

Service Quality, Customer Satisfaction and Customer Loyalty in Mongolian Banks: An Application of Reflective-Formative Measurement Model for Service Quality

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Abstract

Though many studies have explored the relationships among service quality (SQ), customer satisfaction (CS), and customer loyalty (CL), few studies exploring them in the banking industry in Mongolia, a context can be characterized as an infant service industry and different from the context applied in other research. This study tried to have an empirical test on the relationships of the above three constructs with the data from Mongolia and formed SQ as a reflective-formative second-order construct to keep SQ as an overall abstraction of the complete five dimensions that should be contained in the SERVQUAL model. PLS-SEM was applied to analyze the data of 250 respondents from three major commercial banks in Ulaanbaatar, Mongolia. The results confirmed the positive impact of SQ. Then the mediating function of CS is also supported. Finally, the results of IPMA of CL revealed the higher effects but lower performances from empathy and responsiveness. Consequently, this study extends the knowledge of service management to an infant service market like the banking industry in Mongolia.

Keywords: Mongolian banking industry, CS, SQ, SERVQUAL

1. INTRODUCTION

Service (SQ) will affect customer satisfaction (CS) and customer loyalty (CL) (Caruana, 2002) thus makes itself a key

success factor for a company to be successful. Caruana (2002) is the first research to confirm the mediation role of CS in the relationship between SQ and CL and there are also many studies have explored the relationships among them (e.g. Siddiqi, 2011;



Ngo and Nguyen, 2016; Gong and Yi, 2018; Arora and Narula, 2018; Yadav and Rai, 2019), but few studies are exploring these relationships in the banking industry in Mongolia, a context that can be characterized as an infant service industry (Purevjav and Kim, 2013) and different from the context applied by Caruana (2002) and the other studies.

After the collapse of the communist regime in early 1990, Mongolia had shifted to be a multi-party democracy and pursue a market-oriented economy. Before 1991, no western-style commercial or central banking system existed in Mongolia. The State Bank was the only bank in Mongolia. In October 1990, the Mongolian Government, in line with free-market economic reforms, dissolved the State Bank. In 1991, Mongolia enacted a new banking law to create a western-style banking system. The law re-organized the banking system into a two-tier structure. The Bank of Mongolia, or Mongol Bank, acts as the central bank, implementing monetary policy. Other private and public banks provide commercial services (Export.gov, 2017).

Over the past decades, the private and public banks that provide the commercial services in Mongolia started to compete with each other with increasing savings rates, decreasing loan rates, diversifying services and adopting new technologies like internet banking. Competition among a large number of banks, non-bank financial institutions, and credit unions have forced Mongolian banks seeking improvements to rebuild their competitiveness (Euromoney, 2014). To respond to the competition three top retail banks in Mongolia: Xac Bank, Khan Bank, and State Bank have not only expanded banking services to the marginalized consumers in remote rural areas since 2014 but also the nomadic herders in the remote districts (Euromoney, 2014). Purevjav and Kim (2013) indicated that Mongolia belongs to an infant market and its banking system is characterized by monopolistic competition after the two-tiered banking system was established in 1991.

Since the banking industry in Mongolia has started shifting to the market competition from the communist economy and the Mongolian banks competed with each other so much for the past two decades it is worth to take the perspective of consumers to test the significance of the relationships among SQ, CS, and CL in this context to supplement the generalization of the findings from Caruana (2002) and explore which dimensions need more improvements to help the managers in Mongolian banks to adapt to the challenges.

This study applied a reflective-formative model to measure SQ with the benefit that five dimensions contained in the SERVQUAL model can be considered simultaneously. PLS-SEM was applied and the 250 samples are collected from three major commercial banks in Ulaanbaatar, Mongolia. Finally, the managerial implication based on the IPMA of CL will be discussed.

2. LITERATURE REVIEW

2.1 Service quality (SQ)

The gap for a customer to perceive what they can expect to get and what they really get is usually applied to define the quality of service from that customer (Parasuraman, Zeithaml, and Berry, 1988). Additionally, Lewis and Bernard (1983), Grönroos (1988) and Caruana (2002) also support this kind of gap-based perspective.

For the operationalization of SQ, Parasuraman et al. (1988) proposed the SERVQUAL model as the measurement of SQ perceived by the customers. Their model contains five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Angur, Natarajan, and Jahera (1999) suggested that a multidimensional characteristic was contained in SQ thus cause varying importance for these five dimensions in the developing countries.

Though the SERVQUAL model gets its popularity there are still researchers show their doubts. Cronin and Taylor (1992) recommended eliminating the component of expectation because the performance component can adequately capture the concept of perceived SQ. They proposed SERVPERF scale based on the component of performance to substitute the SERVQUAL scale originated from the performance-expectation gap. Besides theoretical arguments, their research also empirically tested the validity of the measurement of SERVPERF and found out that SERVPERF has a more convergent and discriminant validity across four industries. Moreover, some other research such as Angur et al. (1999), Brady, Cronin, and Brand (2002) and Jain and Gupta (2004) also suggested the superiority of SERVPERF in measuring SQ. Hence, the SERVPERF will be applied in this study.

2.2 Customer Satisfaction (CS)

Following the indication from Kotler and Armstrong (2010),



CS can hold a definition as a kind of feedback to the evaluation of the actual performance against the expectation for a specific product or service. Furthermore, consumer satisfaction can be conceptualized into two types: transaction-specific satisfaction and cumulative satisfaction. The criterion for these two kinds of satisfaction to be different is the number of experience. If the satisfaction results from a single experience of purchase and use, it belongs to the category of transaction-specific satisfaction. Contrarily, if the satisfaction results from some cumulative experiences of purchasing and use, it belongs to the category of overall satisfaction. Basically, cumulative satisfaction will lead to consumer loyalty (Woodside, Frey, and Daly, 1989; Gil, Berenguer, and Cervera, 2008; Meesala and Paul, 2018).

Gil et al. (2008) and Jones and Suh (2000) both suggested that a global measure of satisfaction will be better. Consequently, this study adopts the global perspective to measure CS based on the above findings.

2.3 Customer Loyalty (CL)

The commitment to keep repurchasing a product or service coherently during a period can be referred to CL for a customer. Loyalty will cause a customer to keep buying a product or service with the same brand or brand set repetitively, even though the outside factors will cause this customer to switch his behavior (Oliver, 1999) so the CL is always the issue that needs to be concerned. Watson, Beck, Henderson, and Palmatier (2015) conducted a meta-analysis about the relevant studies of CL and concluded that attitudinal loyalty is as important as behavioral loyalty and they are the same popular measures of CL, which is consistent with what Oliver (1999) have conceptualized.

A commitment deeply held by a customer who prefers the products or services of a particular organization is not easy to be affected. Moreover, loyal customers likely to have more possibility to introduce or recommend services to others thus creating positive word-of-mouth (Caruana, 2002; Yuen, Yeow, Lim, and Saylani, 2010). Service providers are increasingly concerned about CL because researchers' findings suggest that CL contributes to increasing profit, market share, brand image, and profitability (Yuen et al., 2010, Watson et al., 2015).

The perspective from Caruana (2002) is adopted by this study and the CL is referred to as the positive feeling toward the service or product providers and also the repurchasing activity in the future.

2.4 Hypotheses Development

2.4.1 The relationship between SQ and CL

There is much research exploring the impact of SQ on CL (Caruana, 2002; Olsen, 2002; Söderlund and Öhman, 2005). Caruana (2002) indicated that CS will mediate the relationship between SQ and CL. Moreover, Prentice (2013) revealed the direct impact of SQ on CL. Kheng, Mahamad, and Ramayah (2010) held research about the banking services in Penang, Malaysia. Their results also support the same effect. Consequently, this study proposed:

H1: The perception of SQ will affect CL positively.

2.4.2 The relationship between SQ and CS

A lot of studies such as Arasli, Katircioglu, and Mehtap-Smadi (2005), Caruana (2002), Murali, Pugazhendhi, and Muralidharan (2016), Siddiqi (2011), and Vera and Trujillo (2013) try to explore the extent that SQ affects CS. Caruana (2002) suggested that the managers of the banking industry should devote their managerial efforts to increase SQ and CS to overcome the competition from their rival banks.

Baumann, Burton, Elliott, and Kehr (2007) explored the factors predicting the attitude and behavioral intentions in the Australian retail banks and their findings revealed that the SERVQUAL dimensions are useful to predict CS at all. Siddiqi (2011) indicated the relationship between SQ and CS in the retail banks in Bangladesh and the highest positive correlation is from empathy and the second-highest positive correlation is from assurance, finally, tangibles have the least positive correlation. In addition to Siddiqi (2011), Kheng et al. (2010) find out the highest correlations are from empathy and assurance in the Malaysian retail banking industry, and the same results are also found out in retail banks in Mexico by Vera and Trujillo (2013). The hypothesis is offered as below:

H2: SQ will affect CS positively.

2.4.3 The relationship between CS and CL

Many studies support the contention that CL will be affected by CS positively (Kumar, Pozza, and Ganesh, 2013) and this contention is also empirically confirmed in the banking industry in different countries. For example, Kibret and Dinber (2016) also support this relationship in commercial banks in Ethiopia. The findings in Siddiqi (2011) also show the same



result in the retail banks in Bangladesh. Finally, Mohsan, Nawaz, Khan, Shaukat, and Aslam (2011) confirmed this contention in the banking industry in Pakistan. The hypothesis is suggested below:

H3: CS will affect CL positively.

2.4.4 The mediation of CS on the relationship between SQ and CL

Caruana (2002) confirmed the relationship that SQ will act on CL with the mediation of CS. Additionally, much research has shown that a company providing quality service will have satisfied customers then the ones who satisfy very much will become the loyal customers (Anderson and Sullivan, 1993; Mosahab, Mahamad, and Ramayah 2010; and Osman and Sentosa, 2013) thus we proposed:

H4: CS will mediate the relationship between SQ and CL

3. METHODOLOGY

3.1 Sampling Design

Among 270 questionnaires distributed, 250 samples were collected and the respondents were the customers from three Mongolian banks: Khan, Xac, and State bank Mongolian. These three top retail banks do not only make efforts to expand banking services to the marginalized consumers in remote rural areas, but also the nomadic herders in the remote districts since 2014 (Euromoney, 2014).

3.2 Questionnaire Development

The questions applied to measure the constructs have been validated in previous research and they will be further tested here in the measurement model validation section. The questionnaire adopted a 5-point Likert scale design. This research will mark the respondent's answer as 1 if he/she strongly disagrees with the statement in each question, and 5 will be marked if he/she strongly agrees. The original items are translated from English into Mongolian. The questionnaire contains four sections.

In the first section, 6 items of socio-demographic characteristics are applied and they are age, gender, education level, employment status, and frequency of attendance to the

bank. The second section included 25 items adapted from Arasli et al. (2005) and Siddiqi (2011) to measure the SQ perceives by the customers. The third section included 2 different questions to measure overall satisfaction. These two questions were adopted from Hallowell (1996) and Vera and Trujillo (2013). The fourth section included 6 items of CL. The questions applied to measure CL are based on Caruana (2002) and Siddiqi (2011).

3.3 Statistical Analysis

PLS-SEM was applied because (1) The focus of the prediction of the impacts of SQ. (2) The readiness of reflective and formative measures in PLS-SEM. (3) The sample size (n=250) is not large. (4) Bootstrapping procedure is applied to estimate standard errors of the parameters in PLS-SEM so it does not need the requirement of a normal distribution (Hair, Hult, Ringle, and Sarstedt, 2014).

4. DATA ANALYSIS

4.1 Social-demographics Statistics

The demographic information is shown in Table 1. For the proportion of gender, there are not different very much with the participants of males (48.8%) and females (51.2%). The group of Age 20-29 occupies 36% of the total responses, is the most significant age group and only approximately 9.6% are aged over 50. Highly educated individuals seem to dominate the percentage of education, 4.4% completed high school and 95.6% holding higher education. For the employment, more than 86.8% of respondents are employed and 8% are students and 5.2% are unemployed. Finally, for the frequency to visit the bank, the highest frequency was 2 times a month 33.6% followed by monthly 26.8 %.

4.2 Model Assessment

A two-step approach was adopted here to evaluate the results from PLS-SEM. The first task that needs to be finished is to test the measurement items for each construct. Then, the coming task is the test of proposed relationships considered in the proposed model (Hair et al., 2014).

4.2.1 Measurement model

In this study, the SQ was measured with a reflective-formative measurement model. With this design of statistical analysis, a more complete and comprehensive concept



of SQ can be applied without the compromise of the number and meanings of dimensions in SERVQUAL model, a compromise that is easy to be found out in the traditional confirmatory factor analysis because of the necessary adjustment based on factor loadings (ex Meesala and Paul, 2018). The formative 2nd-order construct in this measurement design was delegated to SQ and the other five reflective 1st-order constructs were delegated to the five dimensions. In other words, tangibles, reliability, responsiveness, assurance, and empathy are formed as reflective 1st-order constructs together.

In addition to the above five dimensions, the reflective measurement model was also imposed on CS and CL respectively like the other previous research. Since the reflective and formative measurement model are both exploited here and their assessment criteria are different (Diamantopoulos and Winklhofer, 2001), thus, the assessment is separated into two sections to show the distinctions.

4.2.1.1 Reflective Measurement.

The validation of reflective constructs was conducted with three tests (Hair et al., 2014): (1) the test of internal consistency reliability, (2) the test of convergent validity, and (3) the test of discriminant validity.

The reliability can be defined as numerical results produced by an indicator that does not change because of characteristics of the measurement instrument (Kreuger and Newman, 2006). Cronbach's alpha was applied in advance and Composite Reliability (CR) is applied later. Previous studies suggested the superiority of CR (Bagozzi and Yi, 1988). If CR is larger than 0.7, it means the reliability of the theoretical model is acceptable. In the beginning, the original indicators of the constructs cannot pass the validity test, so we delete the questions of TA4, TA5, RE1, RE5, RES3, RES5, AS1, AS2, EM1, EM2, LO5, and LO6. Table 2 and Table 3 summarize the results. According to table 2, all of the CR are all larger than 0.7. The requirement of reliability is satisfied.

Table 1 Results of the demographic statistics

Item	Categories	Frequency	Percentage (%)
1. Gender	Male	122	48.8
	Female	128	51.2
	Total	250	100
2. Age	20-29	90	36
	30-39	65	26
	40-49	71	28.4
	50 and above	24	9.6
	Total	250	100
3. Education level	High school or below	11	4.4
	College	46	18.4
	Bachelor degree	186	74.4
	Master degree	7	2.8
4. Employment	Total	250	100
	Student	20	8
	Private organization	137	54.8
	State organization	80	32
5. Bank	Unemployed	13	5.2
	Total	250	100
	Khan Bank	83	33.2
	Xac Bank	83	33.2
	State Bank	84	33.6
6. The frequency of visiting the bank	Total	250	100
	Weekly	56	22.4
	Monthly	67	26.8
	2 times a month	84	33.6
	Others	43	17.2
Total	250	100	



Table 2 The validation of the reflective measurement model

Construct	Items	Loading 1st-order	C.R	Cronbach α	AVE	Wgt	t-value*	VIF
Reflective measurements								
CL	LO1	0.773	0.859	0.781	0.604			
	LO2	0.837						
	LO3	0.767						
	LO4	0.726						
CS	SAT1	0.858	0.886	0.747	0.795			1.277
	SAT2	0.924						
Formative measurements (2nd-order construct, repeated items, mode A)								
SQ								1.277
Tangibles	TA1	0.711	0.793	0.613	0.564	0.237	8.544 ***	1.328
	TA2	0.836						
	TA3	0.696						
Reliability	RE2	0.686	0.808	0.641	0.585	0.278	9.774 ***	1.229
	RE3	0.846						
	RE4	0.754						
Responsiveness	RES1	0.701	0.810	0.650	0.587	0.329	13.760 ***	1.462
	RES2	0.796						
	RES4	0.798						
Assurance	AS3	0.741	0.827	0.685	0.615	0.272	8.785 ***	1.313
	AS4	0.874						
	AS5	0.730						
Empathy	EM3	0.777	0.894	0.820	0.738	0.352	12.176 ***	1.222
	EM4	0.880						
	EM5	0.914						

* Note: 1. The significant level is 0.001.

2. The t-values are obtained through a bootstrapping procedure (5000 samples and 250 cases).

Table 3 The results of the square root value of AVE

	ASS	CS	EM	LOY	RE	RES	TA
ASS	0.7845	0	0	0	0	0	0
CS	0.2179	0.8916	0	0	0	0	0
EM	0.3338	0.3005	0.8588	0	0	0	0
LOY	0.1815	0.406	0.1963	0.7770	0	0	0
RE	0.2887	0.3634	0.2935	0.2523	0.7652	0	0
RES	0.4192	0.4277	0.3087	0.2655	0.3080	0.7664	0
TA	0.2648	0.2272	0.2617	0.1476	0.3278	0.4444	0.7504

Note: The square roots of the AVEs are represented with bold numbers.

Wong (2013) indicated that construct validity is crucial to ensure that a set of measures can stand for that latent construct they are intended to measure. The AVE (average variance extracted) is suggested to be checked to confirm the convergent validity because it can recognize the proportion of variance for each factor (Fornell and Larcker, 1984). All of the construct's AVE values (Table 2) are no less than the thread value of 0.5 suggested by Hair et al. (2014)

Factor and cross-loadings of all indicators for each

construct can be used to test the discriminant validity. Chin (2010) indicated that each indicator should also have less connection with another construct in addition to the strong relationship with the construct that will be reflected. Appendix 1 indicates that all indicators are identified well with the construct they are going to reflect and have less connection with the other constructs.

In addition to the factor loadings, the square root value of AVE can be applied to check the discriminant validity because



we can find out whether the variance of a specific construct can be explained more the indicators belong to it than the indicators belong to other constructs. The discriminant validity can be considered to be satisfactory when the square root value of AVE of a specific construct is no less than any correlation coefficients among any pair of that specific constructs (Fornell and Larcker, 1981). Finally, all of the square root values of AVE presented in the diagonal of Table 3 are no less than the correlation coefficients for each pair of the target construct thus implies satisfactory discriminant validity.

4.2.1.2 Formative Measurement.

The assessment of the formative 2nd-order construct was guided by Becker, Klein, and Wetzels (2012). First, this study checked the appropriateness of the 1st-order constructs. Second, this study also checked the weights, the significance of weights and multicollinearity among the 2nd-order construct and 1st-order constructs. Because all the 1st-order constructs are measured with a reflective measurement model so the results of the appropriateness of the 1st-order constructs have been reported to be satisfactory, this study proceeds to the second assessment.

With the checkup of the weight and significance for each path coefficient between the 1st-order and 2nd-order construct, we can assess the extent that each 1st-order construct can contribute to the formation of the 2nd-order construct (Becker et al., 2012). Urbach and Ahlemann (2010) suggested 0.10 to be a significant level of weight. Table 2 shows that all of the weights are higher than 0.10, in the meantime, their signs also agree with the underlying theory (see Table 2). The theoretical relevance for each path between the 1st-order and 2nd-order construct is supported statistically.

The multicollinearity has different implications for the formative measurement model. Unlike the multicollinearity desired in the measurements of reflective constructs (Diamantopoulos and Winklhofer, 2001), the destabilization will happen to the formative measurement model and the weights

will be non-significant and redundant if the multicollinearity among the 1st-order constructs is too excessive (Hair et al., 2014). Petter, Straub, and Rai (2007) also indicated when the correlations among the 1st-order constructs are high, the nature for those 1st-order constructs to form the formative 2nd-order construct will be inappropriate because the 1st-order constructs will be tapping into the same aspect. VIF (variance inflation factor) can be applied to test the multicollinearity and the thread is 5 (Hair et al., 2014). The minimum VIF is 1.22 and the maximum VIF is 1.462 (Table 2), both are smaller than the thread of 5 (Hair et al., 2014), thus the VIF issue can be ignored.

4.2.2 Structural model

The proposed relationships contained in the structural model and the predictive effectiveness needs to be tested in the second step. There are five tests here: (1) testing the multicollinearity among the constructs, (2) testing the significance of the path coefficients, (3) testing the level of the R^2 values, (4) testing the effect size f^2 , and (5) testing the predictive relevance Q^2 and the q^2 effect size (Hair et al., 2014).

An OLS regression analysis for the set of SQ, CS as predictors of CL was executed to find out the VIF for the two predictor constructs. SQ and CS are the same VIF and the number is 1.277 which is smaller than the threshold of 5 (see Table 2). Consequently, the impact of the multicollinearity among the predictor constructs can be ignored here.

The bootstrap procedure (i.e., with 250 observations per subsample, 5,000 subsamples, and no sign changes) is running, and t-tests are also applied to check the path coefficients. Table 4 and Fig.1 summarize the results (also see Appendix 2 Snapshot results from SmartPLS software). As the results which are shown in Table 4 and Fig. 1, SQ has a highly significant relationship with CS and $\beta = 0.465$ (***) supporting H1. CS has a significant relationship with CL and $\beta = 0.330$ (***) supporting H2. Similarly, SQ is significantly related to CL and $\beta = 0.164$ (***) supporting H3.

Table 4 The path coefficients test in the structural model

Structural path	Path coefficient	t-Statistic
SQ => CS	0.465485	9.271064***
CS => LOY	0.329533	4.820694***
SQ => LOY	0.164189	2.626740***



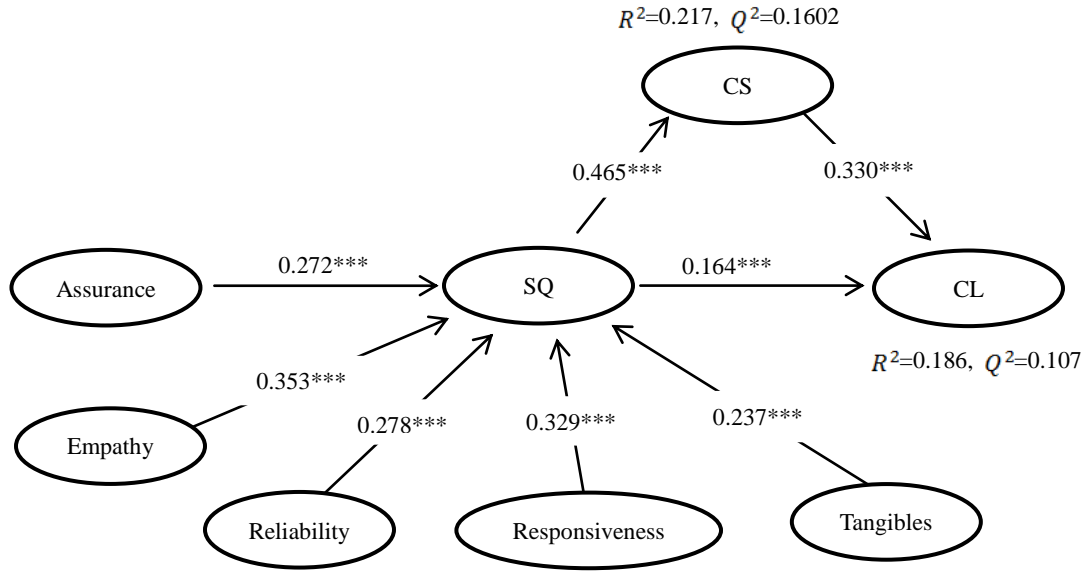


Fig. 1 The PLS-SEM results

Note: * p=0.05; ** p=0.01; *** p=0.001

Table 5 R² and Q² values

Endogenous Latent Variable	R²	Q²
CL	0.185921	0.1086
CS	0.216677	0.1602

Table 6 f² and q² values

LOY			
	Path coefficient	Effect size (f²)	Effect size (q²)
CS	0.329533	0.103194	0.060691
SQ	0.164189	0.028256	0.016379

The R² value for CL is 0.186 and the other one for CS is 0.217 and both of them are higher than 10% (see Table 5), the adequate value suggested by Falk and Miller (1992).

Table 6 shows the values of the effect size f² and q². The f² value for CS is 0.103 which is near the medium effect size and is larger than the value of SQ which is 0.028. Hair et al. (2014) indicate that the f² value of 0.02 represents the small effect, 0.15 represents the medium effect, and 0.35 represents the large effect of the exogenous latent variable.

The predictive relevance that the structural model can predict the observed values can be measured with the values of Q² created with the blindfolding procedure. Just like The f² effect size to access R² values, the q² effect size can be applied to assess Q² values to compare the predictive relevance of each construct. Considering the size of f², Hair et al. (2014)

pointed out that the f² value of 0.02 implying the small size, 0.15 implying medium size, and 0.35 implying large size of predictive relevance caused by the endogenous construct

The resulting Q² values from the blindfolding procedure are shown in Table 5 and all of them are larger than 0 which indicates the predictive relevance of existing between the exogenous constructs and endogenous construct. The effect size q² for CS is 0.061 and larger than the value of 0.016 for SQ, though both of them show a small predictive relevance for CL. Table 6 summarizes the q² value for each exogenous construct.

Table 7 shows the different effects contained in the structural model. For the CL, the total effects from SQ are 0.318 including the value of 0.153 for direct effects and the value of 0.164 for indirect effects with the CS functioning as a mediating variable (see Table 7). This finding is in line with the findings



from Caruana (2002) and Hallowell (1996).

Table 7 also shows the indirect effect of each dimension on CL. Assurance, empathy, reliability, responsiveness, and tangibles respectively have an indirect effect value of 0.086, 0.112, 0.088, 0.105, and 0.075. The effects for these five dimensions to influence CL via the higher-order construct of SQ are significant. Additionally, among these five dimensions,

In addition to the effects on CL, assurance (0.127), empathy (.164), reliability (0.129), responsiveness (0.153) and tangibles (0.110) all have significant indirect effects on CS as Table 7 shows. It is the same as the analysis of CL that responsiveness and empathy have higher effects on CS. Angur et al. (1999) suggested that these five dimensions are of varying importance for the reason of the multidimensional nature. The relevant

importance of each dimension in this research is different, too. Furthermore, when comparing to the previous studies which were conducted in different countries the relevant importance is also different (e.g. Arasli et al. 2005; Siddiqi, 2011, Vera and Trujillo, 2013).

Table 8 shows the results of IPMA (importance-performance matrix analysis) of CL. Table 8 reveals that the importance of empathy (0.112) and responsiveness (0.105) are higher than the average (0.093) but the performance of empathy (3.616) and responsiveness (3.720) are lower than the average (3.887). Therefore, the managerial improvements to increase CL should be devoted to the dimensions of empathy first then the responsiveness later according to the IPMA of CL.

Table 7 Direct, indirect and total effects for inner model

	Total effects	Direct effects	Indirect effects	T Statistics
CS => LOY	0.329533	0.329533		4.820694***
SQ => LOY	0.317582	0.15339267	0.164189	2.626740***
SQ => CS	0.465485	0.490035		9.271064***
ASS => LOY	0.086411		0.086411	4.760894***
EM => LOY	0.112044		0.112044	5.039706***
RE => LOY	0.088194		0.088194	4.764096***
RES => LOY	0.104601		0.104601	5.280821***
TAN => LOY	0.075357		0.075357	4.81975***
ASS => CS	0.126654		0.126654	6.610185***
EM => CS	0.164225		0.164225	7.649753***
RE => CS	0.129267		0.129267	6.686273***
RES=> CS	0.153315		0.153315	8.28206***
TAN => CS	0.110452		0.110452	6.465126***

Table 8 Index values and total effects for the IPMA of CL

	Importance (Total Effects)	Performance (Index Values)
ASS => LOY	0.086411	3.9840
EM => LOY	0.112044	3.6160
RE => LOY	0.088194	4.0666
RES => LOY	0.104601	3.7199
TAN => LOY	0.075357	4.0478
Average	0.0933214	3.88686

4.3 Tests for Mediation

In the beginning, there exists a significant relationship between SQ and CL with $\beta = 0.319$ (***) and $t = 5.770$. We assume that CS will mediate this relationship. Then, the

mediator variable of CS is included. Table 9 shows that the direct effect for SQ on CL is 0.154, and the indirect effect via CS is 0.164. Consequently, the total effect is $0.164 + 0.154 = 0.318$. VAF can be found out with the total effect dividing indirect effects. Based on VAF we can find out the percentage of the total



effect that can be explained by that mediator variable. The value of the VAF in this mediation test is $0.164/0.318 = 0.517$. Consequently, nearly 51.7% of the total effect caused by SQ is explained via the mediator of CS and a partial mediation which is consistent with the result in Caruana (2002) has been found out here because the VAF value has fallen into the interval between 20% and 80% (Hair et al., 2014).

5. DISCUSSION AND CONCLUSION

In this study SQ was measured with a reflective-formative measurement model, thus kept SQ as an overall abstraction representing the complete five dimensions that should be contained in the SERVQUAL model without the compromise of the number and meanings of these five dimensions. Using this design, the integrated effects of SQ on CS and CL are assessed in the banking industry in Mongolia that is characterized as an infant and monopolistic competition market.

The PLS-SEM results from the data of Mongolia show that CS has direct effects (0.330) on CL with SQ has two kinds of effects on CL including direct effects (0.153) and indirect effects (0.164). These results are consistent with the findings in the research of Caruana (2002) conducted in Malta when that country has modernized its financial services sector (Vassallomalta, 2019) and been characterized as a developed country by World Bank (Wikipedia, 2019). The results imply that the SQ is not only important in a modern financial service market in a developed country like Malta but also should bear the same attention in the infant service market in a developing country like Mongolia.

Besides the significant relationships among the main three constructs, for all the five dimensions contained in SQ, they will also affect CS and CL significantly, via the higher-order construct of SQ. Yet, as Angur et al. (1999) suggested that these five dimensions are of varying importance in different countries because of the multidimensional nature. Thus the relevant importance of each dimension is different in this study when comparing to the previous studies conducted in different

countries (e.g. Arasli et al. (2005); Siddiqi, (2011), Vera and Trujillo, (2013), Ngo, & Nguyen (2016)), with empathy and responsiveness have higher effects on CS and CL.

In addition to the analysis of the effects on CS and CL, the IPMA of CL also shows that empathy and responsiveness both have higher importance levels and higher effects on CL in the Mongolia banking industry but their performance levels are lower than the average. Consequently, it implies that managers in Mongolian banks need to focus more on the improvements in the dimensions of empathy and responsiveness.

Managers in Mongolian banks can prepare effective customer relations training programs for the workers who are communicating directly to the customers and motivate them to serve their customers with empathy and respond to the needs of customers quickly and accurately. In this way, it will help their banks to sustain the competitive advantages and enhance CL.

With the evidence from the banking industry in Mongolia, the service management knowledge can be considered by another, especially for the service market which can be categorized as an infant market. Moreover, with the identification of the varying importance of the five dimensions, a contribution was also made to the management practices of the banking industry in Mongolia. It can help the managers of the banks in Mongolia to allocate limited marketing resources more effectively. The managers of the other service organizations facing the same challenges in other developing countries can also take into consideration if they are situated in a similar context.

Research limitations still need to be considered. First, the demographic information of the respondents shows that young and higher educated respondents occupied a high proportion. A more balanced proportion of the respondents would be desirable for the replication of this study. Second, this study applied the total sample to operate PLS-SEM but this arrangement has an implicit assumption that the data are homogeneous. Some other important factors and differences on the segment level can be considered for the multi-group analysis.

Table 9 Results of mediation test

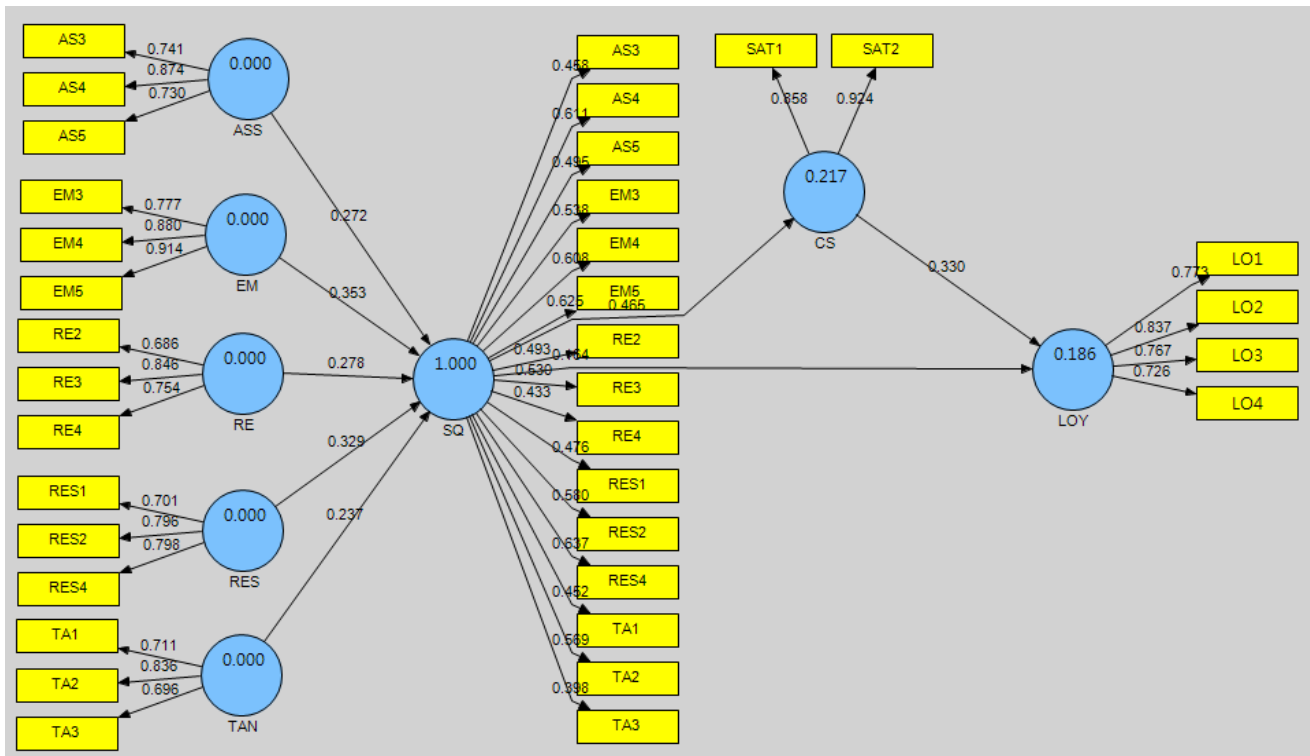
	Total effects	Direct effects	Indirect effects	VAF	Mediation
SQ => LOY		0.154			
SQ => CS=> LOY	0.318		0.164	0.326	Partial mediation



Appendix 1 The results of factor loadings analysis

	ASS	CS	EM	LOY	RE	RES	TAN
AS3	0.740947	0.155412	0.174157	0.068167	0.176884	0.288010	0.235167
AS4	0.874017	0.143631	0.320746	0.124620	0.299494	0.354436	0.265892
AS5	0.730174	0.222456	0.275593	0.235973	0.186911	0.341710	0.114810
EM3	0.234326	0.280364	0.777345	0.170019	0.279244	0.252727	0.158002
EM4	0.238214	0.286119	0.879574	0.230147	0.254973	0.295251	0.267858
EM5	0.380474	0.212985	0.913689	0.108495	0.227263	0.247990	0.241448
LO1	0.218236	0.354392	0.228993	0.773377	0.257073	0.236028	0.121148
LO2	0.024466	0.311205	0.103482	0.837348	0.182271	0.186669	0.141185
LO3	0.089217	0.303517	0.073012	0.767454	0.216525	0.205964	0.162098
LO4	0.214905	0.279887	0.186408	0.725647	0.107731	0.187115	0.028404
RE2	0.267931	0.287341	0.318326	0.150403	0.686299	0.201586	0.225346
RE3	0.203484	0.281093	0.190992	0.242145	0.846405	0.288140	0.318729
RE4	0.188327	0.263395	0.158468	0.181140	0.754308	0.209900	0.196230
RES1	0.310098	0.347127	0.106030	0.266910	0.164862	0.701396	0.291505
RES2	0.322294	0.370674	0.248042	0.209161	0.239180	0.795775	0.322790
RES4	0.332693	0.278498	0.326725	0.153449	0.289365	0.797866	0.397714
SAT1	0.149905	0.857890	0.232896	0.315349	0.276444	0.330399	0.104393
SAT2	0.228884	0.924010	0.296129	0.399609	0.362117	0.422425	0.277240
TA1	0.252792	0.073418	0.157052	-0.008265	0.266242	0.288550	0.711012
TA2	0.212806	0.243133	0.294698	0.134187	0.275096	0.395892	0.835898
TA3	0.123415	0.182133	0.106549	0.216013	0.188955	0.305718	0.696449

Appendix 2 Snapshot results from SmartPLS software



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服務品質，顧客滿意度與顧客忠誠度： 反映—形成衡量模式在蒙古銀行產業的應用研究

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摘 要

為適應自由市場的競爭，蒙古政府採取了許多經濟改革措施，使得蒙古銀行業者為維持競爭力，必須尋求滿足顧客需要的改善行動。本研究探討蒙古銀行產業在服務品質，顧客滿意度以顧客忠誠度三者間的相互關係。在新生服務業市場的脈絡下，探索上述三者相互關係的研究，目前仍屬少見。本研究運用反映-形成衡量模式，使顧客服務(SQ)成為代表 SERVQUAL 模型中應包含的完整五個維度的整體抽象，而不會影響這五個維度的數量和含義。針對得自蒙古烏蘭巴拖三家主要商業銀行的 250 位受訪者所得資料，以 PLS-SEM 進行分析。結果驗證服務品質的正面影響，顧客滿意度的中介效果也獲得支持。最後，顧客忠誠度的 IMPA 分析結果顯示，來自關懷性(Empathy)及回應性(Responsiveness) 的效果較高但績效較低。本研究貢獻在於擴大對於如蒙古銀行業類的新生服務業在服務管理的了解。

關鍵詞：蒙古銀行產業、顧客滿意度、服務品質、SERVQUAL

