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ABSTRACT

In recent years, the banking sector has undergone major changes in the way it serves its customers. Banks have found that customer loyalty is fundamental to strengthening their strategies. The objective of this paper is to identify the variables that have the greatest influence on the loyalty of mobile banking users. A structural equation model of the relationships between the studied variables was developed. The main results indicate that the variables with the greatest influence on mobile banking users' loyalty are satisfaction, use, and trust. Several conclusions, managerial implications, and possibilities for future studies emerge from these results.

Introduction

One of companies' principal strategies is retaining the largest number of existing customers possible while attracting new customers by increasing current customers' loyalty (Kim & Han, 2013). Improvements in customer retention and increases in company participation lead to the economic benefit of customer loyalty (Hazra & Srivastava, 2009). Customer loyalty is considered an essential element in the administration of financial entities because it leads to an increase in the income, market share and return (Lewis & Soureli, 2006).

To improve their service systems and manage the abundant information on their list of clients, financial entities focus on offering value-adding services using the Internet and new technologies. Using new platforms via the Internet allows banking entities to carry out their transactions more efficiently by offering greater accessibility to their customers, who demand that banks ascribe greater importance to the use of online banking tools instead of actual banking offices, where they usually encounter endless lines and strict office hours (Liebana-Cabanillas, Muñoz-Leiva, & Sanchez-Fernandez, 2015). Mobile banking's value to consumers lies in its immediate access to banking services, which saves time, supplies real-time information, and gives customers a greater feeling of control (Laukkanen & Kiviniemi, 2010).

This paper aims to identify the variables that determine mobile banking users' loyalty. First, variables found in the classical literature were analyzed. A model of the relationships between the variables explaining users' loyalty was then developed. Second, structural equation modeling was carried out using AMOS 18 (Arbuckle, 1994) software to test the proposed model. This analysis provided a series of conclusions and managerial recommendations for companies in the banking sector.

Literature review

In the following synopsis, the theoretical foundation of the proposed research is presented. This theoretical foundation provides the basis for the development of a behavior model explaining mobile banking users' loyalty.

Loyalty

Customer loyalty can be understood as a commitment to repurchasing a product and/or service that is preferred over time, despite marketing efforts and/or offers that appear in the market (Aldas-Manzano, Ruiz-Mafe, Sanz-Blas, & Lassala-Navarré, 2011). It can also be defined as the repeated purchase of a consistent product and/or service in the future (Lenka, Suar, & Mohapatra, 2009), which generates positive and detectable financial outcomes (Hazra & Srivastava, 2009).

To face the tough competition in Chile, banking entities must incorporate the concept of customer loyalty into their long-term strategies, focusing on the quality provided to the customer and customer satisfaction, which can guarantee a reasonable return on any investment made. Customer loyalty is a concept that strongly affects returns. Therefore, it is crucial for a company to retain its customers and ensure their loyalty (Veloutsou, Daskou, & Daskou, 2004). Fornell and Wernerfelt (1988) confirmed that the costs of customer retention are substantially lower than the costs of attracting new customers. Furthermore, if managed properly, loyal customers will be capable of generating more profits each year they remain with the company (Cengiz, Ayyildiz, & Er, 2007).

A high number of loyal customers leads to improvements in retention and an increase in company participation. The loyalty of new customers may also be the consequence of positive references of the company and favorable recommendations by current loyal customers (Hazra & Srivastava, 2009).

Quality and loyalty

Marimon, Petnji Yaya, and Casadesus Fa (2012) define the quality of service in electronic businesses as customers' overall evaluation of the

excellence and quality of the offering of services in the virtual market. Many studies suggest that when a better quality of products and services exists, commitment is positively influenced (Yavas, Benkenstein, & Stuhldreier, 2004). Quality of service is increasingly recognized as an important aspect of electronic business because the online comparison of products and services essentially has no cost and is faster than the comparison of products using traditional channels (Chu, Lee, & Chao, 2012).

Improving the quality of service can increase the intention to perform favorable behaviors regarding customer loyalty. Examples include customers saying positive things about their bank to other people, recommending their bank to somebody who needs banking products and services, encouraging friends and family to do business with banks, having their bank in mind as a first option when carrying out service transactions, and doing more business with their bank over the coming years (Kumar, Mani, Mahalingam, & Vanjikovan, 2010). Therefore, the following hypothesis proposes that quality positively influences loyalty:

> H1: The quality of service in mobile banking has a positive impact on loyalty.

Quality and satisfaction

Customer satisfaction is the result of the quality of service and is a key factor of customer preservation because when buyers are truly offered everything they expect, they are satisfied (Gustafsson, Johnson, & Roos, 2005). Customer satisfaction is achieved when a customer's expectations are met with high-quality services; in other words, to satisfy customers, it is necessary to know their expectations well to offer a service that meets their needs.

Satisfaction positively influences a customer's intention of loyalty through a wide range of quality products and services. Satisfaction captures measures the effects on loyalty through the quality of the product, the quality of the service, and the price or equity of payment (Gustafsson et al., 2005).

As the quality of the service improves, the customer's satisfaction increases, meaning greater levels of satisfaction lead to positive results in the customer's behavior (Tahseen Arshi & Al Lawati Jassim, 2013). In addition, Cronin, Brady, and Hult (2000) suggest that the quality of service has a positive relationship with the number of intentions of behavior through the intermediary effect of satisfaction. Customer satisfaction performs a mediating role in the relationship between quality of service and loyalty to service (Aldas-Manzano et al., 2011). Thus, the following hypothesis proposes that the quality of the mobile banking service has a positive influence on customer satisfaction:

> H2: The quality of service in mobile banking has a positive impact on customer satisfaction.

Satisfaction and loyalty

Long-term relationships with customers help a company achieve a group of satisfied and loyal customers with a high degree of loyalty. Consequently, the company can achieve a better position in the market and improve its competitiveness and income. Therefore, financial entities should pay attention to their customers' requirements and be flexible when developing products and services because customers' needs and demands change (Yang & Peterson, 2004). It is also worth mentioning that a customer's preference toward a company improves when the customer is satisfied with the services offered. This attitude positively affects the customer's satisfaction with the service.

Companies that try to maximize their customers' satisfaction are among the most successful companies in the world (Fandos, Sánchez, Moliner, & Estrada, 2011). It has been suggested that a loyal, satisfied, and committed customer tends to influence others more by word of mouth; Customer satisfaction serves as a key element in customers' desertion decisions (Nitzan & Libai, 2011).

A satisfied customer is more likely to be a faithful customer. It has been shown that there is a positive relationship between satisfaction and various forms of loyalty, which lead to repeat buying (Veloutsou et al., 2004). Customer satisfaction is a potential determinant of customer loyalty, so generally, the customer's total satisfaction is crucial to ensure loyalty and generate a long-term profitable relationship (Lin & Wang, 2006). Therefore, the following hypothesis proposes that customer satisfaction has a positive influence on loyalty:

> H3: Customer satisfaction with the mobile banking service has a positive impact on loyalty.

Satisfaction and trust

Satisfaction due to a company's (seller's) ability to meet customers' wishes, expectations, and needs is considered an important antecedent to customers' trust in the company (Salehnia, Saki, Eshaghi, & Salehnia, 2014). Pavlou's (2003) research examined trust based on satisfaction and showed a strong, positive link between satisfaction and trust. Flavian, Guinaliu, and Gurrea (2006) determined that satisfaction has a positive influence on trust in virtual systems. Satisfaction increases the perception of credibility and benevolence (trust) of the other party and increases the probability that customers renew their trust (Lassala, Ruiz, & Sanz, 2010). It is also expected that customers' satisfaction with a specific electronic service increases customers' willingness to shop online, as well as customers' trust in online

media as a whole (Salehnia et al., 2014). Thus, the following hypothesis proposes that customer satisfaction has a positive influence on trust:

> H4: Customer satisfaction has a positive impact on customers' trust in the mobile banking service.

Satisfaction and the use of mobile banking

Customer satisfaction is considered a key factor when measuring the success of the use of mobile banking (Al-Jabri & Sohail, 2012). Satisfaction is an antecedent to repurchase of services on virtual platforms. It has been empirically shown that continuing to carry out financial transactions via mobile banking is determined by satisfaction with previous experiences (Lassala et al., 2010). Thus, the following hypothesis proposes that customer satisfaction has a positive influence on the use of mobile banking:

> H5: Customer satisfaction with the mobile banking service has a positive impact on the use of mobile banking.

Trust and loyalty

Trust can be defined as a feeling of security, principally based on the belief that the behavior of one of the parties is driven by favorable intentions toward the interests of the other party (Lewis & Soureli, 2006). It can also be understood as a personal belief that others have based on an individual's expectations, assuming that others will not behave opportunistically (Gu, Lee, & Suh, 2009). According to some researchers, it is an antecedent to loyalty (Lassala et al., 2010). Other studies that focus on the relationship between trust and loyalty have indicated that loyalty directly depends on trust (Chu et al., 2012).

The positive effect of trust on loyalty increases customers' resistance to alternative short-term offers and helps maintain the belief that the parties will not act impulsively on opportunistic grounds (Lassala et al., 2010). It is also connected to the fact that trust leads to coherence and competence in parties' future behavior so that both stay in the relationship by obtaining benefits (Chu et al., 2012). Thus, the following hypothesis proposes that customer trust has a positive influence on loyalty:

> H6: Customer trust in the mobile banking service has a positive impact on loyalty.

Trust and mobile banking use

Trust is a significant factor in the use of mobile banking. As mobile banking services do not include face to face contact, building trust can be

difficult (Chung & Kwon, 2009). For customers, the trust that a provider conveys online is highly important for purchasing products and/or services online (Raitani & Vyas, 2014).

Trust is fundamental for customers to carry out satisfactory transactions with high expectations in exchange relationships, and it is essential for understanding interpersonal behavior and economic exchange (Silva Bidarra, Muñoz-Leiva, & Liébana-Cabanillas, 2013). It can also reduce a customer's need to control and verify all actions and details, which helps decrease the customer's fear of fraud, uncertainty, and potential risks and makes carrying out bank transactions easy (Gu et al., 2009). Thus, the following hypothesis proposes that the customer's trust has a positive influence on the use of mobile banking:

> H7: Customer trust in the mobile banking service has a positive impact on the use of mobile banking.

Perceived usefulness and mobile banking

According to Davis (1989), perceived usefulness can be understood as the subjective probability that a new technology will improve the way that a user obtains an objective (Silva Bidarra et al., 2013) or as the degree to which people believe that the use of a particular system will increase their efficiency at work (Kazi & Mannan, 2013). According to Venkatesh and Davis (2000), perceived usefulness is the main precursor that determines the behavior objective for using a computer system (Kazi & Mannan, 2013).

Perceived usefulness is acknowledged as having a strong, positive effect on the use of an innovation (Chitungo & Munongo, 2013). Customers are willing to use mobile banking when they perceive that it is useful and advantageous for their efficiency at work. They also perceive mobile banking as useful when they see their colleagues, friends, or family members use it and give a positive recommendation (Gu et al., 2009). On the other hand, if people perceive that a system does not help them perform personal activities, it is unlikely that it will be received favorably (Chitungo & Munongo, 2013). Thus, the following hypothesis proposes that a customer's perceived usefulness has a positive influence on the use of mobile banking:

> H8: A customer's perceived usefulness of the service has a positive impact on the use of mobile banking.

Ease of use and mobile banking use

Ease of use is defined as the degree to which a customer believes that the use of a particular service will be effortless, easy to learn, and easy to use

(Davis, 1989, cited by Ramdhony & Munien, 2013). It is associated with the degree of difficulty that the customer perceives in the use of the technology and mobile service in everyday life (Chitungo & Munongo, 2013).

According to Aboelmaged and Gebba (2013), perceived ease of use affects a person's attitude toward the use of technology. Existing studies have suggested that ease of use is an important attribute in electronic business applications such as Internet trade, online banking, and mobile business (Lin & Wang, 2006).

Perceived ease of use in the identification of information and the transactions carried out should lead to a favorable and convincing individual experience (Aboelmaged & Gebba, 2013). Accordingly, the following hypothesis proposes that ease of use has a positive influence on the use of mobile banking:

> H9: The ease of use of the mobile banking service has a positive impact on the use of mobile banking.

Perceived risk and the use of mobile banking

Perceived risk refers to the degree of uncertainty in the outcome of using an innovation (Kazemi, Nilipour, Kabiry, & Hoseini, 2013). Pavlou (2003) defines perceived risk as the user's subjective expectation of suffering a loss in the search for a desired result (Kazi & Mannan, 2013). According to Luo, Li, Zhang, and Shim (2010 in Kazemi et al., 2013), the customer's perception of risk is an essential factor in determining the acceptance and use of an innovative technology.

The perception of risk is considered an important factor in the use of mobile banking because of the threat to privacy and security concerns (Al-Jabri & Sohail, 2012). Some studies sustain that the risk perceived by customers is a fundamental obstacle for the future growth of mobile banking services (Luo et al., 2010). The relationship between perceived risk and the use of mobile banking is direct, but not negative (Silva Bidarra et al., 2013). Thus, the following hypothesis proposes that the customer's perceived risk has a negative influence on the use of mobile banking:

> H10: The customer's perceived risk of the mobile banking service has a negative impact on the use of mobile banking.

Perceived risk and trust

Perceived risk is considered an element that gives trust its basic nature, which is why customer trust is described according to the perceived risk involved (Kesharwani & Bisht, 2012). This view makes sense in the context

of the use of mobile banking, where there is a physical separation between the bank and the customer, circumstances are difficult to predict, and relationships are difficult to control.

The generation of trust has been considered a key factor for carrying out online bank transactions. Because there is an absence of any type of practical guarantee, the consumer cannot be sure that the bank will not resort to undesirable opportunistic behaviors (Liebana-Cabanillas et al., 2015). Some studies show that trust and the perception of risk must be inversely related, such that as the perception of risk increases, the trust in the channel or seller decreases (Liebana-Cabanillas et al., 2015). Accordingly, the following hypothesis proposes that perceived risk of the mobile banking service has a negative influence on customer trust:

> H11: A customer's perceived risk of the banking service has a negative impact on the customer's trust.

Use of mobile banking and loyalty

Mobile banking has notable potential for the banking industry. Banks have seen a great opportunity in the high penetration of cellular telephones to improve customer retention (Shaikh & Karjaluoto, 2015), retain existing bank customers in a new system (mobile banking), and convert cellular telephone users to bank users (Gu et al., 2009). Mobile banking is important not only in terms of reducing costs and improving competitiveness but also in terms of banks' capability to maintain existing customers and attract new clients (Silva Bidarra et al., 2013). In addition, the launch of mobile applications for banks and their effective use in data analysis can considerably reduce the costs of marketing and campaigns because based on customer knowledge, if the application fulfills its function, the result will be loyalty. Thus, the following hypothesis proposes that the use of mobile banking has a positive influence on loyalty:

> H12: The use of mobile banking has a positive impact on customer loyalty.

Figure 1 shows the proposed model to explain mobile banking users' loyalty in terms of a combination of the effects of quality, satisfaction, use of mobile banking, perceived risk, and trust.

Method

Given the nature of this study and the conceptualizations of the different types of studies found, the research was categorized in terms of two types: exploratory and descriptive. The research was carried out using convenience sampling. Direct and intentional sampling of individuals in the
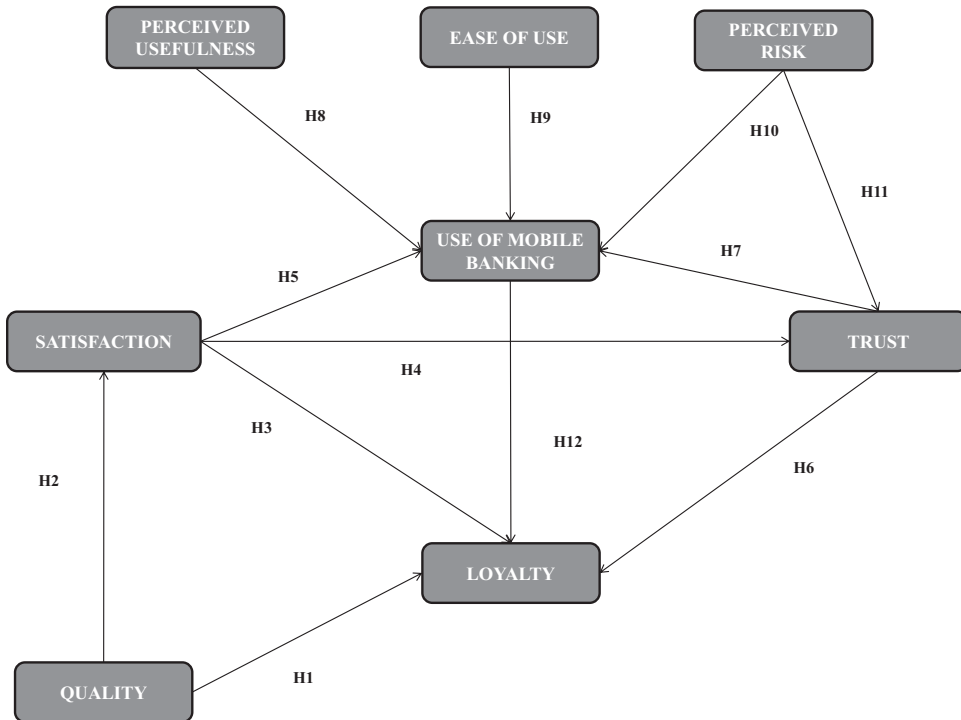
Figure 1. Proposed model of relationships.

population was performed because it enabled cheap, quick access to information.

Survey and measurement scales

The final questionnaire was administered online using PHP-based survey software to create an online survey. The sample was filtered by time response and origin. Also, the Mahalanobis distance (D2) was used.

The questionnaire consisted of 23 items recorded on a Likert scale ranging from 1 (*totally disagree*) to 7 (*totally agree*), as well as four sociodemographic profile questions. Before the data were collected from the final sample, prior analysis was performed to verify the reliability of the survey that was finally used. These results verified that the correct scales and subjects (sample) were used for the research.

The fieldwork was carried out between April and May 2015 through an online self-administered survey with voluntary participation. The scales used in this paper were adapted from other studies. The scales for the use of mobile banking, perceived usefulness, and ease of use were adapted from the study by Aboelmaged and Gebba (2013). The loyalty, trust, and satisfaction scales were adapted from the study by Lassala et al. (2010). The

quality scale was adapted from the study by Lewis and Soureli (2006). Finally, the scale for perceived risk was adapted from Wakefield and Whitten (2006).

The final sample consisted of 281 Chilean mobile banking users. During the process, 47 users were detected as not meeting the requirements of being mobile banking users. The profile of the final sample was 47.25% women, 52.29% aged 25 to 34 years old (with 31.19% aged 18–24), and 75% with more than 2 years' experience as a customer of the financial entity.

Exploratory analysis

To verify the suitability of these measurement scales, exploratory analyses of reliability and validity (in SPSS 22.0) as well as confirmatory analysis (in AMOS 18) were used. To measure the reliability of the scales, Cronbach's alpha was used (Cronbach, 1951). A value of 0.7 was taken as the reference value. In this study, the values exceeded those recommended ($\alpha > 0.8$) for all variables.

Principal component analysis confirmed that the analysis was suitable for the study's target variables because: 1) the proportion of variance that the variables had in common (MSAi) was always greater than 0.5, showing a suitable sample fit; 2) Bartlett's test of sphericity was significant (Sign = 0.000); 3) communalities were high (> 0.5) for the target variables, which implied that they were all well represented in the space of the factors, and the factor loadings of the indicators surpassed the recommended minimum ($R^2 > 0.5$).

Confirmatory analysis

To test the scales' convergent and divergent validity, confirmatory factor analysis (CFA) was performed using the indicator factor loadings. It was found that the coefficients were significantly different from 0 and that the loadings between the latent and observed variables were high in each case (> 0.7). The discriminant validity was confirmed because the variances were statistically different from 0. Moreover, the correlation between each pair of scales was lower than 0.9 (Hair, 1999).

From a series of indicators extracted from the confirmatory analysis, the scales' reliability was evaluated again. The coefficient composite reliability (CR) and the extracted variance analysis (EVA) both exceeded the recommended reference value (0.7 and 0.5, respectively). Other global fit indicators for the measurement model were also acceptable.

To obtain the CFA, maximum likelihood estimation was used under the bootstrap technique with 500 replications. This method was preferred because traditional maximum likelihood estimation is highly sensitive to sample size and requires variables to follow a multinomial distribution (Finney & DiStefano, 2006), which was not the case in the sample for this study. In the bootstrap technique, Bollen-Stine's corrected p value and the construct standard error correction were used.

Evaluation of the discriminant validity among latent variables

Once the quality of the measurement scales used in this study had been evaluated, the next step was to test whether the combined groups of all variables had discriminant validity. It was confirmed that none of the variables had a value of 1 in its confidence interval, the correlations between variables were not excessively high, and the correlations between the indicators were less than the root of the extracted variance of each variable taken pairwise. Table 1 shows the values for the reliability and extracted variance for the variables used in this study.

Results

Once the methodological verification had been completed, analysis of the measurement model and of the resulting structural relationships was performed.

Table 1. Compound trust and extracted variance.

Variable			Coefficient	α	CR	EVA
Perceived usefulness	->	UTIL_1	0.862	0.90	0.90	0.75
	->	UTIL_2	0.852			
	->	UTIL_3	0.884			
Ease of use	->	FAC_1	0.928	0.95	0.95	0.86
	->	FAC_2	0.905			
	->	FAC_3	0.943			
Perceived risk	->	RIESG_1	0.84	0.93	0.93	0.81
	->	RIESG_2	0.925			
	->	RIESG_3	0.933			
Use	->	USOBAN_1	0.923	0.92	0.91	0.84
	->	USOBAN_2	0.91			
Trust	->	CONF_1	0.95	0.97	0.97	0.91
	->	CONF_2	0.952			
	->	CONF_3	0.954			
Satisfaction	->	SAT_3	0.894	0.95	0.95	0.88
	->	SAT_2	0.946			
	->	SAT_1	0.965			
Loyalty	->	FID_3	0.911	0.91	0.91	0.77
	->	FID_2	0.904			
	->	FID_1	0.812			
Quality	->	CAL_3	0.896	0.91	0.90	0.75
	->	CAL_2	0.808			
	->	CAL_1	0.895			

Note: α = Cronbach's alpha; CR = composite reliability; EVA = extracted variance analysis.

Table 2. Results of the structural equation analysis (non-standardized betas).

Hypothesis				Estimated coef.	Standard error	p-value	Confirmed?
H1	Quality	→	Loyalty	−0.025	0.100	n.s.	No
H2	Quality	→	Satisfaction	0.934	0.058	***	**Yes**
H3	Satisfaction	→	Loyalty	0.460	0.068	***	**Yes**
H4	Satisfaction	→	Trust	0.598	0.061	***	**Yes**
H5	Satisfaction	→	Use	0.875	0.078	***	**Yes**
H6	Trust	→	Loyalty	0.109	0.042	**	**Yes**
H7	Trust	→	Use	0.124	0.100	n.s.	No
H8	Perceived usefulness	→	Use	0.413	0.174	n.s.	No
H9	Ease of use	→	Use	−0.22	0.127	n.s.	No
H10	Perceived risk	→	Use	−0.196	−2.849	**	**Yes**
H11	Perceived risk	→	Trust	−0.501	−8.281	***	**Yes**
H12	Use	→	Loyalty	0.442	8.699	***	**Yes**

$^{***}p \leq 0.001$; $^{**}p \leq 0.01$; n.s. = not significant.

Analysis of the model fit

After analyzing the reliability and validity of the scales, the next step was to verify the previously formulated research hypotheses, first evaluating the proposed structural model fit. This fit was sound, according to the recommended levels: root mean square error of approximation (RMSEA) < 0.08, comparative fit index (CFI) > 0.85, and normed fit index (NFI) > 0.85 (Lai & Li, 2005).

Analysis of structural relationships

The significance of the variables was used to evaluate the structural equation model. Table 2 shows the results of the structural equation modeling.

First, hypotheses 1 and 2, related to quality, could not be totally rejected. In this case, quality has a direct, positive influence on user satisfaction, as previous studies have shown (Tahseen Arshi & Al Lawati Jassim, 2013). However, its relationship with loyalty could not be corroborated. Second, hypotheses 3, 4, and 5, related to satisfaction, were completely valid, presenting the expected results regarding loyalty, trust, and use, just as numerous studies have shown (Lassala et al., 2010; Salehnia et al., 2014). Regarding trust, the hypotheses could not be totally rejected (hypotheses 6 and 7); in terms of loyalty, a direct, positive relationship was confirmed, as previous studies have shown (Chu et al., 2012). Regarding use, however, such a relationship could not be verified. The hypotheses relating to the perceived usefulness and ease of use of mobile banking (hypotheses 8 and 9), could not be verified as in some previous studies (Silva Bidarra et al., 2013), mainly because the users are relatively accustomed to using mobile applications. On the other hand, hypotheses 10 and 11, related to perceived risk, could not be rejected in either case, confirming the direct, negative relationship with use and trust, just as earlier studies have shown (Kazemi et al., 2013; Liebana-Cabanillas et al., 2015). Finally, hypothesis 12,

proposing a direct, positive relationship between use and loyalty, was not rejected either.

Conclusions, implications, and recommendations

Conclusions of the study

The main objective of this study was to identify the variables that have the greatest influence on the loyalty of mobile banking users. This is an important issue because it is easy for customers to acquire this type of service, which has enhanced competition and therefore increased the need to build customer loyalty.

Certain key factors for increasing customer loyalty were identified. Based on these factors, a model was proposed. This process enabled the identification and integration of the proposed relationships between the variables and made it possible to verify which of these relationships best explains mobile banking users' loyalty.

From the proposed model, the analysis and review of the results shows that the variables that have the greatest influence on mobile users' loyalty are satisfaction, use, and trust. Perceived quality and risk also influence loyalty, though indirectly.

According to these results, satisfaction has a direct, positive impact on loyalty. This impact has also been shown by other studies (Hoq, Sultana, & Amin, 2010), where researchers found a positive correlation between satisfaction and customer loyalty. These findings imply that as customer satisfaction increases, customers will be more likely to be loyal. In addition, satisfaction acts as a mediator between quality and loyalty. In other words, if financial entities want to develop solid relationships with their customers, this will generally happen automatically when they provide high-quality services in mobile banking (Chu et al., 2012). Once customers begin to use mobile banking and become familiar with the service, they may be willing to continue using it, especially when a high-quality service is offered (Chung & Kwon, 2009). Therefore, the better the quality of service is, the greater the level of user satisfaction will be, which will translate into an increase in loyalty. On the other hand, according to the results, satisfaction acts as a key antecedent to the use of mobile banking and customer trust, which positively affect user loyalty. In this sense, the more satisfied users are with the application, the more likely they will be to continue using the mobile service. At the same time, they will feel a greater level of trust, which will result in an increase in mobile banking users' loyalty.

It can be confirmed that the use of mobile banking has a strong, direct relationship with loyalty. Therefore, for customers, mobile banking provides greater value to the services offered by banking entities, which strengthens

customer loyalty. However, in this study, perceived use, the ease of use, and trust were not significant factors in the use of mobile banking, as other studies have also shown (Silva Bidarra et al., 2013). This result may reflect the characteristics of the respondents in the sample, who were mostly professionals familiar with and accustomed to interacting with mobile applications. Thus, ease of use, perceived use, and trust were seen as obvious and not very significant characteristics. This situation probably occurs because of the level of existing technologies, making ease of use and use attributes that are incorporated into the design of all mobile applications on the market and making trust a prerequisite for their use. In other words, customers do not need to think about or evaluate their level of trust when using mobile banking because they live their lives constantly connected to this type of service.

Perceived risk has a direct, negative influence on the use of mobile banking and on trust. As for its effect on use, customers will use the mobile banking application less when they associate it with a high risk because of the uncertainty that the application entails for the user and/or the possible negative consequences of carrying out online transactions. Moreover, the influence of this effect has been widely verified in several fields, and the results of this study corroborate and reinforce the previously formulated proposal (Kesharwani & Bisht, 2012). On the other hand, the effect on trust shows that when customers consider the acquisition of a banking service to be risky, trust decreases.

Regarding trust, with the help of work by different researchers (Hoq et al., 2010), this study verifies that it has a direct relationship and a strong impact on customer loyalty. Thus, customers will be more loyal when the mobile banking services provided by banks build greater levels of trust. At the same time, this study shows that perceived risk is a significant antecedent to trust, which has an indirect but negative relationship with loyalty. Therefore, banks' greatest challenge is to inhibit perceived risks to increase user loyalty because consumers' perceptions of risk and trust can become an obstacle for mobile banking transactions. Thus, it may be affirmed that customers attach greater value to banking entities that convey trust and concern over reducing the risk associated with these services.

Contributions to literature

First, the variables that explain the use of mobile banking and their effects on the loyalty of mobile banking users were analyzed. The study contributes by confirming the causal relationships between quality and satisfaction, satisfaction and loyalty, trust and loyalty, perceived risk and trust, and perceived risk and use of mobile banking, as well as the relationship that

motivated this study, namely between loyalty and use of mobile banking. Consequently, for this new market of information and communication technology (ICT), which includes mobile applications, the study's confirmation of a significant relationship between use and loyalty is an attractive finding in the financial literature because it is new and useful for creating a novel research perspective.

Second, a model was proposed for the analysis, in which the relationships between variables that explain mobile banking users' loyalty were integrated. To develop the model, some of the most widely recognized models in the literature were reviewed. It is worth noting that this model describes a new relationship (between loyalty and use of mobile banking), whereas other studies have only examined the intention to use (Salehnia et al., 2014; Shaikh & Karjaluoto, 2015;).

Third, according to the study of the variables that influence the use of mobile banking, some constructs are not significant. These constructs include perceived usefulness and ease of use, mainly because the focus of this study was on mobile banking, unlike other studies that have primarily focused on determining the factors that influence the intention to use mobile banking (Aboelmaged & Gebba, 2013; Kazi & Mannan, 2013; Raitani & Vyas, 2014; Ramdhony & Munien, 2013). Therefore, it is worth mentioning that when analyzing the background of the use of a new technology such as mobile banking, these aforementioned variables need not be studied because the results will possibly be the same, as explained in the conclusion section of this paper.

Fourth, the measurement tool was designed using the existing literature, with tests of its validity and reliability. It will be available for use in future studies.

Finally, it is important to highlight the use of new data collection methods in current studies. For this paper, a survey was implemented via social networks because this medium is available to the population and users periodically connect via mobile telephones, which enables access to their responses.

Managerial implications

Satisfaction's influence on loyalty means that banks must continuously and systematically analyze the factors of the use of mobile banking that lead to user satisfaction (especially quality of service). As in previous studies, it has been found that a greater degree of satisfaction means a higher number of loyal customers (Aldas-Manzano et al., 2011). Therefore, banks should focus on understanding customer behavior and designing high-quality mobile banking systems.

The influence of trust on mobile banking users' loyalty suggests the need for a series of actions in the banking sector. First, sincerity and transparency are delicate matters because they must comply with any commitments and promises made. Second, the bank's communication policy must promote the attainment of objectives that complement those of customers while guaranteeing the perception of customer safety. Third, it is necessary to evaluate making considerable investment and being able to provide resources to improve task performance and ensure that customers perceive greater competence and skill in the banking entity that they use.

The role of perceived risk in the formation of loyalty must be managed appropriately. Banks must notify their clients that the personal information will remain confidential and that there are encoded data platforms to guarantee safety in banking transactions. Specifically, for users to perceive the lowest risk possible, security regulations should be published on the bank's website and should be clear and understandable. Banks should provide security information in non-technical language, accompanied by standard security declarations. Banks must also describe the procedure and information on how to deal with security problems in case they arise, as well as providing instructions on how to use Internet banking services safely and therefore decrease uncertainty about the risk involved in mobile banking transactions (Aldas-Manzano et al., 2011).

Therefore, to strengthen mobile banking users' loyalty, banks must work on mitigating the beliefs and perceptions that users have about the service and must convey a trustworthy image. Finally, through security improvements, they must decrease the risk associated with these services.

Limitations and future research

This paper has some limitations that should be considered in future studies. The study's location limits it to the Chilean population. Therefore, the sociodemographic characteristics of the sample and the respondents' answers cannot be considered representative of the beliefs of the entire world population toward the use of mobile banking. Future studies can improve on this limitation by increasing the sample size and carrying out research in different countries. According to the results, not all the hypotheses proposed in this study are supported, so the number of antecedents to mobile banking users' loyalty could be greater. For example, adding factors such as perception of reputation, security, privacy, and personal innovation might also increase loyalty toward the use of mobile banking.

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