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Viewpoint

# Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application

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ABSTRACT

Understanding the main determinants of Internet banking adoption is important for banks and users; our understanding of the role of users' perceived risk in Internet banking adoption is limited. In response, we develop a conceptual model that combines unified theory of acceptance and use of technology (UTAUT) with perceived risk to explain behaviour intention and usage behaviour of Internet banking. To test the conceptual model we collected data from Portugal (249 valid cases). Our results support some relationships of UTAUT, such as performance expectancy, effort expectancy, and social influence, and also the role of risk as a stronger predictor of intention. To explain usage behaviour of Internet banking the most important factor is behavioural intention to use Internet banking.



## 1. Introduction

In recent years the Internet has been growing and offering many Web-based applications as a new way for organizations to retain customers and offer them new services and products (Tan & Teo, 2000). In order for both parties (customers and organizations) to take advantage of these applications, it is crucial to analyze the genuine perception and main reasons of people's willingness to adopt these technologies (Lee, 2009; Liao & Cheung, 2002).

Internet banking has emerged as one of the most profitable e-commerce applications (Lee, 2009). Most banks have deployed Internet banking systems in an attempt to reduce costs while improving customer service (Xue, Hitt, & Chen, 2011). Despite the potential benefits that Internet banking offers consumers, the adoption of Internet banking has been limited and, in many cases, fallen short of expectations (Bielski, 2003).

While earlier research has focused on the factors influencing the end-user IT adoption, there is limited empirical work which simultaneously captures the success factors (positive) and resistance factors (negative) that drive customers to adopt Internet banking (Lee, 2009). Building upon the premise that purchasing Internet banking services is perceived to be riskier than purchasing traditional banking services (Cunningham, Gerlach, Harper, & Young, 2005), this study introduces the perceived risk factor. Drawing from perceived risk theory, this study couples specific perceived risk facets (Featherman & Pavlou, 2003) – namely performance, financial, time, psychological, social, privacy, and overall risk – with unified theory of acceptance and use of technology (UTAUT) to propose an integrated model to explain customers' intention to adopt and use Internet banking.

Our research merges an existing and empirically validated theoretical model with a perceived risk factor, which is also an important construct that will be tested on the adoption of Internet banking for the first time. Thus, this study may help banks to understand the determinant factors that influence users and to create the right policies and actions to attract customers to use this service. Additionally, it is in the banks' and clients' interest to direct their communication from bank branches to online channels in order to be more productive and cost-effective for both parties.

The structure of the paper is as follows. In the next section the concept of Internet banking, the current theories that explain customers' acceptance of technology, the definition of perceived risk, and earlier research on this topic are presented. The research model is then conceptualized. The second part of the paper presents the research design, methodology, and results. Finally, the results are discussed, including the implications for theory and practice, and further possible research directions are outlined.

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## 2. Theoretical background

### 2.1. The concept of Internet banking

Concerning the increasing innovation and urgent need of up-to-date, convenient and reliable data, information systems (IS) have gained high importance in the organizational context. Against this background, a great dependency between the organizations' performance and their IS is emerging. Organizations can now profit from the evolution of new technologies and adapt to the emerging ways of interacting with their clients. The banking sector has been using IS not only to run internal business activities and to promote products, but also to provide main services to their customers. The dematerialization of customer relationships, that is, the better use of the numerous new IS available in the market, is a topical challenge facing this sector. Adjusting to this challenge will allow clients to satisfy almost all their banking needs with minimum human intervention (Jayawardhena & Foley, 2000; Tan & Teo, 2000).

Internet banking is defined as the use of banking services through the computer network (the Internet), offering a wider range of potential benefits to financial institutions due to more accessibility and user friendly use of the technology (Aladwani, 2001; Yiu, Grant, & Edgar, 2007). Literature suggests many concepts to identify Internet banking, namely electronic banking, online banking, and e-banking. With Internet banking, customers can perform, electronically, a wide range of transactions, such as writing checks, paying bills, transferring funds, printing statements, and inquiring about account balances through the bank's website-banking solution. Furthermore, Internet banking has a significant impact on *e-payments*, offering a platform to support many *e-commerce* applications, such as online shopping, online auction, and Internet stock trading (Aladwani, 2001; Lee, 2009; Tan & Teo, 2000).

When Internet banking became popular, it was used mainly to provide information for marketing the products and services on the bank's website, but with the technological development of secured electronic transactions, more banks have been using it also as a transactional framework (Tan & Teo, 2000; Yiu et al., 2007). Recently, online banks have been expanding their presence in the market (including the Portuguese market) and adopting other channels, such as call centres, but their impact on the whole banking sector has been limited (DECO, 2010; Tan & Teo, 2000).

Pikkarainen, Pikkarainen, Karjaluoto, and Pahnila (2004) highlighted two main reasons for the development and proliferation of Internet banking. First, the cost savings by the banks compared with the traditional channels; second, the reduction of branch networks and, therefore, the costs with staff. Jayawardhena and Foley (2000) also identified the benefit of increasing the customer base, because using multiple distribution channels (branch networks, Internet banking, mobile banking, etc.) amplifies market coverage by enabling different products to be targeted at different demographic segments. With a larger customer base, banks can profit from marketing and communication, with the possibility of mass customization for each group of clients, offering innovative products. This is an important issue because many organizations today are saturated with mass automation and homogenized products and services. In the customer view, there is an increase in the autonomy, with less dependency on the branch banking and, consequently, less time and effort. Recently, the Portuguese Association of Consumer Defence (DECO) performed a study about costs and benefits of Internet banking usage and concluded that users can save more than € 300 per year if they use these services instead of the traditional ones (DECO, 2012). On the Internet platform, users can benefit from financial products that are online exclusive, and these may have higher returns than those in the traditional channels of banks.

Regarding the profile of Internet banking customers, they have an increased banking activity, acquire more products, and maintain higher asset and liability balances, demonstrating that they are more valuable than the traditional ones (Hitt & Frei, 2002; Xue et al., 2011). Additionally, customers who have greater transaction demand and higher efficiency, and reside in areas with a greater density of online banking adopters, are faster to adopt Internet banking. These adopters also have a lower propensity to leave the bank.

Looking at the current situation in Portugal, we see that there are many Internet platforms available in almost all leading banks. Since 2005 the use of Internet banking services by Portuguese banking consumers has increased by 82%, while personal and telephone contacts have decreased approximately 17% (Grupo Marktest, 2011, 2012). Despite this recent surge in the use of Internet banking services, many banking users (approximately 70%) are not comfortable with this channel and prefer to use the traditional ones (*Automated Teller Machine* – ATM, personal contact, and telephone contact). Grupo Marktest has also undertaken a characterization of Internet banking adopters and concluded that they are men, young (25–34 years), and from medium/upper classes of society. Regarding the type of job, they found that medium/upper management have an adoption rate 2.5 times above the average, with 74% of them using it.

Despite the increase in adoption of these kinds of service, consumers still show some reluctance towards them, due mainly to risk concerns and trust-related issues (Lee, 2009).

### 2.2. Adoption models

The acceptance and use of IT systems has been the subject of much research, and in recent years several theories that offer new insights have emerged at both the individual and organizational levels, focused on a country or a set of countries (Im, Hong & Kang, 2011). Each of the several models that have been proposed in the literature has the same dependent variable, use or intention to use, but with various antecedents to understand acceptance of technology.

The most well-known theoretical models at the individual level that have sought to explain the relationship between user beliefs, attitudes, and intentions include *Theory of Reasoned Action* (TRA – Fishbein & Ajzen, 1975), *Theory of Planned Behaviour* (TPB – Ajzen, 1991), and *Technology Acceptance Model* (TAM – Davis, 1989). TAM was designed to predict information technology acceptance and use on the job, in which perceived usefulness and perceived ease of use are the main determinants of the attitudes (Davis, 1989). TPB is more focused on the perceived behavioural control, that is, the perceived ease or difficulty of performing the behaviour (Ajzen, 1991). Both models were based on TRA, which proposes that beliefs influence attitudes that in turn lead to intentions and then consequently generate behaviours (Fishbein & Ajzen, 1975). It is a model drawn from social psychology, and is one of the most important theories of human behaviour. According to the researchers, attitude (attitude towards performing behaviour) and subjective norms (social pressures to perform behaviour) are considered as the determinants of behaviour in TRA.

Venkatesh, Davis, Davis, and Morris, (2003) provide a comprehensive examination of eight prominent models and derive a *Unified Theory of Acceptance and Use of Technology* (UTAUT), which can explain as much as 70% of the variance in intention. The eight models studied by these researchers are TRA, TAM, *Motivational Model* (MM – Davis, Bagozzi, and Warshaw, 1992), TPB, a hybrid model combining constructs from TAM and TPB (C-TAM-TPB – Taylor & Todd, 1995), *Model of PC Utilization*