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Application of Customer Satisfaction Study to Derive Customer Knowledge

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ABSTRACT *Customer knowledge has become one of the most important economic assets to a firm. Knowing what customers value most in a company's products or services helps companies optimize resource utilization in areas for continuous improvement based on their needs and wants. This study extends previous research in customer satisfaction by showing how a customer satisfaction study can help answer questions, such as why customers are satisfied or dissatisfied, whether the company's complaint handling is effective and how to improve customers' satisfaction. We surveyed 532 customers served by a commercial banking organization in Taiwan. In addition, researchers demonstrated that there are differences in satisfaction levels among different genders. To explore further the reasons for these differences, we separated our sample to compare the specific causal links between the two gender samples and we draw broader inference from the results. Partial Least Squares (PLS) was used to test the theoretical model. PLS not only bridges theoretical and empirical knowledge but also facilitates the construction of a strategic management map and provides latent variable scores that could be utilized to report CSI scores. Our findings provide support for the application of CSI study to derive customer knowledge, which also reveals some interesting suggestions for future research.*

KEY WORDS: Customer satisfaction index, PLS

Introduction

Although customer relationship management (CRM) has been popular as a means to tie customers to the company through various loyalty schemes, it left perhaps the greatest source of value under-leveraged: the knowledge residing in customers (Gibbert *et al.*, 2002). Customer knowledge is one of the most important economic assets to a firm (Cambell, 2003; Gibbert *et al.*, 2002; Massey *et al.*, 2001). Knowing what customers value most in a company's products or services helps companies optimize resource utilization in areas for continuous improvement based on their needs and wants. To achieve this goal, researchers are focusing on data or text mining techniques to find un-noticed patterns in large

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amounts of data (e.g. Hui & Jha, 2000; Shaw *et al.*, 2001). However, not all customer knowledge is embedded within information and can be derived from data mining techniques.

Recently, various countries have conducted customer satisfaction studies at the industrial or national level (see Table 1). Much of their attention has been paid on learning the satisfaction level to facilitate cross-company comparisons or serve as predictor for companies' market value (e.g. Anderson *et al.*, 1994, 1997; Eklof *et al.*, 1999; Ittner & Larcker, 1996). Customer satisfaction studies have therefore been seen as a marketing analysis tool. Few studies have noticed that continuously monitoring factors that affect customer satisfaction constitutes invaluable information for businesses. Companies equipped with customer information and knowledge have greater potential to make correct decisions, produce desirable products or services, and deliver true value for customers (Winnie & Kanji, 2001). This study extends previous research in customer satisfaction by showing that a customer satisfaction study can help answer questions, such as why customers are satisfied or dissatisfied, whether the company's complaint handling is effective, how to improve customers' satisfaction, how effective efforts at improving customer satisfaction have been, and where a company stands on customer satisfaction relative to its competitors. To thrive in such a highly competitive environment, organizations must ascertain that they can learn customers' needs and wants and then produce the products and services that will satisfy those needs. However, the biggest obstacle for organizations in evaluating their service qualities is the intangible nature of the service. To address this, we propose a strategic management map that could help managers to examine the relative importance of each quality attribute.

In recent studies, two customer satisfaction theoretical models have been commonly used – the American Customer Satisfaction Index (ACSI) and the European Customer Satisfaction Index (ECSI). The ACSI was developed in 1994 in accordance with a Swedish customer satisfaction barometer to serve as a national cross-company and cross-industry measurement instrument for customer satisfaction (Fornell *et al.*, 1996). Since 1994, the ACSI has been a national indicator for customer satisfaction with the quality of goods and services available to United States residents. Meanwhile, 12 European countries also conducted a pilot ECSI study in 1999 (e.g. Gronholdt *et al.*, 2000; Kristensen *et al.*, 2000; Martensen *et al.*, 2000). Based on the strengths of both the ACSI and ECSI, we propose a Customer Satisfaction Index (CSI) model that advances the application of a CSI model in Eastern countries.

We surveyed 532 customers served by a commercial bank in Taiwan. Excellent customer satisfaction is very important in the competitive banking industry because of

Table 1. Previous customer satisfaction studies

Authors	Country of study	Level of study
Anderson <i>et al.</i> (1994)	Sweden	National level
Bruhn & Grund (2000)		
Fornell (1992)		
Fornell <i>et al.</i> (1996)	America	National level
Gronholdt <i>et al.</i> (2000)	Denmark	Industrial level
Kristensen <i>et al.</i> (2000)	Austria	Industrial level
Martensen <i>et al.</i> (2000)		
Hackl <i>et al.</i> (2000)		

the difficulty in differentiating based on services offered (Levesque & McDougall, 1996). Besides, researchers demonstrated that there are differences in satisfaction levels among different genders (Bryant & Cha, 1996). To further explore the reasons for these differences, we separated our sample to compare the specific causal links between the two gender samples and draw broader inference from the results. Partial Least Squares (PLS) was used to test the theoretical model. PLS not only bridges theoretical and empirical knowledge (Fornell, 1982) but also facilitates the construction of a strategic management map and provides latent variable scores that could be utilized to report CSI scores. Our findings provide support for the application of CSI study to derive customer knowledge, which also reveals some interesting suggestions for future research.

The organization of this study is as follows. In the next section we propose a CSI model for a retail banking organization in Taiwan. In the subsequent section, how the sample is derived and the definitions of measures are given. To demonstrate the model's applicability, we analyze its results in the fourth section. Finally, we conclude with a discussion and future research directions.

CSI Model

The ACSI and ECSI have strengths and weaknesses. The relative strength of the ACSI over ECSI is its ability to detect the efficacy of a firm's complaint handling capabilities by including a customer complaint construct. However, researchers have found that the construct of customer expectation used in the ACSI has less impact in the model (e.g. Johnson *et al.*, 2001; Martensen *et al.*, 2000). Thus, they suggested using corporate image (used in ECSI) to replace customer expectation. Accordingly, our CSI model incorporates the strengths of the both models. Figure 1 graphically shows our model. The CSI model is built based on two well-established theories – quality, satisfaction and performance (QSP) theory and Hirschman's (1970) exit-voice theory. The CSI model measures the cause-and-effect relationship running from the antecedents of customer satisfaction level (corporate image, perceived quality and perceived value) to its consequences (customer complaints and customer loyalty). The antecedents of the customer satisfaction level are the drivers that affect customer satisfaction, while the consequences of customer satisfaction are performance indicators.

Figure 1. The CSI model

CSI Antecedents

Perceived Quality

In the service literature, strong emphasis is placed on the importance of service quality perceptions and its relationship with customer satisfaction. Previous services literature also highlighted the multidimensionality of service quality, and particularly focuses on two of its overriding dimension (Gronroos, 1984; Levesque & McDougall, 1996; Parasuraman *et al.*, 1991). The first dimension includes the core or outcome aspects (contractual) of the service (e.g. reliability). The second dimension includes the relational or process aspects (customer–employee relationship) of the service (e.g. tangibles, responsiveness, assurance and empathy). Parasuraman *et al.* (1985; 1988) initially described five dimensions of service quality: reliability, tangibles, responsiveness, assurance and empathy. They argued that reliability mainly involved the outcome of the service whereas tangibles, responsiveness, assurance and empathy were involved with the service delivery process. Customer satisfaction can thus be based not only on the judgment of customers towards the reliability of the delivered service but also on customers' experiences with the service delivery process.

It is generally accepted that customer satisfaction often depends on the quality of product or service offered (Anderson & Sullivan, 1993). A recent study conducted by Levesque & McDougall (1996) reinforced the idea that unsatisfactory customer service could lead to a drop in customer satisfaction. Thus, service quality is a causal antecedent of customer satisfaction. In addition, Fornell *et al.* (1996) suggested that perceived quality is expected to have a positive effect on perceived value (i.e. how customers perceive the value of products and services).

Corporate Image

Although the ACSI study used the customer expectation construct, we employed corporate image in our model. Researchers have argued that the customer expectation construct incorporated in the ACSI model is to conform to the disconfirmation paradigm, which states that service quality is conceptualized as the difference between the customer's expectations and the customer's perceptions of the actual performance (e.g. Johnson *et al.*, 2001). However, through cumulative experience with a service provider, customers' expectations become more rational, leading to confirmation rather disconfirmation of their expectations (Johnson *et al.*, 1995, 2001). Empirical testing also showed that customer expectation does not have a significant impact on the customer satisfaction level (e.g. Johnson *et al.*, 2001; Kristensen *et al.*, 2000). As a result, researchers have suggested that the customer expectation construct be removed from the CSI model (e.g. Johnson *et al.*, 2001; Martensen *et al.*, 2000).

On the other hand, researchers have showed that the corporate image (used in ECSI) has a positive impact on the perceived value, customer satisfaction level and customer loyalty (e.g. Gronholdt *et al.*, 2000; Kristensen *et al.*, 2000). Corporate image refers to the brand name and the kind of associations that customers get from it. It helps buyers to evaluate the quality of products, especially when they are unable to judge a product's characteristics. It also helps reduce a buyer's perceived risk of purchase. When customers regard the company as having a good image, they tend to perceive higher value in the products and services, to have a higher customer satisfaction level and repurchase from the company. Thus, corporate image is expected to have a positive impact on perceived value, customer satisfaction level and customer loyalty.

Perceived Value

Perceived value refers to the perceived level of product and service quality relative to the price paid (Fornell *et al.*, 1996). This mainly involves the ‘value-for-money’ aspect. Anderson & Fornell (2000) suggested that adding perceived value into the model increases the comparability of the results across firms, industries and sectors because price information is added into the model. When customers perceive high value in products and services, they tend to have a high customer satisfaction level. Thus, perceived value is expected to have a positive impact on the customer satisfaction level.

CSI Consequences

Customer Complaints

Customers complain when they are dissatisfied with the products and services delivered. Fornell *et al.* (1996) argued that the immediate consequence of increased customer satisfaction is decreased customer complaints, and hence suggested that the relationship between the customer satisfaction level and customer complaints should be negative. However, the opposite of this relationship might also be true.

A higher customer satisfaction level might imply a lower level of customer complaints; however, a dissatisfied customer would have another alternative – exit the relationship rather than complain to the company (Hirschman, 1970). This indicates that customers that complain are still satisfied customers. Satisfied customers might not instantly switch to another company after experiencing a problem during the service production. This is mainly because the perceived costs of existing the current relationship are relatively high (e.g. the alternative relationship is unattractive or the switching cost is high). Other studies also showed that the customer satisfaction level increases the level of customer complaints (e.g. Ping, 1997). Customer complaint behaviors indicate customers’ attempts to change the company’s policies or offering and seek some remedy. This feedback from complaining customers provides learning opportunities for firms. Perhaps this is why well-managed companies search out and focus on their most demanding customers, not the ones who are easily satisfied.

Thus, the relationship between the customer satisfaction level and the level of customer complaints depends on the behavior of the dissatisfied customers. If customers can get similar products and services from competitors when they are dissatisfied (e.g. the convenience and competitiveness of the competitors’ offering), they can choose to leave the buying–selling relationship without bothering to complain. In this context, we would expect to see a positive relationship between the customer satisfaction level and the level of customer complaints. Conversely, if there are few companies that can provide similar products and services, the dissatisfied customers would have no choice but to complain. Such complaining would lead to a negative relationship between customer satisfaction and the level of customer complaints.

Customer Loyalty

Customer loyalty refers to the repurchase intention and price tolerance of customers. Increasing customer loyalty secures future revenues by reducing price elasticity, insulation of current customers from competitive efforts, lowering the costs of future transactions and reduced failure costs (Anderson & Fornell, 2000). Accordingly, customer loyalty is the ultimate goal of the firm.

The relationship between the level of customer complaints and the level of customer loyalty depends on the efficacy of a firm's complaint handling capabilities. If the relationship between the level of customer complaints and the level of customer loyalty is positive, the firm is successfully turning complaining customers into loyal customers and vice versa (Fornell, 1992). The company's complaint handling capabilities have significant business performance implications. As suggested by Fornell & Wernerfelt (1987) actual buyer grievances usually come from ignorance or misunderstanding by the company. Firms should do their best to accurately handle customer complaints.

Customer satisfaction is widely recognized as a key influence in the formation of consumers' future purchase intentions (Taylor & Baker, 1994). Satisfied customers are likely to tell others of their favorable experience and thus engage in positive word of mouth advertising (File & Prince, 1992). Thus, we expect to see a positive relationship between the customer satisfaction level and customer loyalty.

Methods

Sample

In the context of deregulated financial markets and rapid technological development, it is increasingly difficult for commercial banks to rely on innovative products alone to sustain competitive advantages because competitors can duplicate innovative products easily and produce them essentially the same. This puts a tremendous amount of pressure on banks to improve their services. In addition, customers are also increasingly becoming sophisticated enough to know where to choose financial services that better meet their expectations. As such, excellent customer satisfaction is one of the few ways to achieve a sustainable competitive advantage for retail banks. Retail banks therefore are doing their best to listen to the customer's voice, identify their needs and wants, and translate this knowledge into attractive products and services. In this study, we conducted an empirical test on a retail bank in Taiwan to derive customer knowledge.

We employed a stratified random sampling method in this study. The sample was chosen from customers who have had transactions with the bank during a recent year. Based on gender, residential area and monetary contribution to the bank, we divided customers into 20 strata and then allocated samples to each stratum proportionally. Using a stratified random sampling method, we obtained a representative sample on important characteristics, such as gender, residential area and monetary contribution to the bank.

Trained interviewers conducted telephone interviews with a selected sample in September 2001 for two weeks. The telephone interviews lasted on an average 10 to 12 minutes. After deleting cases with ambiguous values, we obtained a final sample of 532 customers, including 286 female and 246 male customers.

Measures

A survey was designed to tap into the proposed CSI model. Whenever possible, previously tested questions were used (e.g. Fornell *et al.*, 1996; Johnson *et al.*, 2001; Kristensen *et al.*, 2000). In designing the questionnaire, a 10-point Likert scale (strongly disagree to strongly agree) was used in order to reduce the statistical problems of extreme skewness (Fornell, 1992). A total of 21 items, designed to tap into six constructs, were included in the questionnaire. A preliminary survey was tested with 30 customers. The script was refined

according to their comments. The format and content of the questionnaire were also pre-tested using doctoral students and faculty members familiar with the CSI issue.

We sought to identify the characteristics of products and services perceived as important by customers by referring to the SERVQUAL dimensions (i.e. reliability, responsiveness, assurance, empathy and customization) and the focus group approach. Our exploratory research involved several focus groups with customers drawn from the firm's database. A major purpose of these focus groups was to identify the factors that were salient to customers in evaluating the firm's product offerings and service delivery. Ten items were identified for measuring customers' perceived quality, including (1) the speed of service, (2) the accuracy of service, (3) employee politeness and courtesy, (4) employee knowledge about the service provided, (5) employee flexibility in solving customer problems, (6) employee ability to effectively explain the contract content, (7) employee ability to provide relevant information, such as better products, higher or lower interest rates, (8) quality of the automatic facilities, such as ATM, (9) ATM safety and reliability and (10) convenience of the bank's service line.

Corporate image reflects the customer's overall impression of the bank as measured by three items: (1) bank's emphasis on public affairs, (2) trustworthiness and (3) caring about the customer's needs. Perceived value refers to the perceived level of product quality relative to the price paid and it was measured by (1) the price relative to quality and (2) quality relative to price.

The customer satisfaction level represents a cumulative evaluation of a firm's offering and the feeling or attitude of a customer towards a product or service after it has been used. Customer satisfaction level is a fundamental indicator of the firm's past, current and future performance, instead of specific transactional information about particular product or service encounter. This was captured using three survey measures: (1) an overall rating of satisfaction, (2) the degree to which performance fell short or exceeded expectations and (3) rating of performance relative to the customer's ideal for the good or service (Fornell *et al.*, 1996).

Customers may feel dissatisfied with a specific transaction and have complaints for the bank. In our questionnaire, customer complaints were measured by whether a customer had complained either formally or informally when they were dissatisfied with the bank. Customer loyalty was captured using two survey measures: (1) the customers' intention to recommend the bank to others and (2) the propensity to switch to other banks when they offered better transactions.

Results

The research model was tested using PLS, a structural equation modeling technique that is well suited for highly complex predictive models (Wold, 1985). PLS has several strengths that made it appropriate for this study, including its ability to calculate latent variable scores, the provision of weights that estimate the relationships between manifest variables and latent variables, and the small sample size requirements¹ (Barclay *et al.*, 1995). As all the constructs have reflective indicators in the CSI model (Fornell *et al.*, 1996), the minimum sample size is determined by the largest number of antecedent constructs leading on the endogenous construct. In other words, the recommended minimum sample size in this study is 30. Our overall sample size ($N = 532$) and the sub-sample size of female ($N = 286$) and male ($N = 246$) exceed the recommended minimum of 30.

Before we proceeded, we tested the reliability and validity of our model. First, in PLS, item reliabilities were assessed by examining loadings (see Table 2). All loadings for the reflective indicators exceeded the recommended threshold of 0.7 (Carmines & Zeller, 1979), except for one item in perceived quality and one item in customer loyalty. Second, to assess the convergent validity of the constructs, researchers using PLS reported the internal consistency and discriminant validity. In order to assess the convergent validity of the constructs, researchers using PLS reported the internal consistency measure developed by Fornell & Larcker (1981), which is similar to Cronbach's alpha. Fornell & Larcker argued that their measure was more appropriate than Cronbach's alpha

Table 2. Measurement variables used in CSI model

	Mean	Loading
<i>Perceived quality</i>		
Internal consistency = 0.86		
Speed of service	7.60	0.75
Accuracy of service	8.10	0.70
Employee politeness and courtesy	8.22	0.74
Employee knowledge about the service provided	7.85	0.81
Employee flexibility in solving customer problems	7.46	0.80
Employee ability to effectively explain the contract content	6.88	0.75
Employee ability to provide relevant information	6.69	0.72
Quality of the automatic facilities	8.06	0.67
ATM safety and reliability	8.08	0.70
Convenience of the bank's service line	7.49	0.72
<i>Corporate Image</i>		
Internal consistency = 0.90		
Bank's emphasis on public affairs	7.47	0.89
Trustworthiness	8.09	0.89
Caring about the customer's needs	6.80	0.88
<i>Perceived value</i>		
Internal consistency = 0.93		
Rating of quality given price	6.61	0.94
Rating of price given quality	7.16	0.94
<i>Overall CSI</i>		
Internal consistency = 0.90		
Overall satisfaction	7.48	0.90
Satisfaction level compared with expectation	6.89	0.88
Satisfaction level compared with the ideal bank	7.22	0.88
<i>Customer complaint</i>		
Internal consistency = 1		
Has the customer complained either formally or informally about the product or service?	6.65	1
<i>Customer loyalty</i>		
Internal consistency = 0.62		
The customers' intention to recommend the bank to others	6.68	0.97
The propensity to switch to other banks when they offer better transactions (reverse coding)	3.78	0.48

because it used the item loadings obtained within the causal model. Table 2 lists the internal consistency for each construct. All internal consistency reliability measures were above the recommended level of 0.70 (Nunnally, 1978) except for customer loyalty.

To assess discriminant validity, Fornell & Larcker (1981) suggested using the Average Variance Extracted (AVE), which should be greater than the variances shared between the construct. Discriminant validity is an assessment of the extent to which a construct of interest differs from other constructs. This comparison can be made in a correlation matrix (see Table 3), including the correlations between different constructs in the off-diagonal elements of the matrix, and the square roots of the AVE for each of the constructs along the diagonal. For adequate discriminant validity, the diagonal elements should be greater than the off-diagonal elements in the corresponding rows and columns. After examining the results, we found that except for the perceived quality against corporate image and overall CSI, all other constructs had adequate discriminant validity. Although not perfect, the level of fit seems sufficient enough to proceed with the assessment of the measurement and structural equation models.

Structural Equation Model

Having established confidence in our measurement model, we examined the main effects. The test of the structural equation model includes estimation of the path coefficients and R^2 values. The path coefficients indicate the strengths of the relationships between the dependent and independent variables and R^2 values represent the amount of variance explained by the independent variables. Using LVPLS version 1.8 (Lohmoller, 1981), we determine path coefficients. To further test the path significance, we employed the Jackknife methods. All the path estimates are statistically significant and conform to our expectations (see Figure 2).

To realize the efficacy of a firm's complaint handling capability, we examined the path relationship between the customer complaint and customer loyalty. Although the path coefficient from the customer complaint to customer loyalty was positive ($b = 0.03$, $p = 0.3$), it was not statistically significant. This implies that this bank was not effectively handling customer complaints so that complaining customers did not turn into loyal customers. In addition, as argued previously, if customers can get similar products and services from competitors when they are dissatisfied, we would expect to see a positive relationship between customer satisfaction level and the level of customer complaints. Given that the banking sector is very competitive, it is likely that a dissatisfied customer can easily find other companies that provide similar products and services. Thus, as

Table 3. Discriminant validity

Latent variables	1	2	3	4	5	6
1. Perceived quality	0.73					
2. Corporate Image	0.79	0.89				
3. Perceived value	0.71	0.66	0.94			
4. Overall CSI	0.75	0.76	0.77	0.89		
5. Customer complaint	0.29	0.29	0.27	0.37	1	
6. Customer loyalty	0.59	0.63	0.61	0.73	0.23	0.76

Figure 2. Path estimates of the CSI model

expected, the relationship between the overall CSI and the level of customer complaints was positive ($b = 0.37$, $p < 0.001$).

To examine the effects of antecedent constructs on the overall CSI, we looked at the total effect of each construct (e.g. the total effect of perceived quality on the overall CSI = [perceived quality on overall CSI] + [perceived quality on perceived value] $\times$ [perceived value on overall CSI]). The total effects of perceived quality, corporate image and perceived value on the overall CSI were 0.43, 0.418 and 0.40, respectively. Accordingly, in this study, perceived quality had the greatest impact on the overall CSI.

The R^2 values for the overall CSI and customer loyalty were 0.72 and 0.54, similar to the results from the ACSI study.² The CSI score³ was 68.9 (transformed into a 0- to 100-point scale to facilitate comparisons), which fell behind banking industry average in the United States in 2001 Q4⁴ (CSI score = 72). The reasons for this lag might include cultural differences in answering survey questions or different local economic conditions. This was not necessarily due to product or service performance differences. Further investigations in examining cultural or economic differences are necessary.

Strategic Management Map

Service quality is judged by customers, not by the organization. This distinction is critical because it forces the organization to examine the quality issues from the customer's viewpoint. For example, a bank may view service quality as having friendly and knowledgeable employees. However, the customers of this bank may be more concerned with waiting time, ATM access and security. Thus, it is important for organizations to determine what customers' expect and then develop service products that meet or exceed those expectations. However, the biggest obstacle for organizations in evaluating their service qualities is the intangible nature of the service. To address this issue, we built a strategic management map to examine the relative importance of each quality attributes. Managers then could prioritize areas for improvement based on the result presented in the strategic management map.

To build a strategic management map, we need to determine how much each quality attribute contributes to the perceived quality and the scores of quality attributes. Although it is not easy to estimate the contributions of the quality attributes (Yang, 2003), PLS provides these sets of estimates. The strategic management map consists of four

quadrants: 'do better', 'keep up', 'education' and 'no change' areas (see Figure 3). The size of the quadrants is determined strategically by managers based on the company's strategy and resources. For example, if a company has only limited resources and wants to identify the most critical items for improvement, it can shrink the size of the 'do better' area by setting a high threshold value for the estimated weights (i.e. how much each quality attribute contributes to the perceived quality) and setting a low threshold value for the scores (i.e. scores for the quality attributes).

The quality attributes in the 'do better' quadrant (e.g. employee flexibility, contract content explanation, and relevant information provision) need the most attention from managers. These quality attributes are very important when companies achieve low performance. Improvement in this quadrant would have the highest positive impact. The quality attributes in the 'keep up' quadrant (e.g. employee knowledge) should be well maintained. These quality attributes are important for achieving high performance. However, lessening the effort on this quadrant would have a significant negative impact. In addition, companies should try to educate their customers on the factors in the 'education' quadrant (e.g. employee politeness, service accuracy, ATM quality and ATM safety). Although companies can perform well in this quadrant, these quality attributes are not critically important. Through active and persuasive education on the importance of these factors, companies can turn these quality attributes into competitive advantages. Finally, the quality attributes in the 'no change' quadrant (e.g. service speed and service line convenience) should receive the least attention from managers. Improving the quality attributes in this quadrant has the least positive effect.

As mentioned previously, there are two overriding dimensions of service quality – the outcome and process aspects of the service. The outcome aspects of the service reflect the outcome of the service act, or what the customer receives in the service encounter. The process aspects of the service represents how the service is delivered; that is, it defines the customers' perceptions of the interactions that take place during service delivery. Customers judge not only the accuracy and dependability (i.e. reliability) of the delivered service but also other dimensions as the service is being delivered (Parasuraman *et al.*, 1991). It is interesting to note that, in this study, customers valued the process aspects of service quality (e.g. relevant information provision, contract content explanation, employee flexibility and employee knowledge) more than outcome aspects of service

Figure 3. Strategic management map

quality (e.g. quality and safety of ATM and accuracy of service). This suggests that the retail bank should focus more on how a service is delivered instead of the outcome. This finding coincides with previous research, which indicated that the interpersonal interactions that take place during service delivery often have the greatest effect on the customer's quality perceptions (Bitner *et al.*, 1994; Hartline & Ferrell, 1996).

Comparison of Female and Male CSI Models

Researchers have demonstrated that there are differences in satisfaction levels among different genders (Bryant & Cha, 1996). To further explore the reasons for these differences, we separated our sample based on gender to compare the specific causal links between the genders and draw a broader inference from the results. Table 4 reports the path coefficients for the female and male CSI models. We followed the procedure used by Keil *et al.* (2000) to test whether estimates of the same path obtained from the two samples were significantly different.⁵ The last column in Table 4 shows that all paths for male and female CSI model coefficients were statistically different at $p < 0.1$.

With respect to the effect of the antecedents of perceived value (e.g. perceived quality and corporate image) perceived value, males are affected more by perceived quality ($b = 0.52$ vs. 0.37), while females are affected more by corporate image ($b = 0.36$ vs. 0.30). In terms of how perceived quality and corporate image affect the overall CSI, the total effects of perceived quality on the overall CSI for females and males were 0.40 and 0.43 . The total effects of corporate image on the overall CSI for females and males are 0.44 and 0.44 . In other words, the satisfaction level of males was affected more by perceived quality (*total effect* = 0.43 vs. 0.40), while there was no difference on how corporate image affected the overall CSI. These results are consistent with intuition, because males are more rational in that they perceive product and service qualities as more

Table 4. Path estimates of the female and male CSI model

Path	Expected sign	Path estimate		Significance of the difference between path estimates (p -value)
		Female	Male	
Quality→ Value	+	0.37***	0.52***	0.001
Image→ Value	+	0.36***	0.30***	0.001
Quality→ CSI	+	0.28***	0.20***	0.001
Image→ CSI	+	0.32***	0.31***	0.04
Value→ CSI	+	0.33***	0.44***	0.001
CSI→ Complaint	+	0.31***	0.44***	0.001
CSI→ Loyalty	+	0.68***	0.53***	0.001
Image→ Loyalty	+	0.06	0.25***	0.001
Complaint→ Loyalty	No	0.09*	0.00	0.001
LVs score				
CSI		68.50	69.48	
R^2 value				
CSI		0.70	0.74	
Loyalty		0.57	0.55	

important than corporate image in terms of the product value. This also applies to the explanation on why perceived quality is more important than corporate image for males in terms of the overall CSI. Females, on the other hand, are more sensitive and more likely to be affected by the corporate image.

Interestingly, in terms of the perceived value, females were more likely to be affected by the corporate image. However, with regard to the effect of corporate image on customer loyalty, there is no statistically significant relationship in the female CSI model ($b = 0.06$, $p = 0.4$). One possible explanation is that when making transactions, females tend to think twice and contemplate the advantages they can get from each financial institute rather than simply believing in the corporate image. However, males would prefer to stay with a financial institute with a good corporate image when utilizing financial services ($b = 0.25$, $p < 0.001$). In terms of complaint handling conditions, this bank was more successful in turning female complaining customers into loyal customers. The CSI score for females was smaller than that for males (*CSI score* = 68.5 vs. 69.5), which is the opposite of the result in the ACSI study (see Bryant & Cha, 1996: 23).

Conclusion and future research directions

Unlike most theoretical models, the CSI model was not designed for theoretical testing but for prediction. Often times, we are more interested in knowing the magnitude of relationships and use the results to identify the causes of service quality shortfalls. The purpose of a customer satisfaction survey is to highlight the strengths and areas for improvement. This also suggested why PLS is more commonly used for CSI studies, because PLS is more predictive-oriented in nature than other structural equation model techniques (e.g. LISREL or EQS).

Because of the dynamic changes in the financial services industry, achieving high levels of customer satisfaction may be more like trying to hit a moving target. Even worse, it has been reported that more than 70% of customer defections in the financial services sector are due to dissatisfaction with the quality of services delivered (Bowen & Hedges, 1993). Hence, it is important for firms to continually identify the drivers of satisfaction so as to retain their most profitable assets – customers. However, consistently anticipating and satisfying the needs and expectations of customers is not an easy corporate objective as it is the customer who defines quality rather than the bank. Moreover, each customer will define quality in a slightly different way depending upon their age, education, income, gender etc. To embrace the concept of quality of service, banks need to become increasingly customer-driven, responding to customer needs rather than relying on their own perceptions of what customers require.

With that being said, the task facing managers is to focus on those activities that result in meeting or exceeding customer expectations. The question is: what are the major determinants of customer satisfaction? Our results provide insights for managers concerned with improving customer satisfaction in retail banking. At the strategic level, our model allows managers to understand the specific factors that significantly impact overall customer satisfaction within a retail bank. The study contributes towards an understanding of the causal relationship in customer satisfaction, which is of significant value to the bank management. Besides, it also helps managers to understand different customer segments (e.g., male vs. female) and obtain the maximum value from addressing each of these factors. In addition, our analysis at the operational level enables managers in the retail bank to

recognize the explicit quality attributes that need to be improved to enhance customer satisfaction.

This research also contributes to the discussion on service quality by demonstrating that there might be two overriding dimensions in service quality. To conceptualize service quality into two dimensions increases our ability to explain the relationship in a better way. The significance of the outcome aspect of service quality means that the bank management must ensure that things are done right the first time and that the service delivery promises made to the customer are kept. In the service quality process aspect, the bank management must ensure that the employees are courteous, attentive and willing to help customers as well as understanding specific customer needs. Through a strategic management map, our analysis helps identify weak areas in the map and optimize limited resources for making these areas healthy. In addition, we also found that the process aspect of service quality is more important than the outcome aspect of service quality for the bank.

Demographic differences exist in the way respondents express their opinions about various aspects of service quality, service features and satisfaction with the bank. Different customer segments can have different preferences depending upon their needs and usage patterns. Our findings also indicated that respondents belonging to different gender groups expressed differences towards service quality and customer satisfaction. Thus, the bank must look into the needs of different genders to meet their respective needs. Our results also showed that the CSI score for males was higher than that for females. This is in contrast to the result from ACSI. Besides, the CSI score for this retail bank was smaller than that from the ACSI. This suggests that future studies could compare the differences between western and eastern CSI models.

Conventional thinking tends to anticipate a negative relationship between the customer satisfaction level and the level of customer complaints. However, as argued and empirically tested in this study, the opposite is also possible. This relationship seems to be contingent on the number of competitors. Future studies could focus on this issue. Finally, this research contributes further by testing the relationship between service quality and customer satisfaction utilizing data from the retail-banking sector in a non-Western context.

Notes

1. PLS requires a minimum sample size that equals 10 times the greater of (1) the indicators on the most complex formative construct or (2) the largest number of antecedent constructs leading on endogenous construct.
2. The average R^2 values of overall CSI and loyalty are 0.75 and 0.36 in ACSI study (see Fornell *et al.*, 1996).
3. The formula of construct score is:

$$Score = \frac{\sum_{i=1}^h w_i \bar{x}_i - \sum_{i=1}^h w_i}{9 \sum_{i=1}^h w_i} \times 100$$

where h is the number of manifests variable within the latent variables and w_i are the unstandardized weights.

4. The ACSI score for banking industry can be obtained from: http://www.theacsi.org/fourth_quarter.htm#ban.

5. The calculation procedure for comparing corresponding paths across structural models is:

$$S_{pooled} = \sqrt{\frac{N_1 - 1}{N_1 + N_2 - 2} \times SE_1^2 + \frac{N_2 - 1}{N_1 + N_2 - 2} \times SE_2^2}$$

$$t = \frac{PC_1 - PC_2}{S_{pooled} \times \sqrt{1/N_1 + 1/N_2}}$$

where S_{pooled} = pooled estimator for the standard deviation, t = t -statistic with $N_1 + N_2 - 2$ degree of freedom, N_i = size of sample i , SE_i = standard error of path in structural model of sample i , and PC_i = path coefficient in structural model of sample i .

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