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An assessment of SERVQUAL's applicability in Cambodia's banking sector[1]

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1. Introduction

In the globalized world, businesses are facing an increasing competition among firms and countries. This encourages firms to search for competitive advantages through placing more emphasis on the quality of their products—either goods and/or services. Firms also put a particular focus on the strategic importance of satisfaction and loyalty, in the battle for winning consumer preferences and maintaining the sustainable competitive advantages. Firms that achieve high levels of service quality tend to realize high levels of customer satisfaction and sustainable competitive advantage (Guo et al., 2008). Research has shown that high quality service has contributed significantly to firms' profitability. Kwan and Hee (1994) report that a company that provides high customer quality services tends to win customer loyalty and keep customers longer, incur lower marketing costs, and enjoy higher returns on sales and better profits.

When customers are satisfied with a firm, they may help promote its products to other customers via positive word-of-mouth communications and recommendations, which lead to the expansion of customer base for the firm. Satisfied customers are also likely, in a longer term, to be loyal to the firm and potentially make repeated purchases of the firm's products and/or services. Swan and Hee (1994) indicated that the longer a firm could keep its customers, the more money they could make.

Today's service-providing organizations are facing the growing challenges from the increased global competition and more sophisticated customers in terms of their wants and their changing needs, as well as their rising expectations. This forces firms to critically review their service strategies to retain the existing customers and to attract the new ones. However, Swan and Hee (1994) indicated that the costs of acquiring a new customer are far much higher than those of retaining the existing one.

Similar to other service-providing companies, banks that provide superior service quality are likely to be successful in enhancing customer satisfaction, retention and loyalty, providing an opportunity for the banks to increase word-of-mouth recommendations and to enhance bank images (Arasli et al., 2005; Ladhari et al., 2011). Superior service quality is also believed to help promote the development and maintenance of long-term relationships with customers, which are vitally important in an increasingly competitive business environment (Hawke and Heffernan, 2006; Camarero, 2007; Ladhari et al., 2011). Another factor that encourages a special attention to be placed on providing the outstanding service quality is the emergence of sophisticated customers who are better educated, travelling and reading more extensively with the help of modern reading technologies (Swan and Hee, 1994). These may influence their purchasing behaviors and expectations.

Measuring service quality is quite different from measuring quality of a product as service is an experience (Swan and Hee, 1994). Over the past two decades, a great deal of literature has contributed to the measurement of service quality along with the constructs of instruments. The most widely used generic measure of service quality is probably the SERVQUAL model, initially developed by Parasuraman et al. (1985) and later further refined by Parasuraman et al. (1988).

Since its inception, the SERVQUAL model has been widely used in a large variety of service sectors, including banking industry. Recent published studies on banking sector have been carried out for many developing countries, which include, among others, Singapore (Kwan and Lee,1994); Malaysia (Munusamy et al., 2010; Amin and Isa, 2008); South Korea (Chi Cui et al., 2003); China (Lam, 2002; Guo et al., 2008); India (Angur et al., 1999); Kuwait (Othman and Owen, 2001); South Africa (Mels et al., 1997); and Nigeria (Ehigie, 2006).

The above discussions have provided a brief overview of how important service quality is to the success of a service-providing business organization. Of course, general descriptions need to be examined in more detail and vigorously. Research questions thus need to be formally formulated, and vigorous analysis are required to systematically answer the questions before any sound managerial implications can be provided. While some recent studies have been undertaken to examine service quality of banks in developing countries, most of these studies have so far concentrated on service quality in developed countries such as Japan, North American Countries and European banking sectors.

To the best of my knowledge, the current study is a unique one in the sense that it examines the banking sector in a small, open economy of Cambodia for which no or very little research has been carried out to date. This study will shed light on what customers are expecting from banks in terms of their service quality and provide feedback to other service providers within the Cambodian economy. The findings of this study will draw some managerial implications for other small, open, developing economies with similar level of development to Cambodia. While making use of gap analysis to analyze and measure service quality in Cambodia's banking sector, the current study is undertaken to answer the following two main questions: (1) what service quality dimensions affect customer satisfaction in deposit services provided by the banking industry in Cambodia?; and (2) which dimensions of service quality contribute most to overall satisfaction in deposit services of Cambodia's banking industry?

The remaining parts of the paper are organized as follows. Section 2 reviews both theoretical and empirical literature with an emphasis on the relationship between customer satisfaction and service quality. Section 3 briefly describes the developments of Cambodian banking sector. Section 4 describes research approach, data collection methods, sampling methods, data analysis techniques and the research methods. Section 5 carries out empirical data analysis and reports the findings. Section 6 provides managerial implications, and finally Section 7 concludes.

2. Review of related literature

Over the past decades, a number of theories and/or models have been developed in order to explain the critical importance of service quality in the service-providing businesses. Service quality is viewed as a success factor of a firm's endeavors to differentiate itself from its rivals in the competitive market. SERVQUAL model, originally developed by Parasuraman et al. (1985) and further developed eight years later by the same researchers, is perhaps the most widely used, and has undoubtedly had a significant impact on business and research communities (Buttle, 1996). It has been regarded as insightful and remains a practical framework for use in service quality management and measurement (Baumann et al., 2007).

The SERVQUAL initiated by Parasuraman et al. (1985) showcased ten potentially overlapping components. These dimensions include tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding the customer, and access. In their later studies, Parasuraman et al. (1988, 1990) reduced the original ten potentially overlapping dimensions to five testable dimensions. The boiling down from ten to five dimensions was made after rounds of purification by Parasuraman et al. (1988), who anticipated some degree of overlap among their original ten conceptual dimensions initially identified in Parasuraman et al. (1985). After stages of purification, Parasuraman et al. (1988) found that assurance and empathy contain items representing seven original dimensions: communication, credibility, security, competence, courtesy, understanding/knowing customers and access. To put it bluntly, assurance dimension contains items representing communication, credibility, security, competence, courtesy while empathy contains items representing understanding/knowing customers and access.

At final stage, Parasuraman et al. (1988) introduced an instrument for measuring consumers' perception of service quality, which is now better known as SERVQUAL model. The instrument items represent the five widely used dimensions described briefly below:

- *Tangibles*: It refers to physical facilities, appearance of personnel and equipment;
- *Reliability*: It refers to the ability to perform the promised service dependably and accurately;
- *Responsiveness*: It refers to the willingness to help customers and provide prompt service;
- *Assurance*: It refers to the knowledge and courtesy of employees and their ability to convey trust and confidence; and
- *Empathy*: It refers to the provision of caring, and personalized individual attention given to customers.

The SERVQUAL technology, however, suffers from some criticisms on the theoretical and operational grounds, in particular operationalization of expectations, reliability of instruments' difference score formulation and scale's dimensionality across industrial settings (Sureshchandar

et al., 2001; Baumann et al., 2007). In light of these criticisms, Buttle (1996) provides some future research directions; one of which is to continue to investigate the relationships between service quality, customer satisfaction, buying behavior, customer retention, behavioral intention, word-of-mouth communications and market share. Yet, despite SERVQUAL model being criticized, the model's core content remains unchanged and has been used for studies of service-providing business organizations in many countries. SERVQUAL model is also found to be superior in the measurement of service quality in developing economy (Angur et al., 1999). Parasuraman et al. (1990) claim that, with appropriate adaptation of the SERVQUAL model, it can be used by all departments and divisions of the companies to ascertain the quality of service that they provide (Dhurup and Mohamane, 2007). In particular, the elements of the SERVQUAL model have been used to inform the provision of financial services (Guo et al., 2008). Similarly, Nyeck et al. (2002) indicate that SERVQUAL remains the most complete attempt to conceptualize and measure service quality.

Research has shown good service quality leads to the retention of existing customers and the attraction of new ones, the improved customer satisfaction, the enhanced corporate image, positive word-of-mouth recommendation and the enhanced profitability of firms (Cronin et al., 2000). Since the inception of the SERVQUAL technology, a great deal of research has been undertaken to address various aspects of service quality for many countries. In banking sector, Kwan and Hee (1994) carried out for Singapore an investigation into the links between SERVQUAL dimensions and customer satisfaction, and found that all the five dimensions of SERVQUAL are statistically significant at the 1% level, except assurance which is marginally significant at 10%. With respect to the contribution of each dimension to the overall customer satisfaction, the estimated highest standardized coefficient of 0.219 on assurance implies that assurance contributed most to the overall customer satisfaction, followed respectively by the dimensions of empathy, reliability, tangibles and responsiveness.

A similar study was undertaken by Angur et al. (1999) for Indian banking sector, using the SERVQUAL model. They found that the dimensions of reliability and responsiveness appeared to be the most important dimensions, followed by the dimensions of empathy and tangibles. Assurance was found to be the least important dimension. These findings give rise to the support for the multidimensional nature of service quality. Using stepwise regression and a sample of 229 customers picked at banks' service outlets and customers mailed with questionnaires, Lam (2002) shows that assurance, reliability, empathy and responsiveness have exerted a significant, positive impact on overall customer satisfaction in Macau's (China) banking sector. With respect to Malaysia, Munusamy et al. (2010) find that, of the five dimensions, only tangibles dimension is the significant predictor of overall customer satisfaction.

In a more recent study by Ladhari et al. (2011) to determine the dimensions of service quality that make the greatest contribution to overall customer satisfaction in banking sector in Canada and Tunisia, they find for Tunisia that the service dimensions of reliability and responsiveness

are the most important predictors of customer satisfaction. For Canadian banking sector, empathy and reliability dimensions are found to be the most important predictors of overall customer satisfaction.

3. The Cambodian banking sector

Cambodia enjoyed nearly two decades of peace and prosperity after it gained its independence from France in 1953 (Kem, 2001). The Cambodian economy was on a par with those of its neighbors in the Southeast Asia during the 1960s. However, the prosperous time came to a complete halt, due largely to coup in 1970, the ensuing internal conflicts and the genocidal Khmer Rouge regime during 1975-1979, which caused enormous destructions, not only to the country's infrastructure, educational institutions, financial system, but even more importantly to the human capital (Soeng, 2009). Banks were demolished, which resulted in the complete destruction of the market economy and trade (Kem, 2001).

After the signing of the Paris Peace Accord in 1991 and the arrivals of the United Nations Transitional Authority (UNTAC), Cambodia finally held its first democratic general elections in 1993 (with more than 20 participating political parties). The 1993 elections resulted in the formation of a legitimate coalition government and in the country's further regaining recognition and confidence from the international community and investors. During the transitional period, domestic banking system and economic and financial sector reforms towards market-based economy were undertaken (Kem, 2001). In addition to attracting investors into real sector of the economy, private banks have also been welcome to Cambodia.

Established in 1954, National Bank of Cambodia (NBC), the national monetary authority, serves as the regulatory body to oversee the practices of all banks operating in Cambodia. NBC has the authority to issue licenses, revoke licenses, regulate and supervise banks and financial institutions and other relevant financial establishments in operations in Cambodia (NBC, 2002). It has provincial branches in 21 provinces and cities.

Since the opening up of its economy to the rest of the world, commercial banks, specialized banks and non-bank financial institutions have grown remarkably. As of December 2011, Cambodia was attracted to 31 commercial banks, of which 22 are domestically incorporated and nine banks are foreign owned (NBC, 2011). Commercial banks' activities fall into three main categories: (i) Credit operations for a valuable consideration, including leasing, guarantees and commitments; (ii) Collection of non-earmarked deposits from the public; and (iii) Provisions of means of payments to customers and the processing of the said means of payment in national currency or foreign exchange.

In addition to commercial banks, Cambodia is also attractive to six specialized banks and thirty-one microfinance institutions (MFIs) as of September 2011 (NBC, 2011). Specialized banks,

which can be upgraded to commercial banks, under Law on Banking and Financial Institutions, are allowed to carry out only one of the three aforementioned basic activities. As for microfinance institutions, MFIs are authorized to deliver financial services, such as deposits and loans to poor and low-income households as well as to micro-enterprises.

The positive financial sector developments in the Cambodian banking sector are good news for both customers and investors alike. However, these services are often associated with risks that need to be closely monitored and addressed in order to safeguard deposits and the system as a whole. Preconditions for banking development in particular, and financial development and economic growth in general, comprise four elements, which include an effective governance; property rights and their protection; enforcement of contracts and resolution of commercial disputes; and human capital development. The challenges ahead for the country's banking sector may include improving profitability, rising non-performance loan, reinforcing technology, legal framework and risk management, human resources, greater customer orientation, corporate governance, and international standard.

The Cambodian banking market has also faced with a stronger competition after the country further liberalized the sector to foreign competitors. It is expected that the increased presence of foreign banks will put a competitive pressure on domestic banks to search for competitive advantages to remain in the market. In comparison to foreign counterparts, domestic banks often suffer from the issues of capital adequacy and modern technology, and lack, among others, high quality service, which is a key to success of service-providing business organizations. Therefore, quality service remains one of the important factors for the Cambodia's banks to be competitive in the banking sector, which is widely open to foreign competition.

4. Research methodology

4.1 Data collection

This study adapted and used the SERVQUAL instrument, developed by Parasuraman et al. (1988). Relevant information about customer satisfaction, perceptions, expectations and socio-demographics in banking sector is obtained by means of a survey conducted to collect a sample containing the needed information for the analysis. A survey questionnaire is designed and distributed randomly to target respondents, who are at the legal age to hold fixed accounts, savings and/or current accounts in banks in different branches located inside and outside the capital city of Phnom Penh. In order to receive the most accurate responses possible, the questionnaires were translated into Khmer, the official language of Cambodia.

The questionnaire is classified into four major parts. The first part of the questionnaire contains respondents' perceived performance of their banks. In the second part, questions were asked to

obtain respondents' expectation of their banks. The third part captures the information related to overall satisfaction. Respondents were asked to respond to each item on the widely used seven-point Likert-type scale. The fourth part of the questionnaire is used to get the information on the demographic information of the respondents.

Roscoe (1975) suggests a series of general rules in determining the acceptable sample size for research, and proposes that for any research intending to conduct a multiple regression analysis, a sample size should be 10 times as large as that of the number of variables. In order to produce the best estimates possible, the collection of a reasonably large data set has to be made from the population. To this end, almost 1,400 questionnaires were distributed to customers who once used to have been using deposit services provided by banks in Cambodia. The rate of the responses was about 51%. Following cleaning process of the data, a sample of 700 respondents is considered usable for the analysis. Data collection work took approximately three months, starting from October 2011 to December 2011.

4.2 Analytical Techniques

All data collected are fed into statistical packages, in particular the Statistical Package for the Social Sciences (SPSS 16) and/or STATA 11 for analysis. The statistical analysis of data includes descriptive statistics, gap analysis and multiple regression analysis and other necessary testing to obtain the best possible results. To avoid reporting misleading results from the estimation of the regression model, several diagnostic tests are needed. Reliability check is to be carried out in order to assess the degree to which data collection method will yield consistent findings; similar observations would be made or similar conclusions reached by other researchers. In order to test the reliability of the instrument used, the reliability coefficient Cronbach's alpha is used. It is generally agreed that Cronbach's Alpha should exceed 0.70 to be reliable (Hair et al., 2010).

Other statistical diagnostic tests will also be used. These tests include multicollinearity checks, heteroskedasticity test and model specification test, known as Ramsey (1969)'s RESET test. More detailed descriptions of why these tests are necessary are made in Section 5 in which model estimation is made and the results are reported.

4.3 Measures of Key Variables

- *Measures of Customer Satisfaction:* The measures of customer satisfaction consist of responses to a single question on the customer-satisfaction questionnaires. For instance, "overall, how satisfied are you with the bank?" Responses for all satisfaction questions were made on seven-point Likert-type scale, labeled "7 extremely satisfied" and "1 extremely dissatisfied" at each extreme.
- *Measures of Tangibles:* Tangibles consist of appearance of equipment, personnel, and physical facilities related to the service. It is measured, using seven items. For instance,

"Bank's physical facilities are visually appealing". Respondents were asked to respond to each item on a seven-point Likert-type scale.

- *Measures of Reliability:* Reliability comprises the ability to perform the promised service accurately and dependably. It is measured using six items. For example, "When bank promises to do something, it exactly does so". Respondents were asked to respond to each item on a seven-point Likert-type scale.
- *Measures of Responsiveness:* Responsiveness includes banks' willingness to help customers and provide prompt service. It is measured using four items. For example, "Employees of bank are always willing and ready to help me". Respondents were asked to respond to each item on a seven-point Likert-type scale.
- *Measures of Assurance:* Assurance includes courteous and knowledgeable employees who can inspire confidence and trust. It is measured using three items. For instance, "Employees of bank are consistently courteous with me". Respondents were asked to respond to each item on a seven-point Likert-type scale.
- *Measures of Empathy:* Empathy contains personalized attention and care. It is measured using six items. For instance, "Employees of bank understand my specific needs". Respondents were asked to respond to each item on a seven-point Likert-type scale.

5. Results

5.1 Basic Statistics

Before presenting the estimation results, it may be useful to present the demographics of the respondents included in the survey instrument. Table 1 presents characteristics of respondents. Classified the collected data into age groups, it is found that majority of bank deposit services users aged 20-40, accounting for more than 77 percent of the total. It is also found that, of the 700 respondents, the sample consists of more males (59.1%) than females (40.9%), and 30% of respondents is in private sector. With respect to income, more than 29% of customers has a monthly gross income between US$ 200 and US$ 400; 41.6% earning an income between more than US$400 and US$ 1,000 and about 24% earning a gross income between more than US$ 1,000 and US$ 2,000. With respect to level of education, the respondents assessing the service quality of commercial banks included those with bachelor's degree (39.7%), followed by diploma holders (24.7%) and others (35.6%).

The sample also reveals that 29.6% of the respondents are business people, followed by proprietors (24.7%); the self-employed (22.1%); students (15.3%); and professors, teachers, and researchers (12.7%). Moreover, with respect to banks' preferences, the majority of the respondents seem to prefer depositing their money in ACLEDA Bank, and ANZ Royal Bank. This may be due to their beliefs that these banks are relatively larger than others, thus pointing to lower risks of using these banks' services. Bank customers appear to prefer to have a savings account to a checking account.

Table 1: Characteristic of the Respondents

Respondents' Characteristics	Frequency	Percentage
Age		
Under 20	45	6.4
20-25	125	17.9
26-30	146	20.9
31-35	133	19.0
36-40	91	13.0
41-45	63	9.0
46-50	62	8.9
Over 50	35	5.0
Gender		
Male	414	59.1
Female	286	40.9
Occupation		
Professional	51	7.3
Manager/Administrator	77	11.0
Professor/Teacher/Researcher	89	12.7
Proprietor	173	24.7
Self-employed	155	22.1
Student	107	15.3
Technician/Engineer	37	5.3
Private businesspeople	207	29.6
Factory worker	35	5.0
Others	72	10.3
Income		
Under $200	31	4.4
$200 - $400	205	29.3
$401 - $600	111	15.9
$601 - $800	82	11.7
$801 - $1000	97	13.9
$1001 - $1200	61	8.7
$1201 - $1400	44	6.3
$1401 - $1600	33	4.7
$1601 - $1800	22	3.1
$1801 - $2000	8	1.1
Over $2000	5	.7
Education level		
Under diploma	58	8.3
Diploma	173	24.7
Technician	99	14.1
Bachelor	278	39.7
Master	70	10.0
PhD/DBA/Higher Degrees	22	3.1
Type of Commercial Banks Deposited		
ACLEDA	416	59.4
ANZ	186	26.6
Vattanac	70	10.0
Maruhan	72	10.3
FTB	62	8.9
Mekong	46	6.6
Canadia	103	14.7
ABA	108	15.4
Others	42	6.0
Type of Accounts Deposited		
Savings Account	457	65.3
Current Account	96	13.7
Fixed Account	135	19.3
Others	30	4.3

Table 2 presents reliability statistics for all individual variables of interest. Items are grouped into the item-dimension correlations of both perceived service items for each of the five original dimensions and overall customer satisfaction. These alpha values for overall instrument are high, with the reliability coefficients for the five original dimensions exceeding the 0.7 cut off recommended by Hair et al. (2010). So, all items (items of both dependent and independent variables) are reliable because their Cronbach's Alpha is much larger than the threshold of 0.7. As can be also seen from Table 2, Cronbach's Alpha estimated for tangibles scale was 0.916; reliability scale was 0.939; responsiveness scale was 0.919; assurance scale was 0.910; empathy scale was 0.935, and overall customer satisfaction scale was 0.881. As the Cronbach's Alpha in this study was all much higher than 0.7, the constructs were therefore deemed to have an adequate reliability (Hair et al., 2010). Based on estimated reliability coefficients, it is apparent that the SERVQUAL scale is a highly reliable instrument.

Table 2: Reliability Checks for Individual Variable

SERVQUAL Dimensions	Case			Reliability Statistics	
	No. Obs.	Total	%	Cronbach's Alpha	No. of Items
Tangibles	700	700	100	0.92	7
Reliability	700	700	100	0.94	6
Responsiveness	700	700	100	0.92	4
Assurance	700	700	100	0.91	3
Empathy	700	700	100	0.94	6
Overall customer satisfaction	700	700	100	0.88	4

Table 3 reports the average SERVQUAL's each attribute score. Raw scores for the perceived level of excellence and for the expected level of excellence are on the seven-point scale for the service attributes, which are considered to be important to the respondents. For each of the attributes, the perceived performance and expectation scores are calculated. The difference is the gap scores, which measure service quality. As can be seen from the Table 3, the SERVQUAL scores for all items bear the negative signs, indicating that bank customers' expectations are greater than the perceived performance of banks across all attributes of the dimensions.

Table 3: Average SERVQUAL Scores of Clients in Cambodia

Dimension items		Perception	Expectation	SERVQUAL score
Tangibles	modern and comfortable furniture	5.26	5.48	-0.22
	appealing facilities	5.34	5.55	-0.21
	convenient and many locations	5.47	5.72	-0.25
	large parking lots	4.91	5.52	-0.61
	neat and professional appearance of staff	5.61	5.77	-0.16
	visually appealing brochures, pamphlets, etc.	5.06	5.42	-0.36
	image of the bank	5.19	5.42	-0.23
Reliability	Sincere interest in solving customers' problem	5.38	5.72	-0.34
	They provide their service at the time they promise to do so	5.54	5.86	-0.32
	They are knowledgeable about bank area to answer my questions	5.60	5.86	-0.26
	They are well-trained and experienced.	5.64	5.79	-0.15
	They have good communication skills	5.61	5.82	-0.21
	Accurate information about bank service	5.75	6.07	-0.32
Responsiveness	Bank staff tell customers exactly when services will be performed	5.60	5.89	-0.29
	Bank staff are ready to provide service	5.60	5.86	-0.26
	Prompt responses from bank staff	5.35	5.69	-0.34
	Staff willingness to help	5.51	5.86	-0.35
Assurance	They are friendly	5.52	5.86	-0.34
	They are consistently courteous with you	5.45	5.79	-0.34
	Customers feel safe in their transactions	5.57	5.96	-0.39
Empathy	They give special attention to the customers	5.45	5.84	-0.39
	They understand the customers' needs	5.34	5.71	-0.37
	They listen carefully to customers' complaints	5.39	5.79	-0.40
	They are willing to handle special requests	5.46	5.80	-0.34
	Customers' best interest at heart	5.80	6.10	-0.30
	Long-term security and sustainable	5.91	6.22	-0.31

Attributes of the dimensions are grouped into the five service quality dimensions, which are presented in Table 4. Similar to the above, the average expectation score (E) and the perceived performance score (P) are obtained. Based on Table 4, the difference between P and E for

each of the dimensions is highly significant at the 1% level, confirming that bank customers' expectations for each of the service dimensions are greater than the perceived performance. It should be noted that perceived performance scores in Tables 3 and 4 are on average greater than 5, which is above the mid-point on the seven-point scale. This clearly indicates that banks' customers generally rated banks' performance in terms of service quality very favorably although it remains below expectations of banks' customers.

Table 4: Overall Mean Service Quality Scores

Variable	Perception (P)	Expectation (E)	Service Quality (SQ = P-E)
Tangibles	5.26	5.55	-0.29***
Reliability	5.59	5.85	-0.26***
Responsiveness	5.51	5.83	-0.32***
Assurance	5.52	5.87	-0.35***
Empathy	5.56	5.91	-0.35***
Overall	5.49	5.80	-0.31***

Notes: *** denotes significance difference between P and E at the 1% significance level

The results reported in Table 4 can be summarized as follows. First, bank customers' expectation is the highest for the dimension of empathy, which suggests that giving good caring and individual personalized attention to banks' customers are the most important dimension that customers expect from their banks. The second is that widest gap score between expectations and perceived performance in the tangibles dimension, indicating that banks in Cambodia do not appear to pay much attention to the physical elements of their banks. Third, reliability dimension has the smallest gap score among the five dimensions under consideration, implying that service quality is rated the highest. These findings, however, have to be checked against more rigorous examinations, such as the use of multivariate analysis, which incorporates all the attributes that may affect customer satisfaction derived from service quality provided by their most used banks.

5.2 The Empirical Model

Based on the literature review presented in Section 2 above, SERVQUAL dimensions, in particular tangibles, reliability, responsiveness, assurance, and empathy, have been widely used in order to investigate the relationship between these dimensions and customer satisfaction in services-providing business organizations. Following the previous theoretical and empirical literature, the following model is used to examine the service quality dimensions that may affect the overall customer satisfaction in deposit services provided by Cambodia's banking sector:

$$OCS = \beta_0 + \beta_1 Tangibles + \beta_2 Reliabilit\,y + \beta_3 Responsiveness + \beta_4 Assurance + \beta_5 Empathy + \varepsilon$$

where OCS denotes overall customer satisfaction, and ε is error term, which is assumed to be normally distributed.

The data set used for the analysis is from a sample of 700 deposit service users of banks in Cambodia. The data set contains detailed information on the explanatory variables--tangibles, reliability, responsiveness, assurance, and empathy--which are included in the model presented above. Since data set used is cross-sectional data, heteroskedasticity is often present in such a data set. Therefore, the OLS estimator is no longer the best linear unbiased estimator and the t-statistic is not t-distributed. Likewise, F-statistic is no longer F-distributed. Before presenting econometric results, we carry out several tests, such as those for multicollinearity, based on variance inflation factor (VIF), heteroskedasticity and Ramsey's regression specification error (RESET) for functional form misspecification.

There are a number of competing tests for heteroskedasticity (Wooldridge, 2006). The first one is the Breusch and Pagan (1979) test for heteroskedasticity (Verbeek, 2004; Wooldridge, 2006), which is shown to be equal to $LM = n.R^2_{\hat{u}^2}$, where $R^2_{\hat{u}^2}$ is obtained by regressing the OLS squared residuals on all k dependent variables, and n being the sample size. Under the null hypothesis of homoskedasticity, the LM statistic is asymptotically χ^2 distributed with k degrees of freedom. The second test is known as the general White test for heteroskedasticity and is based on an estimation of the OLS squared residuals on all independent variables, squares of independent variables, and all their cross products. The general White test consists of the LM statistic for testing all the coefficients in the squared residual estimation on all independent variables, their squares and cross products, being zero, except for the intercept. However, the general White test clearly suffers from a weakness in the pure form of the test because it employs many degrees of freedom (Soeng, 2008).

In order to save degrees of freedom, Wooldridge (2006) proposes the special White test for heteroskedasticity, which incorporates the Breusch-Pagan and the general White tests. The special White test suggests testing for heteroskedasticity by estimating the OLS squared residuals on fitted values and squared fitted values. Under the null hypothesis, the LM statistic for the special White test is χ^2 distributed with 2 degrees of freedom, regardless of the number of independent variables in the model. This is why the special White test for heteroskedasticity is to be preferred (Soeng, 2008). Soeng (2008) also indicates that a multiple regression model may suffer from functional form misspecification when it does not or insufficiently account for the relationship between the dependent and independent variables. Important or relevant variables may be excluded from the regression equation or the model, when a non-linear model is estimated as a linear model. Such misspecification will be detected by using the RESET test (*F* statistic), which is based on Ramsey (1969). Under the null hypothesis that the model is correctly specified, the *F* statistic distribution is approximately $F_{3,n-k-4}$ in large samples. Rejection of RESET implies that the model under consideration is misspecified.

Table 5: Multicollinearity Checks

Variable	Collinearity Statistics	
	Tolerance	VIF
Tangibles	0.426	2.350
Reliability	0.221	4.524
Responsiveness	0.235	4.247
Assurance	0.259	3.861
Empathy	0.208	4.802

Table 5 provides multicollinearity checks, which are based on variance inflation factor (VIF). The VIF has been shown to be equal to $1/(1-R_i^2)$, where R_i^2 is obtained from the multiple correlation coefficient of an explanatory variable X_i regressed on the remaining explanatory variables. Evidently, a higher VIF_i indicates R_i^2 to be near unity and therefore points to collinearity. In order to obtain a stable estimated slope parameters, VIF should be less than five (Studenmund, 2006). As can be seen from Table 5, VIF for all explanatory variables is much less than 5, confirming the absence of harmful multcollinearity. Therefore, estimated coefficients of the explanatory variables are considered to be stable.

To avoid reporting misleading results, two additional tests such as heteroskedasticity test and RESET test were also performed. If there is the presence of heteroskedasticity, a regression with heteroskedasticity-corrected standard error should be applied for relevant tests to be valid.

Table 6: Estimation Results with Usual Standard Errors

Variable	Coefficients	Std. Error	t-statistics	P-value
Constant	0.379	0.126	3.020	0.003
Tangibles	0.115	0.031	3.681	0.000
Reliability	0.153	0.044	3.473	0.001
Responsiveness	0.170	0.041	4.140	0.000
Assurance	0.126	0.036	3.523	0.000
Empathy	0.380	0.043	8.752	0.000
No. Obs.	700			

Table 7: Estimation Results with Heteroskedasticity-Corrected Standard Errors

Variable	Coefficients	Robust Std. Error	t-statistics	P-value
Constant	0.379	0.120	3.16	0.002
Tangibles	0.115	0.034	3.39	0.001
Reliability	0.153	0.049	3.10	0.002
Responsiveness	0.170	0.046	3.68	0.000
Assurance	0.126	0.040	3.16	0.002
Empathy	0.380	0.053	7.16	0.000
No. Obs.	700			
Ramsey RESET statistic	0.45 (P-value =0.72)			
General White Test Statistic	14.85*** (P-value=0.0006)			

For the sake of comparison, Tables 6 and 7 present the estimation results with usual standard error and with heteroskedasticity-corrected standard error. Overall customer satisfaction is regressed on the five dimensions of service quality--tangibles, reliability, responsiveness, assurance and empathy. As discussed above, since heteroskedasticity often arise in cross-sectional data set, test for heteroskedasticity was carried out in order for relevant statistical tests to be valid. It is found that the special case of White test statistic of 14.85 with p-value of 0.0006 is highly significant at less than the 1% significance level, pointing to a clear evidence of heteroskedasticity presence in the data set. To confirm this, BP test was also carried out. The significant BP statistic of 12.28 with p-value of 0.0311 is significant at the 5% level, confirming the presence of heteroskedasticity. Ramsey's RESET test was also undertaken. RESET statistic (F-value) of 0.45 with p-value of 0.7161 is statistically insignificant at any conventional significance levels. This suggests that the model does not suffer from functional form misspecification.

Interestingly, all the included explanatory variables have the expected positive signs, while the model fits the data set quite well as shown by the high value of R^2 of 0.734, which implies that about 73.40 % of the variation in the overall customer satisfaction is explained by tangibles, reliability, responsiveness, assurance and empathy. Moreover, the value of F-statistic of 382.53 is highly statistically significant at less than the 1% significance level.

Coefficient of 0.38 on empathy dimension is highly significant at the 1% significance level, indicating that empathy has indeed positively affected on overall bank customer satisfaction. It means that a unit change in the response rate of commercial banks in Cambodia for empathy item, *ceteris paribus*, leads to an estimated change in their overall satisfaction of about 0.38. Similarly, responsiveness is also highly significant at less than 1%. The estimated coefficient of about 0.17, implies that, holding other factors fixed, a unit change in the response rate of commercial banks for responsiveness leads to a positive change in their overall satisfaction of about 0.17.

The coefficients on the other three explanatory variables—reliability, tangibles and assurance are also highly statistically different from zero at the 1% level, suggesting the evidence that these three variables have generated a positive impact on the overall customer satisfaction in deposits services of Cambodia's banks. The coefficients on reliability of 0.153, on tangibles of 0.115 and on assurance of 0.126 imply that for every unit change in the response rate of commercial banks for responsiveness, reliability and assurance, holding other factors constant, lead to a positive change in their overall satisfaction of 0.153, 0.115 and 0.126, respectively.

To identify which dimensions of service quality contribute most significantly to the overall customer satisfaction, a regression using z-scores is run to obtain standardized coefficients or beta coefficients. The use of a regression with standardized coefficients has an advantage over that with the unstandardized or OLS coefficients in that, in the former, the included explanatory variables are put on an equal footing as it makes the scale of regressors irrelevant (Wooldridge, 2006). Therefore, explanatory variables with higher standardized coefficients contribute more significantly to the dependent variable. In contrast, in the standard OLS equation it is impossible to simply look at the magnitude of different coefficients and conclude that the explanatory variable with the largest coefficient is the most important as the sizes of OLS coefficients can be changed at will by changing the units of measurement of the explanatory variables (Wooldridge, 2006).

Table 8: Estimation Results with Standardized Coefficients

Variable	Standardized Coefficients	Robust Std. Error	t-statistics	P-value
Tangibles	0.111	0.034	3.39	0.001
Reliability	0.145	0.049	3.10	0.002
Responsiveness	0.167	0.046	3.68	0.000
Assurance	0.135	0.040	3.16	0.002
Empathy	0.376	0.053	7.16	0.000
No. Obs	700			
Ramsey RESET statistic	0.45 (P-value=0.72)			
General White Test Statistic	14.85*** (P-value=0.0006)			

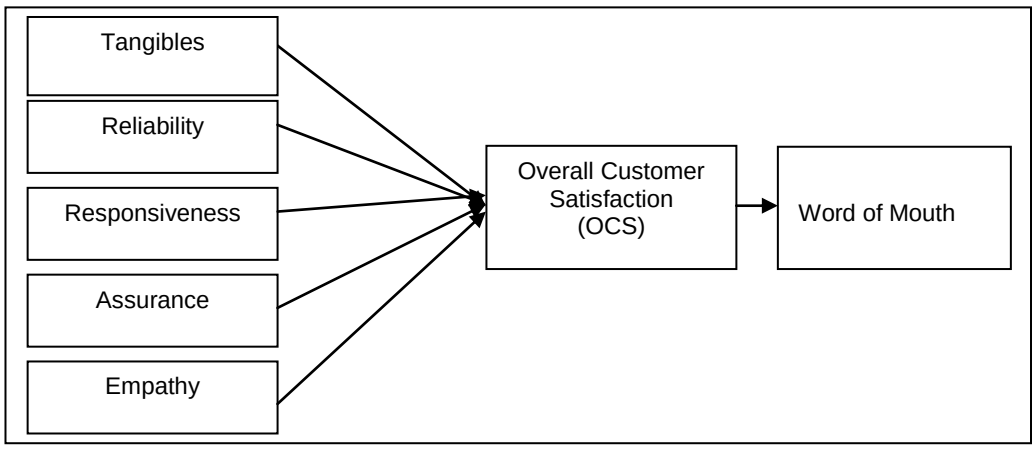
Referring to Table 8, all the five dimensions included as the explanatory variables have a significant, positive effect on the overall customer satisfaction, which is in line with Kwan and Hee (1994). The highest estimated standardized coefficient on empathy dimension of 0.376 implies that the dimension makes the greatest contribution to satisfaction, followed by the service quality dimensions of responsiveness (0.167), reliability (0.145), assurance (0.135) and tangibles (0.111). This result is in line with Ladhari et al. (2011) who found that empathy was the most important predictor of overall satisfaction in Canadian banking industry.

6. Managerial Implications

The results of the current study, using gap analysis, suggest that bank customers' expectations for each service dimension are greater than the perceived service performance of their mostly used banks. This suggests that banks should make more efforts to improve their services as customers seem to have rising expectations, due to an increased pace of dissemination of information, their extensive reading and travelling. As consumers become richer and more knowledgeable, they are likely to be more demanding about the service they received. Banks should also closely monitor customer expectations through carrying out customer surveys, interviews with customers and research.

To determine the relative importance of service quality dimensions in explaining overall customers' satisfaction, multiple regression analysis was performed. The findings present a number of managerial implications and recommendations for practitioners in either banking sector or in other services-providing businesses, while it also contributes to the established model of SERVQUAL with applications to Cambodia (Figure 1). A model for operations for Cambodia can also be gleaned from findings of this study. It is evident that the overall customer satisfaction depends on the five service dimensions of tangibles, reliability, responsiveness, assurance and empathy. Therefore, encouraging in publication of the information by the banks is also expected to contribute to an effective decision making of marketing managers about the way of delivery service to meet customers' needs.

Figure 1: Effects of SERVQUAL dimensions on customer satisfaction and word-of-month recommendations



Bank managers in Cambodia may also find the findings of this study useful, particularly in identifying the service quality dimensions that help promote customer satisfaction in their respective banks. Based on the findings, empathy dimension seems to be the most important service dimension for predicting satisfaction among customers in Cambodia. This result emphasizes the importance of empathy dimension, which is consistent with the findings of Kwan and Hee (1994) for Singapore, and Amin and Isa (2008), who report that empathy dimension is

the most important dimension of service quality in Malaysian Islamic banks. It should be noted that empathy (personalized attention and care) and responsiveness (willingness to help customers and provide prompt service) are found to be the most important dimensions for predicting customer satisfaction. Therefore, Cambodia's banks could realize a competitive advantage by emphasizing empathy dimension which include paying special attention to customers; understanding the customers' needs and requirements; listening carefully to customer's complaints; being willing to handle special requests with bank's clients; having customers' best interest at heart. Banks' managers should also place an emphasis on the other dimensions, namely tangibles, reliability, responsiveness, and assurance as these are also found to have a significant, positive impact on customer satisfaction.

The results of the current study also show that Cambodian customers prefer human/personal interactions when dealing with banks. In addition, these findings suggest that bank managers should implement customer-oriented strategies. Frontline employees should be motivated and appropriately trained to understand customers' needs, provide personalized services and individual attention, and demonstrate caring behavior in all of their interpersonal dealings with customers.

Moreover, bank managers should also emphasize the responsiveness and reliability dimensions of service quality, which are the significant predictors of satisfaction among Cambodian customers. Since responsiveness dimension refers to the willingness to help customers and provide prompt responses from bank staff, frontline employees should be appropriately trained to give such prompt services, show great care and interest in helping customers and respond responsibly to client's requests. Bank employees should not ignore customers' questions although they are very busy. Banks should keep their promises to customers, show sincere interest in solving customers' problems, and employ staff who are well-trained with experiences and possess good communication skills so that they could perform the service efficiently and give reliable information about bank services to customers.

The service quality dimensions of assurance and tangibles are also important for bank customers, and they are also the significant predictors for overall customer satisfactions. Bank staff should always show friendly attitudes towards their customers, consistent courtesy with customers, and encouragement of bank customers to feel safe in transactions in banks. Attention should also be paid with respect to availability of modern and comfortable furniture, appealing facilities, convenient bank location, neat and professional appearance of staff, visually appealing brochures, pamphlets, etc., and image of the banks.

7. Concluding Remarks

This study started out with a detailed description of service quality dimensions of SERVQUAL model and addressed the research questions with respect to service dimensions that may

influence customer satisfaction in Cambodia's banking sector. It also seeks to identify the dimensions that contribute most significantly to overall customer satisfaction.

The main purpose of the study is to identify the relationship between SERVQUAL dimension and the overall satisfaction of customers who once used or have deposited their money in commercial banks in Cambodia. This study investigates how to develop and improve service quality through customer satisfaction. Also, the study is carried to help the bank management make an informed decision as to what helps explain customer satisfaction in their respective banks.

In order to measure service quality of banks, gap analysis is undertaken to compare bank customers' expectations with the perceived performance. The difference is the measurement of service quality, and t-test was performed to determine the statistical, significant difference between the two. The results suggest that giving good caring and individual personalized attention to banks' customers is very important dimension that customers expect of the banks, and that banks in Cambodia do not appear to pay much attention to the physical elements, which include the appearance of equipment, physical facilities and personnel.

To examine the determining service quality dimensions of overall customer satisfaction, an econometric model was built, based largely on the theoretical and empirical literature. In order to provide the best possible results, several important statistical tests such as multicollinearity checks, tests for heterskedasticity, and specification test based on Ramsey (1969)'s RESET test, were carried out in order to choose the best regression model and in order for other relevant tests to be valid.

Using own surveyed data from 700 individual users of banks' deposits services, the estimation results show that tangibles, empathy, responsiveness, reliability, and assurance have generated a positive impact on overall customer satisfaction of deposit services provided in the Cambodia's banking industry. The findings signify the applicability of the SERVQUAL model to the banking industry in Cambodia. To identify which dimensions of service quality contribute most significantly to the overall customer satisfaction, a regression using z-scores is run to obtain standardized coefficients or beta coefficients. The results show that all the five dimensions of service quality suggest a significant, positive effect on the overall customer satisfaction.

Although this study provides contributions from both theoretical and practical perspective for Cambodia, there are a few limitations. First, this research was conducted in Phnom Penh city and some selected provinces of Siem Reap, Sihanoukville, Kandal, Battambang, Kampong Cham in Cambodia. People's beliefs and attitudes about service quality might be significantly different across different demographics and geographic regions in Cambodia. Furthermore, the sample respondents were limited to bank customers who have had experience in using deposit

services. Therefore, further research may be devoted to focus on other banks' services or on services provided by other non-financial businesses. Second, this study identified and empirically examined five service dimensions that may have an influence on bank customers' satisfaction. However, there may be additional factors that may also exert an impact on overall customer satisfaction in other service-providing businesses. Further empirical research may be needed to identify these factors in other non-financial businesses. At the national level, similar study could be replicated in other service sectors in Cambodia, such as health, insurance, higher education, travel, etc. Similarly, replication studies can be conducted in the banking sectors of other ASEAN countries.

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