COMBINED MODERATING EFFECT OF RECOVERY ZONE-OF-TOLERANCE (RZOT) AND MULTIFACTOR CRM INDEX ON CUSTOMER SATISFACTION, REPURCHASE INTENTION AND ADVOCACY LINK FOLLOWING SERVICE RECOVERY

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Abstract.This study aims to introduce and conceptualize the recovery-zone-of-tolerance (RZOT) and understand the combined mediating effect of RZOT and Customer Relationship Management-index (CRM-index), a composite dimensional measurement of CRM initiatives by the service provider, on the link between customer satisfaction, repurchase intention and advocacy. A research model framework has also been proposed including all the constructs. The study was carried out in the banking sector in India with State Bank of India (SBI), the largest nationalized bank was taken as a case.

Key words: *Trust, advocacy, repatronization, service, recovery, bank, relationship, zone-of-tolerance, customer-relationship-management*

INTRODUCTION

The inherent criticalities of service industry make a service provider prone to service failures even with an excellent service blue-print back-up. Service failures are considered to be detrimental to a firm's sustainability as it may trigger customer defection (Folkes, 1984; Folkes and Kotsos, 1986, Maxham III, 2001) resulting in increase in cost with respect to acquisition of new customers (Hart et al., 1990) and receding profit line (Kelley and Davis, 1994; Smith et al, 1998). Zemke (1999) observed that dissatisfied customers may influence 10-20 prospects by narrating his/her experience in encountering service failure and thus minimizing the prospects' chances of patronizing the service provider. Therefore, for a service provider, responding to a service failure – termed as 'service recovery', must receive top-priority. Researchers found empirical evidence that effective service recovery may generate higher level of satisfaction (McCollough and Bharadwaj, 1992) popularly phrased as 'recovery-paradox'

(McCollough et al., 2000; Smith et al., 1998; Tax et al., 1998). For a service firm, customer advocacy is absolutely critical as it plays the role of 'physical evidence' in detangibilizing a service and ensures new customer acquisition. Till date not much research evidence is available which can correlate customer advocacy with other marketing initiatives. Service failures and subsequent initiatives to recover from such failures may be affected by the zone-of-tolerance of an individual customer which centers around the concept of a buffer of acceptable service quality with upper and lower limits.

For a financial service providers like bank, error-free service delivery is an absolute must as customers are sensitive to transactions. The recent adoption of Customer Relationship Management (CRM) as a business philosophy saw the banks developing better proactive strategies to ensure better personalization and customization of service delivery. Therefore this study, which attempts to conceptualize and explore the moderating effects of service-recovery zone-of-tolerance (RZOT) of customers in combination with CRM-index on some specific behavioural manifestations namely customer trust, repatronization intention and customer advocacy in the context of banking sector of India, should prove to be quite significant not only for the researchers but also for the bankers. The layout of the paper following introduction, has been restricted to 'review of literature and formulation of hypotheses & research model', 'methodology with factor constructs and reliability & validity' data-analysis and interpretation' and 'conclusion with managerial implications & future scopes'.

THEORETICAL BACKDROP AND HYPOTHESES

1. Review of literature

Error in service delivery has been considered almost inevitable by the researchers who have also admitted that zero-error service is a utopia (Hess, Ganesan and Klein, 2003). Grönroos (2006) observed that errors made in service delivery would result in both emotional and factual loss as a result of which psychological and tangible service recovery is a critical requirement for service firms (Schweikhart, Strasser and Kennedy, 1993; Kenney, 1995; Miller, Craighead and Karwan, 2000). Customers experiencing service failures revert to complaint mechanism. Morgan and Hunt (1994) were of the opinion that effective complaint handling determines successful and sustainable customer relationships. For the service providers complaints offer an opportunity to redeem the relationship by initiating rectifications in service delivery mechanisms, while for the customers, encountering a service failure, complaint behaviour signals the process of reestablishment of the relationship by providing an opportunity to the service provider to refabricate their service offers (DeWitt, Nguyen and Marshall, 2008).

Grönroos (1988) conceptualized service recovery as the action taken by a service provider in response to a service failure as perceived by the customers. Prior studies recognised service recovery as a dynamic process of initiation of marketing activities to regain customer trust following a perceived failure in service to meet customer expectation or zone-of-tolerance. As a measure to recuperate customer trust and satisfaction, service providers may adopt various sustainable recovery strategies (Davidow, 2000; Hess, Ganesan and Klein, 2003; Johnston and Michel, 2008; Luo and Homberg, 2007, 2008; Rust and Chung, 2006, Yousafzai, Pallister and Foxall, 2005; Maxham and Netemeyer, 2002). A number of studies revealed that successful service recovery has a role to play in ensuring customer trust, satisfaction and loyalty (Blodgett, Hill and Tax, 1997; Maxham and Netemeyer, 2000, 2003; Smith, Bolton and Wagner, 1999). Literatures also support the link between successful service recovery and customer relationships (Maxham and Netemeyer, 2002; Tax, Brown and Chandrasekharan, 1998).

Customer trust has been defined by Moorman, Deshpande and Zaltman (1993) as willingness to rely on an exchange partner in whom one has confidence. In service recovery context, customer's trust reflects the willingness to accept susceptibility of an anticipated service failure (Dunn and Schweitzer, 2005). Dewitt, Nguyen and Marshall (2008) proved that customer trust plays a mediating role to link perceived justice and loyalty in a service recovery set-up. Trust has been considered to be a pivotal factor in customer relationship since its significance was emphasized by Dwyer et al. (1987). Subsequent research works further revealed that relationship marketing is built on customer trust (Crosby et al., 1990; Morgan and Hunt, 1994). Customer trust has also been conceptualized as a reflection of customer satisfaction and researchers have also linked successful service recovery to customer satisfaction on the ground of customers' perception of firm's fair effort in ensuring recovery (McCollough and Berry, 1996; Singh and Wilkis, 1996). In a study conducted by Maxham (2001), it was found that effective service recoveries can augment customers' perceptions of satisfaction, intent to repatronize and initiating customer advocacy.

Empirical evidences were found to link post recovery satisfaction with positive word-of-mouth communications or customer advocacy (Wirtz and Mattila, 2004). Spreng, Harrell and Mackoy (1995) reported service recovery satisfaction to be instrumental in stimulating positive word-of-mouth and intent to repurchase. Customer advocacy, often referred to as organizational-citizenship-behaviour (OCB), reflects customers' role as an employee in the context of service transaction and was conceptualized by the researchers as a form of customer value-adding strategy (Lawer and Knox, 2006; Urban, 2004, 2005). Maxham (2001) indicated that customer advocacy was important to word-of-mouth receivers as they are exposed to business information and attitude of the service firms. Furthermore,

the researchers could establish relationship between post recovery satisfaction and repatronization too (Stauss, 2002). In a study made by Pai, Yeh and Lin (2012), it was found that post recovery satisfaction would reduce negative word-of-mouth and increase the probability of repatronization.

Zone of tolerance (ZOT) has been proved to be a useful tool in incorporating service quality perceptions and different levels of expectations (Parasuraman et al, 1991b, Walker and Baker, 2000) as it indicates a bi-polar buffer with 'adequate-level' and 'desired-level' at its two extremities. Service recovery is required if the perceived service quality comes below the adequate level triggering customer dissatisfaction and grievance. ZOT also proved to be an effective approach in diagnosing changes in the relationship between service quality and its outcomes (Liljander&Strandvik, 1993, Zeithaml, 1996; Teas &DeCarlo, 2004). Although there is dearth of empirical research evidence on the changes in the service quality-behavioural intention both within and outside ZOT (Zeithaml et al, 1996, Teas &DeCarlo, 2004), researchers have supported the ZOT model and its superiority towards analyzing perceived service quality (Voss et al, 1998; Zeithaml, 2000, Teas &DeCarlo, 2004, Walker and Baker, 2000). ZOT can be a significant tool too for identifying the degree of effort required to ensure satisfactory service recovery as customers with perceived service quality closer to desired level would command a greater effort to recover from a failure and can be re-nomenclated as recovery zone-of-tolerance (RZOT) with minimum acceptable recovery effort and desired level of recovery effort.

The automation of bank's operational aspects was not restricted to technological upgradation alone as it paved way for a novel business philosophy – Customer Relationship Management (CRM). Customer Relationship Management (CRM), defined by Nguyen et al (2007), is an information system that enables organizations to track customers' interactions with their firms and allows employees to extract customer-based information namely history of sales, unresolved problems, payment records, service records etc. Customer Relationship Management (CRM) has been argued to replace the traditional 4Ps of marketing (product, price, place and promotion) concept as a dominant logic in marketing process (Guraˇu, 2003) and refers to all business activities directed towards initiating, establishing, maintaining, and developing successful long-term relational exchanges (Heide, 1994; Reinartz& Kumar, 2003). Gradual polarization of marketing process towards a relationship base was found to be dyadically more effective in establishing mutually profit-benefit transactions between sellers and buyers respectively. Subsequent research works have highlighted CRM as an integration of people, process and technology, targeted to bring firms closer to customers. Empirical research works pointed out, time and again, towards the mutual and symbiotic benefits both for the sellers and customers (Dekimpe

et al, 1997). In a study Paul Gray and JongbokByun (2001) viewed CRM as a continuous flow of corporate changes in culture and processes that combines three focal areas: (i) Customer (ii) Relationship and (iii) Management. With the introduction of hyper-customized products and services, particularly in the cross-selling and up-selling domains of a financial service organization, customer needs and desires have undergone a sea change. One of the results of CRM is the promotion of customer loyalty (Evans &Laskin, 1994), which is considered to be a relational phenomenon (Chow & Holden, 1997; Jacoby &Kyner, 1973; Sheth&Parvatiyar, 1995; cited by Macintosh &Lockshin, 1997). The benefits of customer loyalty to a provider of either services or products are numerous, and thus organizations are eager to secure as significant a loyal customer base as possible (Gefen, 2002; Reinartz& Kumar, 2003; Rowley & Dawes, 2000). CRM indexing (Baksi and Parida, 2012) focused on identifying and realizing the net impact of CRM initiatives on the performance and outcomes of firms' initiatives based on its judicious integration of three components: people, process and technology. In a study done by Baksi and Parida (2012) it was found that CRM indexing can be instrumental in linking perceived automated service quality with customer satisfaction and behavioural intentions in the perspective of banking industry.

2. Identification of research gap

Literatures remained absolutely inconclusive with regard to ZOT related to service recovery, as a moderating tool to relate customer trust-advocacy-repatronization link. Further to this, no research work has been carried out to conceptualize ZOT for service recovery too where alike service quality, there can be an existence of adequate and desired level of perceived service recovery which may share relationship with customer trust, repatronization and advocacy. Moderating effects of service recovery on customers' behavioural manifestations also received little attention. CRM indexing, also, has been a relatively novel concept introduced by Baksi and Parida (2012) which requires further exploration in order to be assured about is moderating effects.

3. Formulation of hypotheses and research model framework

Apropos to the literature reviewed, the researchers hypothesized that:

H₁: Service recovery (SR) will have an impact on customer trust (CT), repatronization (REP) & customer advocacy (CA).

H₂: Recovery Zone-of-tolerance (RZOT) will affect customer trust (CT), repatronization (REP) & customer advocacy (CA).

H₃: Customer trust (CT), repatronization (REP) and customer advocacy (CA) will change across the three levels of RZOT (within RZOT, above RZOT and below RZOT)

The researchers expected and therefore intended to identify and assess the moderating roles of recovery zone-of-tolerance and CRM index on customer

trust-repatronizationcustomer advocacy link. The researcher further advocated that different tolerance range of RZOT e.g. Broad-band and narrow-band and corresponding CRM index value based on appropriate usage of people, process and technology will share differential relationship with the triple variable link. Therefore it was hypothesized that:

H_4: Higher value of CRM index will ensure stronger effect of RZOT on customer trust- repatronization-customer advocacy link.

H_5: Broader the band of RZOT, stronger will be the effect of CRM-index on customer trust- repatronization-customer advocacy link.

4. Research model framework

Appropriate to the literature reviewed and hypotheses formulated thereof, the researchers proposed the following model:
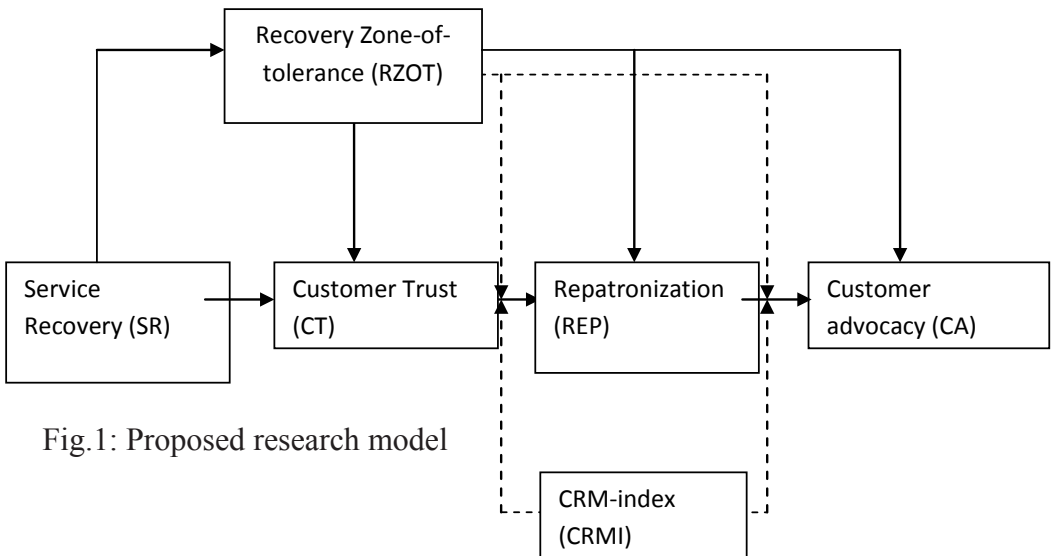

Fig.1: Proposed research model

METHOD

1. Sampling, scaling and survey instrument

The objectives of the study were (a) to assess the relationship between the constructs, (b) to assess whether to identify the moderating effects, if any, of service recovery and zone-of-tolerance on customer trust-repatronization-customer advocacy link and (c) to test the robustness of the proposed research model. The study was carried out in the banking sector involving the largest public sector bank of India namely State Bank of India (SBI) across 10 cities in southern part of West Bengal (Asansol, Durgapur, Ranigunj, Andal, Burdwan, Barakar, Bolpur, Suri, Rampurhat and Saithia) involving 25 branches. The study was comprised of two phases. Phase-I involved a pilot study to refine the test instrument with rectification of question ambiguity, refinement of research protocol

and confirmation of scale reliability was given special emphasis (Teijlingen and Hundley, 2001). FGI was administered. Cronbach's α coefficient (>0.7) established scale reliability (Nunnally and Bernstein, 1994). The structured questionnaire thus obtained after refinement contained six sections. Section-1A asked the respondents about the service recovery/remedial efforts initiated by their service provider following a perceived service failure while section-1B was designed to assess their perception of service recovery in the context of the degree of effort initiated by the service provider and thus categorized into 'high' [1], 'moderate' [2] and 'low' [3]. Section-2 was intended to generate response with-regard-to perceived zone-of-tolerance [ZOT] of respondents in the context of service received by them. Section-3, section-4 and section-5 asked questions about customer trust, repatronization intention and customer advocacy on the basis of perceived service recovery. Section-6 was intended for the bankers to generate response about CRM activities based on deployment of people (employees), process (delivery of service) and technology (driver to deliver services) and section-7 was designed to generate the demographic profile of the respondents. The second phase of the cross-sectional study was conducted by using the structured questionnaire. Systematic simple random sampling technique was administered as every seventh customer coming out of the bank premise was requested to fill-up the questionnaire. A total number of 2000 customer-questionnaires were used which generated 1589 usable responses with a response rate of 79.45% (approximately) while 125 bankers (mainly associated with relationship marketing) were interviewed.

2. Factor constructs measurement

To develop a measure for perception of service recovery the 29 item scale used by Kau and Loh (2006) (adopted from Bies and Shapiro, 1987; Blodgett et al., 1997; Bitner et al., 1990; Parasuraman et al., 1988) was used. Respondents' perception of service recovery was measured and usingthesameitems. Respondents were also asked to indicate their minimum and desired service recovery expectations as was used by Zeithaml et al (1996). These two indicators represent the lower and upper bounds of the service recovery ZOT (RZOT). The study used a 3-item scale for 'customer trust' adopted from DeWitt, Nguyen and Marshall (2008) and Kau and Loh (2006). The measurement of repatronization used 4 items (Maxham-III, 2001) while conceptualization of customer advocacy used 4 items also (Maxham-III, 2001). A 7 point Likert scale (Alkibisi and Lind, 2011) was used for section-1, 3, 4 and 5. For section 3 a 9 point Likert scale was used whereby '9' denoted 'cannot do without it' on one extreme and on the other extreme '1' represented 'can do without it'. The upper-bound [desired level] of ZOT was represented by '9'/ '8' while the lower-bound [adequate level] was represented by '7'/ '6'. The CRM index measurement was adopted from Baksi and Parida (2012) on the basis of a 17 item scale differentiated into three dimensions.

3. Reliability and validity test

Exploratory factor analysis (EFA) was deployed using principal axis factoring procedure with orthogonal rotation through VARIMAX process with an objective to assess the reliability and validity of all factor constructs. Secondly confirmatory factor analysis (CFA) was used to understand the convergence, discriminant validity and dimensionality for each construct to determine whether all the items measure the construct adequately as they had been assigned for. Finally, LISREL 8.80 programme was used to conduct the Structural Equation Modeling (SEM) and Maximum Likelihood Estimation (MLE) was applied to estimate the CFA models.

To assess the reliability and validity of the constructs, the researchers applied exploratory factor analysis (EFA) using principal axis factoring procedure with orthogonal rotation through VARIMAX process. The results of the EFA were displayed in Table-2. The Cronbach;s Coefficient alpha was found significant enough, as it measure >.7 (Nunnally and Bernstein, 1994) for all constructs and therefore it is reasonable to conclude that the internal consistency of the instruments used were adequate. Each accepted construct displayed acceptable construct reliability with estimates well over .6 (Hair, Anderson, Tatham and William, 1998). Further to this the average variance extracted (AVE) surpassed minimum requirement of .5 (Haier et al., 1998). The KMO measure of sample adequacy (0.907) indicated a high-shared variance and a relatively low uniqueness in variance (Kaiser and Cerny, 1979). Barlett'ssphericity test (Chi-square=1532.209, p<0.001) indicated that the distribution is ellipsoid and amenable to data reduction (Cooper and Schindler, 1998).

The initial 29 items related to perceived service recovery were reduced to 12 items with items having factor loading scores of <0.6 were discarded. The items related to repatronization were limited to 2, while the 4 item customer advocacy scale revealed significant factor loading for all its items and so did the customer-trust scale (3-item).

Bivariate correlation was obtained to understand the correlationship between perceived service recovery, recovery zone-of-tolerance, customer trust, repatronization and customer advocacy. As a measure of the constructs composite means were obtained for the same. The results (Table-3) confirmed that perceived service recovery (PSR) shared a strong and positive correlation with service-recovery zone-of-tolerance (RZOT) (r=.201**, p<.001), customer trust (CT) (r=.297**, p<.001), repatronization (REP) intention (r=.331**, p<.001) and customer advocacy (CA) (r=.154**, p<.001) . RZOT exhibited a moderate correlation with CT (r=.109*, p<.005) and CA (r=.098*, p<.005) but did not establish relationship with repatronization intention. Customer trust (CA) shared a strong and positive correlationship with repatronization(r=.185**,

p<.001) and customer advocacy (r=.205**, p<.001). Repatronization confirmed correlationship with customer advocacy (r=.266**, p<.001). The results of bivariate correlation provided support for H_1 and H_2.

DATA ANALYSIS AND INTERPRETATION

The demographic data collected from the respondents were presented in Table-1

Table-1: Demographic data of the respondents

Demographic Variables	Factors	Frequency	%
Gender	Male	1069	67.27%
	Female	522	32.73%
Age	≤ 21 years	38	2.41%
	22-32 years	497	31.27%
	33-43 years	748	47.07%
	44-54 years	247	15.54%
	≥ 55 years	59	3.71%
Income	≤ Rs. 14999.00	132	8.30%
	Rs. 15000-Rs. 24999.00	997	62.74%
	Rs. 25000-Rs. 44999.00	349	21.96%
	≥ Rs. 45000.00	111	7.00%
Occupation	Service [govt./prv]	903	56.82%
	Self employed	452	28.44%
	Professionals	54	3.42%
	Student	76	4.78%
	Housewives	104	6.54%
Educational qualification	High school	18	1.15%
	Graduate	1213	76.33%
	Postgraduate	332	20.89%
	Doctorate & others (CA, fellow etc)	26	1.63%

Table-2: Measurement of reliability and validity of the variables

Items	FL	t	α	CR	AVE
Perceived Service Recovery (PSR)					
SBI employees explain the reason/s for service failure (PSR1)	0.698	-	917	0.917	0.833
SBI employees listen to my problems in accessing services etc. (PSR2)	0.694	25.0096	917	0.917	0.833
SBI employees seem to be very much concerned about my problems(PSR3)	0.659	20.873	917	0.917	0.833
SBI was prompt to offer an apology for the service failure encountered (PSR4)	0.674	23.653	917	0.917	0.833
SBI assures of a quick remedy to the service failure encountered (PSR5)	0.701	25.775	917	0.917	0.833
SBI offers zero-cost transaction while fixing the service failure (PSR6)	0.721	30.816	917	0.917	0.833
SBI offers future incentives for the customers encountering service failure (PSR7)	0.644	19.731	917	0.917	0.833
SBI has installed system to recover from service failure (PSR8)	0.629	18.421	917	0.917	0.833
SBI employees are knowledgeable enough to ensure service recovery(PSR9)	0.652	20.104	917	0.917	0.833
SBI ensures recovery of service at the committed time (PSR10)	0.709	27.321	917	0.917	0.833
SBI communicates with me at every stage of service failure, service recovery and post recovery (PSR11)	0.661	22.099	917	0.917	0.833
SBI strictly monitors the post-recovery phase of service failure (PSR12)	0.663	22.101	917	0.917	0.833
Customer trust (CT)					
SBI can be banked upon to initiate recovery facing a service failure (CT1)	0.769	-	0.909	0.909	0.801
SBI can be relied to keep its commitment to recover service (CT2)	0.731	25.327	0.909	0.909	0.801
SBI puts customers' interest first (CT3)	0.774	28.405	0.909	0.909	0.801
Repatronization (REP)					
I shall avail SBI services at post service recovery phase (REP1)	0.785	-	0.911	0.911	0.823
I shall continue to avail SBI services at post service recovery phase (REP2)	0.801	32.576	0.911	0.911	0.823
Customer advocacy (CA)					
I shall volunteer positive word-of-mouth about SBI's services (CA1)	0.799	17.095	0.936	0.936	0.809
I shall recommend the services of SBI to anyone seeking guidance o banking services (CA2)					
I shall advocate for trial-run of SBI services for customers of other banks (CA3)	0.854	29.084	0.936	0.936	0.809
KMO	0.907				
	Chi-square=1532.209				

** FL: factor loadings, t: t-value, α: Cronbach's α, CR: composite reliability, AVE: average variance extracted

Table:3 Bivariate correlation between the constructs under study

Variables	Perceived service recovery (PSR)	Service-recovery Zone-of-tolerance (RZOT)	Customer trust (CT)	Repatronization (REP)	Customer advocacy (CA)
Perceived service recovery (PSR)	1				
Service-recovery Zone-of-tolerance (RZOT)	0.201**	1			
Customer trust (CT)	0.297**	0.109*	1		
Repatronization (REP)	0.331**	0.061	0.185**	1	
Customer advocacy (CA)	0.154**	0.098*	0.205**	0.266**	1

**Correlation significant at 0.01 level (2 tailed), *Correlation significant at 0.05 level (2-tailed)

Regression analysis was conducted by incorporating dummy variables, in line with Zeithaml et al.'s (1996) adoption of the same, to understand the changes in slopes in the variables e.g. Customer trust, re-patronization and customer advocacy across the three zones of RZOT. Dummy variables are generally used to indicate if individual customer's perception of service recovery were outside (above/below) the same customer's RZOT. The following regression equation indicated the value of $d_1=1$, if perceived service recovery (PSR) is less than the adequate expectation, $d_2=1$, if PSR exceeds desired level. Therefore the relationship between PSR and related variables (customer trust, repatronization and customer advocacy) across and beyond RZOT can be defined as:

$$X_1/X_2/X_3 = \beta_0 + \beta_1(PSR) + \beta_2(d_1 * PSR) + \beta_3(d_2 * PSR) + \varepsilon_1$$

Where,

X_1 = Customer trust

X_2 = Repatronization

X_3 = Customer advocacy

PSR = Perceived service recovery

d_1 = 1, when PSR<adequate level, 0 otherwise

d_2 = 1, when PSR>desired level, 0 otherwise

β_1, β_2, β_3 = unstandardized regression coefficients.

β_0 = constant in the equation

ε = error term

In this equation the slope inside the RZOT is β_1, below RZOT is $\beta_1+\beta_2$ and above RZOT is $\beta_1+\beta_3$

Table:4 Regression results across RZOT levels

Dependent variables	Independent variable-PSR		
	Slope within the RZOT (β_1)	Slope within the RZOT ($\beta_1+\beta_2$)	Slope within the RZOT ($\beta_1+\beta_3$)
Customer trust	0.11*	-0.28**	0.22**
Repatronization	0.04	-0.10*	0.29**
Customer advocacy	0.09*	-0.07	0.41**

** indicates p<0.01, * indicates p<0.05

The results of the regression analysis (Table-4) indicated that the impact of perceived service recovery (PSR) is significantly high on customer trust (β=0.22**, p<0.01), repatronization (β=0.29**, p<0.01) and customer advocacy (β=0.41**, p<0.01) above the zone of tolerance and negative below the same (CT: (β= - 0.28**, p<0.01; REP: (β= -0.10*, p<0.05), although no significant impact was observed in case of customer advocacy (CA), while within the zone the impact of PSR on customer trust (β=0.11*, p<0.05) and advocacy (β=0.09*, p<0.05) was moderate and no such impact was found on repatronization. The results supported H$_3$.

Exploratory factor analysis was conducted with the CRM items to form the base of CRM index.

Customer Relationship Management Index (CRMI) is assumed to improve with the improved performance of CRM components (CRMCP). The impact of CRMCP performance at time *'t'* is proportional to the CRMI gained at time *t-1* (CRMI$_{t-1}$) relative to maximum possible gains from the CRMCP performance (i.e. 1) and the remaining CRMI is yet to be gained (i.e 1 - CRMI$_{t-1}$). It can be represented as (over time *t*):

$$\frac{dCRMI}{dt} = -CRMCP(1 - CRMI_{t-1}) \quad \text{--------- 1}$$

where CRMCP is a term denoting efficiency of performance in delivering services for a service provider. Solving equation-1 for CRMI:

$$CRMI = \frac{1}{1 + e^{a+CRMCP_t}} \quad \text{----------- 2}$$

Equation-2 represents a S-shaped logistic model where 1 is the upper-bound on the CRMI from the CRMCP performance. It is assumed that the constant '*a*' is zero because each service provider is supposed to initiate CRM induced services with a negligible CRMI. Therefore equation for CRMI is developed as:

$$CRMI = \frac{1}{1 + e^{CRMCP_t}} \quad \text{---------- 3}$$

The term CRMCP is a function of the relative weight of the eigenvalue (RWE) of each CRM components multiplied by the average factor value (AVF) of the corresponding CRM component.

$$CRMCP = RWE_{CRMCP1}AVF_{CRMCP1} + RWE_{CRMCP2}AVF_{CRMCP2} + RWE_{CRMCP3}AVF_{CRMCP3}$$

Where,   CRMCP1 = People dimension

CRMCP2 = Process dimension

CRMCP3 = Technology dimension

Bivariate correlation was applied to examine the robustness of CRM-index to establish correlationship, if any, between CRM index, perceived service recovery, recovery zone-of-tolerance, customer trust, repatronization and customer advocacy. The results (Table-6) confirmed that CRM-index (CRMI) shared a strong and positive correlation with perceived service recovery (PSR) (r=.225**, p<.001) and also shared a strong and positive correlation with service-recovery zone-of-tolerance (RZOT) (r=.166**, p<.001), customer trust (CT) (r=.069*, p<.005), repatronization (REP) intention (r=.338**, p<.001) and customer advocacy (CA) (r=.098**, p<.001) .

Table: 5

Factor	Item	Cronbach's α	Eigen value	Factor loading	Convergent validity
People	Individual attention to customers				
	Understands specific needs of customers				
	Employees have customers' best interest at heart				
	Employees instill confidence in customers				
	Employees deal with public situation carefully				
Process	Ease of in-premise transactions				
	Assorted service range				
	Comprehensive information about customers				
	Better segmentation of customers				
	Better understanding of customers' demand				
	Seamless delivery process				
	More than one channel to enter into				
Technology	CBS efficiency				
	Mobile-technology/mobile commerce applications				
	Internet enabled banking efficiency				
	Auto-vending machine (in-premise) facility available				
	Digital surveillance (in-premise) facility available				

Table: 6- Bivariate correlation between the constructs under study

Variables	CRM-index (CRMI)	Perceived service recovery (PSR)	Service-recovery Zone-of-tolerance (RZOT)	Customer trust (CT)	Repatronization (REP)	Customer advocacy (CA)
CRM-index (CRMI)	1					
Perceived service recovery (PSR)	0.225**	1				
Service-recovery Zone-of-tolerance (RZOT)	0.166**	0.132**	1			
Customer trust (CT)	0.069*	0.097**	0.077**	1		
Repatronization (REP)	0.338**	0.273**	0.032*	0.145**	1	
Customer advocacy (CA)	0.098**	0.081**	0.178**	0.101**	0.059*	1

**Correlation significant at 0.01 level (2 tailed), *Correlation significant at 0.05 level (2-tailed)

Binary regression was deployed by considering the average (mean) values of the items for the factor constructs to understand the direct and the moderating effects of the independent variables on dependent variables. Three regression equations were developed: (a) considering customer trust (CT), (b) repatronization (REP) and (c) customer advocacy (CA) as the dependent variables. For providing empirical evidence to our hypotheses, we proposed an ordinary least square (OLS) regression for our dependent variables CT, REP and CA. The following models were constructed:

Regression equation-1

$$CT = \beta_0 + \beta_1*CRMI + \beta_2*RZOT + \beta_3*CRMI*RZOT + \varepsilon_i$$
where, CT represented customer trust, CRMI represented CRM-index, RZOT represented zone-of-tolerance. CRMI*RZOT represented binary interaction between perceived service recovery and zone-of-tolerance.

Regression equation-2

$$REP = \beta_0 + \beta_1*CT + \beta_2*CRMI + \beta_3*RZOT + \beta_4*CT*CRMI + \beta_5*CT*RZOT + \beta_6*CRMI*RZOT\,\beta_7*CT*CRMI*RZOT + \varepsilon_i$$
Where, REP represented repatronization and others have their own meanings as the first equation in the binary and ternary interaction.

Regression equation-3

$$CA = \beta_0 + \beta_1*CT + \beta_2*REP + \beta_3*CRMI + \beta_4*RZOT + \beta_5*CT*CRMI + \beta_6*CT*RZOT + \beta_7*REP*CRMI + \beta_8*REP*RZOT + \beta_9*CT*CRMI*RZOT + \beta_9*CT*REP*CRMI*RZOT + \varepsilon_i$$
where, CA represented customer advocacy and others have their own meanings as the first equation in the binary, ternary and quaternary interaction.

The regression models were displayed in Table-7 (for equation-1,2 and 3). For the equations 1 & 2, three models was generated and for equation 3 five regression models were established. Model 1 depicted the direct effects, model 2 and 3 represented the binary interaction, model 4 represented the ternary interaction and model 5 represented the quaternary interaction. Standardization was applied to avoid interference with regression coefficients arising out of Multicollinearity between interaction variables (Irwin and McClellan, 2001; Aiken and West, 1991). The VIF (variance inflation factor) corresponding to each independent variable is less than 5, indicating that VIF is well within acceptable limit of 10 (Ranaweera and Neely, 2003). The results revealed that Model-1 provided moderate to strong support for H_1 and H_2 as CRM-index (CRMI) and service-recovery zone-of-tolerance (RZOT) were found to have a significant impact on customer trust (CRMI: β = .201**, p<0.01, RZOT: β = .116**, p<0.01), repatronization (CRMI:

β = .229**, p<0.01, RZOT: β = .187**, p<0.01) and customer advocacy (CRMI: β = .101*, p<0.01, RZOT: β = .221**, p<0.01). Results of Model-2 and 3 supported H$_4$. The binary interaction between CRM-index (CRMI) and service-recovery zone-of-tolerance (RZOT) indicated that with the increase in CRMI the impact of service-recovery zone-of-tolerance (RZOT) on customer trust (β = .233**, p<0.01), repatronization(β = .265**, p<0.01) and customer advocacy (β = .331**, p<0.01) will increase. Model 4 revealed the ternary interaction whereby it was established that repatronization decision will be augmented under influence of RZOT if CRM-index (CRMI) manages to impart a positive impact on customer trust (β = .331**, p<0.01)&, while customer advocacy was also found to be significantly affected under the influence of service-recovery zone-of-tolerance (RZOT) with enhanced if CRM-index (CRMI) for customers who displayed repurchase intention. Model 5 represented the only quaternary interaction suggesting that an increase in if CRM-index (CRMI) will enhance the impact of service-recovery zone-of-tolerance (RZOT), customer trust and repatronizationbehaviour on customer advocacy (β = .283**, p<0.01). The binary, ternary and quaternary interaction lends support to H$_4$ and H$_5$.

Confirmatory factor analysis (CFA) was applied to assess the convergence, discriminant validity and dimensionality for each construct to determine whether all the items,defining the constructs, measure the construct adequately as they had been assigned for. LISREL 9.10programme was used to conduct the Structural Equation Modeling (SEM) and Maximum Likelihood Estimation (MLE) was applied to estimate the CFA models. A number of fit-statistics were obtained (Table-8). The GFI (0.982) and AGFI (0.979) scores for all the constructs were found to be consistently >.900 indicating that a significant proportion of the variance in the sample variance-covariancematrix is accounted for by the model and a good fit has been achieved (Hair et al, 1998; Baumgartner and Homburg, 1996; Hulland, Chow and Lam, 1996; Holmes-Smith, 2002, Byrne, 2001). The CFI value (0.971) for all the constructs were obtained as > .900 which indicated an acceptable fit to the data (Bentler, 1992). The RMSEA value obtained (0.064) is < 0.08 for an adequate model fit (Hu and Bentler, 1999). The probability value of Chi-square (χ2=1125.08, df=179, p=0.001) is more than the conventional 0.05 level (P=0.20) indicating an absolute fit of the models to the data.

Table-8: Summary of fit indices

Fit indices	χ^2	df	P	GFI	AGFI	CFI	RMR	RMSEA
Values	1125.08	179	0.001	0.982	0.979	0.971	0.045	0.064

Table-7: Regression models testing the interaction effects

Independent Variables	Dependent variable: Customer Trust					
	Model-1 β (t value)	Model-2 β (t value)	Model-3 β (t value)	Model-4 β (t value)	Model-5 β (t value)	VIF
CRMI	.201**					2.481
RZOT	.116**					2.110
Binary interaction effects						
CRMI*RZOT		.233**				2.611
Adjusted R²	.499	.501				
F-value	72.88	78.83				
Independent Variables	Dependent variable: Repatronization					
	Model-1 β (t value)	Model-2 β (t value)	Model-3 β (t value)	Model-4 β (t value)	Model-5 β (t value)	VIF
CT	.192**					2.001
CRMI	.229**					1.871
RZOT	.187**					2.011
Binary interaction effects						
CT*CRMI		.112**				1.981
CT*RZOT			.210**			2.172
CRMI*RZOT			.265**			2.183
Ternary interaction effects						
CT*CRMI*RZOT				.331**		2.616
Adjusted R²	.477	.481	.493	.501.		
F-value	97.09	85.61	81.01	77.17		
	Dependent variable: Customer advocacy					
	Model-1 β (t value)	Model-2 β (t value)	Model-3 β (t value)	Model-4 β (t value)	Model-5 β (t value)	VIF
CT	.151**					1.991
REP	.098**					1.701
CRMI	.101**					1.851
RZOT	.221**					2.121
Binary interaction effects						
REP*CRMI		.169**				1.911
REP*RZOT			.068*			1.775
CRMI*RZOT			.331**			2.521
Ternary interaction effects						
REP*CRMI*RZOT				.034*		1.511
Quaternary interaction effect						
CT*REP*CRMI*RZOT					.283**	2.182

a. Dependent variable: CT, REP, CA
b. Independent variable: CRMI, RZOT, CT (for 1st eqn.)

Structural Equation Modeling (SEM) was used to test the relationship among the constructs. All the 21 paths (including direct and indirect effects) and 6 paths (depicting moderating effects) drawn were found to be significant at p<0.05. The research model holds well (Fig.2) as the fit-indices supported adequately the model fit to the data. The double-curved arrows indicate co-variability of the latent variables. The residual variables (error variances) are indicated by $\varepsilon_1, \varepsilon_2, \varepsilon_3,$ etc. The regression weights are represented by λ. The co-variances are represented by β. To provide the latent factors an interpretable scale; one factor loading is fixed to 1 (Hox&Bechger).
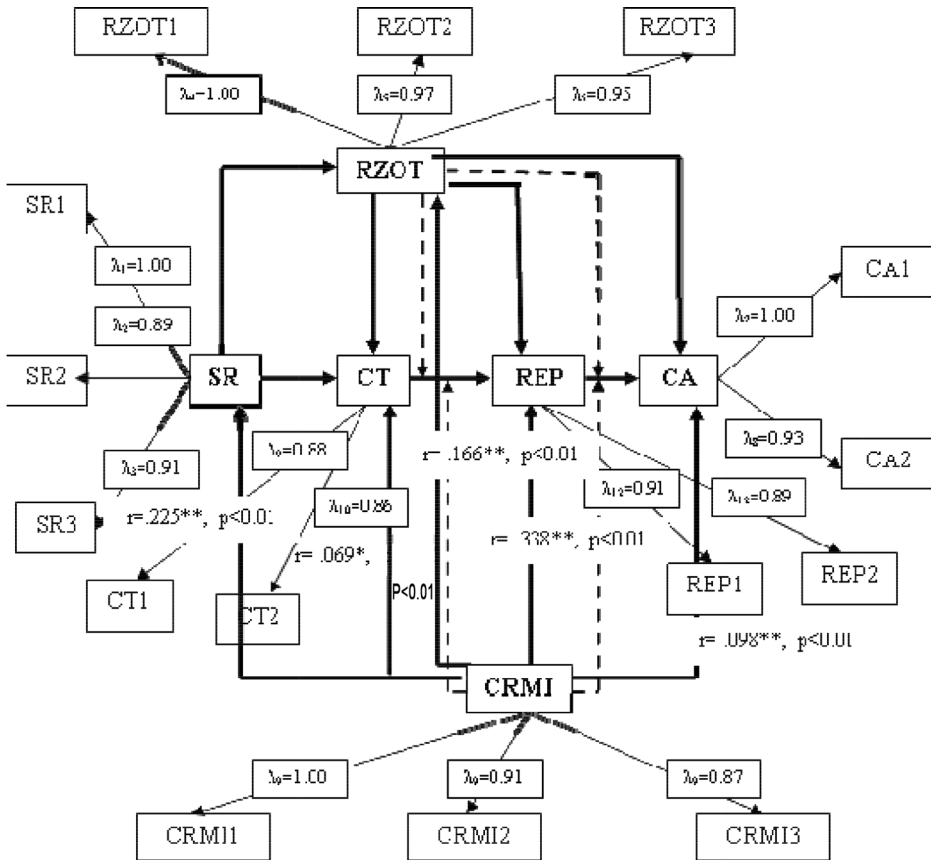

Fig.2: Structural model showing the path analysis

– – – – – – →   **:**   indicates moderating effects

DISCUSSION

The study introduced the concept of perceived service-recovery zone-of-tolerance (RZOT) whereby it was assumed that individual customers will have their own tolerance level regarding the acceptability of the effort initiated by the service providers to recover from a potential service failure with both upper-bound (desired level of effort in service-recovery) and lower-bound (adequate level of effort in service-recovery). The results allowed the researchers to conclude that the major dependent variables under study eg. customer trust, repatronization intention and customer advocacy shared significant correlation and they also exhibited moderate to strong and significant relationship with perceived service recovery and service-recovery zone-of-tolerance (RZOT). The results hinted towards the possible impact of perceived service recovery and RZOT on the psychographic and behavioural intention of the customers and allowed the researchers to investigate the moderating effects of the same. It was also concluded from the study that the customer's psychographic and behavioural orientations namely trust, repatronization and advocacy tend to differ across the different layers of their recovery zone-of-tolerance (RZOT) under the influence of perceived service recovery. It was further concluded that the impact of perceived service recovery on trust, repatronization and advocacy is strongest above the desired level of RZOT and negative below the adequate level of the same. Perceived service recovery seemed to have a lesser degree of impact on customers' behavioural intentions under study within the RZOT which hinted towards the fact that customers tend to remain insensitive to recovery activities within their respective RZOT and that customers with broader bandwidth of RZOT will accept a wider range of recovery activities and vice-versa. While examining the moderating effects of perceived service recovery (PSR) and recovery zone of tolerance (RZOT), it was found that both PSR and RZOT are instrumental in moderating the behavioural intentions of customers under study.

The study had significant managerial implications as banking services are becoming customized or personalized and as a result of which the zone-of-tolerance with respect to perceived banking service quality will affect and control the recovery zone-of-tolerance in case of a perceived service failure. The managers should assess the individual customer's behavioural profile to understand the tolerance limit for both the parameters and initiate a recovery strategy to regain the trust and repatronization of the customers. With growing competition amongst the financial service providers, organisational citizenship behaviour (OCB) has emerged as a critical behavioural pattern that reinforces the promotional activities of the firm. Bankers must ensure a proper service recovery plan based on the recovery ZOT of their customers to ensure customer advocacy culminating into OCB in the long run. For State Bank of India, the study revealed that customers are relatively satisfied with the initiatives taken up by their bank to tackle a perceived

service failure.

The proposed research model holds good for each of the constructs. The researchers believe the model can be used by the bankers for continuous assessments of customers' behavioural pattern following a service failure which might reinforce the bank's effort to ensure a higher degree of recovery initiative. The model can also be used to identify possible reasons for customer defection also.

The study was restricted to some specific geographic locations of West Bengal, which in future, can be expanded to obtain a more generalized conclusion. The study focused on a single bank (SBI) as a case and in future other banks should be incorporated to frame a general idea about customers' behavioural intentions following a service recovery. The RZOT scale can be refined and made versatile. The concept of recovery zone-of-tolerance can be further examined with respect to other variables namely relationship inertia, switching cost etc. and the degree to which customers agree to compromise with a specific perceived level of service recovery. The study can include other service sectors also for the study, particularly hospitality and tourism industry, logistic services and hospital services which are prone to service failures. The study was cross-sectional in nature; therefore longitudinal research may be taken up also to realize the gradual changes in the perceptual level of customers with respect to their expectations in service quality, service failure and recovery vis-à-vis their behavioural manifestations.

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VALUE ADDED AND PROFITABILITY: ROLE OF HUMAN RESOURCE

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Abstract.Money, equipment and other assets require human application to generate value which ultimately contributes to the profit of a business entity. Human Capital with high degree of productivity is the key competitive advantage finally adding to the bottom line. Present study endeavors to explore the relationship between contribution made by workforce in terms of values and performance of the enterprise-operating profit. With the help of secondary data of BHEL and Infosys as case study and using multiple regression analysis, this study proves that the interdependence between operating profit and human resource on one hand and between OP and working capital on the other is very significant. Using ANOVA tool it also proves that the impact of other factors excepting these two is negligible. So policy prescription needs more orientation to human resource improvement.

Key Words: *Value Added, Human Resource or Human Capital, Operating Profit, Workers Surplus, Working Capital, Resource-based value.*

INTRODUCTION

An organization has to set up its strategic goals first and then to link such goals with processes. The result of processes is measured in terms of profits. These processes consume resources of different kinds-money, equipment, other facilities and obviously human resource. Equipment and other resources require human efforts for efficient utilization. Improvements and enterprise goals are closely linked with each other. If such linkage is successfully identified, then obvious outcome that can be measured is the value-added. As workforce is the backbone of effective use of all types of resources, measurement of value levered by human capital should be ascertained as bottom-line.

Financial results are inescapably connected to the organizational leadership, employee commitment, productivity and internal process. In present economic scenario, no business can truly thrive unless it successfully manages the 'employee productivity-profitability chain'. An efficient manager will deliberately focus on the key competitive advantage- the human capital which finally adds to the bottom line.