Operations in Banking: The service quality and effects on satisfaction and loyalty

This paper studies the service quality provided by the banks. The objectives are: i) to identify which aspects of the transactions carried out by the banks are important for the service quality perceived by the customers, taking into account some aspects that are sometimes ignored (online channels); ii) to observe how service quality influences customer satisfaction and how customer satisfaction affects the loyalty towards the bank. Using a Factor Analysis the research identifies the operative, physical, new technologies and human factors. Next, using SEMs with AMOS the results show an influence of the operative aspects and the new technologies on service quality, as well as the confirmation of quality as a precedent to customer satisfaction, and how such satisfaction influences on customer's loyalty towards the bank.

Keywords: Service quality, satisfaction, loyalty, structural equations, banking sector

Introduction

The banking services sector underwent serious transformation over the last decades. This transformation forced the institutions of this sector to pay more attention to their transactions so as to continue being competitive and to survive. This fact, added to the implementation of market globalisation and liberalisation policies by governments, prompted customers into valuing transactions received and increasing their critical approach to the quality of the service (Gayathri et al., 2005, p. 123). Moreover, these forces have been boosted by an innovation and technology improvement process which has caused substantial changes in the quality of the service (Ayuso & Martínez, 2006, p. 6). Therefore, some institutions of the banking sector decided to re-direct their philosophy and focus on customer service, with the aim of bringing the concept of service quality to the attention of their customers, in a bid to achieve their growth and adapt to the competitive environment (Sharma & Mehta, 2004, p. 218).

Service quality and customer satisfaction goes hand in hand in the banking sector (Le Blanc & Nguyen, 1988; Avkiran, 1994). Banks have come to realise that service quality in delivery is essential for their success and survival within today's competitive and global environment (Wang et al., 2003). Furthermore, service quality allows companies to differentiate themselves from their competitors, increasing sales and obtaining market share. It also leads to repeat purchase behaviour and brand loyalty; even more, new customers are attracted through positive word of mouth (Newman, 2001; Wang et al., 2003).

In this context, the objective of this paper can be divided into two main sections: first, to identify those aspects that determine the service quality perceived by the banks' clients at present, and not only those aspects underlined by classical literature; for example, the *new technologies* dimension, which incorporates customers' preferences for the use of telephone and online channels, a factor that is still sometimes ignored by service quality measurement scales; and second, to observe how service quality influences customer satisfaction and how customer satisfaction affects the loyalty towards the bank.

These three constructs (service quality, satisfaction and loyalty) have been analysed in many sectors and using scales already known, but the studies which have analysed them in the particular case of banking institutions are still limited and even more using new scales specifically adapted to the banking services sector. In this study, starting from a plentiful bibliographic review, we created our own scale for service quality measurement in the banking sector, and we linked such quality with satisfaction and loyalty.

Moreover, the determining factors in the service quality have usually been analyzed on a case by case basis. In our study, through the analysis of main components, these factors are extracted for the particular case of the banking sector and in a geographic area where banking services are very developed because it is a border area between two countries.

In order to achieve the above aim, the rest of the paper is organized as follows: the second section briefly describes the most relevant research on service quality in banking institutions,

identifying the contributions that are most valuable to our research, as well as the hypotheses related with service quality, customer satisfaction and customer loyalty towards the institution. The third section describes the sample selection, methodology and variables used in the study. Finally, the results of the empirical analyses are discussed in the fourth section, whilst the fifth section presents the main conclusions of the paper.

Theoretical background and testable hypotheses

Banking service quality

The interest in the quality of the service has grown enormously since the eighties (Grönroos, 1983; Parasuraman et al. 1985; Lewis & Klein, 1987; Gummesson & Grönroos, 1988; Zeithaml et al. 1988). Nowadays, products and services must not only be fit for their designated use, but they must also reach, even surpass, the expectations customers have for them.

A banking service is the activity carried out by banking institutions considered as service companies; that is, everything that banking institutions do to serve their customers. Banking service is undergoing rapid changes in its environment (Jayawardhena, 2004, p.186). Some of the changes are blamed on a technology that is growing increasingly important in relation to information (Shih & Fang, 2006, p. 62). More so, the bank that quickly adapts to the innovative technologies may gain competitive advantage and efficiency (Acharya et al., 2008, p. 419).

Most of the researches of the quality of service rendered by banking institutions are primarily geared towards defining the dimensions of the quality and creating a model to measure it, usually with the aim of improving the quality of the service.

One of the most used scales is the use or adaptation of the most extensively validated scales, as is the case of the SERVQUAL scale (Parasuraman et al., 1985). Different studies have emerged from it within the banking sector (Yavas et al., 1997; Allred & Addams 2000; Bahia & Nantel, 2000; Jayawardhena, 2004; Yavas et al., 2004; Arasli et al., 2005; Bath, 2005; Karatepe et al.,

2005), in which the five dimensions of SERVQUAL (tangibles, reliability, responsiveness, assurance and empathy) are initially considered, together with its 22 items.

However, Cronin and Taylor (1992) do not consider the SERVQUAL scale as valid for measuring service quality or customer satisfaction, because the conceptual framework in which it is sustained is not based on an attitude model but on a perception-expectation model. From that point of view, the said authors created their own scale, known as SERVPERF, in which they only consider customer perceptions, claiming that quality of service based only on results is a better instrument for measuring the quality of the service. Based on these premises, researchers used this scale and posed questions that only consider perceptions (Jabnoun & Al-Tanami, 2003; Sharma & Mehta, 2004; Ting, 2004; Bauer et al., 2005). That is the method followed in our research.

There are also studies involving both scales (SERVQUAL and SERVPERF) in their original and weighted versions, in an attempt to find the scale with the highest validity rate (Angur et al., 1999; Chi Cui et al., 2003).

Furthermore, other studies have been carried out following the Grönroos image model (1983) in which service quality is the result of integrating total quality in three types of dimensions (technical quality, functional quality and corporate image), which shape an individual's perception of an object, be it product or service; this model has been used as the only reference (Aldlaigan & Buttle, 2002) or in combination with the SERVQUAL scale (Lassar et al., 2000).

Apart from the scales referred to above, other banking sector service quality researches have created their own scales (Lewis, 1993; Jamal & Nasser, 2002; Gounaris et al., 2003; Sureshchandar et al., 2003; Paswan et al., 2004; Al-Hawari, et al., 2005).

All of the previously mentioned models help us define banking service quality as the careful and correct performance of banking service, the aim of which is to ensure customer satisfaction, and in which the joint collaboration of the entire organization is required. Service quality is

influenced by different factors that gather aspects measured through items in the questionnaire employed in the research and which must capture all aspects of the identified construct (Churchill, 1979, p. 67). We chose to review the literature for its identification, since it is one of the techniques that provides most relevant attributes and it also complies with the characteristics that items must possess (Malhotra, 1981, p. 456), be as varied as possible, have certain dimensionality, show certain stability, both semantic and conceptual, be relevant to the constructs to be measured, and be selected on the basis of usage.

Despite the fact that the review of the literature leads to the conclusion that service quality is influenced by different factors, there does not appear to be a consensus as to which are the main dimensions of perceived service quality (nor even in the specific case of the banking sector). Therefore, given the impossibility of relying on preliminary measures that define the true dimensionality of the 'quality' construct (applied to the banking sector) and taking into account the exploratory nature of this research work, it is proposed that the dimensions of the construct be a synthesis of those that had been previously obtained, as required by the methodology for the development of measurement scales.

The result of the bibliographic review process concerning the banking sector (and the items that formed each dimension) was the obtaining of four dimensions that, altogether, specify the perceived service quality construct. Firstly, most of the dimensions of SERVQUAL were in force, although adapted to the sector object of the study (as claimed by the authors), grouped into physical aspects and human aspects, that depict the conventional dimensions of SERVQUAL regarding security, responsiveness, empathy, etc[1]. Secondly, it is necessary to consider the specific aspect of the banking offices (their operative), that appears in many works of the analysed sector. Finally, there is a forth dimension that is becoming more and more of an essential consideration due to the technological development, the new technologies.

Once the different dimensions were identified, a *factor analysis of the main components* was employed with the aim of verifying that the variables used met the established constructs. The

first factor includes the 'operative' performance of the rendering of service such as the range of bank products and services in keeping with the latest innovations (Avkiran, 1994; Bahia & Nantel, 2000; Paswan et al., 2004; Al-Hawari et al., 2005), the service delivery time (Lewis, 1993; Avkiran, 1994; Bahia & Nantel, 2000; Barroso et al., 2004), punctuality (Lewis, 1993; Bahia & Nantel, 2000; Gounaris et al., 2003; Barroso et al., 2004), financial aspects such as solvency (Gounaris et al., 2003; Paswan et al., 2004; Al-Hawari et al., 2005), as well as Automatic Teller Machine (ATM) services (Aldlaigan & Buttle, 2002; Paswan et al., 2004; Al-Hawari et al., 2005), an aspect not considered technological since it has been part of banking for a long time, and customers can simply not imagine banks without them. Some studies on which we have relied in order to extract the items of this factor can be found in Appendix (Table 1). Therefore, we propose the first hypothesis:

H₁ₐ: The operative aspects of the institution directly and positively influence the quality of service perceived.

To determine the dimension called 'physical aspect' (Lewis, 1991), we considered that, due to the intangible nature of services, customers may use elements associated with the physical environment when assessing service quality (Berry, 1980; Booms & Bitner, 1981). Therefore, the physical structure, the internal environment and the disposition of resources cause a positive impact on customers (Sharma & Mehta, 2004, p. 218). This dimension considers the tangible aspects of facilities (Lewis, 1993; Bahia & Nantel, 2000; Aldlaigan & Buttle, 2002; Gounaris et al., 2003; Barroso et al., 2004; Al-Hawari et al., 2005) and staff (Lewis, 1993; Avkiran, 1994; Gounaris et al., 2003; Barroso et al., 2004). Appendix (Table 2) shows the items from which this factor has been created. Consequently, we propose:

H₁ᵦ: The physical aspects of the institution directly and positively influence the quality of service perceived.

Thirdly, there is another dimension that has gradually become stronger over the years (Dabholkar, 1996; Joseph et al., 1999; Jayawardhena, 2004; Al-Hawari et al., 2005), given that

first factor includes the 'operative' performance of the rendering of service such as the range of bank products and services in keeping with the latest innovations (Avkiran, 1994; Bahia & Nantel, 2000; Paswan et al., 2004; Al-Hawari et al., 2005), the service delivery time (Lewis, 1993; Avkiran, 1994; Bahia & Nantel, 2000; Barroso et al., 2004), punctuality (Lewis, 1993; Bahia & Nantel, 2000; Gounaris et al., 2003; Barroso et al., 2004), financial aspects such as solvency (Gounaris et al., 2003; Paswan et al., 2004; Al-Hawari et al., 2005), as well as Automatic Teller Machine (ATM) services (Aldlaigan & Buttle, 2002; Paswan et al., 2004; Al-Hawari et al., 2005), an aspect not considered technological since it has been part of banking for a long time, and customers can simply not imagine banks without them. Some studies on which we have relied in order to extract the items of this factor can be found in Appendix (Table 1). Therefore, we propose the first hypothesis:

H_{1a}: The operative aspects of the institution directly and positively influence the quality of service perceived.

To determine the dimension called 'physical aspect' (Lewis, 1991), we considered that, due to the intangible nature of services, customers may use elements associated with the physical environment when assessing service quality (Berry, 1980; Booms & Bitner, 1981). Therefore, the physical structure, the internal environment and the disposition of resources cause a positive impact on customers (Sharma & Mehta, 2004, p. 218). This dimension considers the tangible aspects of facilities (Lewis, 1993; Bahia & Nantel, 2000; Aldlaigan & Buttle, 2002; Gounaris et al., 2003; Barroso et al., 2004; Al-Hawari et al., 2005) and staff (Lewis, 1993; Avkiran, 1994; Gounaris et al., 2003; Barroso et al., 2004). Appendix (Table 2) shows the items from which this factor has been created. Consequently, we propose:

H_{1b}: The physical aspects of the institution directly and positively influence the quality of service perceived.

Thirdly, there is another dimension that has gradually become stronger over the years (Dabholkar, 1996; Joseph et al., 1999; Jayawardhena, 2004; Al-Hawari et al., 2005), given that

in an environment as competitive as the banking sector is today, banks need to offer a service based on information technologies. Therefore, as technology advances, the institution must move forward in the automatization of the services. Although automatic teller machines are considered the second channel for the purpose of withdrawing money, in the last ten years Internet banking has become the main distribution channel for banking services in many countries (Fox & Beier, 2006). The applications based on the Internet have become an important vehicle for many businesses for conducting product marketing and distribution (Kotzab & Madlberger, 2001; Dixon & Marston, 2005; Tih & Ennis, 2007).

This dimension is referred to as 'new technologies' which include automated services: Website access (Jayawardhena, 2004), Internet and telephone banking (Al-Hawari et al., 2005), which help banks in obtaining market share (Cooper & Edgett, 1996), as well as in reducing operation costs and waiting time in branch offices (see Appendix, Table 3). Thus, we propose:

H_{1c}: New technologies offered by the institution directly and positively influence the quality of service perceived.

Fourthly, we consider the 'human dimension', extensively used in service quality studies, which includes the attitudes and capacities of those employed in the rendering of services (see Appendix, Table 4). It is the equivalent of what is known in other studies as empathy (Parasuraman et al., 1988; Avkiran, 1994; Barroso et al., 2004), staff behaviour (Avkiran, 1994) or understanding (Gounaris et al., 2003). It is specifically displayed in aspects such as trust-inspiring employees (Lewis, 1993; Avkiran, 1994; Aldlaigan & Buttle, 2002; Barroso et al., 2004), service rendering knowledge and skills (Bahia & Nantel, 2000; Gounaris et al., 2003; Paswan et al. 2004), friendliness and courtesy or customised attention (Lewis, 1993; Avkiran, 1994; Aldlaigan & Buttle, 2002; Barroso et al., 2004; Paswan et al., 2004). Therefore, the following hypothesis is proposed:

H_{1d}: Human aspects of the institution directly and positively influence the quality of service perceived.

Lastly, it is reasonable to think that such factors would move in the same direction, that is, institutions that tend to be more progressive in some kinds of aspects would tend to be more conscious of the importance of others. In other words, it is a question of verifying whether these aspects that influence service quality are interrelated, as proposed the following hypothesis:

H_{1e}: Factors that determine service strongly correlate with each other.

Satisfaction and loyalty in the banking service

Satisfaction and service quality are different constructs that have obtained diverse positions with regards to their causal ordering. Considering that the satisfaction of the customer is an important objective to be achieved by firms and that one way of achieving it is service quality (Goode et al., 1996), similar to most researches of this nature, we shall consider that service quality is a precedent for satisfaction (Cronin & Taylor, 1992; Anderson & Sullivan, 1993; Yavas et al., 1997; Lassar et al., 2000). Some authors have recently studied satisfaction in the banking sector (Lu & Tang, 2001; Caruana, 2002; Jamal & Naser, 2002; Barroso et al., 2004; Yavas et al., 2004; Reimer & Kuehn, 2005). According to the previous idea, we propose the following hypothesis:

H_2: Service quality directly and positively influences customer satisfaction.

The interest in orientating research towards customer loyalty is also backed by the existence of numerous researches that show the powerful impact it has on company performance. In addition, numerous companies consider it as an important source of competitive advantage (Heskett et al., 1994; Rust et al., 2000).

Given the new orientation of the market, all organizations acknowledge the importance of the added value of service and of customer relationships with a basic objective: to retain their loyalty. It should be considered that the effects of customer satisfaction are not always displayed in positive behaviours (Jacoby & Jaccard, 1981). There may be customers who hold no loyalty

towards a specific institution even when satisfied in successive encounters, and they may easily change to rival institutions, possibly due to the absence of a sense of belonging.

The last two decades saw considerable attention being paid to customer satisfaction as a potential determinant factor of customer loyalty (Fornell, 1992; Oliver, 1999), and with the exception of some few occasions, total satisfaction of the customer is a key factor to ensuring his/her loyalty and to creating long-term profitable relationships (Jones & Sasser, 1995, p. 89).

Even though many researches have studied the relationship between the three constructs (service quality, satisfaction and loyalty), not that many have done it in banking institutions (Lu & Tang, 2001; Caruana, 2002; Yavas et al. 2004). In our study, loyalty was measured from questioning the interviewed on both their first option regarding rival competitors and the possible recommendation of the bank to any who may seek his/her advice (Lu & Tang, 2001; Athanassopoulos et. al., 2001; Caruana, 2002; Barroso et al., 2004; Yavas et al., 2004; Aydin & Özer, 2005). Therefore, we proposed as the final hypothesis:

H$_3$: Customer satisfaction directly and positively influences customer loyalty.

Figure 1 shows a graphic view of the all hypotheses proposed in our study.

[Figure 1 about here]

Methodology

The sample selection was carried out randomly and through personal surveys to individuals that are customers of the banking institutions, over 18 years old, in 2006, in Cúcuta, a Colombian city located along the border with Venezuela, which represents one of the most important borders of South America and it is a city that is well known for the influx of banking transactions due primarily to the important trading activities carried on as a result of its strategic location. The presence of banks is therefore a matter of vital importance in this area.

The banks that have been taken into account in our research are the commercial banks that belong to the Banking and Financial Entities Association of Colombia (Asociación Bancaria y de Entidades Bancarias de Colombia), 'Asobancaria', for the purpose of ensuring that such banks comply with all legal requirements and provide homogeneous services.

Starting from a check of the literature about the different scales for measuring the service quality, we have developed our own measurement scale that has been specifically adapted to the banking services industry. Such a scale was contrasted with experts' opinion and with a pilot test in order to validate the suitability of the questionnaire regarding aspects such as the correct selection of variables, the clarity of the questions' wording, the fluency in the presentation of the issues to be studied, the order followed or the prior detection of important aspects that later would allow to explain the results.

The final questionnaire has two different parts. The first part used closed questions, which included socio-demographic aspects, such as age, education, income, profession and geographical situation of the customers, which may have an important influence on the evaluation of the service quality they are personally doing (Bath 2005, p. 82). The second part of the questionnaire consisted of the 33 items (see Appendix, Table 5), resulting from the previous stages (the review of the literature, expert consultation and the pilot test). The answers obtained in this part of the questionnaire were measured with a seven point Likert scale. These scores were used to determine the general assessment given by the customers to the aspects that influence service quality perception, as well as customer's satisfaction and loyalty towards the bank, obtaining as a result and in line with previous studies a global vision of the quality level provided by the banks. Thus, for example, Jabnoun and Al-Tamimi (2003, p. 462) include in the questionnaire three questions that measure overall service quality to be compared with the items that make up the different dimensions of service quality; Sharma and Mehta (2004, p. 213) after analysing the dimensions of service quality, also calculated customers' global perception of such service quality, and Angur et al. (1999) and Aldlaigan and Buttle (2002) also use a global measure of perceived service quality[2].

The survey produced 400 valid questionnaires with a sample error of 5% for the most unfavourable case and 95% confidence level. The frequency distribution percentage was very similar between men and women, with more than 55% of those polled within the first two age ranges (18-27 and 28-35 years). Most of those polled are individuals with jobs, whether employed by themselves or by others. They make up more than 80% of the sample.

This research has followed the methodology for creating the usual measurement scales used in the social sciences (Churchill, 1979), with sequential application, starting with an idea that gets increasingly defined and, once delimited, the objectives and questions of the research were then established.

In order to identify the different dimensions of quality service the factor analysis of main components is used, and to test the possible influence of quality on satisfaction and loyalty we employed a Structural Equations Model (SEM).

Results

Reliability and validity

It is necessary to refine the measurement scale since a scale must comply with a series of psychometric property requirements, such as validity and reliability, in order to become a useful instrument in measurement.

Cronbach's alpha co-efficient analysis and the correlation matrix analysis (Table 1) were used to verify reliability and to eliminate low rank items. Item x14, 'short wait to be served' was eliminated because its ranking is only 0.317, in addition to its low correlation with the other variables. Since the alpha co-efficient was above 0.70 (value recommended by Cronbach), it was good, since its value rises to 0.943 (once the variable x14 is eliminated).

[TABLE 1 ABOUT HERE]

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The validity of a scale indicates the degree to which we are measuring what we actually intend to measure, using for that purpose content and construct validity. In other words, it allows us to know whether said scales can measure that (variables or constructs) for which they have been created.

Content validity is applied to estimate whether the procedure followed for the preparation of the measurement scale is appropriate (Peter & Churchil, 1986, p. 1). It is generally accepted if the scale was developed from published theories existing on the said issue. In our research, after an exhaustive and appropriate review of the literature on the scales created, and after an assessment by 22 external experts and a pilot test on a 20-person sample, we may assume that there is validity of content.

The construct validity attempts to reflect the existence of a theoretical relation between the variable object of measurement and other variables (Bollen, 1989). That is, it tries to verify whether the concept intended for measurement is what the scale is actually measuring. The convergent, discriminating and factorial validities of the scale are analysed to calculate this kind of validity.

The convergent validity exists when the measurement strongly and positively correlates with other measurements of the same construct (Churchill, 1979, p. 70). This is positively influenced by reliability, such that, the higher the reliability, the better the convergent validity. Two procedures were employed in the measurement of convergent validity: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA).

The EFA determined the factors making up each of the constructs of those that make up quality service through factor analysis of the main components, with the aid of the SPSS 13.0 statistical package. Four factors or dimensions were extracted from the orthogonal rotation using the Varimax method, which altogether represent 61.678 per cent of the total variance of the original variables (Table 2).

Variables X11 to X21, which manifest aspects referring to conventional transactions and services offered at and carried out by the institutions (operative aspect) are loaded in the first component. The second component includes variables X1 to X5, which refer to the physical aspect of the institution. The third component includes variables X22 to X27 which evaluate the new technologies (new technologies) used in the institution for rendering services. And lastly, the fourth component includes variables X6 to X10, which evaluate attitudes and ways in which the staff (human aspect) of the institutions works.

[Table 2 about here]

The constitution of the factors obtained from the EFA was introduced in a confirmatory model, estimated by means of structural equations through Amos 6.0. It was verified that standardised coefficients of items making up the scale were above 0.5 and significant ($p<0.05$), which would allow the acceptance of the existence of convergent validity.

Concerning discriminant validity, it indicates the degree to which two measurements developed for measuring similar but conceptually different constructs are related (Bearden et al., 1993). By carrying out an analysis of correlation among the constructs and following the recommendations made by Fornell and Larcker (1981) regarding the use of variance extracted estimate, the discriminant validity was measured verifying the absence of a correlation with the value of 1, that is, that none of the items making up the different factors appeared in others. With this result it should therefore be understood that there is discriminating validity in the quality measurement scale.

Testing of structural model and discussion

Once we have identified the four dimensions of the service quality we analyse the influence of quality on customer satisfaction and loyalty. In this sense, the application of Structural Equations Models is appropriate for the analysis of the relationship systems. First of all, it validates the system components and then it determines the relationship between components.

Causal relationships, explained by SEMs, are those that occur between a set of latent variables -non-observables- each of which is measured by one or more manifest variables -observables- (Diamantopoulos, 1994, p. 105).

We used the AMOS 6.0 program which allows the graphic, equation and directional resolution of models, to determine this model. The CFA which may be seen in a graph in Figure 2 was developed with it.

The hypotheses referred to the exogenous variables were verified using the values that appear in the process diagram: H_{1a}, H_{1b} and H_{1c}, but the H_{1d} hypothesis could not be verified since it has no significant value. From the three factors which have proved to be significant, it is the operative factor the one that seems to be most influential in the definition of the banking service quality. A possible explanation of the reasons why the human aspect did not prove to be significant is that in this geographic area, given its border location, clients may prefer a quick service to, for instance, customised attention from employees. The H_{1e} hypothesis was also verified because the different aspects of service quality are inter-correlated. The hypotheses of the H_2 and H_3 endogenous variables were verified with values exceeding 0.90.

[Figure 2 about here]

With regard to the goodness indexes for this model, values should be as close to one as possible, needing to be higher than 0.90 (our model uses values GFI: 0.791; CFI: 0.868; NFI: 0.826); as for RMSEA, value should be lower than 0.05, (and in our model is 0.080). In order to reach the adequate indexes, the best option is to carry out a respecification of the model, taking into account the variation indexes provided by the computer application, thus producing as result a final model with 17 variables and better goodness indexes than those offered by the model (see Figure 3).

[Figure 3 about here]

The indexes of the model improved considerably in comparison with the initial model, as well as the values of correlations between the exogenous variables and quality, thus verifying the H_{1a}, H_{1b} and H_{1c} hypotheses; the H_{1e} hypothesis is also verified since the variables are inter-correlated. The relationships of the endogenous variables continue to be above 0.90, and they allow the verification of the H_2 and H_3 hypotheses, suggesting that service quality influences customer satisfaction and satisfaction on the customer loyalty, respectively (see Table 3).

[Table 3 about here]

An alternative model has also been considered where all the exogenous variables (operative, physical, human and technological aspects) have been linked to the endogenous variables (satisfaction and loyalty) with the aim of identifying the existence of new significant relationships that were undetected in previous studies and that may bring new ideas to bank managers. The results only suggest significant relationships between human aspects and satisfaction (γ=0.19) and between operative aspects and satisfaction (γ=0.14), although in this last case the level of significance is lower.

Implications and conclusions

Over the last few years, many service companies, including banking institutions, have been weighing up the quality of the service offered and the satisfaction of the customer in order to determine how they can meet the needs and requirements of the customers. Being able to understand the causal relationship between service quality and satisfaction is a crucial value for the bank managers, as well as the fact that service quality and satisfaction are both predictor factors of the purchase behaviours, such as the purchase intentions or the word of mouth recommendations (Dabholkar, 1995).

Although many studies have analysed these three constructs and with scales extensively used in the literature, a greater effort can still be made in the banking sector. This study provides a deeper understanding of the service quality and its dimensions, thus obtaining a new scale

adapted to the banking service sector. Likewise, our study demonstrates the causal direction of the relationship between service quality, satisfaction and loyalty.

The dimensions that better adapt to the banking environment were created using the existing scales as bases, in which the operative aspect is in relation with the rendering of services, the physical aspect has to do with the look of the facilities, the new technologies include virtual media like Internet and telephone banking, and the human aspect includes the attitudes and capacities of the employees rendering the services.

Unlike other measurement scales that still ignore the importance of the use of telephone and online channels to analyse the quality of the service perceived by customers, in our study the new technologies dimension is correctly identified; although it is true to say that several authors are incorporating it (Dabholkar, 1996; Joseph et al., 1999; Jayawardhena, 2004; Al-Hawari et al., 2005).

The measurement instrument was developed according to the SERVPERF methodology (Cronin & Taylor, 1992), in which only customers' perceptions of the service received are considered. Factor analysis of the main components was used to verify whether the established dimensions fitted the previous ones, thus determining that, with the exception of item x14 (waiting time), which was not significant, all items were adjusted as stipulated.

The hypotheses were verified through the modelling of structural equations with the program AMOS, in which we can point out that the value of the operative aspect is the highest and the one that most influences service quality (H_{1a}). This responds to the need for service and to the fact that customers often conceive service quality as that related with the performance in banking transactions, such as bank schedules, wide range of products and services, precision of the explanations, profitability, etc., and diminishing the importance of the physical aspect of the institution, the visual aspect and the look of the employees (H_{1b}), because what is actually important to them are the aspects that are more crucial to them.

We may also observe, despite the fact that some multi-channel service providers are still not taking it into account, how the new technological advancements influence the perception of quality, thus corroborating for example the result obtained by Al-Hawari et al. (2005) in the case of Australia; this is justified by the impact recently obtained by the virtual media that facilitates the relationship between institutions and customers, like the verification of balances by telephone or ordering of transfers through on-line banking (H_{1c}), since they ease transactions.

Except for branch offices, Internet banking seems to be the best alternative to the distribution channel in terms of use rate (Guerrero et al., 2007) and it is becoming the main distribution channel for banking services in many countries (Fox & Beier, 2006), primarily for the ease with which it can attract new customers and the improvement of the loyalty level of existing customers thanks to the cost-efficiency ratio (Mols, 2001).

Nevertheless, banks must have a good knowledge of the customer's needs, beyond the design of banking products and services. For example, Pikkarainen et al. (2006) discovered that customers can improve the bank's perception through Internet banking focussing on three aspects: content, ease of use and accuracy of the transaction. Consequently, the banks can obtain the potential profits of the Internet banking, and a considerable amount of transactions must be changed from the branch offices to the electronic banking (Ding et al., 2007; Eriksson & Nilsson, 2007). And all this requires a substantial change in customers' behaviour, since the adoption of Internet banking is not the same in all countries (Gounaris & Koritos, 2008).

Moving forward on the consequences that Internet banking might have on loyalty, some authors (Hernando & Nieto, 2005; DeYoung et al., 2007), link it to performance, in such a way that it has an effect on financial performance and should encourage banks to adopt new information technologies and set the goal of providing online services (Acharya et al., 2008, p. 418).

With regard to the human aspect, we must highlight a situation that is peculiar to this region (Cúcuta, Colombia), which is a border area with an important trading activity; this fact may cause that the inhabitants give great importance to the rendering of the service, since customers

may prefer a quick service, relegating to second place the friendliness, courtesy and customised attention from the employees. This could be one of the reasons why greater value is given to the operative aspects, rejecting the hypothesis that relates the human aspect with service quality (H_{1d}). This result contradicts the results of the SERVQUAL scale, as well as other studies that focus on exploring the impact of the personnel on the quality rendered by banks (Moutinho & Smith, 2000; Selnes & Hansen, 2001). Nevertheless, the knowledge of such an area by one of the authors of this work, as well as the conclusions extracted from in-situ interviews, revealed that the area shows specific circumstances in education, lack of security (since it requires more security measures than other countries), customs, etc., that may have a crucial influence on the results. Also, from an operative point of view, the products that the majority of customers acquire tend to be basic products, not at all complex and do not require any advice from the employees; these products are not different from the competitor's and treatment tends to be the same in most of the banks; the client is usually a visiting customer who does not come again. In any case, we should be careful when trying to generalise this result and it is necessary to continue explaining why it is shown.

The significant values of inter-correlations of aspects that influence service quality suggest that these indicators are correct and that each of them is important in determining the quality (H_{1e}).

Finally, as regards quality and satisfaction, the high value achieved indicates that, to a great extent, customers who perceive service quality will be satisfied with the institution. Therefore, our results show that service quality is a precedent to customer satisfaction (H_2), as well as the evidence reported by Lassar et al. (2000) for a sample of international private banks, Yavas et al. (2000) for Turkey or Maddern et al. (2007) for United Kingdom. Although previous empirical evidence does not totally support it, we may conclude that it is very probable for customers who are satisfied with the institution to remain loyal and continue their relationship with it (H_3) (Arasli et al., 2005; Karatepe et al., 2005).

In addition, our results seem to suggest a significant relationship between human aspects and satisfaction and between operative aspects and satisfaction. A potential explanation is that the differences existing in the area due to the important trading activity and the lack of security in the country, means that the offices are constantly busy, since businesses choose not to leave the cash collected every day in their premises but to deposit it daily (even more than once a day) in the bank. In this way, customers may value to a greater extent the aspects relating to the operating performance, where waiting time is reduced, even above interpersonal relations. Also, if the service is received in a correct manner and in a reasonable period of time, and the employees are polite, courteous and trustworthy, customers will feel satisfied.

Therefore, the identification of the four dimensions means that customers differentiate between operative, physical and human aspects and new technologies. This differentiation has important implications for quality improvement actions and policies to be developed by bank managers, given that they can be different depending on whether they involve the improvement of some of the aspects individually in order to improve the quality perceived by the customer, customers' satisfaction or customers' loyalty towards the bank.

With regard to the restrictions that can be pointed out these can be seen as study opportunities for future researches that improve the understanding of reality. Firstly, there can be other factors that influence the service quality perceived, the customers' satisfaction and the loyalty that have not been taken into account. Furthermore, most of the variables that can be observed are based on the perceptions of those customers that have been interviewed in the survey, which may create bias, since some of the positive or negative reactions may be the result of the accumulation of several satisfactory/unsatisfactory situations and might not be linked to the specific experience that it is being asked to assess. Secondly, future studies that delve into the human factor may help to generalise the results obtained in our work with respect to a border area that is well known for the influx of banking transactions. Thirdly, it can also be of interest to replicate the study in other financial-related services (insurance, mutual societies, etc.).

In short, the conclusions obtained are important in the right context, and we must be careful when trying to generalise the results and be aware that the restrictions of the study can be the path that leads to new researches that allow us to advance in the knowledge of the relationship between quality, satisfaction and loyalty.

Acknowledgements

Notes

1. In a similar way, some authors such as Jabnoun and Al-Tamimi (2003, p. 464) group the five SERVQUAL dimensions only into three (human skills, tangibles and empathy).

2. Another explanation to justify the use of a global variable is that some authors had already used it to establish the convergent validity by correlating scale results and global quality assessment (Parasuraman *et al*., 1988; Vandamme and Leunis, 1993). Regarding the banking sector, Avkiran (1994) also raised additional questions to demonstrate the convergent validity of the instrument.

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Table 1. Operative aspect

Convenience of hours bank is open to the public	PBZ, 1991; Lewis, 1993; Aldlaigan and Buttle, 2002; Barroso *et al.*, 2004; Paswan *et al.,* 2004
Wide range of banking products and services in keeping with latest innovations	Lewis, 1993; Gounaris *et al.*, 2003; Barroso *et al.*, 2004; Bahia and Nantel, 2000
Effort to ensure the absence of errors in the execution of the service	PBZ, 1991; Lewis, 1993; Bahia and Nantel, 2000; Aldlaigan and Buttle, 2002
Short period of waiting for service delivery	PBZ, 1991; Lewis, 1993; Avkiran, 1994; Bahia and Nantel, 2000; Barroso *et al.*, 2004
Precision and clarity in explanations or information provided	Lewis, 1993; Avkiran, 1994; Bahia and Nantel, 2000; Aldlaigan and Buttle, 2002; Jayawardhena, 2004; Paswan *et al.*, 2004
Financial solvency and good reputation of the bank	Bahia and Nantel, 2000; Paswan *et al.*, 2004
Offer of different types of loans adjusted to my needs	Paswan *et al.*, 2004; Al-Hawari *et al.*, 2005
Offer of high profitability rates	Gounaris *et al.*, 2003; Paswan *et al.*, 2004; Al-Hawari *et al.*, 2005
Ease and knowledge provided by the bank to use automated services	
Safety and convenience of ATM location	Aldlaigan and Buttle, 2002; Paswan *et al.*, 2004; Al-Hawari *et al.*, 2005
Ease of ATM use	Aldlaigan and Buttle, 2002; Al-Hawari *et al.*, 2005

Table 2. Physical aspect

Convenient location of the bank	Lewis, 1993; Gounaris *et al.*, 2003; Paswan *et al.*, 2004
Attractive and clean aspect of the bank	PBZ, 1991; Lewis, 1993; Bahia and Nantel, 2000; Gounaris *et al.*, 2003
Advanced technological equipment owned by the bank	PBZ, 1991; Lewis, 1993; Bahia and Nantel, 2000; Aldlaigan and Buttle, 2002; Barroso *et al.*, 2004; Al-Hawari *et al.*, 2005
The bank has an adequate security system (video cameras, security agents, etc.)	PBZ, 1991; Lewis, 1993; Bahia and Nantel, 2000; Aldlaigan and Buttle, 2002; Jayawardhena, 2004; Bauer *et al.*, 2005
Tidiness and elegance of bank employees	PBZ, 1991; Lewis, 1993; Avkiran, 1994; Gounaris *et al.*, 2003 ; Barroso *et al.*, 2004

Table 3. New technologies

Availability of information in telephone banking	Lewis, 1993; Al-Hawari *et al.*, 2005
Short period of waiting in telephone banking	Lewis, 1993; Avkiran, 1994; Al-Hawari *et al.*, 2005
High security telephone banking	Al-Hawari *et al.*, 2005
Easy surfing on the online banking Website	Jayawardhena, 2004; Al-Hawari *et al.*, 2005
Time saved on online banking in comparison with branches	
High security online banking	Al-Hawari *et al.*, 2005

Table 4. Human aspect

Confidence transmitted by the bank personnel due to their honesty and decency	PBZ, 1991; Lewis, 1993; Avkiran, 1994; Aldlaigan and Buttle, 2002; Barroso *et al.*, 2004
Knowledge and skill of the bank personnel, necessary for rendering the service	PBZ, 1991; Lewis, 1993; Avkiran, 1994; Bahia and Nantel, 2000; Gounaris *et al.*, 2003; Barroso *et al.*, 2004; Paswan *et al.*, 2004
Willingness to help of branch staff	PBZ, 1991; Lewis, 1993; Avkiran, 1994; Aldlaigan and Buttle, 2002
Customized attention given by employees	PBZ, 1991; Lewis, 1993; Avkiran, 1994; Aldlaigan and Buttle, 2002; Barroso *et al.*, 2004; Paswan *et al.*, 2004; Jayawardhena, 2004
Friendliness and courtesy of the bank employees	PBZ, 1991; Lewis, 1993; Avkiran, 1994; Aldlaigan and Buttle, 2002; Gounaris *et al.*, 2003; Barroso *et al.*, 2004; Paswan *et al.*, 2004

Table 5. Description of the variables that make up the measurement instrument

X1	Convenient location of the bank
X2	Attractive and clean aspect of the bank
X3	Advanced technological equipment owned by the bank
X4	Appropriate monitoring at the bank (video cameras, security agents, etc).
X5	Tidiness and elegance of bank employees
X6	Confidence transmitted by personnel due to their honesty and decency
X7	Knowledge and skill of staff, necessary for rendering the service
X8	Willingness to help of branch staff
X9	Customised attention given by employees
X10	Friendliness and courtesy of employees
X11	Convenience of hours bank is open to the public
X12	Wide range of banking products and services, in agreement with latest innovations
X13	Effort to ensure the absence of errors in the execution of the service
X14	Short period of waiting for service delivery
X15	Precision and clarity in explanations or information provided
X16	Financial solvency and good reputation of bank
X17	Offer of different types of loans adjusted to my needs
X18	Low interest rates for loans in comparison with other banks High interest rates for deposits in comparison with other banks
X19	Facility and knowledge provided by the bank to use automated services
X20	Safety and convenience of ATM location
X21	Facility of ATM use
X22	Availability of information in telephone banking
X23	Short period of waiting in telephone banking
X24	Safety of telephone banking
X25	Ease for surfing on the on-line banking Website
X26	Time saved on on-line banking in comparison with branches
X27	On-line banking security
X28	General quality perceived from the bank as good
X29	Bank renders the expected service
X30	Bank satisfies your needs
X31	Bank provides expected service
X32	Your bank is considered as first option for banking services to use
X33	You would recommend your bank to any person asking for advice