Reuna

THE PERCEIVED RISK AND TRUST IN THE BANK'S BRAND ON THE MOBILE BANKING USER VISION

O RISCO PERCEBIDO E A CONFIANÇA NA MARCA DO BANCO NA ÓTICA DE USUÁRIOS DE MOBILE BANKING

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ABSTRACT

This research investigated the relationship between perceived risk by bank customers in the use of Mobile Banking (MB) and their trust in the bank's brand. The descriptive research was applied with 356 Brazilian customers that access their banking account via smartphones or tablets. Data analysis was performed using: descriptive and non-parametric statistics. The results show: the correlation between perceived risk in using the MB and the trust in the bank's brand; the influence of perceived risk in the use of MB on trust in the bank's brand; and the significant differences in perceived risk and trust in the bank's brand considering the profile variables: age, gender, income, length of relationship, type of transaction and frequency of access to MB. This study may enlarge knowledge about the perceived risk in the use of technology and trust in the brand and can generate insights for the development of appropriate relationships strategies to different audiences on the use of mobile technology.

Keywords: Trust in Brand; Perceived Risk; Mobile Banking. Mobile Technology; Customer's Behavior.

RESUMO

Este trabalho investigou a relação entre o risco percebido por clientes no uso de Mobile Banking (MB) e sua confiança na marca do banco. O estudo descritivo foi realizado com 356 brasileiros que utilizam smartphones ou tablets para acessar contas bancárias. Os dados foram analisados por meio de estatísticas descritivas e não paramétricas. Concluiu-se que: existe correlação negativa entre risco percebido no uso do MB e confiança na marca do banco; o risco percebido no uso do MB influencia a confiança na marca; existem diferenças significativas na percepção de risco e de confiança em relação a: idade, sexo, renda, tempo de relacionamento com o banco, tipo de operação realizada via MB e frequência de acesso ao MB. O trabalho poderá ampliar o conhecimento sobre o risco percebido no uso de tecnologias e a confiança e, ainda, subsidiar estratégias de relacionamento com diferentes públicos para a utilização de tecnologia mobile.

Palavras-chave: Confiança na Marca; Risco Percebido; Mobile Banking; Tecnologia Móvel. Comportamento do Consumidor.

1. Introduction

The banking organizations have sought efficiency (PÉRICO; REBELATTO; SANTANA, 2008), aiming to optimize the use of resources necessary for their relationship with the clientele. Among the ways of improving the Bank operational efficiency are the alternative channels of customer service, expanding the self service. Banks have been investing in self-service technologies aiming at the reduction of staff costs and infrastructure. On the other hand, they manifest in their communication that such fact facilitates and gives convenience to the customer access to the database. In the meantime, the banking institutions invested R$ 19 billion in IT in the year 2015 and R$ 18.6 billion in the year 2016, focusing on satellite Internet Banking and Mobile Banking (FEBRABAN, 2015; 2017).

1.1 Research problem and objectives

With the growing use of Mobile Banking (MB), it is necessary to understand the needs, fears and specificities of the client user of this channel, aligning the interests between bank and customer, for "providing a consumer experience each time more friendly in this channel and offer products and services that best fit in this environment" (FEBRABAN, 2013, p.9). "The percentage of use of channels available for transactions in Brazilian banking network points to a consistent movement of migration to digital media." (FEBRABAN, 2017, p.9).

Several studies have been developed on the relationship between the consumer and the technologies of information and communication, as mediators of transactions and relationships between public and private organizations and their customers or users of services. This is a phenomenon that transcends national and cultural borders. Bhatt and Bhatt (2016), in a study carried out in India, found that advances in technology and changes in demography and the life style of people have changed their way of using banking services, which from traditional, will be offered through electronic

bank (e-banking) or mobile banking (m-banking). However, the authors found that the lack of awareness, security concerns and technical issues are considered as the main reasons for the resistance of customers to the services of m-banking.

In the Brazilian case, the work of Friedrich et al. (2016) illustrates the development of studies on the subject. The authors show that the internet banking is an excellent tool to end the bank queues, however, only 20% of clients make financial transactions over the internet, being that the remaining uses it only for consultations. Thus, they studied the impact of training on internet banking on the intention to use this system mediated by risk perception, by trust and perceived ease of use. As a result, the authors found that "the training in internet banking expands the intent of use of indirectly, through a reduction in the perception of risk and increasing the perceived ease of use and trust" (p.655).

As observed in two examples above, recent studies have come to focus on the search for understanding and, even, the identification of factors that may be driving the process of adoption of technologies in retail, in self-service etc., as well as factors that demonstrate perception of risk in the use of technologies, especially when directed to businesses that involve financial transactions, i.e.: the perceived risk in those transactions mediated by self-service technologies and customer confidence demonstrated by the offered service provider (VENKATESH 2000; VENKATESH and DAVIS 2000; VNEKATESH et al., 2003; VENKATESH ; THOG; XU, 2012; COSTA; FREITAS, 2010; KIM; FERRIN; RAO, 2008; LITTLER; MELANTHIOU, 2006; CHEN, 2013; FRIEDRICH et al., 2016; LUO et al., 2010; AKTURAN; TEZCAN, 2012; HANAFIZADEH et al., 2014; ZHOU, 2012. This discussion will be explored in section 2 of this article.

Given the above, this work responds to questions: What is the relationship between perceived risk and confidence in the brand of the Bank, when the bank customer uses Mobile Banking (MB)? As objective it is intended to evaluate the influence of perceived risk on trust in the brand of the Bank, demonstrated by bank customers of different profiles. The specific objectives are: (a) check the perceived risk in the Use of Mobile Banking (MB), whereas the subcomponents of the risk: financial, performance, privacy, of time and the psychological; (b) evaluate the correlation between perceived risk in the Use of Mobile Banking and trust in the brand of the bank for customers users of MB; c) verify the existence of significant differences in perceived risk and trust in the brand bank, considering that: age, gender, income, time of relationship with the bank and type of operation performed via MB.

1.2 Justification

This work is justified by means of contributions that can bring, in relation to the expansion of empirical knowledge about the perceived risk in the use Mobile Banking, as well as by bringing to light possible differences or alignments of the risk perceived by different demographic groups. Another contribution refers to analyzes of confidence in the brand of the Bank, broadening the studies on the theme in relation to the perception of risk.

In addition to the contributions to the literature, this study provides the bank manager information that generate managerial insights about the relation of risk and trust between bank and customers when mediated by technology.

Banks may use the conclusions found to improve communication with the customer, maximizing and optimization of processes carried out through Mobile Banking, and creating strategies of care for MB, mainly focused on the use of the service by users who currently only access the environment for consultation.

2. Theoretical background

2.1 Evolution of the employment of Mobile Banking (MB)

The actions of mobile marketing refers to any marketing action across platforms and mobile technologies (GABRIEL, 2010). The mobile technology subsidizes the personalization in marketing - with disclosure of products, relationships with current or future customers, campaigns or advertising (TURCHI; 2012).

Currently, IB (Internet Banking) and MB (Mobile Banking) channels are solidified as crucial channels of relationship between bank and customer, comprising 54% of the operations carried out in the year 2015 (FEBRABAN, 2015).

Considering the magnitude of such data, it becomes important in addition to expanding the accessibility to the channel mobile, to understand the customers' needs and desires that may not still have been met. On the use of MB, Abade and Noro (2012) point out that among the factors safety, strength and knowledge, security is the only one that significantly and positively affects the use of MB, demonstrating that, even if the user has a smartphone, it is possible to feel a blockage on the use because of the risk perception.

The research on adoption of MB gained importance from 2009 (SHAIKH; KARJALUOTO, 2014). Factors influencing the adoption of MB have attracted academic interest. Studies on the subject can be encouraged by the impact of technology on the customer's behavior and banking organizations. The most commonly used theories to explain the process of MB adoption are: The Technology Acceptance Model (TAM), the theory of diffusion of innovation (RTD) and Unified Theory of Acceptance and Use of Technology (UTAUT) or a combination of these theories, seeking to analyze the impact of different variables on attitude, intention to use, and in the behavior on the use of technologies (SHAIKH; KARJALUOTO; 2014). After analysis of some variables employed in studies (CRUZ et al, 2010; KOENIG-LEWIS; PALMER; MOLL, 2010; Lin, 2010; Wessel; DRENNAN, 2010; YAO; ZHONG, 2011; HANAFIZADEH et al., 2014; Chen, 2013; SHAIKH; KARJALUOTO, 2014) related to the theme in the period 2010-2015, one of the variables that has stood out in studies is the risk perception.

2.2   Perceived risk in the use of technologies

Even with the low cost of change, because it is an emerging service, MB has not been widely adopted by users, which is due to the high perceived risk. According to Zhou (2012) it is necessary a better interpretation of this concept for the construction of a clear and reliable service to consumers: "the construction of initial confidence is crucial as a facilitator of adoption of mobile banking" (p. 1518).

Since the decade of 60, studies about the perceived risk are used to explain and justify the consumers' behavior (LEE, 2008). In the initial settings, a consumer had a certain level of risk perception when involved in a purchase decision (AKTURAN;

TEZCAN, 2012). This initial concept has undergone continuous changes for two reasons: changes in consumer behavior and his or her inclination for online transactions (HANAFIZADEH et al., 2014). Studies on adoption of technologies and self-service banking have been crossing variables of technology adoption with benefits and risks perceived in its use (AKTURAN; TEZCAN, 2012; HANAFIZADEH et al., 2014; LUO et al., 2010; Chen, 2013; FRIEDRICH et al., 2016).

Akturan and Tezcan (2012) studied the integration of TAM model with variables related to the perceived benefits and risks, and other factors that affect the MB adoption. They concluded that the perceived usefulness, perceived social risk, the risk of perceived performance and the perceived benefit directly affect the attitude of using the MB. Luo et al. (2010) concluded that the perceived risk is an important antecedent of acceptance of a technology. The intention to adopt is affected by the perceived risk, being the risk decomposed by eight dimensions: performance, financial, time, psychological, social, physical, and global. It was concluded that the perceived risk in the use of MB has six expressive dimensions: financial, performance, privacy, and time, psychological and overall risk. Whereas the social and physical risks are insignificant. Whereas Akturan and Tezcan (2012) considered six dimensions of perceived risk: social, performance, financial, time, security and privacy. Whereas Friedrich et al. (2016) studied the training of customers and their relationship with the intention of using IB, because only 20% of users were performing banking financial transactions via the internet. The authors found that training in IB expands the intent of use of indirectly, through a reduction in the perception of risk and increasing the perceived ease of use and trust.

Chen (2013) examined the perceived risk, considering its dimensions: performance, time, psychological, privacy and financial, among frequent users of MB, correlating this risk with the attitude and intention to use the MB. The results showed that frequent users are more concerned with the psychological risk, than with the financial and privacy. In addition to risks of time and performance are less important. As the study of Chen (2013) analyzed the diffusion of technology MB among frequent users, the dimensions of the variable perceived risk and the meaning of each dimension were extracted from Littler and Melanthiou (2006), according to Table 1.

Table 1 - Description of the variables of perceived risk

Dimensions	Description
Financial Risk	Possible monetary loss potential generated by a deficiency in the operating system or misappropriation of funds through illegal access account.
Risk of Performance	It may be related with the client's ability to perform a transaction, or to make a transaction within a reasonable period of time. In addition, the effectiveness of the mobile service, including the download speed, time to move from one part of the mobile service provider to another may also have an influence. In general, it is the risk that the new service does not meet the customer's requirements.
Risk of Time	The customer can take more time to learn, or use a service. If the channel requires significant learning time it means that the risk of time can be high.
Psychological Risk	The risk that the use of the service can decrease the self-image and self-perception of the consumer.
Risk of Privacy	Privacy may be the most serious disadvantage of MB. Concerns about the external intrusion resulting in control of third parties about personal financial details and even the withdrawal of money from accounts.

Source: Adapted from Littler and Melanthiou (2006)

2.3 Customer confidence in the brand

Confidence can be approached from the economic, sociological and psychological perspectives. Rousseau et al. (1998, p. 395) define the construct trust as "a psychological state that understands the intention to accept the vulnerability based on positive expectations about the intentions of another person".

For Garrido, Cunha and Cavalcante (2014) the trust represents the expectation that certain future action by the entrusted party will generate positive results in whom is trusted. Costa and Freitas (2010) consider that the risk is essential for the development of confidence in any of the mentioned approaches.

There are three main perspectives for the discussion of trust (PIVATO; MISANI; TENCATI, 2008). The calculating perspective is based on rational trust or based on persuasion and involves the economic convenience. The cognitive perspective is based on knowledge, behaviors, skills and competencies which are specific to the counterparty, i.e., believing that the entrusted party possesses the know-how about the activity. The last perspective is the normative or value, which relates to the trust developed in advanced stages of the relationship, increasing interdependence among the parties. For the authors, trust is fundamental for the understanding of business relationships, especially when those who trust is in a position of high risk. It is assumed that the confidence in the bank is an important indicator of the credibility and competence that the institution has on the performance of the service and in the treatment of its customers (POOLTHONG; MANDHACHITARA, 2009).

In the use of a channel based on technological artifacts, confidence in the brand is crucial to minimize uncertainties of the future, especially when the individual has no control or has an incomplete control over the results (KIM; FERRIN; RAO, 2008). In

addition, confidence is related to the generation of emotional involvement and customer loyalty to the company (BASSO et al, 2015).

In contexts in which the perceived risk is high when related to the benefits of the exchange, the role of trust becomes crucial (TERRES, 2013). The characteristic of those who trust corresponds to the intention to run a certain degree of risk (COSTA; FREITAS, 2010). Thus, confidence in the brand contributes to the formation of value to the extent that reduces perceived risks and promotes consumer loyalty (TERRES, 2013). It is through the relationship of trust that the risk assessment, in its subjective character, is reduced and the tendency to assume it increases (COSTA; FREITAS, 2010).

2.4   The research hypotheses

In this discussion, this study proposed to test three hypotheses. The first and second aim to verify whether the perceived risk in the Use of Mobile Banking influences customer confidence in the brand of the bank and if there is a negative correlation between perceived risk in the use Mobile Banking and trust mark in the bank. Once the perception of customers about the risk of online channels can be greater, because it does not pass the feeling of reliability and security as the person-to-person transactions do in which the customer is "face-to-face" with the company or attendant (KOENIG-LEWIS; PALMER; MOLL, 2010). The higher the consumer's belief that he or she may have losses in the use of MB, the greater their perception of risk will be and the lower the interest in the service may be (WESSELS; DRENNAN, 2010). The higher the customer confidence in the bank, the greater his or her propensity will be for the use of MB (LUO et al., 2010). Trust is an important factor in minimizing the risk perception, becoming a facilitator of the intention of use or adoption (SHEN; 2010).

The third hypothesis aims to assess the differences in perceptions among subjects, in relation to the perceived risk in the Use of Mobile Banking and trust in the brand of the bank, when considered the profile variables: age, sex, income, time of relationship with the Bank, type of operation performed via Mobile Banking and frequency of access to Mobile Banking. In view of the demographic variables, according to Venkatesh, Thog and Xu (2012), are moderate regarding the intention to use a technology by the consumer. For Wessels and Drennan (2010) age is relevant, since younger customers were exposed to technology from an early age, which decreases the perceived risk in the use of MB.

3. Method adopted in the survey

This work is of a quantitative descriptive nature, carried out by means of a survey with the application of questionnaires. The sample was non-probabilistic, through accessibility, because it depended on the individuals' willingness to participate. The population corresponded to bank customers who use Mobile Banking (MB).

A questionnaire was applied and its header contained text explaining the purpose of the research and the need for the respondent to be user of MB. An informed consent form was also included, being the participation of the subjects voluntary.

The questionnaire was divided into three parts.   In the first part, the demographic factors were addressed: age, gender, income, bank where he or she has an account, relationship time with the bank and type of operation performed via MB.

The second and the third part of the questionnaire were composed of closed questions with Likert-type scale, composed by 11 levels of response that varied from zero (totally disagree) to ten (totally agree). Thus, in the second part it was possible to capture the variable perceived risk, composed of five dimensions - the psychological risks, performance, financial, time and privacy - taken from Chen (2013) and in the third, the items relating to the variable confidence on the brand, taken from Hanzaee and Andervazh (2012). The questionnaires were distributed through social networks, electronic mail and WhatsApp application available for smartphones. A hyperlink was used on the platform Survey Monkey. After the collection period (March 2015), 406 questionnaires were filled out by the individuals, being considered valid only those fully answered, obtaining a final sample of 356 bank customers.

The program used for statistical analysis was the IBM SPSS (Statistical Package for Social Sciences). Before the completion of the statistical tests, the normality of the data distribution was analyzed using KS test (Kolmogorov-Smirnov). For the analyzes relating to the extraction of differences of perception among groups, the non parametric test of Mann-Whitney U was used. To test the correlation among variables, Spearman's correlation coefficient was used. The study of the influence of perceived risk on trust in the brand of the bank was carried out by means of logistic regression. It was considered a significance level of $p < 0.05$ for decisions regarding the tests. Table 2 below shows the issues of perceived risk and confidence in the brand of the bank.

Table 2 - Issues related to the perceived risk and to confidence in the brand of the Bank.

Financial Risk	Q1	There is the risk of I lose access to my account
	Q2	There is financial risk when accessing my banking account through my cell phone or tablet.
	Q3	An error upon using my banking account through my cell phone or tablet can generate financial damages
Risk of Performance	Q4	The performance of the use of banking account through my cell phone or tablet is inferior than the use of a bank account in the agency
	Q5	The pattern and the efficiency of the use of banking account through my cell phone or tablet are different from how I think it should be
Risk of Time	Q6	It takes time to learn how to access my banking account through my cell phone or tablet.
	Q7	It takes time to learn the rules on how to use the banking account through my cell phone or tablet.
	Q8	It takes time to use my banking account through my cell phone or tablet.
Psychological Risk	Q9	I get uncomfortable to use my banking account through my cell phone or tablet.
	Q10	I have anxiety upon using my banking account through my cell phone or tablet.
	Q11	I get nervous upon using my banking account through my cell phone or tablet.
Risk of Privacy	Q12	My personal data will no longer be private when using my banking account through my cell phone or tablet
	Q13	My personal data may be hijacked when using my banking account through my cell phone or tablet
	Q14	A hacker can access my private information when I use my bank account through my cell phone or tablet
Trust in the brand	Q15	I trust in the brand of the Bank
	Q16	I can count on the brand of this bank.
	Q17	This is an honest brand of Bank
	Q18	The brand of this bank is safe

Source: Adapted from Chen (2013) and Hanzaee and Andervazh (2012)

4. Presentation and Discussion of Results

4.1 Profile of the survey participants

As already informed, the sample was composed of 356 bank customers aged between 16 and 65 years, with an average of 34.6 years (SD = 9.73). 50.3% were men and 49.7% women. The monthly income ranged between R$ 0.00 and R$ 50,000.00, with an average of R$ 8,781.97 (SD = 6,928.31). The relationship with the bank ranged between one and 40 years, with an average of 12.15 years (SD = 7.70). Most customers already performs financial transaction through MB (78.1%). The weekly frequency of use of MB is divided between less than once (23.9%), 2 to 3 times (36.2%), 4 to 6 times (21.1%) and daily (18.8%). Table 3 summarizes the results.

Table 3 - Characterization of the survey participants' profile

Qualitative variables	Categories	N (%)
Sex	Male	179 (50.3%)
	Female	177 (49.7%)
Relationship bank	Bank A (Public Bank)	107 (30.1%)
	Bank B (Public Bank)	163 (45.8%)
	Bank C (Private Bank)	17 (4.8%)
	Bank D (Private Bank)	32 (9.0%)
	Bank E (Private Bank)	16 (4.5%)
	Others (among public and private Banks)	21 (5.9%)
Frequency	Less than once a week	85 (23.9%)
	2 to 3 times a week	129 (36.2%)
	4 to 6 times a week	75 (21.1%)
	Daily	67 (18.8%)
Type of transaction	Only for consultation	78 (21.9%)
	Consultation and financial Transaction	278 (78.1%)
Quantitative variables	**Minimum - Maximum**	**Mean (± Standard Deviation)**
Age	16 – 65 (Years)	34.60 (9.73)
Monthly Income	0 - 50,000 (R$)	8,781.97 (6,928.31)
Relationship time	1 – 40 (Years)	12.15 (7.70)

Source: Research data.

4.2 Reliability of the measures adopted in the survey instrument

The reliability of the adopted measures was assessed using Cronbach's Alpha, which according to Hair et al. (2010), must be greater than 0.70 to ensure the reliability of the scale. Only the Cronbach's Alpha risk of performance (alpha = 0.603) was lower than 0.70, but it can be considered acceptable, taking into account that the factor has only two items. In the other factors the alpha value was greater than 0.70, becoming thus a guarantee of the reliability of the measurement (Table 4).

Table 4 - Reliability of the measures adopted in the instrument

Instrument / size	Number of questions	Alpha of Cronbach
OVERALL RISK	14	0.897
Financial	3	0.754
Performance	2	0.603
Time	3	0.888
Psychological	3	0.852
Privacy	3	0.800
CONFIDENCE	4	0.936

N = 356
Source: Research data.

4.3 Descriptive analysis of the results

The risk scores and confidence were calculated by the mean of the responses of each factor. An overall risk score was calculated (average of 14 items) and a score for each risk factor. In both cases, the scores vary between a minimum of zero and maximum of 10 points, being that the higher the score the greater the perceived risk is. The score of confidence was also calculated using the average of the answers to four questions of the instrument, which can vary between a minimum of zero and maximum of 10 points. The higher the score, the greater the confidence in the brand of the bank is.

The data normality was evaluated using the Kolmogorov-Smirnov test (KS). Significance values obtained ($p < 0.001$) led to reject the null hypothesis of normality. Therefore, it was opted for non-parametric tests.

Table 5 presents the characterization of perceived risk in the Use of Mobile Banking (MB) and of confidence in the brand of the bank. The results show low perception of risk in the use of MB and high levels of confidence in the brand. On a scale from zero to 10, the mean score of the overall risk was 2.81 (SD = 1.95), existing 86.5% with a score of less than 5 as to the risk. Regarding risk factors, the most worrying were the financial risk (M = 4.05, SD = 2.74) and the risk of privacy (M = 3.84, SD = 2.64).

Table 5 - Characterization of the scores of risk and trust

SCORES	Average	Standard Deviation	% of responses (Considering the scale from 0 to 10 of the instrument)			
			[0 – 2[	[2 – 5[	[5 – 8[	[8 – 10]
OVERALL RISK	2.81	1.95	40.7%	45.8%	12.4%	1.1%
Financial	4.05	2.74	27.8%	32.9%	27.0%	12.4%
Performance	3.07	2.74	42.1%	27.0%	23.6%	7.3%
Time	1.67	2.26	69.7%	19.1%	7.6%	3.7%
Psychological	1.50	2.11	70.8%	18.5%	8.7%	2.0%
Privacy	3.84	2.64	27.0%	35.4%	28.7%	9.0%
CONFIDENCE	7.97	2.10	2.2%	4.8%	32.6%	60.4%

N = 356
Source: Research data.

Users who use MB perceive lower risk. But among the dimensions of perceived risk studied the ones which showed higher mean scores are the financial risk and the risk of privacy, confirming the study of Hanafizadeh et al. (2014), who emphasize that the customer's belief that the use of MB can threaten the security or privacy, may be more significant in determining his or her intention to use technology, mainly in cultural contexts with a tendency to a high degree of uncertainty. As forms of mitigation the following are included: the need to demonstrate the safety of transactions performed via MB and warranty policies and motivation for the reduction of perceived risk (HANAFIZADEH et al., 2014). Regarding the factors with lower scores, there were the financial risk (M = 1.67, SD = 2.26) and the psychological risk (M = 1.50, SD = 2.11).

As to confidence in the brand of banks, on a scale from zero to 10, the average was 7.97 (SD = 2.10), existing 60.4% who rely entirely or almost entirely on the banks (score ≥ 8). Only 7% of the clients presented, score below 5 and 32.6%, placed the average between 5 and some number <8).

4.4   The influence of perceived risk in the Use of *Mobile Banking (MB)* in confidence in the brand of bank

To use logistic regression to test the influence of risk perception of MB in confidence in the brand of the bank, the dependent variable "trust" was dichotomized considering as cut-off point the score 8. This is because 60.4% of the respondents reported that they rely on their bank on the scale values between 8 to 10. Therefore, it was considered that customers with scores in this range, were those who relied entirely or almost entirely on banks. Non-adjusted tests were, considering only the perceived risk as independent variable and, subsequently, adjustments were made for testing with the variables sex, age, income, relationship, frequency of use and type of transaction, in order to study the influence of perceived risk by controlling the effect of these variables.

Having the perceived risk global as independent variable, it was found that the perceived global risk global a negative effect on the confidence in banks (B = -0.275; OR = 0.760; p<0.001), i.e., to the extent that the perceived risk increases, the chance to rely entirely or almost entirely on the banks decreases (Table 4). This implication is consistent with the findings of Koenig-Lewis, Palmer and Moll (2010), who found in their study that: "the people who showed confidence in their bank, in their cell phone manufacturer and/or their service provider realize lower overall risk of using m-banking" (p.422), although the authors safeguard that "protecting the security and privacy of the user, i.e., the credibility is more important than the confidence in the reduction of the overall risk perceived with the use of m-banking" (p.422).

Table 6 shows the tests performed.

Table 6 - Logistic regression model for the evaluation of the influence of the overall risk in trust

Variables Independent	Dependent Variable TRUST (0 = score < 8; 1 = score ≥ 8);					
	Model is not adjusted			Adjusted model		
	Coefficient (B)	Odds Ratio (OR)	p	Coefficient (B)	Odds Ratio (OR)	p
OVERALL RISK	-0.275	0.760	< 0.001	-0.265	0.767	< 0.001
Sex (Female)				0.643	1.902	0.008
Age				0.016	1.017	0.392
Income				0.000	1.000	0.487
Relationship				0.023	1.023	0.312
Frequency				0.013	1.013	0.918
Transaction Type (consulting and financial transaction)				0.535	1.707	0.081

Source: Research data.

The analysis of the Odds Ratio allows us to affirm that to each unit that the global risk score increases, the chance to rely entirely or almost entirely on the banks decreases 23.3% (1-0.767 OR). This effect is similar when the relationship is tested by controlling the effect of other variables (B = -0,265; OR = 0.767; p < 0.001). Luo et al. (2010) aimed at testing the hypothesis that the strong confidence in a bank and the low perception of risk anticipate to the adoption of MB. According to the authors, "contrary to this expectation, the results of their research did not back up such hypothesis" (p.228).

In adjusted tests of the model the scores of risk factors perceived as independent variables were considered, aiming to analyze which factors have more influence on trust in the brand of banks. The results in Table 7 show that the single dimension of risk whose test has a statistical significance (p<0.05) in relation to the influence on confidence in the brand of banks was the risk of performance (B = -0,103; OR = 0.902; p = 0.045). The effect is negative, indicating that the increase of the risk perception of performance decreases the chance to rely entirely or almost entirely on banks in 9.8% (1-0.902 OR).

Table 7 - Logistic regression model

Variables Independent	Dependent Variable TRUST (0 = score < 8; 1 = score ≥ 8);					
	Model is not adjusted			**Adjusted model**		
	Coefficient (B)	*Odds Ratio (OR)*	*p*	**Coefficient (B)**	*Odds Ratio (OR)*	*p*
Financial Risk	-0.002	0.998	0.974	-0.034	0.967	0.593
Risk Performance	**-0.129**	**0.879**	**0.008**	**-0.103**	**0.902**	**0.045**
Risk time	-0.048	0.953	0.488	-0.046	0.955	0.517
Psychological Risk	0.043	1.044	0.570	0.055	1.057	0.490
Risk privacy	**-0.130**	**0.878**	**0.046**	-0.119	0.888	0.076
Sex (Female)				0.624	1.867	0.010
Age				0.014	1.014	0.467
Income				0.000	1.000	0.367
Relationship				0.022	1.023	0.332
Frequency				0.024	1.024	0.848
Transaction Type (consulting and financial transaction)				0.546	1.727	0.086

Source: Survey Data. (p<0.05)

The results show that the perception of risk of privacy and performance presented statistical significance (p<0.05) when tested its influence on confidence. So, the result supports the first hypothesis (H1), which asserts that the perceived risk in the use of MB influences customer confidence in the brand of the bank. Koenig-Lewis, Palmer and Moll (2010, p. 425) stated that "the level of confidence and perceived risk, e.g., depends on the quality of the technological infrastructure, the legal framework and the reputation of telephony companies in general" and that this may affect the adoption of MB. Thus, the authors somehow advise on what makes the consumer feel safe when compared to the risk of performance.

4.5   Correlation between the perceived risk and trust

The correlations between the scores of perceived risk and trust (Table 8) are negative and statistically significant (p<0.01). The results indicate that the higher the perceived risk in the use of MB, the lesser the user's confidence is in the brand of the bank.

Table 8: Correlation (Spearman) of the scores of the risk with trust.

Scores	OVERALL					
	Risk	Financial	Performance	Time	Psychological	Privacy
Confidence	-0.383**	-0.277**	-0.321**	-0.323**	-0.304**	-0.317**

**$p<0.01$
Source: Research data.

These results were found in other studies (KIM, FERRIN; RAO, 2008; ZHOU, 2012; DOMINGOS, 2012) and reaffirm that trust and perceived risk have a negative correlation, i.e., the higher the level of perceived risk in the MB, the lower the trust in the brand; the greater the confidence, the lower the perceived risk. Given the above, the second hypothesis (H2) of this research is supported by proposing that there is a negative correlation between perceived risk in the use MB and trust in the brand of the bank.

4.6   Relationship of risk and trust with the profile of the individuals

This section discusses the significant differences in risk perception and confidence in the brand of the bank, when considered the individuals' profile, on the basis of the variables: age, sex, income, time of relationship and type of operation performed via MB.

Regarding sex, there are no statistically significant differences between men and women when assessing the perceived risk, both in relation to the overall risk as the dimensions components of risk, as shown in Table 7 below.

These results contradict the study by Cruz et al. (2010) who found that the perception of risk tends to be higher in women regarding the adoption of MB. The literature shows that the expectation of perceived effort by women is higher than that of men, which generates greater reluctance of women regarding the use of technologies (VENKATESH 2000; VENKATESH and DAVIS 2000; VENKATESH et al., 2003; VENKATESH; THOG; XU, 2012). Cruz et al. (2010) also found that women seek more information while men hire more mobile services. Bhatt and Bhatt (2016) also worked with the alternative hypothesis (H1), in their study that there is significant relationship among factors influencing the adoption of mobile banking and demographic aspects. This hypothesis could not be rejected in the work of these authors, being rejected the null hypothesis that there is no significant relationship between demographic factors and the factors influencing the adoption of m-banking. Table 9 shows the tests of comparison between risk perception and trust, when taken into consideration the individuals' sex.

Table 9: Characterization of the scores of risk and trust, by sex.

Scores	Male (n = 179)	Female (n = 177)	U test of Mann-Whitney
OVERALL RISK	2.93 (1.87)	2.69 (2.02)	*p* = 0.109
Financial	4.15 (2.73)	3.95 (2.76)	*p* = 0.502
Performance	3.27 (2.75)	2.86 (2.72)	*p* = 0.119
Time	1.71 (2.25)	1.63 (2.28)	*p* = 0.235
Psychological	1.56 (2.11)	1.46 (2.15)	*p* = 0.344
Privacy	4.04 (2.69)	3.63 (2.57)	*p* = 0.132
CONFIDENCE	7.67 (2.20)	8.27 (1.94)	***p* = 0.005**

Values presented in the form: average (standard deviation)
Source: Research data, 2015.

Regarding trust in banks, it is possible to observe the existence of significant differences (p = 0.005). Women (M = 8.27, SD = 1.94) exhibit levels of confidence in the brand of their bank higher than men (M = 7.67, SD = 2.20). Hanzaee and Andervazh (2012), in their study on value, trust and brand loyalty shown by consumers of four groups of durable products (phones, sun glasses, running shoes and notebooks) characterized whose brand value is considered as of great importance, found that men showed greater confidence in the brand considering its usefulness value. Whereas women had greater trust in the brand when considered its hedonistic value.

Objectifying, still, to verify the existence of significant correlations of perceived risk in the use of MB and of trust in the brand of the bank when considered the individuals' income and the age, Table 11 presents the correlation coefficients of risk perception and trust regarding age and income. Regarding age, it is observed significant positive correlation of low intensity with the financial risk (r = 0.127; p<0.05) and with the risk of privacy (r = 0.115; p<0.05), indicating that the perception of privacy and financial risk increases with age. This is justified by the fact that younger consumers being exposed to technology at an early age, reducing the risk perceived in new technologies (SOLOMON, 2012). The correlation between age and trust in banks is also significant positive, but of low intensity (r = 0.156; p<0.01), showing that there is a slight tendency to increase trust with the increase of age.

Table 11: Correlation (Spearman) of the risk and trust with age and the monthly income

Scores	Age	Monthly Income
Overall Risk	0.103	0.069
Financial	**0.127***	0.074
Performance	0.016	0.069
Time	0.079	0.014
Psychological	0.069	0.024
Privacy	**0.115***	0.052
Confidence	**0.156****	**0.159****

*p<0.05; **p<0.01
Source: Research data.

The monthly income is positively and significantly correlated with trust (r = 0.159; p<0.01), indicating that customers with higher incomes have greater trust in banks. The results converge with the analysis of Corbitt, Thanasankit and Yi (2003) who claim that people with higher incomes are more prone to have greater experience of use of services mediated by technology (web, e-commerce) and that the good image of the brand has been effective in reducing the risk aversion. It was not observed in this study the correlation between monthly income and perceived risk, which confronts the result found by Cruz et al. (2010), in which users with relatively high income have a greater chance of perception of risk in the use of MB.

Regarding the time of relationship and the frequency of use of MB, Table 11, below, shows the existence of correlations between these variables, the perceived risk in the use of MB and the trust in the brand of the bank. Regarding the time of relationship, it should be noted significant positive correlation with the trust (r = 0.192; p<0.01), but not with the perceived risk. With this result it is concluded that customers with more time of relationship have more trust in the brand of their banks.

The frequency of use of MB is not significantly correlated with confidence, but with the overall risk (r = -0.170; p<0.01), the risk of performance (r = -0,165; p<0.01), the risk of time (r = -0.242; p<0.01) and the psychological risk (r = -0.249; p<0.01). The correlations are negative and low, which may be a flag that customers who use more times the MB may perceive lower risk.

Table 11: Correlation (Spearman) of the risk and trust with the time of relationship and the frequency.

Scores	Relationship time	Frequency
Overall Risk	-0.038	**-0.170****
Financial	0.001	-0.070
Performance	-0.063	**-0.165****
Time	-0.033	**-0.242****
Psychological	-0.021	**-0.249****
Privacy	-0.004	-0.081
Confidence	**0.192****	0.099

*p<0.05; **p<0.01
Source: Research data.

It is recommended the examination of the work of Chen (2013) in which, for both users more questions and to the non frequent, the perceived risk is an important factor in the adoption and intended use of the MB, however frequent users perceive less risk. Chen (2013) adds that frequent users of MB are more concerned with the psychological risk, since users with less frequency perceive greater financial risk, performance, time and privacy.

Table 12 will show comparisons among groups with the Mann-Whitney U test, considering perceived risk and trust between two groups, namely: those who use the MB only for consultation and those that use the MB for consultation and also for financial transactions from their banking account. It is observed that, compared to customers who use only the MB for consultation, that the use for consulting and financial transaction have a lower risk perception and more confidence in the brand of the bank.

Table 12: Comparison of the scores of the risk and trust, by type of transaction.

Scores	Only for consultation (n = 78)	Consultation and financial Transaction (n = 278)	*Mann-Whitney (U)*
Overall Risk	3.77 (2.23)	2.54 (1.77)	*p* < 0.001
Financial	4.39 (2.68)	3.95 (2.76)	*p* = 0.163
Performance	4.42 (3.02)	2.69 (2.53)	*p* < 0.001
Time	2.62 (2.83)	1.40 (2.00)	*p* = 0.001
Psychological	2.85 (2.74)	1.13 (1.75)	*p* < 0.001
Privacy	4.78 (2.69)	3.57 (2.57)	*p* = 0.001
Confidence	7.52 (2.18)	8.09 (2.06)	*p* = 0.020

Values presented in the form: average (standard deviation)
Source: Research data.

The differences are statistically significant in global risk scores (*p* < 0.001) and trust (*p* = 0.020). Regarding the subcomponents of overall risk, only in relation to the financial risk, there is no statistical significance (*p* = 0.163), when comparing the two groups listed in Table 12.

Concerning the third hypothesis (**H₃**), which proposed that: there are significant differences among different groups, regarding the perception in relation to the perceived risk in the use of *MB* and the trust in the brand of the bank, it was found that this hypothesis is partially supported (for only a few variables of profile, but not for all listed in H₃) as explained in this section.

5. Conclusions

This research had as objective to investigate the relationship between perceived risk in the Use of Mobile Banking (MB) and trust in the brand of the bank.

The existence of influence and significant negative correlation between perceived risk in the use of MB and trust in the brand of the bank was found. It was observed that customers who are already users of MB have a relatively high confidence and a perceived risk considerably low.

Among the dimensions components of the construct perceived risk in the use of MB, which generate greater concern to customers are the risk: financial and privacy. In this sense, it is recommended that banks provide to their customers guarantees that their information is secure and that the risks are zero or almost zero, especially the risk of financial loss. On the other hand, risks of time and psychological, proved to be low.

It was observed that the perceived risk has significant negative effect in relation to trust in the brand of the bank. Thus, the increase of the risk perception increases the odds ratios that trust in the brand of the bank decreases.

In relation to the individuals' profile, it was observed that the female produces significant differences in confidence in the brand of the bank, i.e., women showed greater confidence in the brand of the bank in comparison to men. As to the type of transaction carried out via MB, customers who carry out financial transactions, perceive less risk and show more confidence in the brand of their banks. When the

dimensions of risk are associated with the type of transaction, both those who use the MB only for consultation as those who carry out financial transactions perceive the same financial risk.

It is noteworthy that new smartphones and tablets can collaborate with the reduction of risks perceived in the use of MB and improve customer confidence in the brand of their banks. This is because most current devices come with biometric devices, which allow to unlock the digital artifact upon digital recognition.

In short, it is fundamental the creation of strategies of communication and dissemination of this channel of self service banking, adding value to the relationship between bank and customer and ensuring greater dissemination of this channel in the long term, since it reduces costs, and client access to the bank at any time and in any place where he or she is, consecrates the attribute of "ubiquity" (LAI; LIN; TSENG, 2014) associated with information and communication technologies, as one of its tremendous benefits in current days.

6. Contributions to the study, limitations and suggestions for future research

The study intended to provide contributions to the literature on adoption of technologies and banking organizations. For the literature, this study extends the knowledge about issues related to the perceived risk in the use of technologies and the trust in the brand of an organization. In addition, it provides a basis for further studies on adoption of self-service technologies.

For bank managers, it broadens the understanding of the need to formulate strategies of communication and appropriate relationship to different audiences, besides promoting insights for creating new ways to increase acceptance of the bank customer to Mobile channel.

In terms of future research, a study in scale, with a sample of the Brazilian population, stratified by region, could be carried out to validate the conceptual model adopted in this study and to enhance the possibility of generalization of the conclusions of the research.

It is also suggested the application of methods and additional variables, in order to better understand the behavior of Mobile Banking users. A qualitative analysis to better understand the customers' fears in relation to the channels mediated by mobile technologies could be fruitful.

A longitudinal analysis with the purpose to observe if the relationship between risk and trust is changed along time could be useful for broadening knowledge about the theme in question because, according to Venkatesh et al. (2003), the individual's perceptions may change over time, with the gain of experience of the individual.

In relation to the limitations and scope of the study, even owning a satisfactory sample for the purposes of research, the fact of having been made by the internet limits the type of public respondent to the specific profile that perhaps already has some proficiency in the use of information and communication technologies. This may can possibly generate biases related to the analysis of the variable "risk", studied in this research.

The average income of the interviewees may also be an impact factor in the search results, given that the average income was R$ 8,700.00 and this is considerably high for Brazilian standards, once the average wage income is approximately R$ 2,100.00, according to data from IBGE (2014).

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