Theoretical Antecedent of Customer Relationship Management of Banks in India

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Abstract: This paper has attempted to study the theoretical antecedents of CRM in banks and validate the instrument scale for CRM especially for customer perspective. The researcher has developed the hypothetical model of CRM Practices for banks. Due to insufficient literature in CRM model development study, the researcher has concentrated universal study to focus and form the study conundrum. The research design of the present study is both descriptive and empirical in nature. The sample was identified with the help of online sample service portal. The study data collected with the sample size of 384 with judgment sampling method. At the time of analyzing the data for envisage the results the researcher applies training and hold out sample method was adopted for better results. To achieve the validity aspects of scale used for this study evaluated with factor analysis. Both factor analysis methods were adopted. To check the existing theory latent construct Exploratory Factor Analysis is conducted and its results validated through Confirmatory Factor Analysis. At the end of the process the researcher offers recommendation for better development and practices for CRM in banks of India.

Keywords: Customer Relationship Management; Validity and Reliability; Scale development; Confirmatory Factor Analysis and Explorative Factor Analysis

JEL Classification: E50

1. Introduction

The use and expression of customer relationship management has been started since 1990's. There is lot of contradiction and definition to domain the term CRM. Even though, the acronym of Customer Relationship Management itself sometimes contradicted. Most of the researcher and academicians would consider CRM as the concept of relationship marketing. The other part of the society those who opposed as relationship marketing, they tend to describe CRM as a software application that

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do different functions of business as well as marketing. Likewise, professionals belongs to information technology, they believe and emphasize that CRM is a marketing tool and/or software application. Thus, approach enhances to develop and maintain long lasting relationship with customers. Nevertheless, the above said opinions are due to explained fact of CRM such as strategic, operational, analytical and collaborative (Buttle, 2009). The concept of CRM is differing from author to author based on their perceived value and believes (Rootman et al, 2007). In order to achieve high market share and offer better service to the customers, CRM is an essential factor. It identifies past to present and future market is to progress the innovative services. The successful integration of business is adopting key strategy, technology and business progress is depend on the understanding the needs and desires of the potential customers (Kanti, 2012). As same to the acronym of CRM, business in different sector had change their approach regarding relationship marketing. According to the relationship marketing view of business is carried out through relationship, neural network and interaction (Lindgreen & Antico, 2005). The bank marketing part is integrated the marketing process with CRM policy. This integration tunes the strategies for dynamic banking services with the help of CRM. Further, CRM is essential ingredients for effective bank marketing. In Indian context many factor evident to us to adopt the CRM in banks. The researcher has outlined the source of the evident from published sources.

- Bank account penetration increased from 35 per cent to 53 per cent;

- Only 39 per cent of all account holders in India own a debit or automated teller machine (ATM) card;

- 21 per cent of people took loans for finance health care needs, 10 per cent for finance education, 9 per cent for business and just 4 per cent for mortgage;

- With a dormancy rate of 43 per cent, accounts for about 195 million of the 460 million adults with a dormant account around the world. (Express News Service, 2015)

In order to avoid unhealthy competition and get high market value it is advisable to the bank to adopt CRM practices. While considering issues of CRM especially in banking sector, the study was undertaken by the researcher to demonstrate what are the CRM practices followed by the banks in India with perception of the bank customers. Further, the researcher has checked the existing theoretical construct for CRM practices of banks in India.

2. Literature Review

The following comprehensive review section offers strong empirical investigation on CRM practices and Model development.

The perception of CRM emerges due to vast change in business environment. The More formal B2C Marketing has been replaced by CRM (Hui & Weikong, 2011). Although, the CRM became a powerful concept to align the interest of a firm and its customers. The focus of CRM is now shifted to how firms implement CRM to enhance profits Boulding et.al. (2005). The implementation of CRM creates an urge for development and identification of key construct on CRM practices. Thus, insisted in CRM practices was improve theoretical development or knowledge Gummesson (2004) and also Baser et.al. (2011) to measure the perception of CRM practices. It should need different defining construct theory building piece of work the dimension extraction is based on the definition of CRM in the initial year.

Sin et.al (2005) articulated four dimensions based on the definition of CRM namely Customer focus, CRM organization, Technology-based CRM and knowledge management. Further Lu and Shang (2007) identify six factor dimension of CRM in Freight Forwarder Service. The dimension consists of Customer Acquisition, Customer Response, Customer Knowledge, Customer Information System, Customer value Evaluation and Customer Information Process. Among the six factors "Customer Knowledge" dimension has high loading factor than others. The reliable scale development to measure CRM practices not only to end itself with customer.

Rootman et.al. (2008) identifies two dimension attitude and Knowledge ability of employees' about CRM. The selected two dimensions have positive relationship with CRM. The author highly recommends attitude and knowledge ability of bank employees leads to good impact on CRM in banking sector. Banks have realized the significance of CRM Practices.

Hui-I Yao and Kok Weikong (2011) conducted the model development study and predicted the three dimensions namely Acquisition, Enhancement and Recovery. These dimension focuses the Customer Life Cycle of CRM practices.

Izah Mohd Tahir and Zuliana Zulkifli (2011) conducted the pilot study under five dimensions namely Customer acquisition, Customer Response, Customer Knowledge, Customer Information System and Customer value evaluation. In Indian contest CRM is still lacking due less attention among the Researcher and academicians.

Sanjay Kanti Das (2012) conducted the study with ten dimension, six dimensions were explored by the research cited by Lu and Shang (2007) namely Customer acquisition, Customer Information System, Customer Value Evaluation and

Customer Information Process. The results indicated there is no positive relationship in perception of CRM practices and Demographic factors.

Zuliana Zulkifli and Izah Mohd Tahir (2012) developed and validating construct of Customer Relationship Management Practices. The scale instruments were adopted from the work of (Sin et. al., 2005; Lu & Shang, 2007; Rootman, 2008). After the panel recommend 48 scale statements are retained out of 51 scale statements. The result after applying the EFA for CRM construct, it has reduced to 29 statements under five dimensions. The sixth dimension Customer Information was dropped due to low loading factor. Conceptually developed and validated CRM scale catering to Indian banking sector, that help the bank managers to implement the CRM and create the attention of the unfocused area.

Arun Kumar Agariya and Deepali Singh (2012) initially developed 50 scale items from the work of Agariya and Singh (2011). The critical factor identified with the help of multivariate data analysis, that identified CRM construct consists Organizational structure and Customer support, service quality, Trust, Technology, and Personalization and Market orientation.

There are so many studies have focused either in the form of customer perception on CRM and its implementation at banks. There is limited studies has conducted on the linkage of theory and scale construct. So support of the existing selected review of literatures the author develop and construct five factor dimension of CRM practices in banks based on original work of Lu and Shang (2007) followed by Sanjay Kanti Das (2012), Sheik Abdullah et.al (2016). Here the researcher only uses the five factor dimension to construct and validate the model. Therefore 43 statements is used for validate the model under five dimension.

3. Contribution of the Study

The studies conducted previously have not examined which dimension more accounted for CRM practices. Although the researcher also examines which dimension more accounted for CRM practices construct. Simultaneously the researcher has form the new model to measure the CRM practices influence on customer satisfaction towards banking services. Based on the results of past empirical research and collected literature the structured framework model has proposed by the researcher.

4. Objectives of the Study

The main objective of the study is to validate the existing model of CRM practices in Banks and to analyse the CRM practices in different constituent factors.

5. Methodology

5.1. Panel Interview

The face and content validity of the instrument is evaluated with the panel of experts. The panel members are asked to offer recommendation about the scale items adopted for the study from past literature. After availing panel members opinion the researcher has make appropriate changes in the scale item in the latent construct which is measuring the CRM practices. After the panel recommendation, the data collection instrument reliability and validity measured through pre-test. The pre-test was conducted with 40 respondents. The internal consistency of the scale measurement Alpha value found as 0.784 to 0.924 (if item deleted method). Thus, indicates a good internal consistency of scale item used for this study.

5.2. Sampling Design

The banking customers are large in number and it is not feasible to collect the data from all the banking customers from the study area. Therefore, it is decided to apply sampling technique to study the current problem. The *www.surveysystem.com* is used to identify the sample size. According to this website, 384 are identified as appropriate sample size.

In Virudhunagar District, there are 8 Taluks. Among these, there are 16 public sector banks and 13 private sector banks having totally 191 branches doing banking business. The researcher has selected 48 respondents from each Taluk and the sample respondents are identified through judgement sampling method. The detailed sampling methodology is shown in Table 1.

Table 1. Taluk Wise Distribution of Sample Customers

S. No.	Taluks	Total Branches (in No's)	No. of Respondents
1	Aruppukottai	16	48
2	Sivakasi	49	48
3	Srivilliputtur	22	48
4	Sattur	14	48
5	Kariapatti	7	48
6	Rajapalayam	40	48
7	Tiruchuli	16	48
8	Virudhunagar	27	48
	Total	191	384

Source: Computed Data

5.3. Statistical Tools used for Analysis

The confirmatory factor analysis is a statistical tool which is used to test the reliability and validity of the variables included in each factor identified by the EFA. The important statistics drawn from the CFA are the standardized factor

loading of the variables, its t statistics, composite reliability and average variance. These are computed for the purpose of testing the content, convergent, and discriminant validity of the factor extracted by the EFA. For analytical convenient, the randomly selected 50 per cent of the sample is used for exploratory factor analysis to find the latent relationship, further the hold out sample of another 50 per cent is used for confirmatory factor analysis.

In the present study, the CFA is applied to test the reliability and validity of variables included in each factor extracted by the EFA.

6. Results and Discussion

6.1. Analysis of Five Factors relating to CRM Practices in Banks

The researcher focused on the five factors and which are relating to CRM practices in banking, they are customer acquisition, customer response, customer knowledge, customer information system and customer value evaluation. By using this factor, the researcher has able to test the CRM Practices in banks.

6.1.1. Customer Acquisition

Customer acquisition is one of the processes of acquiring new customers. Customer acquisition requires forethought and strategies. For acquiring new customers, it is helpful to purchase banking products and services. Using appropriate customer acquisition strategies helps bank to acquire the right customers in a cost effective way. The following Table 2 shows the customer acquisition in banking sector.

Table 2. Customer Acquisition

S.No.	Customer Acquisition	SA	A	NA-DA	DA	SDA	Total
1.	Adaptability of different measures to meet customers' urgent requirements.	106 (27.60)	*235* *(61.20)*	16 (4.17)	15 (3.91)	12 (3.13)	**384** **(100)**
2.	Accept different approaches to attract targeted customers.	65 (16.93)	*173* *(45.05)*	45 (11.72)	85 (22.14)	16 (4.17)	**384** **(100)**
3.	Dissemination of information to attract new customers.	51 (13.28)	*140* *(36.46)*	65 (16.93)	107 (27.86)	21 (5.47)	**384** **(100)**
4.	Offers a variety of service items and information.	47 (12.24)	*155* *(40.36)*	70 (18.23)	93 (24.22)	19 (4.95)	**384** **(100)**
5.	Banks ability to tailor its products and services to meet customers' needs.	44 (11.46)	117 (30.47)	75 (19.53)	*124* *(32.29)*	24 (6.25)	**384** **(100)**

6.	Bank actively seeks to provide total financial solution.	46 (11.98)	***141*** ***(36.72)***	50 (13.02)	117 (30.47)	30 (7.81)	**384** **(100)**

Source: Primary Data

SA-Strongly Agree A-Agree NA or DA-Neither Agree or Disagree SDA-Strongly Disagree

It is noted from the above Table 2 that, out of 384 respondents opinioned towards customer acquisition that, 235 respondents are agreed that the bank adopt different measures to meet customers' urgent requirements, 173 respondents are agreed that the bank accept different approaches to attract targeted customers, 140 respondents are agreed that the bank would dissemination of information to attract new customers, 155 respondents are agreed that the bank offers a variety of service items and information to their customers, 124 respondents are disagreed the bank to fulfill the needs of customers about its products and services and 141 respondents agreed that the bank would provide financial solution to its customers.

6.1.2. Customer Response

Bank plays a crucial role in customer response. No one can wait for no one in the busy world. In this sense, the customer can expect quick response from bank. If the bank offers quick response, then only their customers are always loyal to them. Response becomes trust and loyalty to the customers about the bank. It is very difficult to create trust and loyalty of the customers. If there is any grievance arising from customers, the bank can ask the customers grievance directly or indirectly and it is valuable to rectify the customers' grievance as soon as possible. It is a challenging job of banking sector. They can offer services without any delay and it automatically convert their customers are loyal to them. The following Table 3 shows the customer response

Table 3. Customer Response

S. No.	Customer Response	SA	A	NA-DA	DA	SDA	Total
1.	Bank uses varied communication channels.	45 (11.72)	***135*** ***(35.16)***	59 (15.36)	123 (32.03)	22 (5.73)	**384** **(100)**
2.	Understanding on the customer's requirements and expectations by bank.	67 (17.45)	***131*** ***(34.11)***	73 (19.01)	97 (25.26)	16 (4.17)	**384** **(100)**
3.	Bank offers convenient services to customers.	51 (13.28)	***126*** ***(32.81)***	54 (14.06)	122 (31.77)	31 (8.07)	**384** **(100)**
4.	Bank offers a wide range of credit facilities to meet customer's requirements.	55 (14.32)	103 (26.82)	60 (15.63)	***142*** ***(36.98)***	24 (6.25)	**384** **(100)**
5.	Bank offers useful online products and services.	45 (11.72)	102 (26.56)	65 (16.93)	***145*** ***(37.76)***	27 (7.03)	**384** **(100)**
6.	Bank offers products that reflect customer's earnings	71 (18.49)	***106*** ***(27.60)***	96 (25)	87 (22.66)	24 (6.25)	**384** **(100)**

	and wealth.						
7.	Bank provides enough information to customers about different products and services.	82	*108*	104	61	29	**384**
		(21.35)	*(28.13)*	(27.08)	(15.89)	(7.55)	**(100)**
8.	Bank staffs are sufficiently empowered to solve difficult banking problems.	81	*137*	91	47	28	**384**
		(21.09)	*(35.68)*	(23.70)	(12.24)	(7.29)	**(100)**
9.	Bank takes actions for customer's erroneous transaction.	87	*140*	73	55	29	**384**
		(22.66)	*(36.46)*	(19.01)	(14.32)	(7.55)	**(100)**

Source: Primary Data

SA-Strongly Agree A-Agree NA or DA-Neither Agree or Disagree SDA-Strongly Disagree

It is evident from the above Table 3 that, out of 384 respondents majority of them opinioned towards customer response that, 135 respondents are agreed that bank uses varied communication channels, 131 respondents are agreed that the bank would understanding the customer's requirements and expectations, 126 respondents are agreed that the bank offers convenient services to the customers, 142 respondents are disagreed that the bank offers a wide range of credit facilities to meet customer's requirements, 145 respondents are disagreed that the bank offers useful online products and services, 106 respondents are agreed that the bank offers products will reflect customer's earnings and wealth, 108 respondents are agreed that the bank provides enough information to their customers about different products and services, 137 respondents agreed that the bank staffs are sufficiently empowered to solve difficult banking problems and 140 respondents are agreed that the bank takes immediate actions for customer's transaction.

6.1.3. Customer Knowledge

Customer knowledge is one of the most valuable things in today's scenario. Bank provides various innovative services to their customers in order to attracting them. Dump the customer knowledge is not motive for the bank. They provide services for improving the customer knowledge regarding their products and services and also it is a chance for conveying to other customers. Bank can also come forward to know the individual customer needs and want. On the basis of their want, terms and conditions are easy to understand by them. Table 4 shows the customer knowledge.

Table 4. Customer Knowledge

S. No.	Customer Knowledge	SA	A	NA-DA	DA	SDA	Total
1.	Bank's operating hours are convenient to customers.	61 (15.89)	*126* *(32.81)*	116 (30.21)	58 (15.10)	23 (5.9911)	**384** **(100)**
2.	Bank offers comprehensive range of investment products.	68 (17.71)	*130* *(33.85)*	86 (22.40)	69 (17.97)	31 (8.07)	**384** **(100)**
3.	Bank offers with innovative loan services.	77 (20.05)	*129* *(33.59)*	85 (22.14)	55 (14.32)	38 (9.90)	**384** **(100)**
4.	Bank understands individual customer's needs and circumstances.	*168* *(43.75)*	132 (34.38)	47 (12.24)	23 (5.99)	14 (3.65)	**384** **(100)**
5.	Bank often encourages individual customers to introduce other's to purchase their products and services.	67 (17.45)	*172* *(44.79)*	96 (25)	34 (8.85)	15 (3.91)	**384** **(100)**
6.	Bank often insists customers in using bank's services and products.	88 (22.92)	*131* *(34.11)*	102 (26.56)	44 (11.46)	19 (4.95)	**384** **(100)**
7.	Bank has clear objectives and strategies to meet customers' needs and the performance of bank-customer relationships.	59 (15.36)	109 (28.39)	76 (19.79)	*111* *(28.91)*	29 (7.55)	**384** **(100)**
8.	Bank does not misuse its customer's knowledge.	87 (22.66)	*107* *(27.86)*	79 (20.57)	57 (14.84)	54 (14.06)	**384** **(100)**
9.	The terms and conditions of bank are better than other bank.	92 (23.96)	*117* *(30.47)*	80 (20.83)	74 (19.27)	21 (5.47)	**384** **(100)**

Source: Primary Data

SA-Strongly Agree A-Agree NA or DA-Neither Agree or Disagree SDA-Strongly Disagree

From the Table 4 that, out of 384 respondents majority of them opinioned towards customer knowledge that, 126 respondents agreed that bank working hours are convenient to them, 130 respondents agreed that the bank offers comprehensive range of investment products, 129 respondents are agreed that the bank offers innovative loan services, 168 respondents are strongly agreed that the bank also understand individual customer's needs and circumstances, 172 respondents are agreed that the bank often encourages customers to introduce other's to purchase their products and services, 131 respondents are agreed that the bank often insists customers in using bank services and products, 111 respondents are disagreed that the bank has clear objectives and strategies to meet customers' needs and the performance of bank-customer relationships, 107 respondents are agreed that the

bank does not misuse its customer's knowledge and 117 respondents are agreed that the terms and conditions of bank are better than other bank.

6.1.4. Customer Information System

Technology has become a key factor in the competitive world. Banks are aware of customer's need for new services and plan to make them available. Information technology has increased the level of competition and forced them to integrate the new technologies in order to satisfy their customers. For the customers, the bank offers information system services like self inquiry facility, any time banking, tele-banking and electronic banking etc., So that, it reduces the waiting time of customers. The following Table 5 shows the customer information system in banking sector.

Table 5. Customer Information System

S. No.	Customer Information System	SA	A	NA-DA	DA	SDA	Total
1.	Bank's information system allows performing banking needs.	99 (25.78)	*113 (29.43)*	*113 (29.43)*	35 (9.11)	24 (6.25)	**384 (100)**
2.	Bank implemented modern equipments and technologies.	62 (16.15)	*137 (35.68)*	119 (30.99)	46 (11.98)	20 (5.20)	**384 (100)**
3.	Bank provides tele-banking and other internet banking facilities.	98 (25.52)	*118 (30.73)*	80 (20.83)	59 (15.36)	29 (7.55)	**384 (100)**
4.	ATM machines are available at convenient places.	66 (17.19)	*131 (34.11)*	84 (21.88)	55 (14.32)	48 (12.5)	**384 (100)**
5.	Every bank transactions are computerization.	98 (25.52)	*122 (31.77)*	94 (24.48)	50 (13.02)	20 (5.21)	**384 (100)**
6.	Bank adapted new technologies to improve communication with customer.	73 (19.01)	*145 (37.76)*	90 (23.44)	53 (13.80)	23 (5.99)	**384 (100)**
7.	Ensure simplified business dealing with the bank.	60 (15.63)	*143 (37.24)*	89 (23.18)	71 (18.49)	21 (5.47)	**384 (100)**
8.	Banks are conversant with automated technology in the sphere of marketing, sales and service functions.	103 (26.82)	*111 (28.91)*	84 (21.88)	58 (15.10)	28 (7.29)	**384 (100)**
9.	Banks ensure proper security system to protect customer's transaction.	88 (22.92)	*109 (28.39)*	91 (23.70)	56 (14.58)	40 (10.42)	**384 (100)**
10.	Bank implemented core banking solutions.	73 (19.01)	*119 (30.99)*	101 (26.30)	65 (16.93)	26 (6.77)	**384 (100)**

Source: Primary Data

SA-Strongly Agree A-Agree NA or DA-Neither Agree or Disagree SDA-Strongly Disagree

The above Table 5 that, out of 384 respondents majority of them opinioned towards customer information system that, 113 respondents are agreed about bank's information system allows to perform banking needs and another 113 respondents are neither agreed nor disagreed about bank's information system allows to perform banking needs, 137 respondents are agreed that the bank had to implemented modern equipments and technologies, 118 respondents are agreed that the bank provides tele-banking and other internet banking facilities to their customers, 131 respondents agreed that the ATM machines are available at convenient places, 122 respondents are agreed that the bank transactions are computerization, 145 respondents are agreed that the bank adapted new technologies to improve communication with their customers, 143 respondents agreed that they are ensuring simplified business dealing with the bank, 111 respondents are agreed that the banks are conversant with automated technology in the sphere of marketing, sales and service functions, 109 respondents are agreed that the banks have to ensure proper security system to protect customer's transaction and 119 respondents are agreed that the bank has to implemented the core banking solutions to their customers.

6.1.5. Customer Value Evaluation

Customer value can be examined at two levels such as low level and high level. The low level of customer value encompasses perceived value from the product. On the other hand, high level of customer value enhances emotional value of the customer regarding when using the product or service. In order to evaluate the customer value in banking sector, Table 6 shows the result.

Table 6. Customer Value Evaluation

S.No.	Customer Value Evaluation	SA	A	NA-DA	DA	SDA	Total
1.	Bank always delivers superior services.	74	*113*	93	79	25	**384**
		(19.27)	*(29.43)*	(24.22)	(20.57)	(6.51)	**(100)**
2.	Bank offers high quality services.	67	*164*	73	52	28	**384**
		(17.45)	*(42.71)*	(19.01)	(13.54)	(7.29)	**(100)**
3.	Bank offers good infrastructural facilities	77	*127*	93	70	17	**384**
		(20.52)	*(33.07)*	(24.22)	(18.23)	(4.43)	**(100)**
4.	Customer enjoys bank services.	87	*152*	82	45	18	**384**
		(22.66)	*(39.58)*	(21.35)	(11.72)	(4.69)	**(100)**
5.	Services rendered by bank attract customers.	74	*150*	86	51	23	**384**
		(19.27)	*(39.06)*	(22.40)	(13.28)	(5.99)	**(100)**

		SA	A	NA or DA		SDA	
6.	Customer feel relaxed using banking services.	81	*134*	97	45	27	**384**
		(21.09)	*(34.90)*	(25.26)	(11.72)	(7.03)	**(100)**
7.	Services offered by bank develop good impression.	*169*	127	51	22	15	**384**
		(44.01)	(33.07)	(13.28)	(5.73)	(3.91)	**(100)**
8.	Full confident with the security level on bank.	86	*179*	64	32	23	**384**
		(22.40)	*(46.61)*	(16.67)	(8.33)	(5.99)	**(100)**

Source: Primary Data

SA-Strongly Agree A-Agree NA or DA-Neither Agree or Disagree SDA-Strongly Disagree

It is gratifying to note from the above Table 6 that, out of 384 respondents majority of them opinioned towards customer value evaluation that, 113 respondents are agreed that the bank would always deliver superior services to its customers, 164 respondents are agreed that the bank offers high quality services to their customers, 127 respondents are agreed that the bank offers good infrastructural facilities to their customers, 152 respondents are agreed that they enjoy banking services, 150 respondents are agreed that they attract banking services, 134 respondents agreed that they are feeling relaxed while using banking services, 169 respondents are strongly agreed that the services offered by bank would develop good impression among the customers and 179 respondents are agreed that they have a full confident of security on bank.

6.2. Analysis and Development of Hypothetical Measurement Models

The confirmatory factor analysis approach was presented in the present data analysis is to meet the objective to construct and validate the five factor dimension of factor analysis. So the scale was adopted from the past studies and literature, redefined and suited to present studies. To extract the pattern relationship the researcher first applies the Explorative Factor Analysis (EFA). The results of EFA, extracted factor components are highly loaded with its own dimension. The extracted valid factors are used to validate through Confirmatory Factor Analysis. Efficiently to do this, any item that does not fit the measurement model due to low factor loading should be removed from the model. The fitness of a measurement model is indicated through certain Fitness Indexes. However the items deletion should not exceed 20% of total items in a model. Otherwise the particular construct itself is deemed to be invalid since it failed the "confirmatory" itself. The researchers run the CFA for every measurement model separately or run the pooled measurement models at once. However, the CFA for pooled measurement models is more efficient and highly suggested (Awang, 2012). So the researcher applies the pooled confirmatory factor analysis for the present study.

6.2.1. Validity and Reliability of the Model

The researcher defined model valid is evaluated through some statistical criteria. Therefore determination criteria indicate acceptable fit while others are close to meet the acceptable fit value. Before that the measurement model should establish the acceptable levels of goodness-of-fit. Therefore the measurement model is determining the specific evidence of construct validity. Validity refers to in what extent the data instrument accurately measure what the researcher indented to measure. In order to establish the validity issue, the following validity aspect fulfilled and carried out by the researcher.

(a) Content Validity

Content validity occurs when the experiment provides adequate coverage of the subject being studied. It also measuring the right things as well as having an adequate sample. The content validity of the present study checked out by the panel members at the time of scale development.

(b) Convergent Validity

The convergent validity is originally measure of construct that are expected to correlate do so. To get adequate coverage the measurement model correlate strongly with its theoretical construct model. In order to measure the convergent validity the inter correlation among the factor in each construct should be high. Otherwise the indicators of a construct should converge a high proportion of variance in common. The indicator of reflective dimension each factor standardized factor loading more than 0.60 is considered to be an acceptable level (Barclay et.al, 1995). In CFA the convergent validity measured through standardized factor loading and Average Variance Extracted should be greater than 0.5 (Fornell & Larcker, 1981). The calculated AVE values are presented in Table 7. It is easy way to calculate the AVE (Average Variance Extracted) manually by using this formula:

$$AVE = \frac{\text{Sum of each squared factor loading}}{\text{No. of Indicators}}$$

Table 7. Average Factor Extracted

Dimension	Sum of squared factor loading/No of indicators	AVE
Customer Acquisition	3.984/6	.664
Customer Response	3.607/6	.601
Customer Knowledge	3.295/5	.659
Customer Information System	4.162/7	.595
Customer Value Evaluation	4.439/7	.634

Source: Computed Data

From Table 7 all the Average Factor extracted value are greater than 0.5. So the researcher constructed five factor dimension model CRM practices fulfill the convergent validity.

The following Table 8 shows the standardized factor loading of the measurement model. The standardized factor coefficient value is consider for computing the AVE and also the R^2 value is consider for computing the composite reliability.

Table 8. Factor loading of Five Factors Dimension of CRM Practices Construct

Dimension	Factor	Factor loading	Error value	AVE
Customer Acquisition	CA1	.83*	.54	.664
	CA2	.81*	.53	
	CA3	.73*	.61	
	CA4	.78*	.58	
	CA5	.89*	.56	
	CA6	.84*	.52	
Customer Response	CR1	.72*	.77	.601
	CR3	.82**	.66	
	CR4	.81**	.69	
	CR5	.83**	.61	
	CR6	.78*	.63	
	CR8	.68*	.55	
Customer Knowledge	CK1	.73**	.60	.659
	CK2	.80*	.63	
	CK3	.89*	.51	
	CK4	.79*	.53	
	CK9	.84*	.55	
Customer Information System	CIS1	.82*	.58	.595
	CIS2	.83*	.64	
	CIS3	.81*	.74	
	CIS4	.75*	.62	
	CIS5	.85*	.75	
	CIS6	.68**	.65	
	CIS9	.63*	.63	
Customer Value Evaluation	CVE1	.69*	.69	.634
	CVE2	.81*	.81	
	CVE3	.78*	.78	
	CVE4	.79*	.79	
	CVE5	.76*	.76	
	CVE6	.87*	.87	
	CVE8	.86**	.86	

*Source: AMOS Output *0.01 and ** 0.05 Significance Level*

(c) Composite Reliability

Composite reliability is the measure of reliability of the construct. It measure the overall reliability of the items loaded on a latent construct. The composite value ranges from zero to one. Values greater than 0.70 reflect the data is more reliable to the construct. The formula for calculating composite reliability as follows and results depicted in Table 9.

$$CR = \frac{\text{Square of sum of Standardized factor loading}}{\text{Square of sum of loading + indicator measurement error}}$$

Table 9. Result of Composite Reliability

Dimension	AVE	CR
Customer Acquisition	.664	.880
Customer Response	.601	.846
Customer Knowledge	.659	.53
Customer Information System	.595	.861
Customer Value Evaluation	.634	.867

Source: Computed Data

The composite reliability of the entire latent construct composite reliability is more than 0.70 indicates adequate internal consistency in the measurement model.

(d) Discriminant Validity or Divergent Validity

Discriminant validity is the degree in which a latent construct distinct from other latent constructs. The successful evaluation of discriminant validity shows that a construct of the model is not highly correlated with other construct in the same model. There is no standard value for discriminant validity. If the correlation between exogenous constructs is should not exceed 0.85. The correlation value exceeding 0.85 indicates the two exogenous constructs are redundant or having serious multicollinearity problem. Therefore it is essential to compute the discriminate validity of five factor dimension of CRM practices model. The Discriminant Validity Index Summary presented in Table 10.

Table 10. Discriminant Validity Index Summary

Dimension	CA	CR	CK	CIS	CVE
CA	**.81**				
CR	.45	**.78**			
CK	.17	.12	**.81**		
CIS	.09	.01	.07	**.77**	
CVE	.13	.11	.41	.32	**.79**

Source: AMOS output

In table 10, the bolded values are square root of **Average Variance Extracted (AVE)** of each dimension. Other values are inter-correlation among the latent factor dimension. it is clear that no one latent factor correlation is more than 0.85, therefore the researcher may confirm the present five factor model doesn't affected by multicoolinarity index.

6.3. Evaluating the Fitness of the Model

After considering the validity aspects, the data fulfilled the validity and reliability indexes and next the researcher should consider several fitness indexes that reflect how well the data fits the model. The fitness index is supported by strong literature being referred. The acceptable model fit and the level of acceptance presented in the following Table 11.

Table 11. Acceptable model fit index

Name of Category	Name of Index	Level of Acceptance
Absolute Fit	Chi-Square	P value >0.05
	RMSEA	RMSEA <0.08
	GFI	GFI >0.90
Incremental Fit	AGFI	AGFI >0.90
	CFI	CFI >0.90
	TLI	TLI >0.90
	NFI	NFI >0.90
Parsimonious Fit	Chisq/df	Chi-Square/df <3.0

Source: Zainudin Awang, A hand book on SEM 2ⁿᵈ edition

First the model fulfill the criteria begins with the Chi-square statistic. Chi-square test describes differences of the observed and expected metrics. Acceptable model fit is, indicated by a chi-square probability value is high than 0.05. RMSEA indicate the amount of unexplained variance or residuals. CFI, NNI and NFI values meet the criteria (0.90 or large) for acceptable model fit.

Figure 2 shows the latent construct of pooled CFA for five factor dimensions of CRM practices and figure 3 shows the standardized solution computed through AMOS-output.
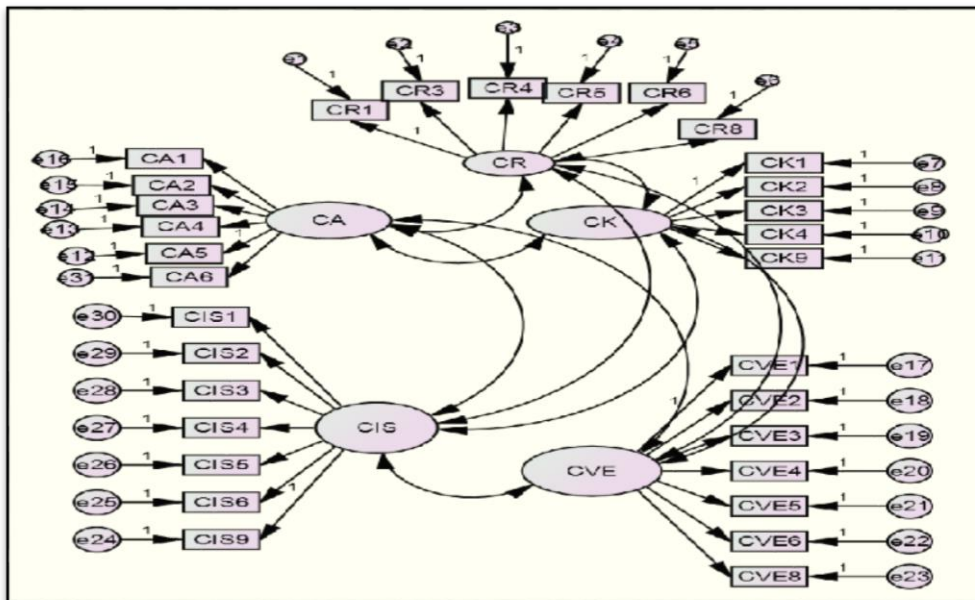
Figure 2. The Latent Construct of Pooled CFA
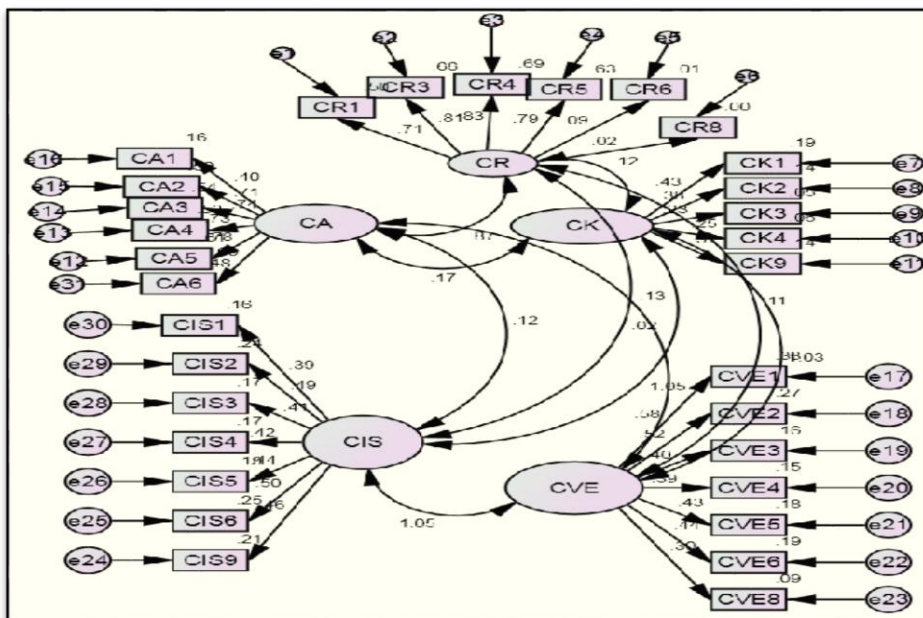

Figure 3. Standardized Solutions Computed Through Amos-Output (Before M.I)

The measurement model shown in figure 2 comprises of five latent factors with thirty two observed variables. For each latent factor is measured by more than five observed variables. The random measurement error is indicated by associated error term. The inter correlation is indicated by two headed arrows, it connects the latent variables in the measurement. In figure 3 standardized solution and measurement R^2 values are obtained before the Modification indices. After making the modification the proposed five factor dimension of CRM practices model is accepted by the researcher. The pooled CFA results are presented in the following Table 12.

Table 12. Pooled CFA Results

Name of Category	Name of Index	Index value	Critical value	Comments
Absolute Fit	RMSEA	0.021	<.08	The Required level is achieved
	GFI	.936	>0.90	
Incremental Fit	CFI	.921	>0.90	The Required level is achieved
Parsimony Fit	Chi.Sq/df (CMIN)	2.297	<3.0	The Required level is achieved

Source: AMOS output

Goodness of Fit Index (GFI)

GFI is one of the most commonly reported measures of model fit. The GFI value ranges from 0 to 1. If the values close to one the researcher consider the data fit to the measurement model. The present measurement GFI value is .936, which is high than the threshold value of 0.9.

Comparative Fit Index (CFI)

CFI is another one measure of fitness of the measurement model. The CFI index uses a chi-square distribution. Just like GFI, CFI value also ranges between 0 and 1. The value of CFI is 0.90 or above is considered to indicate a good fit. The five factor model of CRM practices CFI value is 0.921 so the data best fit to the model.

### Root Mean Square Error of Approximation (RMSEA)

RMSEA is a supplementary fit of CFA model. It used widely to provide a mechanism for adjusting sample size where chi-square statistics are used. If RMSEA value is less than or equal to 0.05 is good fit for the measurement model. The RMSEA value for the present model is obtained 0.021 which is less than the critical value of RMSEA 0.05.

CMIN

The value of CMIN is smaller it indicate better fit of the model. The chi-square would be non-significant indicating no significant discrepancy between model and dat. The value of CMIN in the present measurement model is less than 5 which shows better fit of five factor dimension of CRM practices model.

The pooled Confirmatory Factor Analysis (CFA) proved the underlying components are mutually exclusive, which means the five dimensions are discriminated each other. The entire factor indexes have achieved the required level which indicates the validity of the construct forming the five factor dimension of CRM practices.

The second order confirmatory factor analysis model to carry out by using the same latent construct in CRM dimension proposed by the researcher. The purpose of second order CFA is re-examine and re-confirm the measurement model with it path co-efficient. The following AMOS figure 4 shows five factor dimension of CRM practices construct on every sub construct.
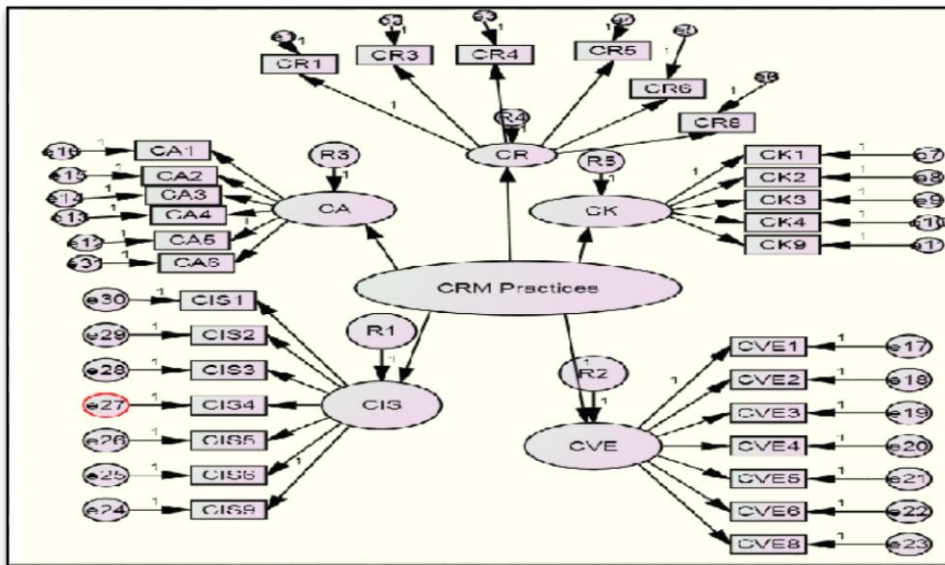
Figure 4. Five Factor Dimensions of CRM Practices Construct on Every Sub Construct

6.4. Validity and Reliability Index of the Measurement

The following Table 13 shows the average variance extracted and Composite reliability of the Second order CFA.

Table 13. Validity and Reliability index of the measurement

Dimension	Factor loading	CR	AVE
Customer Acquisition	.83		.53
Customer Response	.71		
Customer Knowledge	.69	.723	
Customer Information System	.72		
Customer Value Evaluation	.68		

Source: AMOS output

From Table 13, it should be note that, the standardized loading of customer acquisition is (.83) more than the other dimension in the CRM practices construct. The least value of loading is .68 occupied by the Customer value dimension. Hence, the measurement model achieved the reliability and validity criteria.

Further the researcher must evaluate the model fit indexes. The acceptable model fit and the critical value of acceptance presented in the Table 14.

Table 14. Fit Index of Second Order CFA

Category	Name of Index	Index value	Critical value	Comments
Absolute Fit	RMSEA	0.023	<.08	The Required level is achieved
	GFI	.976	>0.90	
Incremental Fit	CFI	.923	>0.90	The Required level is achieved
Parsimony Fit	Chi.Sq/df (CMIN)	2.182	<3.0	The Required level is achieved

Source: AMOS output

Goodness- of –fit-index (GFI) is a measure of the relative amount of variance and covariance in sample data that is jointly explained by the hypothesized data. The GFI can be classified as absolute indices of fit because that basically compares the hypothesized model. Both criteria indicate the indices range from zero to one, close to 1.00 being a good fit. The present model works out data fitted to the model because value close to 1.

RMSEA (Root Mean Square Error of Approximation) this measure indicate the complexity of the model. Values high than 0.8, it returns reasonable error of approximation in the population. The measurement model RMSEA value is 0.023, it indicate a reasonable fit of the structural model with the sample data. In short the researcher defined model confirms the five –factor (Dimensions) structure of Customer Relationship Management practices.

6.5. Structural Relationship among Five Factor Dimension of CRM Practices

Based on the fit indexes of the measurement exhibited the data fit with the model. Each observed variable in the latent construct path co-efficient are significant at p value of 0.01 and 0.05. The standardized regression weights of second order CFA for five factor dimension presented in Table 15. In order to prove the relationship the following null hypothesis has been framed by the researcher.

H0: Customer Acquisition dimension doesn't influence CRM practices

H0: Customer Response dimension doesn't influence CRM practices

H0: Customer Knowledge dimension doesn't influence CRM practices

H0: Customer Information System dimension doesn't influence CRM practices

H0: Customer Value Evaluation dimension doesn't influence CRM practices

Table 15. Path regression weights of five factor model of CRM Practices

Dimension	Construct	Estimation	S.E	C.R	P value
Customer Acquisition	CRM	.826	0.04	20.65	0.015
Customer Response	CRM	.790	.058	13.62	0.023
Customer Knowledge	CRM	.713	.127	5.61	0.000
Customer Information System	CRM	.741	.315	2.352	0.017
Customer Value Evaluation	CRM	Reference point Regression weight assign as 1			

Source: AMOS Output

From the Table 15, it is clear that the co-efficient value of Customer Acquisition dimension is 0.826 which is high than the other dimension in the same model. All the construct p value is significant at 0.01 and 0.05 per cent level. Therefore the present model is valid and fit with the collected data.

7. Summary of Findings of the Study

In this article, the researcher proposed CRM practices model under five dimensions is valid out through Confirmatory factor analysis with hold out sample of 192 respondents. One of the objectives of the present study is to examine the influence of five factor model on CRM practices is fulfilled. The results revealed that Customer Acquisition dimension is highly influencing dimension from other dimension in the same latent construct. Nevertheless all the implied latent factors are highly influencing and statistical significant. The CRM measurement five factors construct with 31 scale items are valid model with critical fit.

8. Conclusion

This paper was aimed at validating and constructing scale for CRM practices with customer perspective. The scale item accessed from the works of Lu and Shang (2007) followed by Izah Mohd Tahir (2011), sanjay Kanti Das (2012) and Sheik Abdullah et al (2016). The theoretical dimensions consists five factors of CRM practices. The study conducted with 42 statements under five latent constructs. After applying EFA the 11 factors are removed from the analysis due to cross and low loading. The researcher validate the 42 out of 31 statements are validated with CFA. The bank manager, concern department of CRM officer might use this validated scale statements to measure the CRM practices of their banks for better improvement. Further the researcher will use this validated scale instrument to build the new model which is applicable to Indian banking context in future study. With some limitations the research was carried out by the researcher. The validated scales are accessed from other research works and validated with small sample size. Finally the validated scales are only applicable to banking environment in India.

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