



## International Journal of Bank Marketing

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### Article information:

To cite this document:

Carlos Flavián Miguel Guinalú Eduardo Torres, (2006), "How bricks-and-mortar attributes affect online banking adoption", International Journal of Bank Marketing, Vol. 24 Iss 6 pp. 406 - 423

Permanent link to this document:

<http://dx.doi.org/10.1108/02652320610701735>

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# How bricks-and-mortar attributes affect online banking adoption

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Received August 2005  
Accepted June 2006

## Abstract

**Purpose** – This paper analyzes how consumers' perceptions of their traditional bank influence their decision to adopt the services offered by the same bank on the internet.

**Design/methodology/approach** – The data required in this paper were gathered by means of a personal survey conducted with customers of various banks totaling 633, which distribute their services by traditional channels as well as on the internet. A Binomial Logistic Regression process was analyzed to assess the influence of trust, incomes, age, sex, education and employment on the adoption of the financial services offered by a traditional bank on the internet.

**Findings** – The results in the paper showed that consumer trust in a traditional bank, as well as incomes, age and sex are factors that influence consumers' decision to work with the same bank via the internet.

**Research limitations/implications** – The paper shows that, turning to the limitations of the work, it is necessary to point out that the majority of individuals who participated were Spanish speaking, so that it would also be a good idea to carry out a new validation of the model with a wider sample of consumers, particularly in terms of different nationalities.

**Practical implications** – Throughout this paper the importance of trust in online banking adoption has been shown. The results show that there is a clear relationship between consumer trust in the traditional channel and the likelihood of using services provided by the same bank on the internet. The results of the research also show the need to target marketing actions on certain segments of the population.

**Originality/value** – This paper offers an innovative approach, since it analyzes how consumers' perceptions of their traditional bank influence their decision to adopt the services offered by the same bank on the internet. This analysis perspective has not been previously used in the literature.

**Keywords** Banking, Trust, Internet

**Paper type** Research paper

## Introduction

The financial sector is one of the business areas that has been most affected by the spread of new technologies, particularly the internet. These technologies have not only had a bearing on the internal organizational processes, but have also had a sizeable influence on the way in which financial institutions interrelate with their customers. Banks of all sizes are opting to run their commercial activities via the internet, since this new medium provides distinct advantages for all the parties involved. The banks can reduce their costs and widen their market, while the users enjoy a broader variety

The authors wish to express their gratitude for the financial support received from the Ministry of Education and Science (SEC2005-4972; PM34) and the Aragón Government (S-46).



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of products and their operations are now more convenient and not bound by office hours.

Yet, the initiatives embarked upon by the banks on the internet are not without their risks. Recent events, such as the closing of its operations in France by the British internet bank Egg (the market leader in Europe), leading to the dismissal of 450 employees, show that not all financial institutions have achieved significant and stable profits, in spite of having invested an enormous amount of money in technological infrastructures, specialist staff, and advertising. The major traditional banks are not strangers to limited success with their internet projects, as may be seen by the high debt rates faced year after year by some of the most prestigious banks in the EU.

Nevertheless, the number of internet bank users is growing daily. This suggests that the operations that online banking users are carrying out have no direct repercussions on the turnover. The activities conducted by internet bank users are probably limited to making free consultations, such as the evolution of the stock exchange, but when consumers really want to make a transaction, which really generates incomes for the bank, they prefer to do it at the traditional branch office. Complicated transactions are still handled in person, with fewer than 1 percent applying for credit or loans online (Businessweek, 2001). This leads us to believe that the arrival of the internet in the banking sector has not caused a massive rush by consumers to change brands as much as a complementarity between channels. Thus, it is reasonable to suppose that there is a series of factors that determine the adoption of online banking, that will relate the bricks-and-mortar channel, and the new virtual media.

Although the new technologies have meant the entry of new competitors (e.g. E\*Trade, Patagon and Atlanta's NET.B@NK, INC.), it seems that traditional banks (e.g. Bank One Corp. and first-e) may be the winners in online competition. For example, Watchfire GomezPro scored top online financial institutions based on categories including functionality, ease of use, privacy and security, quality and availability, ability to open and check accounts, transaction capability, service and educational and planning information. The result suggests that traditional brands are more competitive. Watchfire GomezPro announced Q4 2004 online banker scorecard results as follows: Wells Fargo, Bank of America, Citibank, E\*Trade and Huntington. According to the report "2003 Top Ten Issues: Global Banking Industry Outlook" by the consulting firm Deloitte, banks must invest in a more human touch with their customers. In fact, we consider that after years of trying to push people out of branches in favour of the internet, too many banks have begun to lose touch with their customers. Consequently, banks are now focusing on the importance of the branch in building profitable relationships with their retail customers (Deloitte, 2005).

Up to now most studies have been particularly concerned with describing the main features of the online banking customer (e.g. Núñez and Lisbona, 2001; Sarro, 2002). However, previous literature has analyzed online banking adoption from a general perspective or has been focused on the main precursors or inhibitors of online banking (e.g. Sathye, 1999). This study has an innovative approach, since it analyzes how consumers' perceptions of their traditional bank influence their decision to adopt the services offered by the same bank on the internet. The aim is to determine the relationship between the two channels. For all these analyses we first review the most relevant literature regarding the adoption of electronic banking in order to suggest the

factors that are most likely to affect the adoption of online banking. We then empirically test which of these features are most relevant in the use of online banking. Finally, we describe the results of the study and offer the most significant managerial implications.

**Review of online banking adoption**

Marketing literature has studied the phenomenon of online banking from various perspectives. Some studies, have analyzed the adoption and growth of online banking, while others, describe the benefits to be gained from the internet, as far as the organization is concerned. One study worth mentioning, is the one by Thornton Consulting (1996), which concludes that: perceived lack of security, is one of the main obstacles of growth in the number of online banking users. Furthermore, Sathye (1999) analyzes the effects of security, ease of use, perceived benefits from the service, resistance to change, price, and infrastructure availability on online banking adoption. In a similar context, we might mention the work of Liao *et al.* (1999). It studies online banking adoption through variables such as ease of use, image, comparative advantage, compatibility, willingness, and the opportunity to try it. For Tan and Teo (2000), the intention to use online banking depends on attitude, behavior control, and existing subjective norms. For their part, Polatoglu and Ekin (2001) focus on the reduction of operational costs, and the increase in the levels of consumer satisfaction and loyalty towards online banking. We might also mention the work of Black *et al.* (2001), which considers that the adoption of online banking depends on the compatibility of the new channel with the individual's personality, his computer skills, and the chance to try the services offered. For Howcroft *et al.* (2002), the principal factors that inhibit online banking adoption are perceived security and errors that might be inherent to the telecommunication system. Finally, we should mention the work of Rexha *et al.* (2003), which concludes that trust and satisfaction have an influence on electronic banking adoption, although satisfaction, is moderated, by the level of consumer trust. Table I shows a brief summary of the various factors that the literature has stated with regard to online banking adoption.

Factors	Literature
Security	Thornton Consulting (1996)
Security, ease of use, perceived benefits in the service, resistance to change, price and availability of infrastructure	Sathye (1999)
Ease of use, image, comparative advantage and compatibility	Liao <i>et al.</i> (1999)
Attitude, control of behavior and existing subjective norms	Tan and Teo (2000)
Compatibility of the new channel with the individual's personality, computer skills and the chance to trial	Black <i>et al.</i> (2001)
Trust and satisfaction	Rexha <i>et al.</i> (2003)

**Table I.**  
More relevant factors with regard to the adoption of online banking

### Consumer trust

Trust has been given special attention from different scientific disciplines, such as Anthropology (e.g. Aguilar, 1984); Economics (e.g. Williamson, 1993); Sociology (e.g. Gambetta, 2000); Games Theory (e.g. Milgrom and Roberts, 1992); or marketing (e.g. Morgan and Hunt, 1994; Anderson and Narus, 1990; Doney and Cannon, 1997; Ganesan, 1994). This interest arises from the capacity, which the existing trust has to develop successful and long-term relationships. More exactly, trust facilitates the adoption of decisions, in risky situations (Deutsch, 1962; Mayer *et al.*, 1995); and reduces the number of possible alternatives (Kumar *et al.*, 1995). Reduce the environmental complexity (Luhmann, 1979; Barber, 1983); facilitates cooperation and coordination (Putnam, 1995; Misztal, 1996); improves conflict resolution (Hakansson and Sharma, 1996); reduces the need for control mechanisms (Achrol, 1997); and helps to develop commercial exchanges in the long term (Koehn, 1996).

Marketing is one of the knowledge areas, which has analyzed in depth the characteristics of the trust concept and its incidence on commercial relationships. Most of the research developed from the marketing perspective is associated with inter-organizational relationships “Industrial Marketing” and Relationship Marketing theories (e.g. Morgan and Hunt, 1994; Anderson and Weitz, 1989). According to these works, trust is a key component in the perceived quality of a relationship (Dwyer *et al.*, 1987). Trust plays a decisive role in the continuity and development of the relationships between a company and the different agents, which constitute its environment (Morgan and Hunt, 1994; Crosby *et al.*, 1990).

#### *Components of trust*

Trust has been analyzed from two different perspectives (Geyskens *et al.*, 1996; Kumar *et al.*, 1995; Moorman *et al.*, 1992-1993; Siguaw *et al.*, 1998; Mayer *et al.*, 1995). First, trust is considered as a comportamental component, that is, trust refers to the individual’s intention to act in a certain way. This type of behavior reflects the security that one party has in the other one (Geyskens *et al.*, 1996; Kumar *et al.*, 1995; Moorman *et al.*, 1993; Siguaw *et al.*, 1998). According to this perspective, trust is the “willingness to rely” in the partner.

Alternatively, trust may be analyzed as a cognitive component. Thus, trust is associated with a set of beliefs (Anderson and Narus, 1990; Doney and Cannon, 1997). This is the more common perspective in the literature (e.g. Ganesan, 1994; Coulter and Coulter, 2002). Most of the previous literature has emphasized the presence of two fundamental aspects that determine the degree of trust shown by the consumer to a company. First, trust will depend on the honesty perceived by the consumer in the actions of the company (Doney and Cannon, 1997). Second, researchers have shown that the degree of benevolence shown by the company is closely related to the trust shown by its customers. Thus benevolence, that is, the goodwill of its actions and the lack of opportunist behaviour, has been proposed as the other major component dimension of consumer trust (Larzelere and Huston, 1980). A third component that is included in some studies is perceived competence. Specifically, competence perceived by the consumer in the company, in this case represented by a web site, includes the set of skills, capacities and characteristics that enable a party to have influence on a specific domain (Mayer *et al.*, 1995), and therefore keep his promises (Sako and Helper, 1997). This aspect is particularly necessary for creating trust in online relationships

(Roy *et al.*, 2001). This is due to the consumer's uncertainty regarding issues such as payment platforms security or the fulfilment of orders. All this, together with the constant reports of hackers' attacks on information systems or the large number of companies that have disappeared from the Net in the last three years (Webmergers, 2003), creates mistrust in the consumer. Consequently, the consumer will only show trust if the company is capable of showing that it has the economic, technical and human resources to tackle and meet the commitments it has taken on. Hence, companies make remarkable investments with the aim of improving their abilities, covering several aspects, such as establishing sophisticated security systems in communications or CRM (Customer Relationship Management) applications which increase the capacity to perceive the customers' needs.

In line with Morgan and Hunt (1994), we suggest that the consideration of the comportamental component may be redundant. The comportamental component may be observed as an outcome of attitude and not as part of the trust definition. Thus, the "willingness to rely" must be considered as an outcome or a potential indicator of trust, not as a part of how one defines it.

Although some authors have considered trust as a multidimensional concept, most of them have measured it as a uni-dimensional variable (Morgan and Hunt, 1994; Doney and Cannon, 1997). Thus, we measure consumer trust using a multi-item scale, which includes all the aspects related to the honesty, benevolence and competence perceived by the consumer (see Appendix, Table AI).

#### *Online consumer trust*

Although trust has been studied in depth in traditional channels -especially in inter-organizational relationships (e.g. Dwyer *et al.*, 1987), some authors have started to analyze its influence for online marketing, because the lack of trust among online consumers is considered as the main explanation for the low electronic commerce rates (Gefen, 2000; Jarvenpaa *et al.*, 2000). Recent studies show the low level of online trust. For example, in the EU, only 16 percent of internet users admit to having made some online purchases (European Commission, 2004).

The studies on online trust have dealt with several aspects, especially those referring the role of privacy or security (Dutton, 2000) and the attributes of web sites (Roy *et al.*, 2001)[1]. Most of these works done by researchers are theoretical or conceptual. Likewise, some works have proposed different mechanisms to generate trust such as the participation of a reliable third party and trust marks (Durkan *et al.*, 2003)[2].

Trust is especially important in online transactions. The influence of trust on the online consumer depends on the product category considered. High levels of perceived risk are associated with some products, such as financial services. Consequently, the strategic role of consumer trust in online financial services is clearly represented. Several authors have suggested that trust is one of the biggest challenges for the consolidation of online banking in the future (e.g. Ratnasingham, 1998; Aladwani, 2001; Jones *et al.*, 2000). Indeed, trust is considered to be one of the main reasons why certain consumers are still reluctant to conduct their financial transactions online (Rexha *et al.*, 2003).

### *Inter-channel relationship and trust*

The decision to use the internet as a financial channel might depend on how the bank is assessed from its bricks-and-mortar perspective (Merrill Lynch, 2000). In particular, there might be an association between online consumer trust and bricks-and-mortar perceived characteristics. If a customer trusts in a bricks-and-mortar bank it is possible that he feels more motivated to use the online services offered by the same bank. The consumer infers that the trustworthiness of the traditional bank will be similar in the new online division. Thus, brick-and-mortar trustworthiness forms an intangible active, which may create a competitive advantage in the new online distribution channels.

According to Steinfield *et al.* (2002) the combination of online and offline channels as a means to improve trust is possible. Indeed, these authors suggest that earlier efforts to establish a fully separate online brand failed in electronic banking. In fact, banks were forced to reintegrate the online division into the brick-and-mortar bank. Consequently, offline trust may be an important factor in online banking adoption. Thus, we may formulate the following hypothesis:

- H1.* The higher the level of trust in the bricks-and-mortar division the higher the likelihood of the adoption of the online services offered by the same bank.

### **Sociodemographic characteristics**

The online banking customer profile has usually been defined based on the sociodemographic characteristics of the consumers. In this respect, various studies have defined the online banking customer profile based on factors such as age, educational level, or income level (e.g. Núñez and Lisbona, 2001). For example, Sarro (2002) considers that the online banking customer profile is not substantially different between one country and another, as most clients are young people with a college education. PriceWaterhouseCoopers (2000) state that the typical online banking customer is aged between 25 and 35 years, has a medium-high income, is salaried, with a medium-high cultural level, and likes to make his own financial decisions. Some banks are competing for segments in the range between 34-56 years old, due to they make a significant amount of money (McCulley, 2005).

In line with previous studies, this paper analyzes the principal sociodemographical traits, which may explain the adoption of electronic banking. Thus, we suggest that aspects such as sex, age, income, or education may influence the likelihood of adopting the services offered by a traditional bank on the internet. Figure 1 shows the research model we propose.

### **Measures validation**

The data required were gathered by means of a personal survey conducted with a total of 633 customers of various banks that distribute their services by traditional channels as well as on the internet. The concept of trust was measured using a seven-point Likert scale. Sociodemographic characteristics were measured by the more common intervals offered by previous research (see Appendix).

### *Dimensionality and reliability analysis*

We assessed the reliability of trust using the Cronbach's Alpha indicator, considering a cut-off value of 0.6 (Hair *et al.*, 1998). The uni-dimensionality of trust was analyzed through an exploratory factorial analysis of principal components and, where

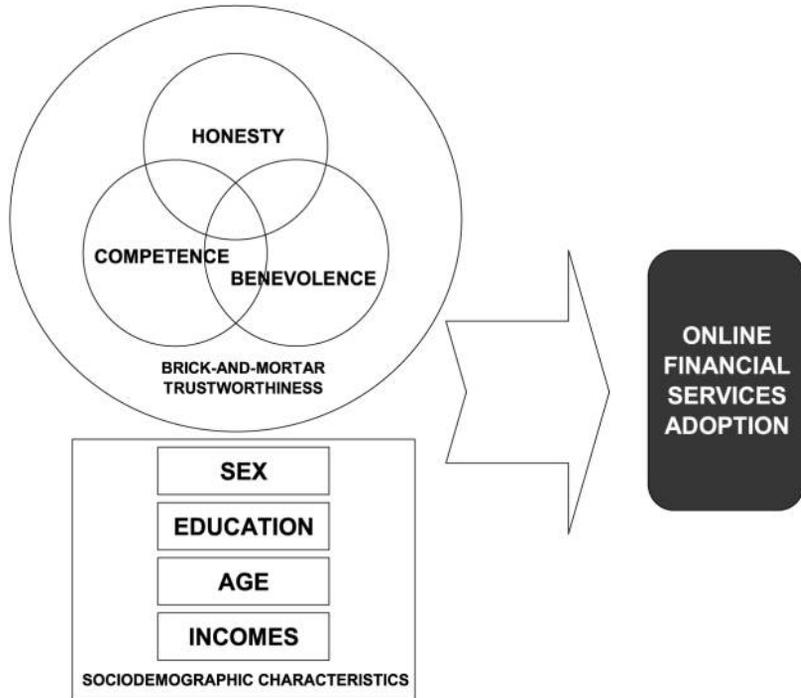


Figure 1.  
Research model

necessary, with varimax rotation (Hair *et al.*, 1998). The number of factors extracted through the eigenvalue criteria was 1, with a total explained variance over 0.6 and factorial loadings higher than 0.5.

The trust scale was later refined through the development of a strategy of confirmatory models. We used the EQS statistical package version 5.7b. As an estimation method, we decided on Robust Maximum Likelihood, as it operates with greater security in samples that do not unequivocally overcome the multivariate normality test. The development of a strategy of confirmatory models suggests any indicators that did not fulfill one of the three criteria proposed by Jöreskog and Sörbom (1993) must be eliminated. These criteria are:

- (1) Criteria of Weak Convergence would eliminate indicators that did not have a significant factorial regression coefficient ( $t_{student} > 2.58, p = 0.01$ ).
- (2) Criteria of Strong Convergence would eliminate those indicators that were not substantial, i.e. those whose standardized coefficient is less than 0.5.
- (3) Lastly, it is proposed the elimination of those indicators that least contribute to the explanation of the model, considering the cut-off point as  $R^2 = 0.3$ .

The elimination of items produced successive confirmatory models until one met the required criteria and had acceptable fit measurements (Ding *et al.*, 1995). The trust scale that was finally considered may be seen in the Appendix.

### *Convergent validity*

Convergent validity was tested, by checking that the factor loadings of the confirmatory model were statistically significant (level of 0.01) and higher than 0.5 points (Sanzo *et al.*, 2003). Moreover, we used the Average Variance Extracted or AVE to contrast convergent validity (Ping, 2004). Fornell and Larcker (1981) suggested adequately convergent valid measures should contain less than 50 percent error variance (AVE should be 0.5 or above). Results were satisfactory.

Discriminatory validity was not tested due to the fact that this type of analysis can only be carried out when two or more variables are present in the factorial model.

### **Content validity**

It is reasonable to suppose that the scale's content validity was guaranteed due to the detail and consideration with which the scale was designed. The trust scale was developed according to Moorman *et al.* (1993), Moorman *et al.* (1992), Hewett and Bearden (2001), Doney and Cannon (1997), Tax *et al.* (1998) and Morgan and Hunt (1994).

### **Results**

We used the multivariate analysis method known as Binomial Logistic Regression (Visauta, 1998). This method enables one to predict -via independent variables- the probability that one of the options of the dependent variable occurs. A model is thus considered in which the dependent variable may be represented by two categories, while the independent variables are represented by measurement or category values.

In our case, the dependent variable was a dichotomous variable representing the consumer decision about adopting or not adopting online banking. In addition, six independent variables were proposed (Visauta, 1998): trust and the sociodemographic factors (education, employment situation, income, age and sex), which were measured by means of categorical variables (see Appendix).

The logistic regression model used is represented by the following formula:

$$pro(yes) = \frac{1}{1 + e^{-z}}$$

where Z is the linear combination[3]:

$$Z = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6$$

The significance of each variable included in the analysis was measured individually using the Wald statistic (see Table II). For the continuous variables this statistic considers a  $\chi^2$  distribution with 1 degree of freedom, and for the categorical variables a  $\chi^2$  distribution but with a degree of freedom equal to the number of parameters minus one. The analyses showed significance in the trust variable ( $p = 0.00$ ), income ( $p = 0.016$ ), age ( $p = 0.002$ ), sex ( $p = 0.001$ ) and the constant ( $p = 0.001$ ).

On the whole, the coefficients showed a good degree of significance. In fact, the likelihood ratio test or g-test showed a  $\chi^2$  of 141.620 (d.f. = 15) with a significance level of 0.000[4]. We were able to ensure that all the coefficients of the independent variables in the selected model were not equal to zero.

We also conducted the Hosmer and Lemeshow test (Hosmer and Lemeshow, 1989) in order to discover the degree of absolute effectiveness of the model. The results of this

Variables	$\beta_i$	WALD	G.L.	Sig.	Exp ( $\beta$ )
Trust	0.555	20.832	1	0.000	1.743
Incomes		10.301	3	0.016	
< 12,000 euros	-1.089				0.337
12,000-24,000 euros	-0.274				0.760
> 36,000 euros	0.396				1.486
Age		15.146	3	0.002	
17-25	0.050				1.124
45-64	-7.642				0.295
> 65	-1.245				0.000
Sex	-0.741	10.560	1	0.001	0.477
Education		1.952	2	0.377	
Elementary education	-8.704				0.000
High school and similar	-0.317				0.728
Employment situation		6.030	5	0.303	
Part-time	-0.194				0.824
Retired	-7.089				0.001
Housewife	-7.725				0.000
Student	-0.811				0.445
Seeking work	-0.127				0.881
Constant	-2.706	15.732	1	0.000	0.067
-2 log likelihood of the model = 518.960					

**Table II.**  
Results of the logistic regression analysis

test showed that with a  $\chi^2$  of 7.865 (d.f. = 8) significant to 95 percent, the selected model was adequately adjusted to the observed data. These results were ratified by the -2 log likelihood of the model, since at a level of significance of 95 percent the value of the  $\chi^2$  of 624 with 568 (n-p) degrees of freedom was higher than the -2 log likelihood of the model (see Table II).

Finally, on analyzing the predictive capacity of the model, we saw that it showed a higher number of correctly classified cases than what would have been obtained at random. To check this, we calculated the Huberty test (e), which gave a result of 362.142 points. Next, using this value we estimated the H statistic under a normal distribution. The H statistic gave a value of 7.59, which is higher than 1.96 (sig. to 95 percent). This result meant that the model's correct choice rate was higher than expected as a consequence of a purely random process:

$$H = \frac{(o - e)\sqrt{n}}{\sqrt{e(n - e)}} \text{ where } e = \frac{1}{n} (n_1^2 + n_2^2)$$

- *n*: Total or group *i* observations
- *o*: Correctly classified observations

With regard to the influence of each of the independent variables considered, it should be pointed out that some had a clear influence on the likelihood of an individual, conducting transactions with the same bank, via the internet (see Table II). First, we observed that the greater the trust shown by the consumer to his traditional bank, the

greater the likelihood that he would conduct operations with the same bank via the internet. Consequently, *H1* must be accepted.

It is finally worth pointing out the effects of the sociodemographic variables on the intention to use online banking. To interpret these category variables, we need to understand that the categories should be assessed in terms of the reference category. In the case of the income variable (taking as a reference income being between 24,000 and 36,000 euros per year) we observed that a person was less likely to conduct banking operations on the internet when his income was less than 24,000 euros (less than 12,000 euros and between 12,000 and 24,000 euros), than someone with an income of between 24,000 and 36,000 euros per year. Nevertheless, a person with an annual income of over 36,000 euros was more likely to conduct transactions over the internet than someone with an income of between 24,000 and 36,000 euros per year. Another significant category variable in this analysis was age. Taking as a reference those aged between 26 and 44, the results of the analysis showed that people between 17 and 25 years of age were most likely to carry out transactions via the internet. On the other hand, people over 45 years (including the 45 to 64 and the over 65 groups) were less likely to use online banking than the reference group between 26 and 44. The results also showed that women were less likely to work with their bank via the internet than men.

### Conclusions and managerial implications

Financial sector has been substantially influenced by the development of the internet. Internal and external activities of the financial firms are being modified by the use of the new technologies, due to the new possibilities they offer (e.g. cost reduction, personalized services).

The use of the internet by the financial sector, known as e-banking, is increasing the number of users; however, there are a few competitors which have achieved relevant turnover rates. Research projects have analyzed several factors, which may influence the likelihood of adoption of the new distribution channels. Factors, such as perceived security (Thorton Consulting, 1996), ease of use or perceived benefits by the consumer (Sathye, 1999) have been proposed. However, there is a lack of studies analyzing the influence of the consumer's perceptions of the traditional branch offices on the adoption of the services that the same bank offers on the internet.

This study suggests the influence of two of the most important factors for e-banking adoption: consumer trust and sociodemographical traits. At the moment, the study of trust and sociodemographical traits, has been focused on the web site perspective, that is, what consumers' perceive in the web site or the profile of the web site users. Our perspective considers that what the consumer perceives in the traditional branch office may influence the decision to adopt the online services offered by the same bank. This innovating approach enables us to confirm that greater trustworthiness perceived by a consumer in the branch office is positively related to higher levels of adoption of the online services offered by the same bank on the internet. Likewise, we notice that sex, income and age are related to the likelihood of e-banking adoption.

#### *Managerial implications*

Throughout this article, we have shown the importance of trust in online banking adoption. The results show that there is a clear relationship between consumer trust in the traditional channel and the likelihood of using services provided by the same bank

on the internet. Trust affects not only the success of activities carried out in the bricks-and-mortar division, but also the results obtained in projects undertaken on the internet. Therefore, trust will need to be considered as a strategic variable, and will need to be present in all the organization's activities. But, how can the consumer's trust may be won?

The literature shows that trust depends on the individual's perception of several factors. Thus, we may consider the existence of some variables, which act as precursory factor of the consumer trust's levels:

- *Communication*: This is a key element in the existence of a relationship (Bendapudi and Berry, 1997; Crosby and Stephens, 1987), so it is regularly included in studies on the development of commercial relationships (Anderson and Narus, 1990; Dwyer *et al.*, 1987; Morgan and Hunt, 1994). Higher levels of communication generate higher levels of consumer trust and proximity feelings (Anderson and Narus, 1990; Morgan and Hunt, 1994; Bhattacharya *et al.*, 1995; Selnes, 1998). Communication increases the levels of trust since it improves the environment by adjusting perceptions and expectancies (Anderson and Weitz, 1989; Geyskens *et al.*, 1998). Likewise, for Morgan and Hunt (1994) communication fosters trust by helping to settle conflicts.
- *Privacy*: Privacy refers to the protection of personal information. More specifically, privacy is the consumer's perception of the ability of the bank to protect personal information from unauthorized use or disclosure (Cheung and Lee, 2001). Moorman *et al.* (1993) use the term confidentiality instead of privacy, considering it basic for trust, as well as for the development of relational exchanges.
- *Security*: Cheung and Lee (2001) point out that security refers to aspects such as integrity, authentication, encryption, and non-repudiation. Integrity refers to the impossibility of the transmitted or stored data being modified by third parties without permission. Confidentiality involves the data being seen by authorized individuals. Authentication enables a certain operation to be carried out only after identification, or if there are guarantees of the identity of the party one is dealing with. Finally, non-recognition refers to procedures that prevent an individual or organization from denying that they had carried out a certain operation.
- *Reputation*: Strategic Management theorists point out that reputation is an intangible resource of great importance for the company's results, even for its survival (Fombrun and Shanley, 1990). From the marketing perspective, the concept of reputation has frequently been associated with the idea of brand equity (Aaker, 1996) or to the organisation's credibility for its customers (Herbig *et al.*, 1994). The organisation's reputation may be seen as the result of the organisation's relational record with its environment (Yoon *et al.*, 1993). For that reason, reputation may be defined as the temporal consistency of a certain attribute (Herbig and Milewicz, 1993). Reputation may refer to different attributes; thus a company may have at the same time "good reputation" and "bad reputation". For example, a company may have an image of concern for the environment, and at the same time they may not treat their shareholders correctly. Nevertheless, reputation may also be regarded from a more global perspective, especially associated with the organisation's credibility, that is, the comparison between what the company promises and what they actually fulfil.

- *Satisfaction*: Satisfaction has been related to different variables such as the previous experience (Severt, 2002), loyalty (Bitner, 1990) or service quality (Oliver, 1980; Cronin and Taylor, 1992). Likewise, satisfaction has been connected with the existing trust of a relationship. In this respect, some authors have proposed that higher trust entails a higher degree of satisfaction (Kennedy *et al.*, 2001). Other authors, however, point out that higher satisfaction in the purchaser may generate a higher degree of trust in the vendor (Selnes, 1998; Sabel, 1993).

The results of the research also show the need to target marketing actions on certain segments of the population. In this respect, those most likely to use the internet are in the upper income bracket, aged less than 44 years, and male. Consequently, a thorough analysis will need to be made of what the needs of these population groups are so as to be able to design the most suitable response as well as the best way to present it on the internet.

### Notes

1. For some authors, online trust is more a matter of attitude than technology (Croner, 2000). Thus, the problem is not the lack of reliable and safe technologies, but the individual's attitude and prejudices to the new channel, especially the aspects of the system's security, the effectiveness of applicable laws and the differences with traditional channels (Schwartz, 1997; Hagel and Armstrong, 1997).
2. A tool proposed for the development of trust is the use of trust marks, that is to say, emblems or badges given by a third party to a web site to certify the application of commercial policies which are respectful and abiding by the law.
3. To apply this model, the SPSS 10.0 statistics bundle was used, whereby the model goodness of fit measurements were obtained as well as the contribution of each of the independent variables to the likelihood of adoption of internet banking. The algorithm used to eliminate at each phase the variables that showed less significant coefficients was the backward conditional elimination method.  $B_0$  to  $B_6$  are the estimated coefficients;  $X_1$  to  $X_6$  the independent variables ( $X_1$  Trust,  $X_2$  Education,  $X_3$  Employment situation,  $X_4$  Income,  $X_5$  Age,  $X_6$  Sex); and "e" the natural logarithm base.
4. The  $g$ -statistic is distributed via a  $\chi^2$  with  $p-1$  degrees of freedom ( $p$  is the number of estimated parameters).

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**Appendix**

Concept		Items
Trust		I trust this bank to carry out my cash transactions I trust that the operations I carry out in the offices of this bank will be correct, with no errors Operating via the branch offices of this bank provides me with complete confidence I believe that, if a third party manipulates the funds I have deposited in this branch office, the bank will take responsibility for my money This bank is truly concerned for the correct functioning of my investments, transactions and deposits I believe that the information provided to me by this bank is true
Sociodemographic factors	Education	Elementary High school or similar College or similar
	Employment situation	Part-time employment Full-time employment Housewife Student Seeking employment Retired
	Annual income	< 12,000 euros 12,000-24,000 euros 24,000-36,000 euros > 36,000 euros
	Age	17-25 26-44 45-64 > 65
	Sex	Female Male

**Table A1.**  
Measurement scales

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