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The Mediating Role of Trust in E-Banking: The Interplay between the Web Site's Perceived Quality and Commitment towards the Bank

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Authors' contributions

This work was carried out in collaboration between both authors. Author WH was involved in all aspects of the study. Author SS contributed to the paper writing and revision. Both authors read and approved the final manuscript.

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ABSTRACT

Trust is one of the key elements needed to create and maintain relationships with customers in any kind of exchange. Although studying trust is generally well established, and despite disagreements on its conceptualisation, few researchers have studied trust in an online environment, in particular banking web sites. This study addresses the following issue: can the quality of a web site in itself guarantee customers' commitment to a long-term relationship with their banks? What is the role of online trust? The aim of this study is to propose and then to test an explanatory model targeted to apprehend the existing relationships between these three variables in an e-banking context. What relationships will prevail? Direct and/or indirect ones? Our study examines the banking sector in Tunisia. Data collection has been collected through a face-to-face survey of customers of Tunisian banks. A questionnaire has been designed by selecting items from scales validated by previous research. Our objective is to know about customers' perception of electronic service quality, online trust and commitment towards their banks. The obtained results highlight the important role of the quality of the bank's online service in the long-term relationship with its customers by establishing trust which, in turn, induces their commitment to the bank. The findings of this study revealed that there is no direct relationship between the website's perceived quality and commitment. Moreover, the study revealed that customers' reluctance to commit to their banks relates to lack of their on-line trust despite a good perception of the web site's quality.

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1. INTRODUCTION

More and more, the concept of trust towards a brand or more recently towards a web site is at the centre of interest of specialists in marketing following an increasing trend of competition in cyber markets [8]. Over the last twenty years there has been an exponential growth of e-commerce and a systematic use of Internet by consumers. Such a trend limits companies and induces them to further opt for this tool. Nevertheless, consumers' behaviour in an e-commerce context is becoming a complex topic notably when traditional offers schemes of commercial web sites are no longer adapted to customers' expectations. The problem even prevails more for intangible services in which banking services occupy an important position.

At this level, some questions are of order: How can we foster customers' commitment towards a bank? What is the role of trust towards a web site? Can the web site's perceived quality guarantee a long relationship between banks and their customers?

We assume that banks' marketers, concerned to make their web sites and online marketing plans more efficient, are keen to better understand internet users' behaviour which is a central topic in marketing research.

Our main objective is to contribute to this field of research. Trusting a bank web site is perceiving it as a secure environment, is trusting its online technical features, and taking as well the risk of exchanging sensitive data.

The aim of this paper is then to propose and test an explanatory model which would allow for understanding the mediating role of trust of a bank web site, operationalized as the relationship between perceived service quality of a bank web site and customers' commitment towards their bank.

First, we present a review of the literature on trust, moving from its classic attributes to its specificity in an e-commerce context. Second, we highlight the concept of customers' commitment towards their bank, under an indirect (the relationship with trust) and/or a direct (the relationship with the web site's perceived quality) relational approach.

2. THE CONCEPTUAL FRAMEWORK

Our study mainly examines the role of trust in an e-banking context. Can the web site's perceived quality foster customers' commitment towards their bank, or should it be necessarily mediated by fostering trust?

To explain online success, several authors focussed on this issue and many studies have been conducted and many variables have been examined, mainly relational variables [1,2].

Research on trust is particularly abundant. A review of the literature reveals that conceptualisation of trust originated in different disciplines like sociology, psychology, management and marketing [28,61,62,63,67,70].

Firstly, our study briefly describes the main foundations of trust as proposed by marketing research, focussing on the important role this variable plays in establishing and maintaining long relationships between partners in an exchange scheme.

Secondly, we explore the specificity of trust in an e-commerce context. Beyond the classic conception of trust, we try to understand e-trust by examining its definition, dimensions and specificity as proposed by previous research.

Once the concept of trust is clarified, we examine it in an e-banking context, the object of our present research. Its determinants and consequences will be presented and allow us to build our conceptual model and propose our research hypotheses.

2.1 Trust in Long Relationships in Marketing Research

It is currently admitted by the different management disciplines that trust plays an important role in management practices [35]. Marketing research in particular studied the concept of trust in different contexts (retailing, services, B2B, etc.) and the relevant literature indicated that trust and is a complex construct known by an absence of agreement on its definition and dimensionality.

2.1.1 Definitions

Smith and Barclay [62] examine trust in times of uncertainty and consider it as “a set of actions which reflect the will to accept vulnerability in a context of uncertainty”. There exist several studies which pointed to the importance of risk, like the studies of Kumar et al. [43], nevertheless, we notice that risk is almost absent in defining trust.

Second, there is an assimilation of trust to the psychological state (a belief or a will) of the trusting person. According to Schurr and Ozane [58], trust is « the belief in the reliability and the seriousness of the person and fulfilling the role of the other party ».

Moorman et al. [50] define trust as «the willingness of a party in the exchange to rely on the party to whom they trust ». Mayer et al. [46] define it as “the willingness of a party to be vulnerable to actions of another party in order to accomplish a transaction beneficial to the two parties”. Marousseau [45] considers trust as « the belief of a party that the other contracting party will behave according to its expectations waiting for a more or less a tangible result”.

Mimouni and Volle[48] define it as “an expectation of the reliability of words, promises and written or verbal discourse of another individual. It results from the expertise of this latter, its reliability and past behaviour”.

Then, trust has been previously defined as a belief, an expectation, a psychological state or more a willingness. However, other theoretical conceptualisations consider it as a process which evolves with time and along the relationship between the partners [44,56,59]. Moreover, we notice that trust definitions in marketing do not specify whether the object of trust is an individual or an institution. In addition to the panoply of trust definitions, its conceptualisation is characterized by the absence of agreement on its dimensions.

2.1.2 Dimensions

Some researchers like Morgan and Hunt [51] and Mayer et al. [46] opt for a one-dimensional conception. They do not distinguish in their model between the “honesty” and “goodwill” dimensions. Other researchers like Ganessian [27]; Kumar et al. [43]; Geyskens and Steenkamp [34]; Ganessian and Hess [26]; Donney and Canon [19]; Sireix and Dubois [61] among others opt for a two-dimensional conceptualisation which differentiates between “goodwill” and “credibility”.

Finally, other researchers like Hess [38]; Frisou [25]; Gurviez and Korchia [36] adopt a three-dimensional conceptualisation which specifies three theoretically distinct dimensions; credibility, integrity and goodwill.

Beyond its complexity, since some years, research focussed on relational behaviour point unanimously to the importance of trust as a means that facilitates exchanges and allows for creating and maintaining long relationships between exchanging partners, whatever their nature, even in an e-commerce context.

2.2 Specificity of E-trust

With the growing use of Internet, research on trust has extended to include e-commerce. Some studies have been conducted on information systems, like the works of Gefen et al. [33] and those of Pavlou [53]. Other studies examined directly consumer behaviour like those of Garbarino and Lee [29]; Chouk and Perrien [14]; and Yang et al. [69]. Moreover, many studies of online trust tried to examine the different factors and consequences of e-trust [14,29,30,55,70].

Other studies focussed on testing general models which explain how trust is constructed in an e-commerce context [47,64,65]. Furthermore, some researchers analysed the role internet users' and/or web sites' characteristics play in the process of constructing e-trust [12,15,32,54]. The notion of trust conditions the development and success of online transactions. At this level, Bressolles [10] considers trust as « an engine » of e-commerce. Chouk and Perrien [14] assimilates trust to « a corner stone » of all exchange relationships.

2.2.1 Definitions

Online trust literature proposed several definitions which might be relevant to many concepts (e-commerce, cyber-e-tailors, online companies, a commercial web site, etc.). E-trust is generally defined by Jarvenpaa and Tractinsky [41] as « the consumers' willingness to rely on the vendor and to undertake actions even if these latter make them vulnerable”. According to Hosmer [39] and Corbitt, Thanasankit, and Yi [16], trust is “an expectation that the other parties behave consistently with their commitments, negotiate honestly and do not profit from the situation even if the opportunity presents itself”.

Chouk and Perrien [14] define trust towards a commercial web site as « the set of positive expectations in terms of competence and expertise of e-tailors, in terms of respecting their commitments, in terms of motivation to help consumers in case of a problem and in terms of attention given to their interests”. Pavlou [53] defines e-trust as « a belief allowing consumers to accept their vulnerability in an online commercial context ».

Finally, similar to the classical notion of trust, we notice that e-trust has been defined as a belief in the other party's good intentions during an online transaction. It has been presented as an expectation of the reliability of others' promises. It has also been considered as revealing of the past or future intentions or behaviour of others.

2.2.2 Specificity

It is very well clear that e-trust has its theoretical foundation in the classical notion of trust while applied in a digital context. However, in addition to the similarities, the two notions score some differences.

Trust within an online context has its own attributes which be summarized in the absence of human contact and the risk directly linked to Internet.

Absence of human contact: one of the most important attributes of e-commerce is absence of human contact. Use of technology modifies the nature of vendor-customer interaction, characterized by internet users' control and absence of interactions in the cyber-vendor. In a classical purchasing context, interaction rests on the role of the vendor in satisfying customers' needs and resolving problems that may arise during the purchase experience.

A risky context: e-commerce environment, known for the vendor's physical absence and the non-immediacy of purchasing the goods after payment, is a risky context which places the internet user in a vulnerable situation. The user's lack of control and dependence on the cyber-vendor explain this risky situation.

2.2.3 Dimensions

The literature on the dimensions of e-trust indicates that some researchers consider it a one-dimensional construct [7,30,31,42,53]. Such a conceptualisation fails to explain the complexity of the development of trust within e-commerce transactions, hence the need for a multi-dimensional conception that restores this lack. Then, most previous studies on e-trust re-take the three-dimension traditional models like Suh and Han [63] or Corbitt, Thanasankit, and Yi [16].

Chouk and Perrien [14] added the fourth dimension "orientation to resolve problems". The authors opted for this dimension after having been inspired by the work of Sirdeshmukh et al. [60] and incorporated the results of a qualitative study. "Orientation to resolve problems" relates to the cyber-vendor's motivation to help users in case of problems and find quick and efficient solutions.

Against the above, we can conclude that studies on e-trust are diverse and controversial on the dimensions of the concept. However, most researchers extrapolate the traditional two-dimensional or three-dimensional conception on e-trust.

2.3 Emergence of Trust in E-Banking

Since several years, banks started launching a "relational marketing" initiative, with the purpose of building and maintaining long relationships with their customers in a fierce competitive context. Des Garets, Paquerot, and Sueur [17] reach the conclusion about the incontestable role of information and communication technology in facilitating the development of relationships in a banking context. They enriched the content of the

relationship and favour exchanges between companies and their customers. Bank-wise, there is a better knowledge of customers through rich data bases allowing for proposing the good service by customizing it. Customer-wise, communication modes between customers and their banks have varied and become multi-channelled.

Moreover, relationships with customers in the banking sector cannot be reduced to a simple set of transactions taking place through different channels. It is rather the customers' real choice of establishing long-term relationships with their banks, a token of a reciprocal commitment to a relationship beneficial for both parties.

The same authors admit that all the above leads to think that relational marketing perfectly fits the banking sector. A case in point is the fact that banks made recourse to a number of tools in line with the above assumptions, including ITC.

Toufaily and Perrien [67] assume that relational marketing is the key for companies that wish to benefit more of e-commerce and internet. Knowing how to build and maintain long-term relationships with customers is understanding how to interact, build trust and mutually adapt in a changing context.

Admittedly, technology disrupts even the nature of a service relationship and the servuction system itself [21] since it substitutes face-to-face encounter.

This latter assumption adds to e-commerce specificity. Interactivity, a crucial element of electronic service, allows customers to participate in creating their own service, modifying the form and content of the offer, and adapting the purchase context to their needs, resulting in a potential increase in the value of the offered service and a strong commitment probability to the online company.

Similarly, following a survey of banking sector managers, Aladwani [1] identified trust and internet security issues as key elements which banks should consider to foster trust and build a long online relationship with their customers.

Other researchers [71,72] explored the nature, factors and effects of customers trust towards online banking services. They define trust in e-banking as customers' expectation to fulfil an online banking transaction, wishing that the bank delivers its commitments.

A recent study [18] examining trust and the bank's online distribution channel distinguished two dimensions of an individual's trust: an affective dimension which reflects customers' perception of their banks' goodwill and integrity (honesty) and a cognitive dimension which reflects the banks' perceived competence and credibility.

Generally-speaking, credibility of an online service provide has often been associated to this latter's competence (necessary knowledge of a field), and expertise (aptitude to efficiently fulfil tasks in an online exchange). Doney et al. [19] associate credibility to competence, technical performance, honesty, know-how and finally expertise.

3. MODEL AND RESEARCH HYPOTHESES

One of the key elements of our analysis is whether there is a causal relationship between perceived e-service quality, trust and commitment towards banks. Can commitment be

directly explained by a good perceived quality of the web site? Recent studies have pointed to several determining variables of e-trust. We will briefly present the main factors before limiting our focus to the three following concepts: the web site's perceived quality, e-trust and commitment in service marketing, in particular the banking sector.

3.1 Perceived Quality of a Bank's Web Site and Trust

Literature on factors explaining development of online trust is controversial on the elements which reinforce users' trust. Such a controversy depends essentially on the focus and objectives of each study. Nevertheless, the set of these factors may be grouped under Chouk and Perrien's [15] classification. Four categories of factors that may influence customers' trust during an online purchase experience are identified. There are variables related to the web sites, others to third parties, others to the vendor and other individual and situational variables.

According to Boyer and Nefzi [8], the literature on these different factors does not "explicitly" mention service quality as a factor. However, most factors mentioned by the literature have been identified as specific dimensions of the notion of service quality. Then, it seems appropriate to consider service quality as a determining factor in creating a trust-based relationship between companies and their customers.

Moreover, the positive relationship between web sites quality and trust has been validated in many studies [5,16,47]. A web site quality seems an important determinant of e-trust. A web site should have a presentation quality that fosters trust [15].

3.2 Trust of the Bank's Site and Commitment Towards the Bank

Effects of online trust were subject of many marketing studies, where several variables have been examined.

Some researchers studied purchase intention as the main consequence of online trust [12,13,30,33,47]. Other researchers focussed on faithfulness towards the site as a consequence of online trust [2,23,37,40].

Rajoebelina et al. [54] pointed to recommendation as a consequence of online trust, defining it as follows: *"a positive or a negative statement made by previous, current or potential customers on a product or a company, and which is accessible by many people or institutions through internet"*.

Eastlick et al. [20] indicated empirically that trust of an online vendor influences commitment. This latter variable is assumed to be an incontestable consequence of classic exchange relationships as suggested by Morgan and Hunt [51].

Trust precedes and determines commitment in the model of Morgan and Hunt [51] in a chain of relationships empirically proved [3,25,28,68]. From its cognitive aspect, based on a speculative process, it mainly determines a calculated-type of commitment.

3.3 Perceived Quality of the Bank's Web Site and Commitment towards the Bank

Internet provides all possible potential and manners that help retain customers. Interactivity, browsing ease, appropriate content, customization, intelligent social communication, security and confidentiality standards are the relevant dimensions to develop relationship through the bank's web site [67].

The risk perceived by customers in electronic exchanges may affect also their relationship with their financial institutions. Web-associated risks, i.e. security and confidentiality, may encourage customers to establish strong and long relationship with the same institution in view of controlling and reducing risks.

Barnes, Dunne and Glynn [4] underline that technology integration within services increases customers' concern with confidentiality, security and functionality, considered as key factors in building online trust with their banks. Moreover, Toufaily and Perrien [67] indicated that the design of the site, in particular the visual signals of the product significantly affects users' purchasing decisions. It is then possible that layout and originality affect customers' purchasing behaviour and their relationships.

Site design is a key element of the success of e-service. Berthon et al. [6] show that web sites which score rapid flow of information and replies would be visited regularly and for a long period. Then, we can conclude that a good web site design compensates for customers' technological limits and allows for reinforcing commitment in a relationship.

However, an easy-to-use and highly-useful commercial web site that does not offer security insurance and does not respond to customers' fears and doubts will satisfy in an e-commerce context [49].

Likewise, the more information in a web site may respond and satisfy customers' particular needs, the more trust is build and commitment reinforced. Value-added information increases companies' opportunities to increase their sales and profitability. For instance, the most advanced banks use internet to make their relationship with their customers interactive. They aim at improving contact efficiency and implement processes with higher added value for their customers [67]. Furthermore, customers' perception of the importance of additional costs to needed to terminate the current relationship with their bank allows in turn customers to commitment to the current virtual relationship.

3.4 Model and Hypotheses

Following the above analysis, we present our model (Fig. 1) and our research hypotheses in what follows:

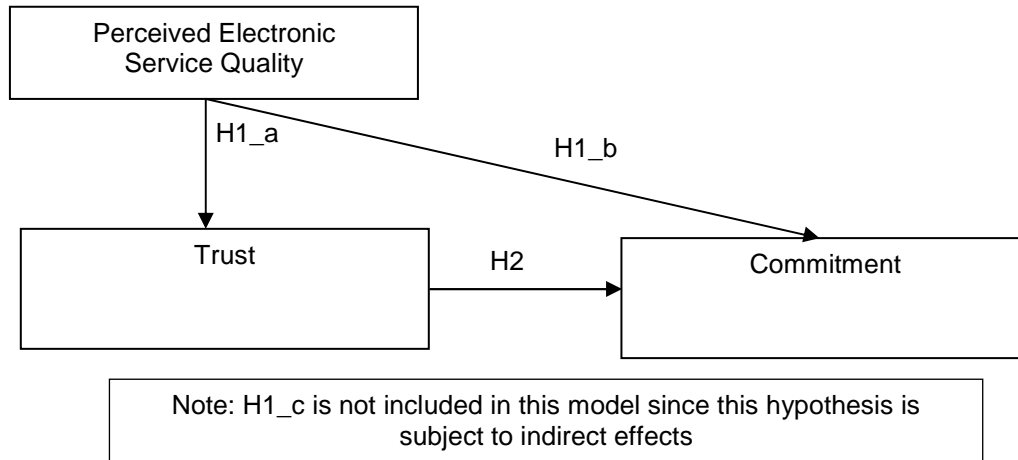


Fig. 1. The Model

- H1_a: Electronic service's perceived quality positively affects customers' trust towards their bank.*
H1_b: Electronic service's perceived quality positively affects customers' commitment towards their bank.
H1_c: Electronic service's perceived quality positively affects customers' trust and commitment towards their bank (Indirect Effect).
H2: Trust positively affects customers' commitment towards their bank.

4. METHODOLOGY

Our methodology consists of the following steps: designing a questionnaire, collecting data, sampling and validating constructs.

4.1 Construct Measurement and Questionnaire Design

A questionnaire has been designed by selecting items from scales validated by previous research. Our objective is to know about customers' perception of electronic service quality, online trust and commitment towards their banks. All items were taken from previous scales.

Netqual is a scale developed by Bressolles [10] measuring the service quality of commercial web sites. This scale has been devised through a series of semi-directive exploratory interviews with cyber-consumers and experts of online selling. It consists of 5 dimensions categorized into 18 items with good psychometric quality. Bressolles and Nantel [9] used Netqual to evaluate both commercial and informative items.

Several researchers adopted Netqual in their studies to measure perceived quality of transactional web site. Then, evaluating service quality of a transactional web site relates to 5 dimensions: ease of use, reliability, design, security and confidentiality and information.

To measure trust in services marketing, multidimensional scales are frequently used. Doney and Cannon [19] measure trust as a two-dimensional construct. To study the relationship between sellers and e-tailors, the authors highlight the two following dimensions:

- Credibility: measurement of competence, expertise ...
- Goodwill: good intentions of the contracting party

The originality of these studies is to have examined the relationship and determinants of trust between seller and buyer. We adopt the two-dimensional scale of these authors in our study.

Our approach is an attitudinal one which considers commitment as an individual psychological state. This approach is largely developed in human resources organisation before it is taken by relational marketing in which it has become a key variable [51]. These authors measured commitment as a two-dimensional concept, having an affective dimension and a calculated dimension. Our study retains the calculated dimension of commitment towards the bank, an essential consequence of trust. According to the literature, the affective dimension of commitment is mainly determined by attachment.

Then, the first construct (Netqual) is multidimensional and is measured using 5 dimensions. The second construct (trust) is two-dimensional. The final construct (commitment) is one-dimensional. All items are assessed by 5-point Likert scale ("1: totally disagree" to "5: totally agree"). The scale has been pre-tested by 40 customers, totalling 10% of our sample, in order to detect potential customers' response problems. Then, the scale's statement proved to be clear and comprehensible for our target group, with 8-minute average response time. The set of these scales constitute our questionnaire.

4.2 Data Collection and Sample

Data collection has been collected through a face-to-face survey of customers of Tunisian banks during the months of May and June 2012. The surveyed population of our sample consists of customers who consult their banks' web site at least three times a month. Data are obtained during the times when customers visit their banks the most (from 9 am to 11 am and from 2 pm to 4 pm).

Customers have been chosen at random among all customers visiting the bank on the day of the survey. Sample size is convenient to run a structural equation modelling technique using the AMOS software.

The obtained sample varies in terms of gender (males: 44,4%, females: 58,6%), age (73,5% less than 30 years, 18,7% between 30 and 50 years, 7,8% more than 50 years).

5. THE RESULTS AND THEIR INTERPRETATION

5.1 Reliability and Validity of the Measurement Scales

After an exploratory factor analysis for the three constructs of our study, a second-order confirmatory factor analysis (estimation method: maximum likelihood) has been conducted to estimate first reliability and validity of each of the five dimensions of electronic service quality, Netqual, and second assess the structural relationships between the different concepts (Netqual, trust and commitment).

The results obtained from the second-order confirmatory factor analysis are satisfactory. Goodness of fit indices are consulted for the purpose. The three types of fit indices (absolute, incremental and parsimonious) have been used to evaluate goodness of fit [57]. We obtained acceptable results reported in Table 1 below. All dimensions score a good measurement quality.

Table 1. Results of the second-order confirmatory factor analysis of the 5 dimensions of electronic service quality (Netqual)

	Generally accepted standards	Calculated indices
Absolute indices		
RMSEA (Root mean square error of approximation)	<.08 or higher than <.05	.038
GFI (Goodness of fit index)	Close or higher than .90	.967
Incremental indices		
AGFI (adjusted goodness of fit index)	Close or higher than .90	.942
NFI (Normed fit index)	Close or higher than .90	.958
CFI (Comparative fit index)	Close or higher than .90	.974
TLI (Tucker-Lewis Index)	Close or higher than .90	.983
Parsimonious indices		
Standardized Chi-square **	+ possibly low, between 1, 2-3, even 5	1.348(.021)

** Chi-square/df (Sign.)

Factor regression coefficients for each dimension (ease of use, reliability, design, security and confidentiality and information) should be high, superior to .50 according to Roussel et al. [57] to check for the importance of each dimension in the second-order construct. Table 2 supports this condition and the relationship between the first-order and second-order factors are high and vary between .520 for the “security” dimension and .910 for the “ease of use” dimension. Reliability and validity of the five dimensions can then be checked.

Table 2. Importance of each dimension for the second-order construct "Netqual"

Effects	
Netqual→	Ease of use
Netqual→	Reliability
Netqual→	Design
Netqual→	Security and confidentiality
Netqual→	Information

Table 3 reports the items of the five dimensions of the construct « Netqual ». Reliability is defined as follows: “*quality of a measurement instrument which administered many times for the same phenomenon, should give the same the result*” [22, p.666]. In order to confirm reliability of the instrument, we evaluated internal coherence of the scales using indices like Cronbach’s alpha and Jöreskog’s ρ when the numbers of items vary a lot.

In our study, the lowest alpha coefficient reaches .789. Jöreskog’s Rhô score good reliability estimates for the measurement scale, with the lowest coefficient reaching .850. These two indices reflect good reliability. Reliability is a necessary condition, yet not sufficient to check for validity of a measurement, as validity indicates the degree a measurement instrument measures what is supposed to measure [22].

Convergent validity checks whether “indices supposed to measure the same phenomenon are really correlated” [22, p. 671]. This type of validity is measured by two indices as Fornell and Larcker [24] indicate. The first, which is the t-student test associated to each of the factor loadings (λ), is significant. The second is the extracted mean variance (or Rhô of

convergent validity $=\rho_{vc}$). These conditions are checked and the scales' convergent validity is satisfactory as extracted mean variance (ρ_{vc}) for the construct "Netqual" is significant. It is superior to .5 [24], and equal to .70. Moreover, as shown by the confirmatory factor analysis, the relationships between first-order and second-order factors should be high to insure a significant convergent validity for the second-order construct [22]. This condition is also checked since the convergent validity coefficients vary between .520 for the dimension "security" and .910 for the dimension "ease of use" see Table 3.

Discriminant validity means that two theoretically-different constructs are distinct in reality. For Discriminant validity to be satisfactory, we should make sure that extracted mean variance (ρ_{vc}) of each dimension is superior to the squared correlation and that the dimension overlaps with other dimensions. This condition is checked; the Discriminant validity of the "Netqual" scale is also significant.

Table 4 reports reliability and validity estimates of the two other constructs of « Trust » and « Commitment ». The lowest Cronbach's Alpha reaches .809 and Jöreskog's Rhô tests report significant reliability estimates of the measurement scale, with the lowest approximating .860. These latter indices reflect the good reliability of the scale. Convergent validity for these two scales is satisfactory since extracted mean variance (ρ_{vc}) by the two constructs is superior to .5 and equal to .74 for the construct "Trust" and .61 for the construct "Commitment". To assess Discriminant validity, we compared extracted mean variance for each construct to the squared correlations of the other constructs [24]. The results indicate that Discriminant validity is satisfactory for these two main constructs Table 4 and for the sub-constructs as well.

Goodness of fit indices are then assessed in order to evaluate the model's fit quality [57] recommend three types of fit indices (absolute, incremental, parsimonious) to be used to assess goodness of fit. We obtained acceptable results reported in Table 5. The construct "Trust" is two-dimensional and has good measurement quality, however the construct "Commitment" consists of 4 items, hence it was not possible to assess its goodness of fit quality.

Table 3. Summary of the dimensions of the second-order construct « Netqual »

Constructs	Dimensions and measurement items	Stand coefficients (a)	corr2 (b)	ρ vc
1. Perceived quality of electronic service: Netqual (multidimensional) Cronbach's $\alpha = 0.861$ Joreskog's $\rho = 0.92$	a. Ease of use : $\alpha = .894 - \rho = .91$.91		
	1. It is easy to move and find what we are looking for in the bank's web site.	.84		
	2. Organisation and ergonomics of the bank's web site facilitate research for information.	.78	.47	.65
	3. My bank's web site is easy to use.	.80		
	4. Links of my bank's web site are clear and simple	.75		
	b. Reliability : $\alpha = .789 - \rho = .85$.67		
	1. I think the services promised correspond to their description in the bank's web site.	.68		
	2. I think that information given on the proposed services are reliable.	.81	.36	.59
	3. The web site's customer service has the necessary knowledge to respond to my questions.	.78		
	4. My bank's web site respects promised deadlines.	.69		
	c. Design : $\alpha = .912 - \rho = .94$.73		
	1. My bank's web site is visually attractive.	.82		
	2. My bank's web site is nice.	.79	.52	.71
	3. My bank's web site has creativity.	.87		
d. Security and Confidentiality : $\alpha = .794 - \rho = .89$.52			

1. I think that my private data is protected in my bank's web site.	.63		
2. I trust my bank's web site for not using my personal data for bad use.	.61	.29	.54
3. Generally, I trust the security of my bank's web site.	.56		
e. Information: $\alpha = .869 - \rho = .92$.86			
1. Information on my bank's web site is accurate.	.83		
2. Information on my bank's web site is relevant.	.69	.47	.62
3. My bank's web site provides detailed information on the proposed services.	.71		
4. My bank's web site proposes good illustrations of sold services.	.78		

a all coefficients are significant at $p < .01$. Factor loadings of the dimensions of second-order constructs are in bold.

b The highest squared correlation between the construct in question and the other constructs.

Table 4. Summary of « Trust » and Commitment » measurement scales.

Constructs	Dimensions and measurement items	Stand Loading. (a)	corr2 (b)	ρ vc
2. Trust : <i>(two-dimensional)</i> <i>(Doney and Cannon 1997)</i>	a. Perceived Credibility : $\alpha = .809 - \rho = .84$.82		
	1. The promises given by my bank's web site are true.	.84		
	2. My bank's web site has excellent services.	.87		
			.59	.74
Cronbach's $\alpha = .857$ Joreskog's $\rho = .89$	c. Perceived Goodwill: $\alpha = .926 - \rho = .96$.77		
	1. My bank's web site will pay attention to its customers' problems.	.86		
	2. In case of problems. It is easy to place an immediate online complaint.	.79		
3. Commitment <i>(one-dimensional)</i>	1. This bank represents what I am looking for.	.83		
	2. It is in my interest to continue visiting this bank because I found it superior to the others.	.78	.43	.61
Cronbach's $\alpha = .824$ Joreskog's $\rho = .86$				

a all coefficients are significant at $p < .01$. Factor loadings of the dimensions of second-order constructs are in bold.

b The highest squared correlation between the construct in question and the other constructs.

Table 5. Summary of the « Trust » and « Commitment » measurement scale

	Generally-accepted standards	Trust	Commitment
Absolute indices			
RMSEA	<.08 or higher<.05	.046	*
GFI	Close or higher than .90	.984	
Incremental indices			
AGFI	Close or higher than .90	.957	*
NFI	Close or higher than .90	.981	
CFI	Close or higher than .90	.992	
TLI	Close or higher than .90	.996	
Parsimonious indices			
Normalized Chi-square**	+ lowest possible, between 1, 2-3, even 5	2.159(.032)	*

* For scales with less than four items, it was not possible to obtain goodness of fit estimates.

** Chi-square/df (Sign.)

5.2 Hypotheses Testing and Discussion

Electronic service quality positively influences the studied constructs of trust and commitment. We found that Netqual is a determinant of the relationship between customers and their banks. Worth noting is that the direct and indirect links between the constructs suggest that insuring commitment in the service sector through electronic services depend on several interacting variables.

The causal approach is used to test the proposed hypotheses of our model. This approach allowed us not only to detect all the direct relationships but also the indirect ones between the variables in the same context [52].

The obtained model scores satisfactory goodness of fit indices see Table 6. RMSEA value should generally be inferior to .08 (approximately .05) to have a good fit quality taking into consideration degrees of freedom. A value superior to 1 will be very critical [57]. In our study, RMSEA has excellent absolute indices. Incremental indices score also acceptable values with AGFI at .983, NFI at .962, CFI at .974 and TLI at .987. As for the parsimonious indices, the CMIN/DF ratio is 2.368 and it is acceptable as it ranges between 1 and 3. The indices indicate then a good fit quality of our model compared to the theoretical one.

Concerning our hypotheses, the direct effects have been tested using the t-test whereas the indirect effects have been tested using the bootstrap method. Table 7 reports the results of our hypotheses testing.

We found that electronic service quality « Netqual » directly and positively influences customers' "Trust" of their banks' web sites, hence H1a is validated. Accordingly, trust is a direct consequence of perceived quality of the provided service which is consistent with some previous studies highlighting the role of quality as an actor to trust [11,66]. Consequently, a good perception of the quality of bank's site directly generates a high degree of trust.

Table 6. Goodness of fit of the structural model

	Generally accepted standards	Indices calculated for the model
Absolute indices		
RMSEA	<.08 or higher <.05	.057
GFI	Close or higher than .90	.978
Incremental indices		
AGFI	Close or higher than .90	.983
NFI	Close or higher than .90	.962
CFI	Close or higher than .90	.974
TLI	Close or higher than .90	.987
Parsimony indices		
Standardized Chi-square **	+ lowest possible, between 1, 2-3, even 5	2.368 (.047)

** Chi-square/df (Sign.).

Table 7. Results of our Hypotheses testing

Direct effects	Standardized coefficients	p	Validated
H1a : Netqual → Trust	.57	***	Yes
H1b : Netqual → Commitment	.43		No
H2 : Trust → Commitment	.71	***	Yes
Indirect effects		Bootstrap coefficients	
H1c : Netqual → Trust → Commitment	.62	***	Yes

However, H1b which assumes the direct impact of commitment is not validated. However, we found a significant indirect impact of “Netqual” on “commitment”, hence H1c is validated. This result contrasts the results of a recent study conducted on the banking service in Vietnam and which indicated the presence of a strong relationship between perceived quality and commitment. In our study, the result suggests that it is important to signal out that “trust” plays a mediating role between “commitment” and a well-designed “web site”.

Trust directly influences commitment. This result validates H2. Trust of a banking web site a strongly influences customers’ commitment towards their banks, positively and significantly. This impact between the two variables has often been confirmed by previous research. They are known to be key variables in a relational line of thinking [51]. Trust plays a major role and mainly determines commitment, in our study a calculated-type of commitment. Customers evaluate after all the benefits and losses associated to the relationship and the interests to maintain.

6. CONCLUSION

Customers’ behaviour in e-commerce is a complex topic. Internet users’ expectations change and thus question the traditional on-line offer schemes. Such an assumption leads us to several questions: How can we insure customers’ commitment towards their banks? To what extent does the perception of the service quality favour establishing a long-term relationship between banks and their customers? What is the role of trust in this relationship?

Answers to these questions are a priority for all firms, let alone banks, looking for understanding customers’ behaviour in the era of e-commerce.

Like traditional agencies, banking web sites' service quality seems to play a major role in the success of the bank-customer relationship, in a digital area becoming more and more competitive.

At this level, our study aimed at contributing to the comprehension of the relationship between customers and their banks' web sites. Our objective was to conceptualize a model that explains customers' commitment relying on the fundamental role of trust and perceived quality of on-line services, taking into account the specificity of this sector.

Our study concluded with the importance of on-line trust to commitment in a long-term relationship between customers and their banks. This trust is determined following a good perception of the quality of the web site and its five dimensions (information, ease of use, security, design and reliability). Moreover, the study revealed that customers' reluctance to commit to their banks relates to lack of their on-line trust despite a good perception of the web site's quality.

Many reasons may explain this reluctance of which notably security and confidentiality issues as well as lack of trust of on-line banking services. To solve for this, we tried to show that concepts of relational marketing should be used by banks to increase their web sites' benefits, foster their customers' trust and then retain them.

More generally, we can conclude that trust is at the centre of relational marketing and customer-bank relationship management. Banks should concern itself with their customers' trust in their web sites. They should develop expertise, goodwill and integrity to foster commitment to them. They should also do their utmost to insure a good perception of their web sites, a key determining factor of reinforcing on-line trust.

Management-wise, it seems that considering the five elements of web sites is very fruitful. Then, to make customers commit to a long-term relationship with their banks, these latter should prove, through their web sites, that they deserve trust compared to their competitors. This assumption leaves us think about new segmentation criteria of customers, other than the classic criteria.

Against these results, it would be interesting to consider, in future research, experimentations that will examine customers' reactions to the five dimensions of a web site quality, in different situations, in view of detecting the elements that are likely to reinforce customers' trust of the web site and testing their real commitment to their banks. This study may be supported by new trends in neuro-marketing.

Even if this study brings us a number of responses to our research concerns, it may help inspire others. Relationships in a digital context remain a complex theme which will attract researchers and fuel further debates in marketing research.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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