Original Article

The impact of the Internet upon bank marketing

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João F. Proença

is Professor of Marketing, Faculty of Economics, at the University of Porto, Portugal. He is responsible for the PhD program in Business and Management Studies and for the Masters program in Services Management, both at the University of Porto. He has a PhD in Business from University of Porto and a Master of Science in Marketing from Instituto de Empresa, Madrid, Spain. His main research focus is on business relationships, particularly business-to-business service marketing. He has published in a number of journals including the *Journal of Marketing Management*, the *Information Systems and e-Business Management*, the *Journal of Macromarketing*, the *International Journal of Bank Marketing*, the *Journal of Customer Behaviour*, the *Service Business – An International Journal*, the *International Review on Public and Non Profit Marketing*, the *International Journal on WWW/Internet*, the *International Journal of Engineering and Industrial Management*, and the *Portuguese Journal of Management Studies*, among others.

Marta Martins Silva

is analyst of candidacies to financial funds from EC in the North Regional Direction of Agriculture and Fisheries. She has a Master in Management Sciences and Marketing, University of Porto. Her main research focuses on business relationships and new technologies, both particularly applied to services. She has published in the *International Journal on WWW/Internet* and in the *Portuguese and Brazilian Management Review*.

Teresa Fernandes

is Lecturer of Marketing, Faculty of Economics, University of Porto, Portugal. She has a PhD in Business and Management Studies, University of Porto, Portugal and has a Master of Science in Business Administration, University of Porto Business School, Portugal. Her main research focus is on relationship marketing and consumer relationships and she has published in the *Journal of Marketing Management*.

ABSTRACT Information and communication are critical to developing customer relationships. Thus, new information and communication technologies (NICTs) became a key knowledge tool for the organisation within a relationship marketing strategy. Retail banking is a good example of a sector in which the virtualisation of relationships is increasing. However, there is no consensus as to whether banking relationships are strengthened or weakened by the use of technology. This article discusses the virtualisation of the interaction processes between banks and their customers and analyses the influence of the Internet on these relationships. A questionnaire was distributed by mail to 340 Internet banking services' users. A principal components analysis and a multiple regression analysis were conducted in order to discuss the relationship between the identified dimensions of Internet banking and relationship marketing. The research finds three factors related to the use of Internet banking which strengthen the relationships between banks and their customers: the intensity of Internet use, the diversity of access locations and the diversity of Internet applications. From a managerial point of view, these findings have implications for the development of new relationship approaches based on technology.

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INTRODUCTION

Financial services and banking in particular are businesses in which the relationships between institutions and their customers are

Correspondence: João F. Proença
Faculty of Economics, University of Porto
Rua Dr Roberto Frias, Porto 4200-464, Portugal
E-mail: jproenca@fep.up.pt

critical.[1–3] There is a great deal of interaction between the customer and the bank, and technology plays a major role in that interaction. For example, the self-service technologies such as ATMs introduced into the banking sector have become both well known and popular, since they were readily accepted by customers, who recognise their advantages in terms of efficiency, convenience and cost reduction.[4–6] However, there is some doubt as to whether self-service technologies con-tribute favourably towards establishing lasting relationships between banks and their customers. Several studies have suggested that technological advances and the tools of communication enable close and long-term relations to be created and developed with customers.[7–15] However, there is no consensus as to whether these relationships are strengthened or, rather, weakened by the use of technology.[14,16] If, on one hand, the potential exists for technology to improve communi-cation and customisation, on the other hand, increasing virtualisation may translate into no direct personal interaction, diluting links between company and customers. This is why it is appropriate to look further into this topic.

This study seeks to understand in what way this new practice of using the Internet as an example of a self-service technology affects relationships that are established between banks and their customers. The research studies the relationships between the concepts of the use of Internet banking and of relationship marketing, which, since these are two concepts defined by more than one dimension, means studying the relationships between the various dimensions of the two concepts. Ultimately, the research aims to obtain an answer to the question *How does the use of the* Internet *by bank customers' relate to relational approaches developed by banks?* by examining the relationship between the dimensions of Internet banking and relationship marketing.

The article begins with a brief literature review about Internet banking and relationship marketing and the state-of-the-art of Portuguese Internet banking. We then propose dimensions of both variables in order to examine relationships between them and discuss the methodology used in the research. The empirical examination is done through factor and multiple regression analysis. We end up concluding that new relationship approaches can be developed by banks based on technology.

NICTS AND INTERNET USE IN BANKING

At present, the market offers a large number of new information and communication technologies (NICTs) that allow customers to satisfy many needs with minimum human intervention. By *technology* we mean all the tools, techniques and procedures used to perform a specific function.[17–18] Technologies which are individually managed by users are known as *self-service technologies*[14] and are named as *Self-service Banking Technologies* (*SSBTs*)[19] or *Electronic Banking – E-Banking*[20] when they use the Internet and are applied in the banking sector. The development of *e-banking* is a manifestation of the use of new technologies in financial services and represents a variety of services of four types[14,20]: *Credit cards*, *ATMs*, *Points of Sale*, and *Home banking* (HB) or Internet banking (IB). These new technologies have opened very promising opportunities for financial service companies to add alternative distribution channels, constituting a key means of differentiation, complex but also critical.[21].

Early studies suggested that the Internet would have a significant impact on retail banking.[22] One consequence of the Internet is the growing virtualisation movement.[23,22–25] By 'virtualisation', we understand the removal of all constraints of time, place and method, enabled by the convergence of computing, telecommunications and visual media.[24] Although the relationship with the customer is maintained, it is carried out at a distance with little or no direct personal interaction.[26] For Barnatt[27] it is an 'intangible social relationship'. Dannenberg and Kellner[10] consider it unlikely that the 'person-to-person' financial counselling done via the Internet will be materially different from that traditionally done 'face-to-face' in the various bank front-offices. However, Harden[26] argues that the disappearance of the time, place and method factors deprive the traditional relationship of the characteristics that define it, since in virtual relationships, the connection between the company and its customers is diluted, with (social and commercial) exchanges mediated by computer. Also Walsh[25] suggests that traditional branch banking will eventually cease to exist, affecting opportunities for personal interaction and relationship building.[6]

The fact that technology has come into common use in the banking sector has played an important role. Banks aim to reduce costs, enhance efficiencies and guarantee customer retention with Internet banking.[28–30] Financial institutions obtain considerable cost reductions at the same time as they reach new customer segments,[5,31–32] identify potential customers and cover a global geographic field of action that no other distribution medium allows affordably. There is no limit on advertising space; information access and retrieval are fast; the site can be visited by anyone at anyplace; and the process is private and one-to-one.[28] The *self-service* technologies and *e-banking* also allow users to customise the service in a tailor-made fashion, which is often assessed by the customer as a 'gratifying experience'.[33] Rayport and Sviokla[23] propose that the use of new technologies is understood as a chain of virtual value used for the greater benefit of customers and banks. Despite these positive aspects, new technologies can also be negative for the customer and create problems related to the reliability and security of transactions, accessibility to the service and customer support.[6,34]

RELATIONSHIP MARKETING IN BANKING

The relationship approach concept was first introduced by Berry[35] and refers to all marketing activities carried out by a company in order to establish, develop and, above all, maintain customer relationships.[35–36] There is no consensus as to the definition of relationship marketing.[37–39] The underlying principle of relationship marketing involves maximising the long-term benefits for both parties involved – customer and suppliers, resulting from a series of transactions (with a single transaction not being a determinant in itself), which allow a long-term relationship to be maintained. The duration of a relationship is, therefore, the first and a fundamental dimension in a true relationship approach.[40–41] A second dimension – adaptability/personalisation – comes from the fact that exchanges are a critical factor in the relationship approach.[42–43] These imply considerable effort and volume of resources,[40,44] as a result of the required adaptation and personalisation of the relationship in order to meet the needs of the parties involved.[41,45] The strengthening of the relationship arising from exchanges is therefore fundamental.[13] This second dimension can also incorporate three more latent dimensions: customer retention, customer loyalty and *database marketing*. Two further dimensions are considered highly important: commitment to the relationship[40–41] and equity of the relationship.[46] Over time, a degree of interdependence between customer and supplier will be developed, initially based on mutual trust, communication, mutual goals and commitment.[40]

Discussion has arisen on the strategic benefits of adopting the relationship approach in the banking sector, centred round the customer and round high levels of quality in the service provided.[47] Previous studies indicate that a surprising number of financial product managers consider price to be a fundamental factor in obtaining competitive advantage.[48] Only in the case of more complex products are the characteristics and quality of the service provided (the added value) considered more relevant.[49–50] The bank must therefore develop a sustained competitive advantage that can only be built on attributes that the customer himself values in a relationship[48–52] like how convenient the bank is for their lifestyle and its ability to fulfil their needs and expectations.[3,53] In this process it is essential that the bank recognises these attributes and it is therefore essential for the financial firm to know its customers well, building a strong, trusting relationship with them[21] – which is particularly important in the banking sector because of the complexity of many of its products[54–55] – in order to favour an honest and engaged cooperation between the institution and its customers,[56–57] as well as customer satisfaction.[19]

Relationship banking allows greater proximity between customers and their bank, which can also involve other financial companies associated with the bank.[58] On the other hand, banking services marketing, particularly in the business segment, involves allocating time and resources to the management of bank–customer relationships[59–60] and understanding the process of interactive communication between the seller and the buyer, in which the buyer is seen as an active member of the relationship.[61]

RELATIONSHIP MARKETING, BANKING RELATIONSHIPS AND THE INTERNET

Relationship marketing and the internet

Some authors have argued that the Internet would be the effective tool for relationship marketing, constituting a revolution in the way relationships could be managed.[23,32,62–63] The Internet enables interaction between buyer and seller, which facilitates co-creation of value and offers a unique opportunity to apply *one-to-one* marketing. In this way, the Internet can benefit the building of more loyal and longer-lasting relationships and the creation of a wider network of contacts.[64] Sisodia and Wolfe[65] argue that the use of information technology leads to a focus on the customer. Technology enables relationship marketing to bring about a resurgence of the human aspect in marketing concerns, with consumers' individual information being provided in real time, especially if the channel of communication is cyberspace. On the other hand, the use of technology increases the efficiency of the marketers' creativity and intuition simply because more real information is provided, which is rapidly processed.[65] Data on transactions are held automatically in the customer database and this is overlaid with demographic, geodemographic and lifestyle data and a range of other data sources, becoming a key knowledge tool for the organisation within a relationship marketing strategy.[66] The use of technology makes marketing more efficient, offering a better response to the consumer's expectations and needs, creating a '360 degree view' of that customer.[67] At the same time, the consumer is brought closer and dialogue and the reciprocal relationship between suppliers and customers are improved. This is possible when technology is used at the customer interface to secure real-time interaction and to make this information available for subsequent interactions.[68] Moreover, a better-informed customer may be more willing to reveal more personal information. Consumers and firms are senders as well as receivers and thus one-to-one communication is inevitable and parties become closer.[6] Finally, the fact that information on the consumer is obtained on a mass basis but communication is made on an individual basis,[65] allows a company to present a series of tailor-made products.[69–70] Information technologies allow customers to be identified and information about their preferences to be recalled. This information is then used to tailor the offering, thus adding value for the customer and helping to create satisfaction and loyalty. Coupled with flexible delivery, costs of information recall and use are marginal and allow customisation to be profitable on a mass scale.[71] As such, in the particular case of financial services, the Internet can contribute favourably towards establishing lasting relationships between banks and their customers. The Internet may become a new forum for the customer to communicate with his bank and to add value to the personalised, tailor-made service, enabling the customer to benefit from greater convenience and flexibility as well as from lower transaction costs.[31] The customer assumes an active role in the search for information by means of dialogue with the institution. The need for consumers to interact with their banks anytime, anywhere and in any way is met with Internet banking, which enables economies of time and costs.

Thus, the Internet may facilitate the building and maintaining of relationships with customers and could form a strategy marked by great interactivity in which the customer is given a relevant role.[72] As such, the introduction of online banking poses considerable strategic and tactical challenges for financial service managers, challenging institutions to adapt to continuous technological change and to re-evaluate their relationship marketing strategies.

Banking relationships and the internet

This article now examines the impact of Internet on banks' activities, particularly in the relationships between banks and their customers. There are various schools of thought on the type of influence that the Internet can have on the bank-customer relationship. A first line of thought defends a positive effect of the Internet on the consolidation of relationships between banks and their customers, due essentially to the increase in the efficiency of communication that enables a reciprocal flow of information.[73–74] The new means of contact favours interactivity between the parties and reduces possible asymmetries of information.[8] The first argument is related to the increase in collaborative production between the customer and his or other bank[75] and enables *one-to-one* marketing,[76] associated with better knowledge of customers' needs,[77] in the provision of products tailored to individual customers and in pro-active selling.[78] Each relationship becomes unique and each individual customer constitutes a true market segment.[77,79] The second argument is related to the reduction in the differences of access to information between customers and banks, which allows greater customer power and trust in the development of the relationship.[8]

Nevertheless, the same arguments are at the basis of an alternative view that considers that the introduction of Internet tools has a harmful effect on customer-bank relationship. The improved customer access to information introduces greater vulnerability in the relationship since the control of this relationship is transferred to the customer,[75] who now feels more confident and secure enough to risk changing banks in search of better returns. Another argument is also proposed: the existence of close social relationships develops a 'psychological loyalty', which is conveyed in the decisions the customer makes. Burnham *et al*[80] call it 'relational switching costs', a type of switching cost that involves psychological or emotional discomfort because of the breaking of bonds. The assessment of the customer's physical encounter with his bank (human contact) is defined by social and personal forces,[81–82] which superimpose any econo-mically more rational alternative (since they grant, namely, greater comfort and/or savings of costs). The lack of human contact may lead to loss of trust,[82–84] affecting loyalty and customer retention.[85–86]

Clearly, the use of technology in the context of customer relationship management in banking can be a double-edged sword.[71,87] There is evidence that technologies such as the Internet can help build relationships, but may also contribute to their erosion. In light of this, this article aims to examine bank-customer relationships in a technology-based context. The research was conducted in the Portuguese banking sector.

THE PORTUGUESE BANKING SECTOR

In Portuguese banking, deregulation and technological advances generated new competitive pressures and turbulence. The new legislative environment lowered entry barriers, blurred business boundaries and created strong competition between institutions.[88] Propelled by technological change, one of the key challenges facing Portuguese financial services was to review and re-establish their competitive strategies.[89] Namely, new entrants, new delivery channels, new services and packages resulted in the automation of bank branches, in the depersonalisation of relationships and in the de-skilling of bank manager tasks.

Although Portugal traditionally had a preference for face-to-face channels and personal interaction, this is clearly changing.[90] For example, between 2000 and 2004, a decrease from 85 to 76 per cent, related to the use of the personal channel was verified.[90] In a remote electronic service setting/marketplace, consumers have modified their behaviour to accommodate it and learned to use a combination of IT channels to interact with their financial service providers. According to the Government Portuguese Agency for Information and Communication Technology (UMIC),[91] Portugal has the highest ATM penetration rate in EU27, with over 1500 ATMs per million inhabitants, which is double the European average, and where 63 million operations are carried out on average per month.[92] After ATMs, the main channels are bank branches and the Internet. According to a study released in 2008 by the Statistical Office of the European Communities (Eurostat),[93] the proportion of Internet users who used Internet banking grew from 38 per cent in 2006 to 44 per cent in 2007 in the EU27, with a highest percentage in Finland (84 per cent) and lowest in Bulgaria (5 per cent). As far as Portugal is concerned, Eurostat's numbers show that 30 per cent of Internet users have used online banking, along with Spain, Italy and Poland. Meanwhile, Internet access rose from 35 per cent in 2006 to 46 per cent (60 per cent in EU27) in 2008 and the use of broadband grew from 24 to 39 per cent (48 per cent in EU27) over the same period. The number of home banking users grew seven times between 2000 and 2007 and the service is offered by all Portuguese banks either through an online bank or in addition to their high street banking networks.[90] However, the impact of the Internet upon Portuguese bank marketing and relationship building remains largely under-researched.

METHODOLOGY AND RESULTS

This study seeks to examine the impact of the use of Internet banking on the relationship approach used in retail banking. In short, we seek to discuss the correlations between Internet banking behaviour and customer perceptions of their banking relationship. The dimensions of the concepts under study are presented in Figure 1. The study explores the way in which the various dimensions of the use of Internet banking and the relationship approach affect each other, seeking to understand, ultimately, the relationship between the two basic concepts.

The information was gathered by a questionnaire addressed to a convenience sample of users of Internet banking aged over 18 recruited from a database of post-graduate students of the University of Porto. Table 1 shows the assignment of the measures used in the questionnaire for assessment of the various variables to each of the dimensions. The questionnaire included 36 questions and was distributed to 340 individuals by email during one week. A total of 153 questionnaires were collected and 114 validated. For data analysis, SPSS 17.0 (www.spss.com) and SYSTAT 13.0 (www.systat.com) were used.

In contrast to the internet banking use dimensions, the banking relationship dimensions were measured with multiple items. A factorial analysis was performed

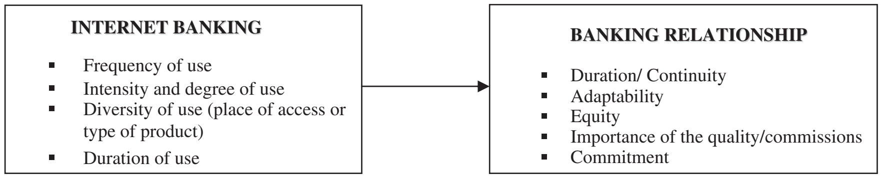

Figure 1: The research framework.

(see Table 1). The KMO measure of sampling adequacy (0.64) suggests a high degree of correlation between the variables of the identified groups. Three types of factorial analysis were applied: Principal Components Analysis, Maximum Likelihood and 'Principal Axis Factoring'. The first was performed to determine the number of characteristics in which the concept differs,[94] while the rest allowed testing the adjustment of information to the definition of the hypotheses. For each of these methods, two rotations were made (Varimax and Oblimin) and the analysis was performed twice, the first considering no constraint to the number of factors and the second limiting the number of factors. The answers obtained in the scales of assessments were treated individually, as autonomous variables. 'The reliability of the variables to be integrated into each dimension was tested and validated by means of the analysis of the *Alpha* coefficient (or *Cronbach's* α). Of the seven dimensions resulting from the factorial analysis, three presented values for Cronbach's α under 0.6: 'Commitment', 'Customer adaptability' and 'Duration/ Continuity of the relationship'. However, only the first dimension was eliminated ('Commitment'), given that in the literature it is considered redundant in as much as it is reflected in the other dimensions.[13] The other dimensions are sustained by theory[13] and, that is why they were kept in the model despite the values obtained, which imply that some care was needed when interpreting the results. This analysis allowed identifying which dimensions would better define each variable.

The research aims to obtain an answer to the question *How does the use of* Internet *by bank customers' relate to relational approaches developed by banks?* by examining the relationship between the dimensions of Internet banking and relationship marketing. To discuss the relationships between the two variables, 'Use of Internet Banking' and 'Relationship marketing approach in banking sector', *a Canonical Correlation Analysis*[95–96] was used. A *Redundancy Analysis* was also developed with a view to identifying the functions that justified being interpreted. In this phase, canonical *loadings* and *cross-loadings* were used as a method of interpreting the canonical function. In an attempt to explore in full the relationships between the two concepts, a *Multiple Regression Analysis* was developed. The regressions were developed using stepwise procedures that enabled identification of the independent variables while they reduced the effects of multicollinearity.

The variables used in the Canonical Correlations Analysis were obtained using a composition of the factorial scores of each of the factors taken from SPSS, using the Regression Method that is substantiated in the sum, for each factor, of the result of the multiplication of each variable that is part of it, standardised (the respective average is subtracted from the value observed and the total divided by the respective standard deviation), by the respective factorial score. The set of dimensions in the relationship approach concept were defined as dependent variables and the set of dimensions that constitute the use of Internet banking concept were defined as independent

Table 1: Dimensions and variables measured in the questionnaire

Dimensions	*Measures*
A: Dimensions selected for the relationship marketing approach in banking	
Dimension 1: DURATION	
Duration of the relationship	Number of years that the customer has interacted with the bank
Continuity of the relationship	Probability of the customer not working with his bank in the space of 2 years (–)
	Customer loyalty: Has the customer tried to change bank during the last year? (–)
Dimension 2: ADAPTABILITY	
Customer adaptability	The customer makes every effort to maintain a good relationship with his bank
	The customer is willing to adjust to bank requirements
Bank adaptability	The bank makes every effort to meet its customer's needs
	The bank is always willing to resolve customer problems
	The bank values its relationship with the customer
	The bank invests as much in the relationship as the customer
	The bank devotes as much effort to the relationship as the customer
Dimension 3: EQUITY	
Equity of the relationship	The relationship is more beneficial for the bank
	The relationship is more beneficial to the customer
Dimension 4: IMPORTANCE OF THE QUALITY/COMMISSIONS	
Quality of the relationship	Importance of the quality of the relationship with the bank
	Importance of a personalised service
	Importance of a lasting relationship
	The account manager has a special relationship with the customer
Importance of the commissions	Importance of the quality of the service
	Sensitivity to the conditions of credit and interest rates
	Importance of commissions
Dimension 5: COMMITMENT	
Commitment	The customer requests new services from the bank
	Automatic renewal of products and services when they expire
	Customer seeks information on conditions in other banking institutions before renewing his services with the bank (–)
B: Dimensions selected for the use of Internet banking	
Dimension 1: FREQUENCY OF USE	
Frequency of the use of IB	Number of uses per month
Dimension 2: INTENSITY OF USE	
Intensity of the use of IB	Percentage of banking operations performed via IB
Dimension 3: DIVERSITY OF USE	
Diversity of places of access	Places of access to IB
Diversity of the use of IB	Type of banking operations performed via IB
Dimension 4: DURATION OF USE	
Duration of the use of IB	Number of years as user

Note: The (–) sign indicates the statements where scales were semantically inverted.

Table 2: Analysis of the canonical correlation

Function	*Canonical correlation*	*Canonical correlation squared*	*Statistic F*	*Level of trust*
1	0.44	0.02	2.45	0.03
2	0.29	0.09	0.56	0.94
3	0.09	0.00	0.11	1.00
4	0.06	0.04	0.08	0.99
5	0.03	0.00	0.05	0.95
Statistics	*Value*	*Statistics*		*Level of trust*
Multivariate test statistics				
Wilk's Lambda	0.87	2.45		0.03
Pillai's trace	0.13	2.45		0.03
Hotelings	0.14	2.45		0.03
Roys	0.12	—		—

variables, since the objective of the research is to examine the impact of the use of Internet banking on banking relationships. The results obtained are shown in Table 2.

The determination of the number of functions followed three criteria sustained by the literature[13]:

- Criterion 1: Level of the function's statistical significance;
- Criterion 2: Magnitude of the canonical correlations;
- Criterion 3: Measure of the redundancy of the percentage of the variance common to the two sets of variables.

The first criterion determines that, for a degree of trust of 95 per cent, only function 1 is retained. The performance of multivariate tests on the five functions simultaneously, particularly Wilks' Lambda (0.029), indicates that the canonical functions, considered collectively, are statistically significant at a 5 per cent level of significance. Although the second criterion confirms the first, the second function determines a frontier that separates the values of the canonical correl-ations from the subsequent functions, so that retaining it would depend on criterion 3, for which the Stewart-Love redundancy coefficient was used. The global value obtained for this indicator is rather low (0.05), indicating that the canonical func-tions are not worthy of interpretation. This conclusion is sustained by the weak variance of the set of variables included in the dimensions of the relationship approach explained by each of the canonical functions (see Table 3). Since these results would contradict the conclusions of the two former criteria, it was decided to proceed with the analysis maintaining only function 1, which combined favourable results from criterion 1 and criterion 2. This implies that only one function can explain securely the relationship between the two variables of this research.

To interpret the retained canonical function in a substantive way, three methods were used: (1) *Canonical weights* (or standardised coefficients – see Table 4), (2) *Canonical loadings* (or structural correlations – see Table 5) and (3) *Canonical Cross-Loadings* (see Table 6). It was concluded that the dimension of the variable 'Use of Internet Banking' that contributed most to the canonical function under analysis is 'Intensity of use' (0.48), followed by the 'Diversity of operations' (0.46) and by the 'Duration of use' (0.28). In all cases the correlation established is positive. On the contrary, the variables 'Diversity of places of access' (0.07) and 'Frequency of use' (-0.02) make a residual contribution, with the latter being negatively correlated with the function. As for the function of the relationship approach, this is explained, in essence, by the variable

Table 3: Redundancy analysis

Function	*Canonical eigenvalue variables*		*Canonical R^2*	*Canonical opposed variables*	
	Proportion	*Accumulated proportion*		*Proportion*	*Accumulated proportion*
Standardised variance of the variables of the relational approach explained by the set of variables of the use of Internet banking					
1	0.16	0.16	0.19	0.03	0.03
2	0.16	0.33	0.08	0.01	0.04
3	0.16	0.50	0.00	0.00	0.04
4	0.16	0.66	0.04	0.00	0.05
5	0.16	0.83	0.00	0.00	0.05
Standardised variance of the variables of the use of Internet banking explained by the set of variables of the relational approach					
1	0.46	0.46	0.19	0.09	0.09
2	0.12	0.58	0.08	0.11	0.20
3	0.16	0.75	0.00	0.00	0.20
4	0.13	0.87	0.04	0.00	0.20
5	0.12	1.00	0.00	0.00	0.20

Table 4: Canonical weights

Canonical coefficients standardised for independent variables	
	Function 1
Duration of use	0.28
Frequency of use	−0.02
Diversity of places of access	0.07
Diversity of operations	0.45
Intensity of use	0.48
Bank adaptability	0.08
Importance of quality of relationship	−0.53
Importance of commissions and rates	0.03
Duration/continuity	0.58
Equity of the relationship	−0.22
Customer adaptability	0.56

'Duration/continuity of the relationship' (0.59), 'Customer adaptability' (0.56) and 'Importance of the quality of the relationship' (−0.53), the first two with positive correlations and the latter negative.

Table 5 shows that the function of the use of Internet banking is predominant and is positively associated with the intensity of its use (0.84) and with the diversity of operations performed using it (0.84) and that there are no negative associations of the independent variable with the function.

The relationship approach function is broadly explained by the duration/continuity of the relationship that the customer maintains with his bank (0.56), indicating that a customer that maintains a relationship with a bank for a long period of time places greater emphasis on the relationship approach meaning that he feels safe with that relationship and is determined to keep it that way. The same logic can be used relative to the customer's willingness to adapt to the bank. On the other hand, the data indicate that a customer who is more concerned with the quality of his relationship considers the relationship approach less important (−0.53). The same logic can be used for the equity of the relationship (−0.23).

Finally, it is important to analyse the canonical cross-loadings (see Table 6). The results show that the diversity of operations performed via Internet banking and the intensity of their use are related to the relationship approach (0.37), duration (0.31) and frequency of use (0.24). The variance explained is less than 14 per cent. The results show that the correlation between the dimensions of the relationship approach and its canonical variables are all rather low, with the variance explained under 7 per cent. Even so, the most expressive correlations are recorded between the duration/continuity of the relationship and the linear combination of the use of Internet banking (0.26), customer adaptability and the importance of the quality of the relationship, the latter being negative.

The multiple regression analysis was aimed at testing the relationship between the two

Table 5: Correlations between the dimensions of the use of *Internet banking* and the relational approach and its respective linear combinations

Variables	*Use of internet banking*
	Function 1
Correlations between the dimensions of the use of internet banking and its canonical variables (Canonical Loadings)	
Duration of use	0.70
Frequency of use	0.54
Diversity of places of access	0.36
Diversity of operations	0.84
Intensity of use	0.839
Variables	*Relational approach*
	Function 1
Correlations between the dimensions of the relational approach and its canonical variables (Canonical Loadings)	
Bank adaptability	0.08
Importance of quality of relationship	−0.53
Importance of commissions and rates	0.03
Duration/continuity	0.59
Equity of the relationship	−0.23
Customer adaptability	0.56

Table 6: Correlations between the dimensions of the use of internet banking and the relational approach and the linear combination of the set of opposed variables

Variables	*Relational approach*
	Function 1
Correlations between the dimensions of the use of internet banking and its canonical variables	
Duration of use	0.31
Frequency of use	0.24
Diversity of places of access	0.16
Diversity of operations	0.37
Intensity of use	0.37
Variables	*Use of internet banking*
	Function 1
Correlations between the dimensions of the relationship approach and its canonical variables	
Bank adaptability	0.03
Importance of the quality of relationship	−0.23
Importance of commissions and rates	0.01
Duration/continuity	0.26
Equity of the relationship	−0.10
Customer adaptability	0.25

concepts (relationship approach and use of Internet banking). A stepwise procedure was chosen so as to identify independent variables minimising the effects of multicollinearity. Table 7 shows that, in accordance with Cohen's table,[97] the correlations between the dimensions of the relationship approach and the dimensions of the use of Internet banking all have, between them, a weak power of explanation ($R^2 < 0{,}13$). Even so, the strongest correlation is between the duration/continuity of the relationship between the customer and his bank and the diversity of places of access, concluding that the greater the diversity of places from which the customer accesses Internet banking, the greater the probability that the customer has had a relationship with his bank for several

Table 7: Multiple regression analysis results

	R^2	F	*Variáveis*	$B^{(a)\ (b)}$
Bank adaptability	0.007	0.150	Frequency of use	0.033
			Diversity of places of access	0.029
			Intensity of use	0.018
Importance of the quality of the relationship	0.057	1.310	Frequency of use	−0.002
			Diversity of places of access	−0.022
Importance of commissions and rates	0.045	1.029	Diversity of operations	0.049
Duration/continuity	0.068	1.577	Frequency of use	−0.013
			Diversity of places of access	0.016
Equity of the relationship	0.055	1.246	Diversity of places of access	−0.036
			Diversity of operations	−0.020
Customer adaptability	0.066	1.515	Duration of use	0.040
			Frequency of use	0.050
			Diversity of places of access	0.007

years. From this analysis we can see that only one dimension of the use of Internet banking has a statistically significant impact on a unique dimension of the relationship approach: 'Intensity of use' versus 'Bank adaptability'. This means that the greater the intensity of Internet banking use by the customer, the greater the consumer perceptions of quality. On the other hand, it seems clear that a customer that uses Internet banking more intensely is more exposed to bank activity and, as such, is a customer with growth potential, who is more likely to get involved with greater dependency on the institution.

The results show that the relationship marketing approach is related to the intensity of use of Internet banking as well as to the diversity of operations performed there. The use of Internet banking is influenced by the duration and maintenance of the relationship established between the customer and the bank. It is, however, important to mention that the intensity of use is the only dimension of the use of Internet banking that has relevant impact on some of the dimensions of the relationship marketing approach, and, even so, only on the bank's adaptability. This means that the financial institution has greater concerns in adapting to customers that use Internet banking intensively, which may mean that customers' needs are better met and, therefore, that there are more satisfied customers who are more likely to maintain a lasting and stable relationship with the supplier. The fact that there is a strong association between the duration and maintenance of the relationship and the diversity of places of access provided may mean that, by adapting to the customer's characteristics and needs, the bank manages to stimulate his confidence in Internet banking. In this way, the customer intensifies the use of technology and a virtuous circle is developed. On the contrary, the diversity of places of access can also reflect a customer preference for convenience and accessibility, with the customer being motivated to develop and maintain a relationship with the institution that best guarantees these conditions. This fact determines the banks' need to be more attentive to the customer if it wishes to keep him.

CONCLUSIONS, IMPLICATIONS AND FUTURE RESEARCH

The role technology plays in relationship marketing has been increasingly debated since the advent of the internet. The financial services industry, one of the most information intensive industries, is particularly affected by these technological developments, which are challenging the structure of business and banking relational strategies. Given the academic debate about virtualisation of relationships, the article discusses the impact of the use of Internet in banking relationships, where there is a lack of empirical research. Considering the potential of Internet to be a double-edged sword in building (or weakening) relationships, the article seeks to add further insight into the debate. As such, the correlations between the dimensions that constitute the concepts under study were researched: the use of Internet banking and the relationship marketing approach in banking sector. The research found three factors related to the use of Internet banking which strengthen the relationships between banks and their customers: the intensity of Internet use, the diversity of access locations and the diversity of Internet applications.

As customers interact with their banks through channels sustained by remote technologies, the implications resulting from this type of interaction in the supplier–customer relationship are increasingly important. From the management point of view, this evolution has immediate effects at the level of determining investment policies in technology, but also has indirect effects on the seller's positioning: a focus on remote relationships means a focus on specific customer segments and an opportunity to redesign structures, relegating the front-office to second place. Bearing in mind the growing integration of self-service technological media, particularly Internet banking, into the habits of consumers and considering the advantages for banks resulting from their use, they must take into consideration the importance of the relationship with the customer and make efforts to maintain and develop this relationship. The relationship marketing approach enables the financial institution to develop a more productive, tailor-made and efficient interaction with its customers. At the same time, new technologies can be used to innovate in promoting and maintaining more personalised relationships.

This is why the study of the relationship between these two concepts should not be abandoned, but studied further still. Future research should include the perfecting of the modelling used. This problem should be studied in the light of other perspectives, namely that of the study of consumer behaviour so that the new model of analysis could include external factors that influence the relationship between the use of Internet banking and the relationship approach, namely attitudes concerning technology adoption and level of confidence in NICTs. In pursuing this objective, it would be interesting to explore the relationship on an historical basis, through the analysis of changes recorded in relationships since Internet banking was introduced through a longitudinal comparative research.

By identifying the intensity of the use of Internet banking, the diversity of places of access and the diversity of operations performed via Internet banking as factors of the use of Internet banking that individually intensify the relationship between the parties, the results of this study demonstrate how banks can have some control over the relationship, allowing, through the manipulation of these factors, the relationship to be intensified or 'altered' in accordance with the institution's interests.

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