

Developing a hierarchical model of customer perceived
service quality assessment for retail banking services

by

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Abstract: The study empirically tests a hierarchical second order model of customer perceived service quality for retail banking services with a first order model to develop better understanding of the structure of the concept. **The results show that the service quality construct conforms to the structure of a second order factor model consisting of the dimensions of Service Delivery, Core Service, Tangibles, Reliability and Competence. The model suggests that the most important dimensions that contribute to improved service quality perceptions, are Empathy, Service delivery and Sales agent quality.** The study thus provides empirical support for the importance of tangibles, employee and process related dimensions of service quality for delivery superior customer perceived service quality.

1. Introduction

There is a constant demand for better service quality from the banking industry through better product offerings and value-added services which has led financial institutions to reexamine their current business practices (Brown and Kleiner, 1997). Some of the factors driving this change are intensity of competition, changes in government regulations and adverse effects of technology. Bankers thus need to respond to change to remain competitive in today's environment (Angur, Natarajan & Jahera, 1999). Quality of service provides a distinct marketing edge to banks since improved levels of service quality are related to higher revenues, increased cross-sell ratios, higher customer retention (Bennett and Higgins 1988), and expanded market share (Bowen and Hedges 1993) through word of mouth advertising, enhanced employee productivity, higher market shares and lower staff turnover and operating costs.

Providing high service quality is also critical for enhancing long-term relationships with customers, which is especially important in the competitive business environment of modern banking (Camarero, 2007; Hawke and Heffernan, 2006). Therefore, delivering quality service to customers is a must for success and survival in today's competitive banking environment (Samli and Frohlich, 1992). As regards banks, customer longevity can only be achieved through delivering high quality services (Rust et al., 1995; Lassar et al., 2000) especially under unregulated and volatile financial market conditions (Colgate and Lang, 2001). It's therefore imperative for banks to identify and manage the service quality dimensions which would lead to competitive advantage with their customers.

While there are been adequate number of studies to develop and validate service quality scales for the retail banking sector using SERVQUAL (Arasli et al., 2005; Chi Cui et al., 2003; Lam, 2002; Zhou, 2004) or using alternative measures (Bahia and Nantel, 2000; Aldlaigan and Buttle, 2002; Jabnoun and Al-Tamimi, 2003; Karapte et al., 2005; Guo et al., 2008) and in various countries such as Canada (Bahia and Nantel, 2000); the United Arab Emirates (Jabnoun and Al-Tamimi, 2003); China (Lam, 2002; Guo et al., 2008); South Africa (Mels et al., 1997); Cyprus (Karapte et al., 2005); the UK (Aldlaigan and Buttle, 2002); Nigeria (Ehigie, 2006); South Korea (Chi Cui et al., 2003); Kuwait (Othman and Owen, 2001); Australia (Avkiran, 1994; Baumann et al., 2007); Malaysia (Amin and Isa, 2008) and India (Sureshchander et al, 2001), there is a need for developing and validating customized perceived service quality measure for retail banking in India for following reasons.

Perceived service quality especially in retail banking sector has been found to be a culture and context specific construct (Furrer et al., 2000; Witkowski and Wolfenbarger, 2000; and Glaveli et al, 2006) that is influenced by cultural and environmental factors and there are no publicly available standard scales for measuring perceived quality in banks (Bahia and Nantel, 2000). While measures for perceived quality of retail banking have been developed in Indian context (Susahar and Selvan, 2007; Sureshchander et al, 2001; 2002), they have not been empirically validated through confirmatory factor analysis. The study would thus contribute to the persistent debate over generic versus setting/industry/time specific service quality metrics (e.g. Ford et al., 1993; Asubonteng et al., 1996; Angur et al., 1999; Imrie et al., 2002; Sureshchander et al., 2002; Wang et al., 2004; Tsoukatos, 2009) by empirically testing and validating a model of perceived service quality in retail banking in Indian context.

Secondly most measures of perceived retail banking service quality have assumed a first order reflective model since there has been no effort to develop and test a hierarchical second order model in Indian context leading to possibility of model bias. This study aims to develop and validate a hierarchical model of retail-banking specific service quality measure, by examining its factorial structure and assessing its reliability and validity, so that there's better understanding of its determinants. There is theoretical support in literature for a multi dimensional, multi level model of service quality (Carman, 1990; McDougall and Levesque, 1994; Dabholkar et al, 1996) though there has been little effort to empirically test such a structure. The study thus responds to the call for developing and testing a multi level model or hierarchical model of retail banking service quality using multiple and multi level dimensions (Dabholkar et al, 1996) in retail banking.

Thirdly, the research would contribute to the ongoing debate on which perspective is a better representation of service quality ie the **technical and functional quality dimensions model proposed by Gronroos (1982, 1984) or the disconfirmation paradigm based five dimensional SERVQUAL model proposed by Parasuraman, Zeithaml, and Berry's (1985). Most studies adopt either perspective in scale development and evaluation. This study does aims to develop a scale by starting with a list of items from both the perspectives.**

The structure of the paper is as follows: The next section reviews the literature on Indian retail banking sector ,service quality and its measurement in general and in the banking sector followed by the section which illustrates the methodology of the empirical part of this study followed by sections in which the discussion of the study's findings, conclusions, managerial and research implications, limitations and future research directions are presented.

Indian retail banking:

The banking sector of India can be broadly classified into non-scheduled and scheduled banks. Scheduled banks are further categorized as commercial and co operative banks. Commercial banks consist of Nationalized banks, State bank of India and its group banks, Regional Rural Banks and private banks (Foreign and Domestic Old/New) based on ownership. The sector has been growing due to enhanced liquidity, reduced interest rates, growing competition, changing demographic profile and increased demand for credit from consumers and industry.

The Indian banking sector was thrown open to competition based on the Narasimhan Committee report which suggested wide ranging reforms in 1992. The committee recommended the liberalization of entry norms and permission for new banks in the private sector, a liberal policy towards allowing foreign banks to open offices in India and deregulation so that best practices can be adopted by banks for service excellence. This has resulted in banking becoming more competitive in terms of the branch network and innovations in product and service delivery. Financial liberalization has led to intense competitive pressures, and retail banks are consequently directing their strategies towards increasing customer satisfaction and loyalty through improved service quality. Retail banks are pursuing this strategy, in part, because of the difficulty in differentiating based on the service offering. Typically, customers perceive very little difference in the services offered by retail banks and any new offering is quickly matched by competitors. The end result is that market power is getting shifted from banks to their customers. The

lowering of entry barriers and blurring product lines of banks and non-banks, the oligopolistic nature of Indian banking is fast changing and giving way to a relatively freer market place.

Measuring Service Quality

The SERVQUAL Scale

As per Lewis and Booms (1983) , “service quality is a measure of how well the service level delivered matches customer expectations. The dominant paradigm of conceptualizing service quality is the disconfirmation paradigm wherein “Delivering quality service means conforming to customer expectations on a consistent basis”. (Parasuraman et al., 1985)The SERVQUAL scale has been widely used for measuring service quality in various studies on service quality (Lai et al., 2007). SERVQUAL was developed by Parasuraman et al. (1988), and is based on the concept of the disconfirmation paradigm.

The original SERVQUAL scale consisted of 22 pairs of items representing five service quality dimensions—tangibles, reliability, responsibility, assurance, and empathy. The 22 items were used to evaluate the level of the customers’ expectations over a service delivered by a service provider. The other 22 items were used to evaluate the actual level of the service performance as perceived by the customers (Parasuraman et al., 1988). While the SERVQUAL scale has been applied across a wide range of services, there has been lack of consensus on the same and SERVQUAL has been criticized on the applicability and the generalizability of the SERVQUAL scale across different service industries (Carman ,1990) and other issues. Various researchers have criticized it over its use of gap scores, measurement of expectations, positively and negative worded items, problems with the reliability and the validity, and the defining of a baseline standard for good quality (Oliver, 1993; Brown et al, 1993; Cronin and Taylor, 1992; Bakakus and Boller, 1992; Carman, 1990).

Subsequently, Cronin and Taylor (1992) introduced the SERVPERF scale, a performance-based approach as an alternative method for measuring service quality based on customers’ perceptions of service performance only. Cronin and Taylor (1992) reported that the performance-based approach has a higher degree of model fit, and explains more of the variations in an overall measure of service quality than the gap-based SERVQUAL scale.

Though Parasuraman, Zeithaml, and Berry (1994) defended measuring customers’ expectations as appropriate in order for marketing practitioners to understand customers’ expectations, they (Zeithaml, Berry, and Parasuraman,1996) later conceded that the performance-based approach is more appropriate if the primary purpose of a research is to explain the variance in a dependent construct.

The Hierarchical Approach

Though there is lack of consensus on the conceptualization and measurement of service quality, various academics agree that service quality is a multidimensional, higher order construct (Brady and Cronin, 2001; Dabholkar et al., 1996; Carman, 1990; Parasuraman et al., 1988; Gronroos, 1984). Brady and Cronin’s (2001) and Dabholkar et al.’s (1996) findings revealed that service quality as perceived by customers is a multi dimensional hierarchical construct consisting of customer’s overall perception of service quality; the primary dimensions; and the sub-dimensions. The sub-dimensions are treated as first-order factors of the service quality construct, and the primary dimensions are treated as second-order factors of the service quality construct. The hierarchical approach has been adopted by a

number of marketing academics for measurement of service quality in various service contexts such as agribusiness (Gunderson, Gray, and Akridge, 2009), airport services (Fodness and Murray, 2007), education (Clemes, Gan, and Kao, 2007), electronic services (Fassnacht and Koese, 2006), health services (Dagger, Sweeney, and Johnson, 2007), mobile communication services (Lu et al., 2009; Kang, 2006), recreational sport industries (Alexandris, Kouthouris and Meligdis, 2006; Ko and Pastore, 2005), transport services (Martínez and Martínez, 2007), travel services (Martínez and Martínez, 2008), and a variety of other service businesses (Liu, 2005). However, no study could be found in literature which construes service quality in retail banking as a hierarchical construct.

Service Quality measures in retail banking

Service quality studies in traditional face-to-face retail banking have mostly adopted the five dimensional SERVQUAL model (Parasuraman et al. 1985, 1988)/SERVPERF (Cronin and Taylor, 1992) approach or some customized version of it (e.g. Yavas et al., 1997; Cronin and Taylor, 1992b; Newman, 2001; Angur et al., 1999; Lassar et al., 2000; Chi-Cui et al., 2003; Balestrini and Huo, 2005; Dash, 2006 etc.). Company proprietary scales have been developed to address specific situations (Bahia and Nantel, 2000)

Various measures of service quality assessment in retail banking have been developed as follows.

Aldlaigan and Buttle (2002) developed a 21 item scale SYSTRA-SQ to measure perceptions of service quality among bank customers. The scale consists of the four dimensions of 'service system quality' (refers to the service organization as a system and includes such attributes as listening to customers, ease of availability and accessibility, speed of response, and organizational appearance); 'behavioural SQ' (refers to how the service was performed by employees); 'machine SQ' (the reliability and performance of machines) and 'service transactional accuracy' (assessed perceptions of the accuracy of transactions in terms of both system output and employee output).

Tsoukatos and Mastrojianni (2010) developed a 27-item BANQUAL-R scale consists of 12 SERVQUAL, seven BSQ, two common in SERVQUAL and BSQ and six setting-specific items in context of Greece banking.

Sureshchandar et al. (2001;2002) developed a 41 items/5 dimensional scale (the Human-Societal model) of perception-only in Indian context consisting of core service or service product (5 items), human element of service delivery (17 items), systemization of service delivery (6 items), tangibles of service (6 items) and social responsibility (10 items).

Al-Hawari et al. (2005) developed a comprehensive model for measurement of automated service quality by incorporating the unique attributes of automated service delivery channels. They proposed a five dimensional scale consisting of dimensions of ATM service; internet-banking service; telephone-banking service; core service; and customer perception of price.

Karatepe et al., (2005) developed a 20 item four dimensional measure of service quality for retail banking in Northern Cyprus context. The construct consisted of dimensions of service environment (four items); interaction quality (seven items); empathy (five items); and reliability (four items).

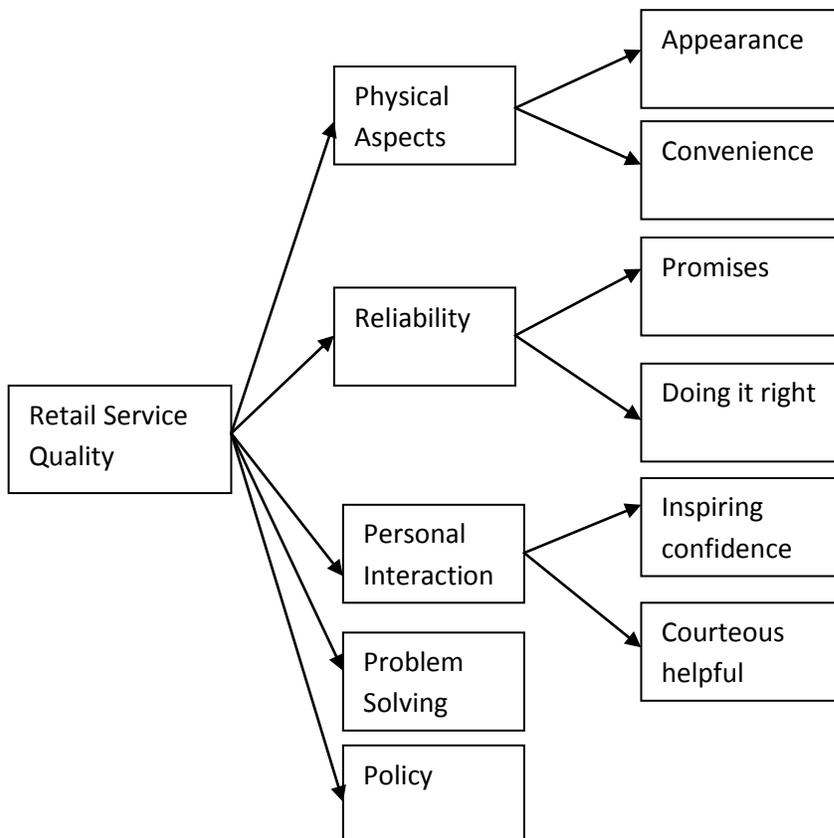
Aldlaigan and Buttle (2002) proposed that customers evaluate SQ at two levels: organizational and transactional and reported that the parsimony, reliability and validity of SYSTRA-SQ suggest that the measure is of high utility to the banking industry.

Bahia and Nantel (2000) proposed BSQ as an alternative to SERVQUAL by developing a 31 item/six dimensional scale (effectiveness and assurance; access; price; tangibles; service portfolio; and reliability by adapting the SERVQUAL scale items.

Conceptual Approach:

The construct of service quality as conceptualized in literature has been based on the definition by Zeithaml (1997) wherein perceived quality is defined as consumer’s judgement about an entity’s overall excellence or superiority. While most researchers conceptualized and modeled service quality as a first order reflective multi dimensional construct, there is still lack of consensus on the structure of the concept especially the dimensionality and . Brady and Cronin (2001) developed a third order factor model of service quality which consisted of three primary dimensions (interaction quality, physical environment and outcome quality) and nine sub dimensions (Attitude, behavior and expertise form the sub dimension of interaction quality; ambient conditions, design and social factors form the second sub dimension of physical environment quality and waiting time, tangibles and valence form the third sub dimension of outcome quality). All variables were tested by factor analysis and the model is similar to Rust and Oliver (1994) three component model of service quality. Dabholkar, Thorpe and Rentz (1996) found that the SERVQUAL model has not been adequately applied to retail stores service quality and they therefore developed a 28 item scale to measure customer perceptions of retail service quality using a hierarchical second order model.

Figure 1: Hierarchical model of retail service quality (Adapted from Dabholkar, Thorpe and Rentz (1996),”A Measure of Service Quality for Retail Stores: Scale Development and Validation”, Journal of the Academy of Marketing Science, 24(1),p.6.)



The objectives of the study are

1. To develop and test a hierarchical model of service quality for retail banking
2. To extract and validate the dimensions of a hierarchical model of service quality for retail banking.

Methodology

Data Collection: Data was collected over a period of twelve weeks from customers of branches of two banks (one public sector and one private sector bank), in city of Delhi and the National Capital Region of Delhi (NCR), in India in September-November 2011. The data was collected through personal interview method by getting a questionnaire filled up by customers at various times of the day in branches of the banks. Graduate business school students trained in the mall intercept technique worked as pairs and surveyed a convenience sample of 350 customers of the selected participating banks during business hours (11 am- 3 pm) over a period of twelve weeks. Purposive method of sampling was adopted for selection of respondents in the bank branches. The method of personal interviews is superior to self-administered questionnaires in perceptual or attitudinal surveys (Groves, 1989), while face-to-face administration maximizes response rates and field researchers' availability to answer respondents' questions (Ibrahim et al., 2006). Convenience/Purposive sampling is very common in service-quality/customer-satisfaction research since random sampling requirements for population homogeneity, are very difficult to meet in practice, and high costs associated with locating chosen population items (see Brady et al., 2002; Wang et al., 2004; Semeijn et al., 2005). There was no evidence of sampling bias (Tsoukatos, 2009) as the demographic attributes of the sample was representative of the population.

In general, most consumers were willing to assist in the project and were eager to express their concerns about the participating banking services. A small gift (a ball point pen worth Rs five) was provided as a gesture of appreciation for their time and effort. Exit intercept survey method was used as it has the advantage of immediate retrieval and capturing of customers' experiences with the participating banks. Given the specific focus of this study, the exit intercept method was thought to be most desirable. Upon approaching the customers, the interviewers identified themselves and explained that the study was an independent project initiated by a local university. After obtaining their consent, the respondents were requested to rate their response to the three sections of the standard questionnaire (to be described later) at the study site. The questionnaire consisted of two sections ie Section I on personal data and Section II on 31 item service quality measurement scale. Subjects were recruited based on having had at least one-year prior experience with the branch of the sampled bank. A target of 350 questionnaires based on sample size requirements was collected of which 284 were found usable. The demographic characteristics and distribution of the respondents was as follows: 72% of the respondents belonged to the age group less than 35 which are fairly representative of banking population as 70% of the population of India is below 35 years of age. The proportion of Males was 73% and females was 27% ; 20% of respondents were having family income less than Rs 150000 per annum; 25 % Rs 150000 to Rs 300000, 35% above Rs 300000 and less than Rs 500000 ; 81% had

savings account and 17% had current account with the bank that they patronized;. The highest educational qualifications of the respondents were 55.9 % Graduates and 32.2% Post Graduates.

Sample size adequacy assessment: The sample size for the study was determined based on the proposed method of data estimation and scale reliability and validity. The proposed method of data estimation for structural equation modeling is Maximum likelihood (ML) which is the most commonly used estimation method in SEM. It maximizes the probability that the observed co variances are drawn from a population that has its variance-covariance matrix generated by the process implied by the model, assuming multivariate normality. Multivariate normality is not generally met in practice and several estimation methods for overcoming the fit problems arising from its absence have been developed. ML, itself, is fairly robust against violations from multivariate normality. The minimum sample size recommended for ML estimation is at least 200, according to some researchers. Others suggest at least fifteen times the number of observed variables or five times the number of free parameters including error terms or ten times the number of free parameters for strongly kurtotic data (Golob, 2003). Where the proposed SEM is the basis for a research hypothesis, ad hoc rules of thumb require that at there are least 10 observations per indicator (free parameter) in setting a lower bound for the adequacy of sample sizes (Nunnally,1967). Bollen (1989) stated that “though I know of no hard and fast rule, a useful suggestion is to have at least several cases per free parameter” and Bentler (1989) suggested a 5:1 ratio of sample size to number of free parameters. Marsh and Bailey (1991) concluded that the ratio of indicators to latent variables rather than just the number of indicators, as suggested by the rule of 10, is a substantially better basis on which to calculate sample size, reiterating conclusions reached by Bonoma (1982).

Yurdugu` 1 (2008) proved that the minimum sample size required for coefficient alpha depends on the largest eigenvalue of Principal Components Analysis (PCA). For a value exceeding 6.00, the sample alpha co efficient is a robust estimator of the population alpha. Regarding factorial analysis, the minimum sample size depends on the extent to which factors are over determined and level of communalities exceeds 0.70 (Fabrigar et al., (1999). The target sample size of 350 for this study meets all these requirements.

Sampling Method: Two leading banks ie one from the public sector (SBI bank) and the other from the private sector (ICICI bank) were selected for the study as they have over 70% of the deposit and loan share of market in NCR of Delhi. The two banks selected for the study are also reflective of the maximum banking population in this region. A list of branches in Delhi andNCR of Delhi for the two selected banks for the study were accessed from their official organizational websites. The sample size of branches for the study was determined based on the target sample size of customers for the study which was 350. Thus a two stage model was adopted. In stage one, for the purpose of data collection, the entire NCR region was divided geographically into territories of Delhi, Gurgaon, Ghaziabad and Noida.

No of Bank Branches of SBI and ICICI in Delhi and NCR of Delhi

Number	of	Delhi	Noida	Gurgaon	Ghaziabad	Total
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Branches					
SBI	197	15	14	19	245
ICICI	43	15	19	8	85
Total	240	30	33	27	329

The total number of branches in Delhi is almost 7 times that of the other regions. To keep the sample representative of the entire population, total of 50 branches were selected for data collection. The sample size of 50 branches was selected based on the target sample size of 350 respondents assuming 7-10 respondents per branch. The bank branches were selected based on the

Number of Branches	Delhi	Noida	Gurgaon	Ghaziabad	Total
SBI	24	3	2	3	32
ICICI	10	3	3	2	18
Total	34	6	5	5	50

The number of branches to be visited in each geographic region was calculated based on their weighted presence in that region. Thus, to determine the total number of branches to be sampled in Delhi, the ratio of 36.4 was obtained by multiplying 0.7294 (240/329) by 50. However, 34 number of branches were selected for the study in Delhi to accommodate 6 (5.01) branches in Noida and 5 (4.1) branches in Ghaziabad. The specific branches selected in Delhi, Ghaziabad, Noida and Gurgaon for the study were generated randomly from the list of branches in each geographic territory for both SBI and ICICI. Thus, for example out of total 30 branches of SBI and ICICI bank in Noida, 3 branches each out of 15 branches of SBI and 15 branches of ICICI bank were randomly selected. Thus, based on weightage of 50%, out of 6 branches in Noida, 3 SBI and 3 ICICI bank branches were selected for the study. The specific 3 branches of SBI out of 15 branches were selected based on simple random sampling method.

Measurement instrument

The survey instrument was developed based on literature review. As no standard scale is available which includes all the items of service quality, the 41 items and 5 dimensions identified by Sureshchander et al, (2002) in their scale of banking service quality developed for Indian context was adapted for developing the hierarchical model in this study.(Table I). The initial list was refined to 31 items with the help of expert reviews by academicians, branch managers and branch operations managers of select public and private sector banks in Delhi national capital region (NCR). The list of 31 items used for the study were further pilot tested for wording and meaning of the statements. The wordings of the 31 items were modified based on pilot studies with customers from across various socio economic groups.

Table 1: The five factor service quality model by Sureshchander et al. (2001,2002).

S. No	Factors		Items
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Core service or service Product	The core service portrays the “content” of a service. It portrays the “what” of a service, ie the service product is whatever features that are offered in a service	
Human element of service delivery	The factor refers to all aspects (reliability, responsiveness, assurance, empathy, moments of truth, critical incidents and recovery) that will fall under the domain of the human element in the service delivery.	
Systemization of service Delivery: non-human element	The processes, procedures, systems and technology that would make a service a seamless one. Customers would always like and expect the service delivery processes to be perfectly standardized, streamlined and simplified so that they could receive the service without any hiccups or undesired/inordinate questioning by the service providers.	
Tangibles or service-service scape	The tangible facets of the service facility (equipment, machinery, signage, employee appearance, etc.) or the man made physical environment, popularly known as ‘servicescape’	
Social responsibility	Social responsibility helps an organization to lead as a corporate citizen in encouraging ethical behavior in everything it does.	

Extracted from Sureshchander et al. (2002), “The relationship between service quality and customer satisfaction---a factor specific approach”, Journal of Service Marketing, Vol. 16 No.4, pp.363-79.

Data Analysis

Data analysis was undertaken in two steps. In the first stage, exploratory factor analysis using principal component method of analysis with varimax rotation was undertaken to identify the underlying dimensions of service quality for the 31 item service quality scale used for data collection. An orthogonal rotation was chosen for the sake of simplicity (Nunnally and Bernstein, 1994). Attributes and factors were excised from the data set to achieve uni-dimensionality. Exploratory factor analysis (EFA) is a useful preliminary technique for scale construction, but a subsequent confirmatory factor analysis (CFA) is necessary to evaluate and refine the resulting scale for uni

dimensionality (Churchill, 1976). Reliability tests were then performed on each factor of the multi-item multi dimensional scale and are given in Table 3.0.

Exploratory factor analysis: A factor analysis was run on the data to establish the uni-dimensionality of the multi-item service quality scale. The data was found appropriate for factor analysis based on KMO measure of sampling adequacy = 0.086 and Bartlett's test of sphericity having chi square value of 5732.7 ($p = 0.000$), (Hair et al., 2006). An exploratory (principal component) factor analysis conducted on the 31-item (Table 2.0) performance scales (i.e. the SERVPERF approach) resulted in a five-factor solution using principal component method of factor extraction and varimax method of rotation. Five components were extracted for further analysis as they had eigenvalues greater than 1.0. with cumulative variance explained equal to 82%. The factor loadings are shown in Table 2.0. Six items (Item Nos 5,10,16,20,21 and 23) which did not load on any component (factor loading less than 0.5) were not selected for further analysis. A five factor service quality model was finally selected as shown in Table 2.0

Findings

Confirmatory factor Analysis of First Order Model: The structure pattern of the five dimensional initially extracted factor structure (Table 2 and 3) was further evaluated for construct validity through confirmatory factor analysis using AMOS ver 4.0. The five-factor measurement model was specified and the model parameters were estimated using AMOS ver 4.0. The items were restricted to loading on their respective factors. However, the model was not found acceptable based on indices of fit. An examination of the modification indexes of the specific estimates revealed that several items loaded on different exogenous factors. Model was further modified by deleting the items with cross loading and factors which were affecting model fit based on modification indices (Byrne, 2001) which eventually resulted in a model with good fit. The final model with acceptable fit was a five dimensional model with twenty six attributes having significant loading on their respective factor (Figure 2.0). The service quality dimensions and the attributes (with standardized regression co-efficients) are given in Table 4.0. The service quality scale model's overall goodness-of-fit indicators were: GFI = 0.929; CFI = 0.972; NFI = 0.932; RMR = 0.048; RMSEA = 0.048, as given in Table 4.0. The Chi Square statistic of 213.54 with 129 degrees of freedom, was significant as it was within 2 times the number of degrees of freedom (Bollen, 1989). The t statistics were significant for each path and the critical ratios were more than twice the standard errors (Joreskog and Sorbom, 1989). The model was of suitable fit and its parsimony was supported. All the t-values of the estimated parameters were significant ($p < 0.001$). The five dimensional structure was conceptually consistent with the service quality model suggested by Sureshchander et al., (2002) as shown in table 4.0. The reliability of the dimensions of the scale were measured by Cronbach alpha score for the five dimensions of perceived service quality i.e. Core Service as 0.806; Service Delivery as 0.844; Tangibles as 0.844; Reliability as 0.794 and Competence as 0.730 respectively. Convergent validity was evaluated according to criteria identified by Fornell and Larcker (1981). As shown in Table 4, the results of the CFA revealed good to strong loadings (ranging from 0.503 to 0.974). All loadings were statistically significant at the 0.05 level ($t > 1.96$).

Confirmatory factor Analysis of hierarchical Model: The structure pattern of the second order hierarchical model (Figure 3.0) was then tested but was initially not found to be of acceptable fit. The model was modified and accepted based on fit indices shown in Table 4.0. The construct validity of the dimensions of the construct was established since the standardized factor loadings of the items of their respective dimensions ie β was greater than 0.5 for all the measurement items in the scale. Further, all the primary dimensions were having significant standardized factor loading on latent construct of Overall service quality (Table 4.0).

The purpose of the study was to develop and empirically validate a hierarchical model of service quality for retail banking and to compare it with a first order model. The initially hypothesized models were of unacceptable fit and had to be modified. The results of both the finally accepted models are shown in Table 4.0. The results show that both the first order and second order hierarchical model of retail banking service quality are of acceptable fit based on fit indices (Table 4.0) ie ratio of chi square to degrees of freedom was less than 2.0 for both the models. Other indices of fit ie Goodness of Fit Index (GFI) was greater than 0.9, Comparative Fit Index (CFI) was greater than 0.95, Standardized Root mean square Residual (RMR) was less than 0.05, Root Mean Square Error of approximation (RMSEA) was less than 0.05, and p test for close fit was greater than 0.5 indicating excellent fit. The standardized factor loadings “ β ” of all the 18 items on their respective dimensions of the construct was above 0.50 ($p=0.000$) and average variance extracted for all the sub dimensions of the construct were greater than 0.50 indicating convergent and discriminant validity of the construct (Diamantopoulos and Siguaw, 2000). Discriminant validity of the dimensions was also established by running several CFA’s for each possible pair of constructs (dimensions) and then fixing the correlation between the two constructs at 1. In each case, the correlation between the fixed and free solutions were significant at $p<0.05$ or higher (Anderson and Gerbing, 1988).

Table 2.0: Exploratory factor results of 31 item initial list of items of banking service quality

Items	Abbr	Five Dimensions of Banking Service Quality				
		Tangibles	Service delivery	Core Service	Reliability	Competence
My bank has good ambience in terms of atmospherics.	SQ25	.800	.127	.159	.291	.015
My bank has house keeping as a priority and of the highest order in the organization	SQ26	.770	.329	.161	.064	.090
My bank has visually appealing materials in line with the service offered	SQ27	.738	.253	.145	.328	.091
My banks employees have a professional appearance	SQ28	.719	.316	.110	.245	.172
My banks physical layout of equipment are	SQ31	.643	.060	.086	.294	.475

comfortable for customers to interact						
My bank has enhanced technological capability	SQ22	.594	.437	.062	-.062	.319
My bank has adequate facilities for good customer service	SQ24	.582	.327	.080	.276	.406
My bank has high degree of standard operating procedures	SQ23	.487	.393	.149	.241	.292
My bank has a simplified delivery process to minimize service delivery time	SQ20	.464	.397	.060	.269	.394
My bank regularly apprises the customers about information on actual service performance	SQ15	.173	.796	.112	.163	.003
My bank provides prompt services to customers	SQ9	.326	.594	.188	.368	.246
My bank apprises customers of the schedule of services available in the bank	SQ8	.342	.589	.203	.191	.324
In my bank feedback from customers is used to improve service standards	SQ11	.291	.579	.164	.347	-.049
My banks employees are consistently courteous	SQ19	.259	.573	.184	.443	.235
My banks employees understand the needs of their customers	SQ14	.419	.534	.161	.214	.421
My bank gives individual attention to customers	SQ18	.316	.530	.255	.511	.121
My bank has effective customer grievance procedures	SQ17	.500	.528	.252	.292	.216
My bank has a highly standardized delivery process for effective service delivery	SQ21	.406	.480	.087	.210	.454
My bank is high in willingness to help customers	SQ10	.405	.429	.181	.335	.332
My bank Provides services as promised	SQ5	.001	.155	.842	.147	.120
My bank has convenient operating timings	SQ1	.114	.052	.806	.103	-.001
My bank has depth of service	SQ2	.105	.101	.784	.247	.010
My bank has service operations are available in most branches of the bank	SQ3	.092	.070	.775	.059	.173
My bank is high in Service innovation	SQ4	.217	.203	.691	-.100	.043

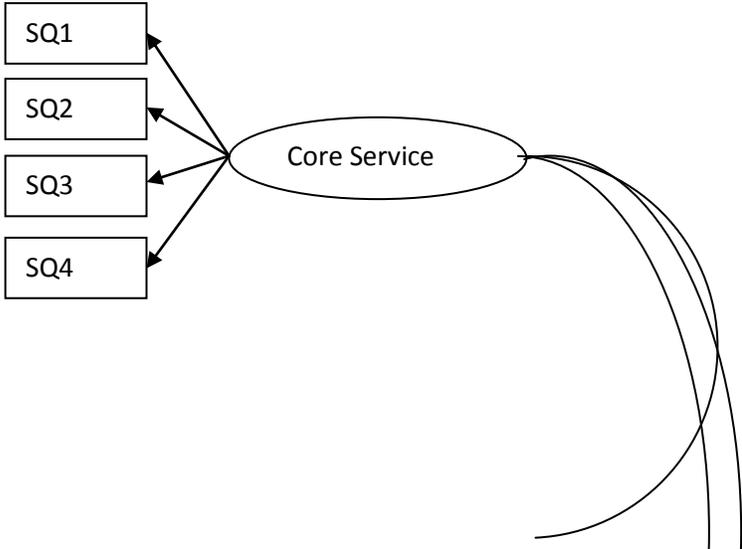
My bank gives good service at a reasonable cost while maintaining quality	SQ29	.268	.191	.089	.708	.215
My bank's employees have necessary skills for taking action when a problem arises	SQ7	.235	.305	.115	.692	.192
My bank provides services right the first time	SQ6	.256	.285	.150	.588	.289
My bank has branch locations at places convenient to all sections of society	SQ30	.040	-.050	.111	.324	.747
My bank makes customers feel safe in their transactions	SQ13	.298	.488	.028	.021	.609
My banks employees instill confidence in customers by proper behavior	SQ12	.378	.430	.152	.184	.512
My banks employees have the competence to answer customers specific queries	SQ16	.283	.332	.199	.404	.418

Table 3.0: Reliability test of the items loading on the five sub dimensions extracted through EFA

Dimension	Items	Reliability test (Cronbach's alpha)
Core Service	My bank has convenient operating timings	0.862
	My bank has depth of service	
	My bank has service operations are available in most branches of the bank	
	My bank is high in Service innovation	
	My bank Provides services as promised	
Tangibles	My bank has good ambience in terms of atmospherics.	0.915
	My bank has house keeping as a priority and of the highest order in the organization	
	My bank has visually appealing materials in line with the service offered	
	My banks employees have a professional appearance	
	My banks physical layout of equipment are comfortable for customers to interact	
	My bank has enhanced technological capability	
Service Delivery	My bank provides prompt services to customers	
	My bank appraises customers of the schedule of services available in the bank	

	In my bank feedback from customers is used to improve service standards	
	My banks employees are consistently courteous	
	My banks employees understand the needs of their customers	
	My bank gives individual attention to customers	
	My bank has effective customer grievance procedures	
	My bank provides prompt services to customers	
Reliability	My bank gives good service at a reasonable cost while maintaining quality	0.794
	My bank's employees have necessary skills for taking action when a problem arises	
	My bank provides services right the first time	
Competence	My bank has branch locations at places convenient to all sections of society	0.730
	My bank makes customers feel safe in their transactions	
	My banks employees instill confidence in customers by proper behavior	

Figure 1: First order model of banking service quality tested by Confirmatory factor Analysis



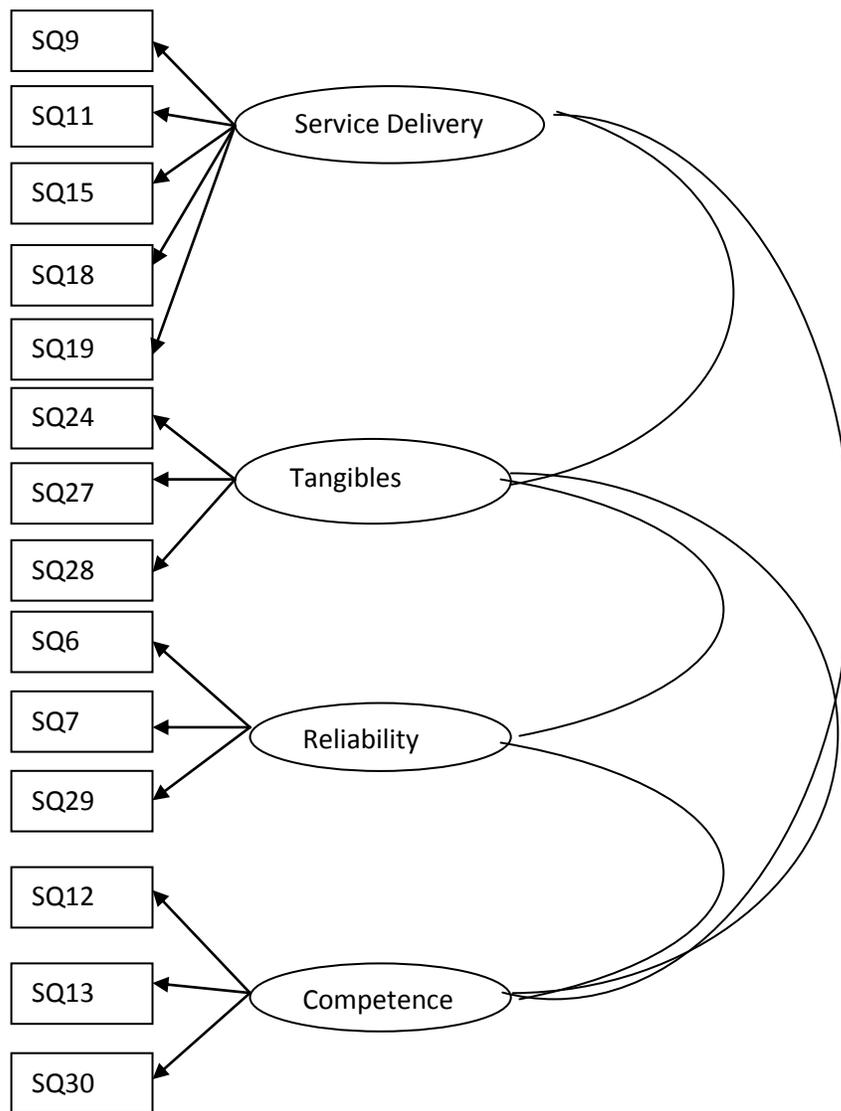


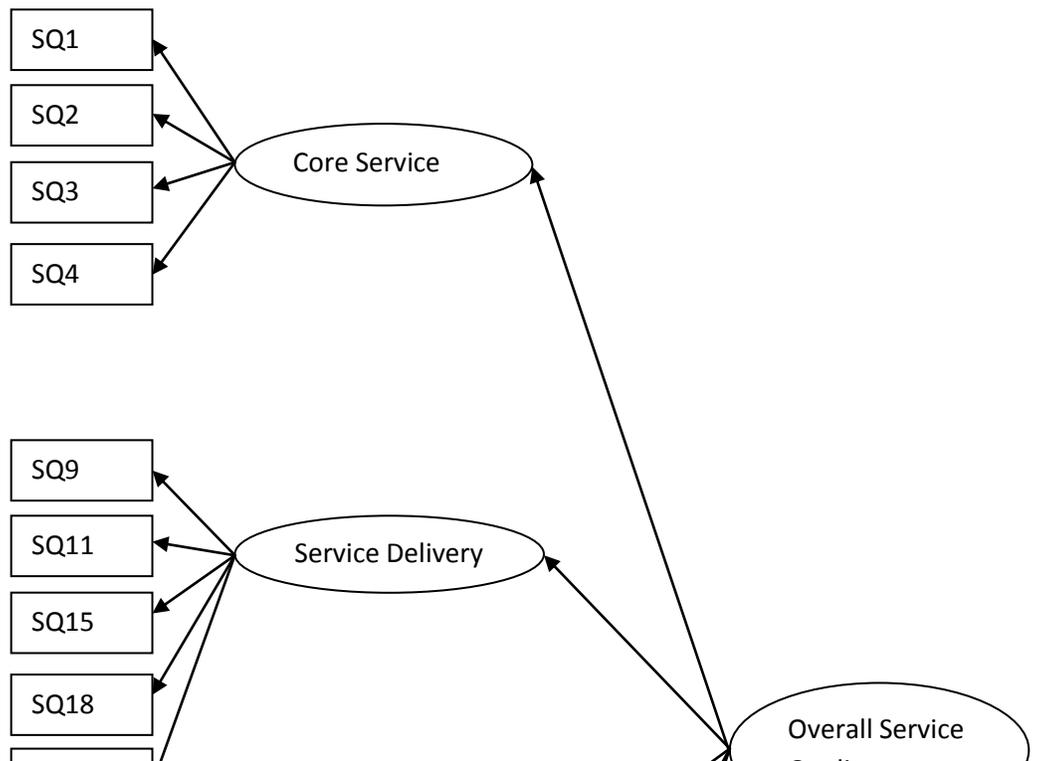
Table 4.0: Results of path model showing the fit indices and standardized path coefficients of the first order and hierarchical service quality model for retail banking

Fit Indices	First Order reflective CFA model	Second order hierarchical model
Chi square	213.54	207.765
	Degrees of freedom=129	Degrees of freedom =129

GFI	0.929	0.932
CFI	0.972	0.974
STD RMR	0.048	0.064
RMSEA	0.048	0.046
P(Close)	0.594	0.683
Paths	Standardized regression weights β	Standardized regression weights β
SQ1→Core Service	0.780	0.502
SQ2→Core Service	0.807	0.782
SQ3→Core Service	0.700	0.696
SQ4→Core Service	0.699	0.695
SQ9→Service Delivery	0.784	0.797
SQ11→ Service Delivery	0.671	0.673
SQ15→ Service Delivery	0.661	0.675
SQ18→ Service Delivery	0.841	0.843
SQ19→ Service Delivery	0.815	0.824
SQ24→ Tangibles	0.828	0.839
SQ27→ Tangibles	0.784	0.782
SQ28→ Tangibles	0.806	0.798
SQ6→ Reliability	0.759	0.774
SQ7→ Reliability	0.759	0.759
SQ29→ Reliability	0.732	0.737
SQ12→ Competence	0.873	0.831

SQ13→ Competence	0.750	0.738
SQ30→ Competence	0.530	0.571
Overall Service Quality→ Core Service		0.502
Overall Service Quality→ Service Delivery		0.891
Overall Service Quality→ Tangibles		0.941
Overall Service Quality→ Reliability		0.876
Overall Service Quality→ Competence		0.891

Figure 2: Hierarchical Second order model of banking service quality tested by Confirmatory factor Analysis



Discussion: There is considerable divergence on conceptualization of the structure of the service quality research in literature. Brady and Cronin (2001) in their seminal work established that service quality is a multi dimensional multi level construct for which evidence was provided by Dabholkar et al, 1996 when they developed a third order scale for measurement of retail service quality. There has been very little effort to test and validate multi level structure of service quality in varied service and cultural context. This study provides empirical evidence that service quality is a multi dimensional, hierarchical construct in Indian retail banking. The paths in the research model are all confirmed, which indicates that each dimension is appropriately conceived as an aspect of service quality.

First the study provides evidence that customers form service quality perceptions on the basis of their evaluations of five primary dimensions of Service Delivery, Core Service, Tangibles, Reliability and Competence. The attributes constituting the dimension of Service delivery are: bank provides prompt services to customers , feedback from customers is used to improve service standards, bank gives individual attention to customers, bank regularly appraises the customers about information on actual service performance, bank gives individual attention to customers and banks employees are consistently courteous; the attributes for Tangibles dimension are: bank has

facilities for good customer service, visually appealing materials are in line with services offered and employees have professional appearance ; Core Service dimension consists of attributes of providing services as promised, convenient operating timings, depth of service, service operations are available in most branches of the bank and bank is high in service innovation; Reliability dimension of bank: bank provides service right the first time, employees have necessary skills for taking action when a problem arises and bank gives good service at a reasonable cost while maintaining quality; and Competence dimension of: bank has branch locations at places convenient to all sections of society, bank makes customers feel safe in their transactions and banks employees instill confidence in customers by proper behavior. The results (Table 4.0) show that the Tangibles dimension is the most important indicator of overall service quality based on its high standardized regression coefficient ($\beta = 0.941$) followed by service delivery ($\beta = 0.891$), competence ($\beta = 0.891$) and reliability ($\beta = 0.876$). The relatively lower β of Core service (0.502) shows that retail banks in India can differentiate their offerings by diverting their resources to tangibles, employee and process related attributes as customers do not place much emphasis on the core service outcomes probably because they do not find them to be very different in various service providers.

Conclusions and Managerial Implications: The study attempted to develop and validate a hierarchical model of service quality for retail banking from Indian consumer's perspective. The study also aimed to compare a first order and second order model of retail banking service quality in order to generate better insight into the structure of the construct. The results showed that both the first order and hierarchical second order model are of excellent fit following some modification based on correlated errors. The second order model is however accepted for further analysis since it has relatively better fit (significantly lower chi square value and better fit indices values) and for reasons of parsimony. The results thus provide support for Brady and Cronin (2001) conceptualization of service quality as a multi level hierarchical model in retail banking services in India. The results show that **service quality is a complex construct which reconciles the two seemingly conflicting perspectives advanced in the literature by Gronroos, (1984) and Parasuraman et al, (1988)**. The dimensions of service delivery and core service outcome provide support for Gronroos's (1982, 1984) seminal idea that service quality is assessed according to customer evaluations of outcomes as well as interactions with service employees. **The three primary dimensions of Tangibles, Reliability and Competence reflect their importance for provision of superior service quality, as suggested by the American school (e.g., Parasuraman, Zeithaml, and Berry 1985, 1988).** **The findings suggest that neither perspective is wrong; each is incomplete without the other (Brady and Cronin 2001).** Thus the study extends our understanding of the nature, content and structure of the service quality dimensions that drive overall service quality evaluation. **The study thus consolidates multiple service quality conceptualizations into a single, comprehensive, multidimensional framework with a strong theoretical base. Second, it answers the call for a new direction in service quality research and may help alleviate the current stalemate regarding the perspective, dimensionality and level to be construed for conceptualization and measurement of the construct.**

The scale developed in this study provides managers of retail banks with a valid and reliable instrument for measuring and improving service quality perceptions of their customers. The model would allow managers to

measure and improve the relevant dimensions of service quality to enhance overall service quality perceptions. The study thus helps managers address following three issues: What defines service quality perceptions; how service quality perceptions are formed and how important are the dimensions of service quality. From a managerial perspective, the information provides them with a framework to enhance customer's service experience and segment the market so that appropriate strategies can be developed to enhance customer retention and customer loyalty **which are critical for firm profitability (Reicheld 1996)**. Further, **the relative performance of the organizational units across the dimensions also can be tracked and the identified variables can be used to compare service levels with competitors' offerings. (Brady and Cronin, 2001)**.

Research Implications:

The results indicate the need to is to investigate the interrelationships between service quality and other service constructs based on its conceptualization of a hierarchical model. The ability to improve understanding of the service quality construct will enhance the understanding of its service encounter related outcomes such as service value, customer satisfaction and behavioral intentions. The scale developed in this study can be used to examine each primary dimension of service quality in greater depth. The literature review suggests that relatively few scholars have empirically analyzed the quality of the customer-employee interaction, the service environment, and the service outcome. Further, research findings indicate that the importance of the dimensions may vary depending on industry characteristics. Futures studies could investigate each construct more fully or even the interactions among the set. Questions remain as to whether customer perceptions of the dimensions influence customer willingness to revisit or offer positive word-of-mouth intentions. Our model can facilitate these and other research efforts.

Study limitations and further research directions:

Since the study has been conducted with a sample of customer's retail banking services with evidence from Indian context, generalization of the findings should be made with care. Secondly common method bias was not tested. Thirdly, the model is based on the 41 attributes identified by Sureshchander at al, 2002 in their study on retail banking in India and an expanded list of attributes could lead to development of a better model. Further studies in varied service and cross cultural context could lead to better understanding of the structure of the service quality construct.

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