	Development of scale in usage of internet in small firms in Germany for enhancing CRM.
6.	Rosalind (2005)	Measurement of customer loyalty by scale development from consumer's perspective of a ferry company in UK.
7.	Sin et al.(2005)	Development of scale for Customer relationship management in financial services sector in Hong Kong.
8.	Clement and Selvam (2007)	Service quality scale development in Indian retail banking sector.
9.	Ekiz et al.(2009)	Service quality scale of car rental services in terms of of tourism industry in North Ciprus.
10.	Harmeen and Sandhu (2008)	Assessment of Customer relationship capabilities in service sector in China by scale development.

12.	Wang and Feng (2008)	Scales for Four category-specific quality measurement scales (or RECIPE scales) were developed, one for each Fulfillment-Product type of Internet retailing from the online customer's perspectives in USA.
13.	Sharma and Gassenheimer (2009)	Scale development for measurement of internet banking service quality in Taiwan
15.	Chien-Ta and Lin(2010)	E-learning quality scale development & validation from students as well as faculty perspective.

Banks are adopting CRM to converge people, process and products more effectively to embark on the true relationship banking-with the end result of accelerating the business momentum. Towards this end, experts propose various ideas and approaches to understand the fundamental marketing motivations driving the CRM trend in banks.

II. Literature Review

Methodology

To carry out the study 50 scale items were developed to identify Customer relationship management constructs from the literature review available. The study was further followed by depth interviews with consumer of various banks. 21 consumers were interviewed for the issues that emerge out while banking services are availed. In questionnaire survey a total of 448 responses were considered. The exploratory factor analysis was performed on 224 responses for identification of major Customer relationship variables on which construct was proposed, which in turn is confirmed by confirmatory factor analysis & validated by structure equation modeling by use of rest of 224 responses.

Depth Interview

The interview was conducted with 21 consumers of different banks of Delhi. The time span of interview varies between 15-20 minutes. 50 dimensions were extracted from LR and were formulated in a list and were given to interviewee with a description of dimensions. The questionnaire was further modified accordingly.

Key results of depth interview

After depth interview 50 dimensions were reduced to 36. The findings of interview depicts that 89% of respondents are aware of bank operations in particular region. The most availed services were cheque book, ATM card, credit card & internet banking facilities. The major issues being faced by the consumers were response of bank employees, behaviour& attitude of bank staff, security, privacy & customized products & services.

Questionnaire survey

The modified questionnaire is based on these 36 dimensions followed by a pilot survey of the questionnaire to assess the content validity. Content validity can be evaluated by a panel of persons, sometimes experts, who judge whether a scale logically appears to accurately reflect what it purports to measure (Zikmund, 1991). From the result of the pilot survey 12 dimensions are removed as a result, the revised questionnaire contained
24 dimensions (survey items). The revised questionnaire structure comprises of:
Section-1: Demographic information of the respondents and
Section-2: Items measuring the respondent's perceptions on specific characteristics of banking services and overall banking services quality.
The respondents were requested to select the response that best indicates their experiences or perceptions on each statement, using a five point Likert-type scale (From
1= strongly disagree to 5= strongly agree).

Key results of questionnaire survey

Questionnaires were received both through online as well as offline from respondents in Delhi. All the respondents were consumers of banking sector of India. 448 fully filled questionnaires were received. Furthermore, the reliability analysis, sampling adequacy analysis and exploratory factor analysis was carried out with the first half of the data (Sample size: 224) to identify the major constructs. Subsequently confirmatory factor analysis was carried out with the second half of the data (Sample size: 224) to confirm the factor structure as well as to provide evidence of scale reliability, dimensionality and validity. After this the structural equation modeling was carried out to validate the results. SPSS-15 and AMOS-7 software were used

for carrying out statistical analysis mentioned above. The demographic profile of the respondents is given below.

S.No.	Demographic Criteria		%
1	Gender	Male	60.60%
		Female	39.40 %
2	Age	Between 18 -30 years	43.18%
		Between 30-45 years	35.82%
		Above 45 years	21.00%
3	Marital Status	Single	37.71%
		Married	63.29%
4	Education Level	Undergraduate	21.00%
		Graduate	45.63%
		Post Graduate and above	34.37%
5	Monthly Salary	Less than 20,000 Rs.	36.27%
		20,000-30,000 Rs.	31.14%
		More than 30,000 Rs.	32.59%
6	Association with the bank	Less than 1 Year	12.06%
		Between 1-3 Years	52.68%
		More than 3 Years	35.26%

The demographic profile represented male maximum responses from males comprising of 60.60%. Maximum percentage was of age group 18-30 years. Mostly percentage of people was married and graduates with 63.29% and 45.63% respectively. The people who filled the forms were associated with the bank for 1-3 years of span with 52.68%.

III. Analysis Of Results

The reliability of the data is checked by calculating Cronbach-α value that is found 0.926. The calculated value is in the quite acceptable range (> 0.7) (Nunnally, 1978). Further to this, KMO statistics is calculated for checking the sampling adequacy, the calculated value is 0.904 (>0.5) which is found quite suitable for carrying out exploratory factor analysis. Exploratory factor analysis was carried out and based on the rotated component matrix a total of 6 factors were extracted along with 19 indicators contributing towards 67% of the variance.

In the first model CRM is represented as anuni-dimensional construct and all the extracted dimensions from the factor analysis are leading to CRM. The particular model is verified through CFA by using the second half of the data. This model is discarded because of poor fit based on the calculated absolute measures, incremental fit measures and parsimonious fit measures. The calculated statistics of these measures is shown in Table-2.

In the second model CRM is represented as a multi-dimensional construct explained by the six factors extracted through exploratory factor analysis. This measurement model is verified through confirmatory factor analysis by using the second half of the data. This model is accepted because of much improved level of fit as compared to model-1 based on the calculated absolute measures, incremental fit measures and parsimonious fit measures. The comparative calculated statistics of these measures are shown in Table-2. The measurement model indicated an acceptable model fit of the data ($\chi2 = 304.18$, $df = 136$, $p < .05$; $\chi2/df = 2.21$; GFI=0.882; AGFI= 0.832; CFI = 0.916; TLI = 0.895; PCFI = 0.735 and RMSEA = 0.07). In addition to this, all the indicators loaded significantly on the corresponding latent constructs. The values of the fit indices indicate a reasonable fit of the measurement model with the sample data.

Table 1 - Exploratory factor analysis (Rotated component matrix)

	Component					
	OSCS	SEQU	TRUS	TECH	PERS	MAOR
MAOR1: Competitor orientation MAOR2:						.802
Brand/market image TRUS1: Reliability						.752
TECH1: Technological infrastructure						
TECH2: Knowledge management and			.571			
dissemination system SEQU1: Promise					.680	
fulfillment SEQU2: Empathy/customer						
orientation						
SEQU3: Commitment					.583	
TRUS2: Privacy and security TRUS3:						
Interdependence TRUS4: Benevolence		.581				
SEQU4: Service recovery						
OSCS1: Working conditions of		.743				
staff						
OSCS2: Responsiveness		.669				
OSCS3: Assurance			.511			
TECH3: Information analysis system			.523			
OSCS4: Conflict handling			.741			
PERS1: Collaboration in product design						
PERS2: Customer life time value		.503				
identification						
	.555					
	.828					
	.696					
					.555	
	.762					
				.801		
				.846		

OSCS: Organizational structure and customer support, SEQU: Service quality, TRUS: Trust, TECH: Technology, PERS: Personalization, MAOR: Market orientation

Table-2: Comparison of the calculated statistics of the models

S.No.	Model Fit		Absolute Measures			Incremental fit Measures		Parsimonious fit Measures	RMSEA
	χ^2	χ^2/ df	RM	GFI	AGFI	CFI	TLI	PCFI	
Model 1	491.49	3.24	0.05	0.81	0.76	0.84	0.82	0.74	0.10
Model 2	305.18	2.23	0.04	0.88	0.84	0.92	0.90	0.74	0.07

Table-3: Composite reliability of the constructs

Construct	Composite Reliability
OSCS	0.79
SEQU	0.79
TRUS	0.80
TECH	0.75
PERS	0.67
MAOR	0.66

The Table-3 shown clearly indicates composite reliability of all the constructs is more than 0.6, which is quite acceptable. All the indicators have shown significant loadings onto their respective latent constructs with values varying in between 0.51 to 0.85. In addition, the average variance extracted (AVE) for each construct is greater than or equal to 0.50, which further supports the convergent validity of the constructs.

In the third model (Figure-1) the structural CRM model is validated by using structural equation modelling. The calculated statistics of absolute measures, incremental fit measures andparsimonious fit measures is shown in Table-4. The structural model indicated an acceptable model fit of the data (χ^2 = 348.13,

df= 146, *p* <.05; *χ2/df*=2.38; GFI=0.866; AGFI= 0.826; CFI = 0.902; TLI = 0.885; PCFI = 0.770 and RMSEA = 0.07) (Anderson and Gerbing, 1988). In addition to this all the indicators loaded significantly on the corresponding latent constructs. The values of the fit indices indicate a reasonable fit of the structural model with the sample data (Byrne, 2001). In short, the structural model confirms the six-factor structure of Customer relationship management.

Table-4: Calculated Statistics of Model

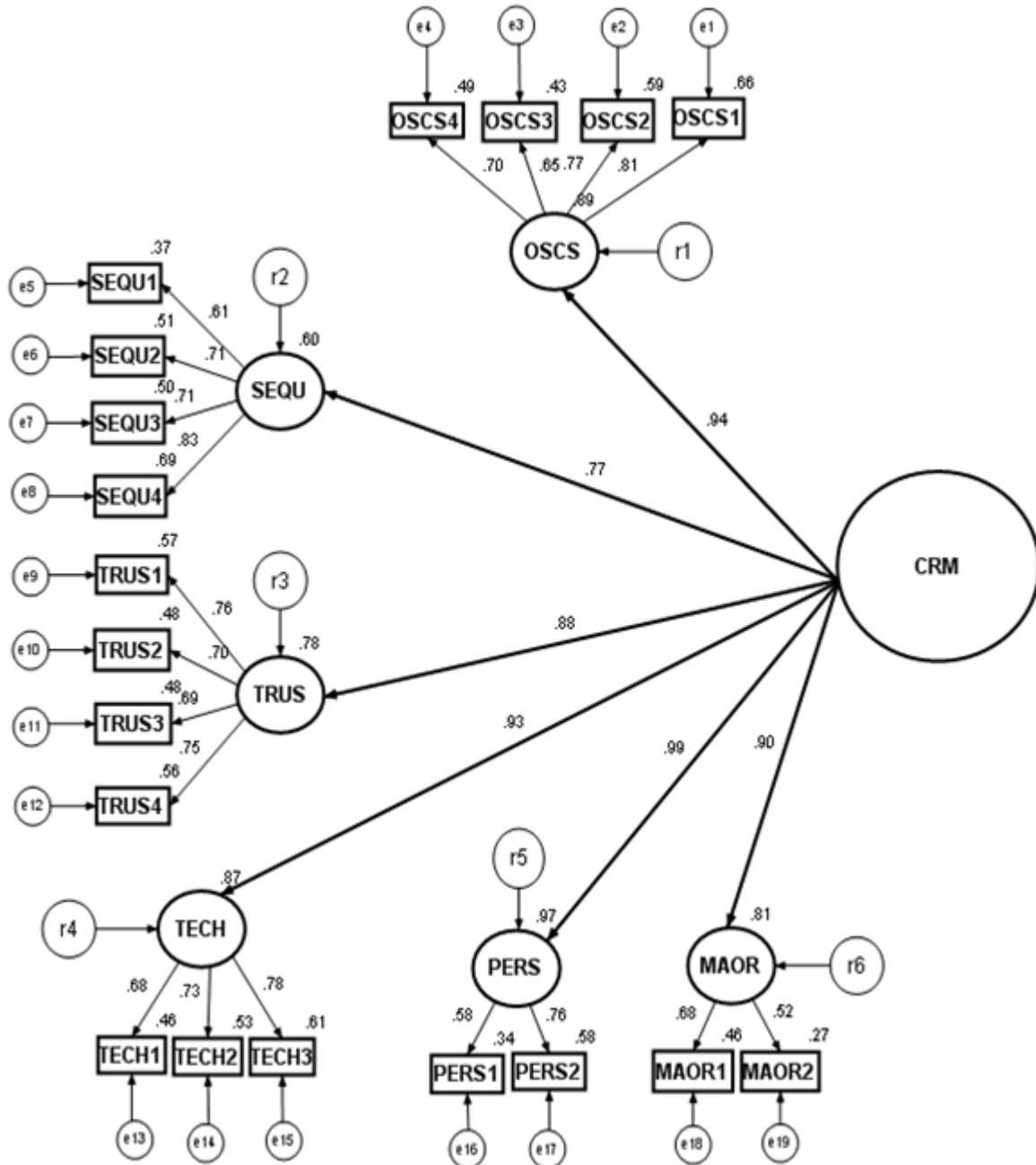| S.No.	Model Fit		Absolute Measures			Incremental fit Measures		Parsimonious fit Measures	RMSEA
	χ2	χ2/ df	RMR	GFI	AGFI	CFI	TLI	PCFI	
Model 3	348.13	2.38	0.04	0.87	0.83	0.91	0.88	0.77	0.07

Figure 1: Model 3-Six factor model (Structural Model)

IV. Conclusion

The study verified the long held belief that CRM is a multidimensional construct. The critical factors that explain CRM in Indian banking sector have been identified as organizational structure and customer support, service quality, trust, technology, personalization and market orientation.

Organizational Structure & Customer Support

This factor includes many dimensions. The dimensions are *working conditions of staff* i.e. the workload and satisfaction level of the employees; *responsiveness (*i.e. willingness of bank employees to help the customers and providing prompt service to them); *assurance* (i.e. the competence and courtesy of employees and their ability to foster confidence and trust in the minds of the customers) and *conflict handling (i.e.* includes the top management ability to avoid conflicting situation and in case of any unavoidable conflict solve it). Practicing them in the organisation will attract large number of customers in future and propagate a positive word of mouth improving the goodwill of the company. This will also play a big role in retaining the customers of the companies.

Service Quality

This factor is of vital importance in the light of more enlightened and demanding customers than ever before who put lot of emphasis on getting a better quality of service that they avail from a particular bank. They in fact are even prepared to pay a premium for getting a better quality service from their bank; but will not compromise on inferior or poor service quality.

This factor includes dimensions such as *promise fulfilment i.e.* it is the experience of the customer with the bank that whatever has been promised earlier is always fulfilled, *empathy/market orientation i.e.* it is the individualised care and attention provided to the customers, *commitment i.e.* the extent to which a customer perceives the demand to maintain a relationship, *service recovery* i.e. banking organisation response in case of service failure and all of them play a pivotal role in improving the service quality.

Trust

Customers now-a-days being more enlightened and assertive than ever before, expect consistency in the services that they receive from their bank. Additionally by embarking upon benchmarking and rendering the services that are compared with those of the best in class companies in the world, the banks can maintain its competitive posture and in turn improve its reputation in the eyes of its customers. The dimensions such as *reliability i.e.*it is the ability of the bank to perform the promised service dependably with accuracy, *privacy and security i.e.* privacy is the claim of customers to determine for themselves how, when and to what extent information about them is shared or communicated with others whereas security refers to freedom from doubt/risk during the service delivery process, *interdependence i.e.* indicates if two or more persons e.g. between the customer and the bank, want to achieve their objectives, in such a scenario they have to consider each other *and benevolence i.e.* it is the belief of the customer that the bank cares about and is motivated to act in one's interest, may infuse a positive feeling in the mind of its customers because this is what they expect from their bank in today's fiercely competitive global scenario.

Technology

Banking sector requires sound and effective technological requirements in meeting and/or exceeding the expectations of its customers. Dimensions such as *technological infrastructure, knowledge management and dissemination system & information analysis system i.e. data mining tools to analyze the patterns and other important information* are some of the parameters which today's customer expect from their banks. Apart from this, use of various analytical tools like cause and effect analysis for prompt/timely exploration of probable causes of problems and barriers to success, and the customers feeling about latest technology in services being used, also play a lead role in enhancing the customers' expectations of their bank.

Personalization

This factor comprises of dimensions such as *collaboration in product design* and *customer life time value identification* i.e. it is the measure of expected future value of profit to a business derived from customer relationships from the current time to some future point, has a positive impact on the customers' perceptions about the services which they receive from their bank.

Market Orientation

Banks customers rely heavily upon the reputation of their banking organization while choosing it as their banking service provider. Some of the dimensions upon which the customers usually rely when reputation

is the deciding factor are – *competitor orientation* coupled with *brand/market image* may tilt the balance in favor of a particular banking organization in the eyes of its customers.

These factors should be duly considered by the Indian banks in order to achieve a high degree of customer satisfaction and business performance which are the primary and compulsive goals for any business organization in the current competitive scenario. Academically this research work bridges the gap in the existing literature by proposing a comprehensive scale for CRM specifically catering to Indian banking sector. Managerially by implementing the proposed model by Indian banks can enhance their customer acquisition, customer retention and overall profitability. This will ultimately have a positive impact on Indian economy as the banking system serves as a backbone.

Novelty of this work lies in the fact that considering the views of customers of different banks all across India and proposing a comprehensive model for better implementation of CRM in banking sector. The proposed CRM scale can serve as a diagnostic tool to identifying the problem areas as well as exploring new business opportunities in a much better way than even before.

V. Limitations & Future Research Lines

The sample sizes itself were relatively small, which is one of the limitations of this study. Large and more diversified samples can be taken for the further enhancement as well as validation of this research work. The applicability, validation and generalizability of the proposed scale can be done by replicating this study in CRM aspects of other business segments at a national level.

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