



Universitat de Girona

CUSTOMERS' LOYALTY AND ITS ANTECEDENTS AND PERCEPTION OF ISO 9001 IN ONLINE BANKING

Luc Honoré PETNJI YAYA

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PHD THESIS

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PERCEPTION OF ISO 9001 IN ONLINE BANKING**

LUC HONORE PETNJI YAYA

2012



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DOCTORATE THESIS

BY

LUC HONORE PETNJI YAYA

2012

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DESENVOLUPAMENT DEL PRODUCTE**

UNIVERSITY OF GIRONA

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THE PRESENT DOCTORATE THESIS TITLE: "CUSTOMERS' LOYALTY AND ITS ANTECEDENTS AND PERCEPTION OF ISO 9001 IN ONLINE BANKING" SUBMITTED BY LUC HONORE PETNJI YAYA FOR THE AWARD OF THE DOCTORATE DEGREE WAS DONE UNDER OUR SUPERVISION.

GIRONA, 5/ 6 /2012

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ABSTRACT

This thesis investigates whether ISO 9001 certification by banks affects customers' perceptions of e-service quality and recovery (and hence customer satisfaction, value and loyalty) in online banking services. In pursuit of this objective this thesis holistically undertake a comprehensive review of the current state of the E-S-QUAL scale including methodology used, suggestions, and limitations associated with the adoption of the scale. Thereafter, this thesis proposed and applied scales to measure service quality and service recovery in the setting of electronic banking (e-banking).

At that juncture, the thesis further developed and empirically tested model (s) that considers perceived online service quality and online service recovery as antecedents to online satisfaction and value to investigate factors that might influence customer satisfaction, value and loyalty and the possible mediating/moderating effects of customer satisfaction and value on the relationship between service quality, recovery and customer loyalty.

The results of the review of literature on E-S-QUAL show that the scale is effective in capturing core e-service quality. The dimensions of efficiency, system availability and privacy appear consistently in the various models regardless of the type of e-service. In contrast, the dimension of fulfillment appears not to be generic but specific to particular e-service context such as Web site selling physical goods. Contrary to previous studies, this thesis confirmed scales that are more stable to evaluate service quality and service recovery in the setting of e-banking. Moreover, this thesis showed perceived online service quality and service recovery have direct/indirect effects on customer loyalty through customer satisfaction and value.

In addition the mediating role of satisfaction and value were confirmed. However, rather than service recovery, e-quality is the most important predictor of customer satisfaction and loyalty. Nevertheless, contrary to the research objective, ISO 9001 certification as well as demographic characteristics profiles does not seem to influence customers' perceptions of e-service quality, recovery, satisfaction, value and loyalty. The implication for electronic service managers is that they should consider ISO 9001 certification, even if only for the internal benefits that it promises to provide. Besides, it



is more important to increase customer satisfaction, which requires placing an external focus on developing what will “go right” in the first place by enhancing online perceived service quality, instead of preventing dissatisfaction through recovery, which is an internal focus on fixing what has “gone wrong”

ACKNOWLEDGMENTS

Now the realization of this thesis has come to an end, I would like to take time to reflect back on the past year. Few years ago my whole life was a disaster, everything seems to have fallen apart and I could only see myself as failure. With this burden in mind the pathway to pursue a doctorate dissertation degree can be especially challenging. However, knowing that

“Even though I walk through the valley of the shadow of death, I fear no evil; for You are with me; Your rod and Your staff, they comfort me” Psalm 23.

And inspired by

Michael Jordan who intimated that

“I’ve missed more than 9000 shots in my career. I have lost almost 300 games. 26 times, I’ve been trusted to take the game winning shot and missed. I’ve failed over and over and over again in my life. And that is why I succeed”

And by Winston Churchill who asserted that

“If you have an important point to make, don't try to be subtle or clever. Use a pile driver. Hit the point once. Then come back and hit it again. Then hit it a third time - a tremendous whack”.

I eventually overcame those personal and external obstacles. This thesis has had a long gestation and the journey was zigzag and very rough. The journey was also a combination of painful and frustrating unforeseen situation at some point and pleasurable and encouraging at others. Especially some award processes such as publication in academic journals and conferences participation have also led to an increased motivation and engagement. Most of all, I have come to realize that learning is a journey toward excellence in the sense that you dream more, learn more and do more. Besides, it is a lifelong satisfying, motivating, and rewarding process.

There are many people who have encouraged and supported me throughout this long process and it is important I acknowledge the support and assistance I have received from them. My first thanks must go to the two personalities to whom I owe a huge debt

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GENERAL CONTRIBUTION OF THIS THESIS IN THE ACADEMIC AND MANAGEMENT WORLD

This doctorate thesis/dissertation has developed original contribution in the chosen field of e-services in general and in particular in the field of e-banking by means of several papers or essays that have been published or are under review. In addition, the realization of this thesis has also allowed the author to participate in some national and international conferences, as follows:

THESIS RESEARCH PUBLICATIONS

- Luc Honore Petnji Yaya, Frederic Marimon, Marti Casadesus, (2012)
“Measuring e-service quality: reviewing E-S-QUAL” Economic Quality Control
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- Luc Honore Petnji Yaya, Frederic Marimon, Marti Casadesus, (2012)
“Methodology proposal: assessing service quality in multichannel environment”
Chapter of a Book title “Quality management and beyond: the current situation
and future respectives” GITASP. 8, ISBN 978-84-9984-142-7
- Frederic Marimon, Luc Honore Petnji Yaya & Marti Casadesus Fa (2012):
“Impact of e-Quality and service recovery on loyalty: A study of e-banking in
Spain”, *Total Quality Management & Business Excellence*,
DOI:10.1080/14783363.2011.
- Luc Honore Petnji Yaya, Frederic Marimon, Marti Casadesus, (2011)
"Customer's loyalty and perception of ISO 9001 in online banking", *Industrial
Management & Data Systems*, Vol. 111 Iss: 8, pp.1194 – 1213
- Petnji Yaya, L.H; Marimon, F; Casadesus, M, (2011), “Investigating
discrepancies between e-services implementing or not ISO 9001:customers’
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for Quality Research*, Vol.5, No.4, 2011 UDK - 006.3/.8:004(460)



- Marimon, F.; Petnji Yaya, L.H; Casadesus, M, (2011), “Impact of Service Recovery on Customer Loyalty: A Study of e-Banking in Spain” *Review of International Comparative Management* Volume 12, Issue 1, 49-60

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- Luc Honore Petnji Yaya, Frederic Marimon, Marti Casadesus, (2012) “Assessing e-service quality: literature review on the current state of E-S-QUAL” *Total quality Management and Business Excellence*, Code number 20120522
- Luc Honore Petnji Yaya, Frederic Marimon, Marti Casadesus, (2012) “The contest determinant of delight and disappointment: the case study of online banking” *Journal of Service Research - Manuscript ID JSR-12-247*

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- Petnji Yaya, L.H; Marimon, F.; Casadesus, M, (2012) “Pivotal factor of satisfaction and loyalty: Do it right the first time (e-quality) or solving the problems (e-recovery)”. 4th World conference Production & Operations Management, Amsterdam (Netherland)
- Petnji Yaya, L.H; Marimon, F.; Casadesus, M, (2012) “Valuable insights and implications for the development and application of e-SQ: the E-S-QUAL case” 15th QMOD conference on Quality and Service Sciences ICQSS 2012, Poznan (Poland)
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- Petnji Yaya, L.H; Marimon, F.; Casadesus, M, (2012) “Methodology proposal: assessing service quality in multichannel environment” 3rd Seminar on Academic Research in the field of Quality Management, Barcelona (Spain)
- Petnji Yaya, L.H “Customers’ perception of service quality in online banking and its direct/indirect effects on loyalty”, Cross- border Doctoral Conference between French and Spanish, Caldes de Malavella (Spain)
- Marimon, F.; Petnji Yaya, L.H; Casadesus, M, (2011), “E-Quality, Service Recovery and Loyalty relationship: the e-banking case” , 18th EuroMA International conference, Cambridge (UK)
- Petnji Yaya, L.H; Marimon, F.; Casadesus, M, (2011) “Measuring the antecedents of loyalty and impact of ISO 9001 in online banking in Spain” 14th QMOD conference on Quality and Service Sciences ICQSS 2011, Sant Sebastian (Spain)
- Petnji Yaya, L.H; Marimon, F.; Casadesus, M, (2011) “Impact of Online Service Quality and Satisfaction on Loyalty and Customer’s Perception of ISO 9001 in Online Banking Services” XXI Conference ACEDE, Barcelona (Spain)
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- Petnji Yaya, L.H; Marimon, F.; Casadesus, M, (2012) “Understanding the expansion and application of the E-S-QUAL in various settings and cultures” 6th International Conference on Industrial Engineering and Industrial Management. XVI Congreso de Ingeniería de Organización. Vigo, July 18-20, 2012

1 CHAPTER 1: INTRODUCTION

1.1 Background of the Problem

Intensifying competition and rapid deregulation have led many service and retail businesses to seek profitable ways to differentiate themselves (Parasuraman et al., 1998). Although no longer believed to be revolution previously conceived, the internet remains a critical channel for selling most goods and services (Parasuraman et al., 2005). Fuelled by the growth of electronic commerce, many businesses have incorporated the use of the Internet to enhance their service delivery. In particular, service industries that are information-based, such as the banking industry, have invested heavily on providing electronic services to their customers (Wong, et al., 2008). The ultimate global financial crisis has cause massive upheaval worldwide that in turn have changed the old rules of making business. Worsening, many banks concede it is very costly to set up physical branches (Eurosystem, 2007). Thus, due to fierce competition and pressure on cutting down on costs has led the financial services market to develop a more innovative ways of delivering service offerings. One such innovative way is the important strategy of adopting electronic services (e-services hereinafter) in general (Daniel, 1999) and in particular online banking (e-banking hereinafter).

The use of e-services in the banking industry has now become routine since it has been transformed into an important component of the overall service offerings provided by banks (Sousa and Voss, 2006). According to Fassnacht & Köse, (2006), e-banking is a fast-growing sector and banks can exploit it as an opportunity to gain competitive advantage and companies cannot afford to be complacent. The authors also argued that banks that do not offer e-services in one form or another are hard pressed to adopt it soonest. Indeed, E-banking is the term used to describe the provision of information or services by a bank to its customers through electronic means such as the computer or mobile telephone (Daniel, 1999). Online banking services take many forms, for example online transactions, bank transfers, account inquiries, bill payment or e-checking. They are usually done through the bank's website (Gehling et al., 2007, Marimon et al., 2012).

Noticeably, customers' fondness for e-services in general or e-banking in particular is due to the convenience it offers, like making it possible to embark on business transaction without any restriction on opening time from wherever internet access is available. Since there are no geographic or physical constraints associated with e-service, in other words competing services are just a mouse click away from each other. As a consequence, e-service providers have to compete on quality of service delivered in order to attract and retain their customers.

Furthermore, online customers are not only increasingly eager to use search engines and comparison websites in product evaluation and selection, they are also keen to share their experiences through social media. According to Reichheld and Schefer, (2000), more and more sophisticated online customers would rather pay a high price to e-tailers who provide a high service quality. In addition, without the glue of superior online service quality, even the best-designed e-business model will collapse. To compete in such a complex and dynamic business environment is difficult and complicated. Consequently, an increasing number of research studies have focused on understanding online service quality and many different scales measuring online service quality have been developed. These include WebQual (Barnes and Vidgen 2002), WebQualTM (Loiacono et al 2000), SITEQUAL (Yoo and Donthu 2001), e-SQ (Zeithaml et al 2002), and eTailQ (Wolfenbarger and Gilly 2003), eTransQual (Bauer et al 2006) and PeSQ (Cristobal et al 2007). Overall these studies provided useful insights into criteria that are relevant for evaluating electronic Service Quality (e-SQ). However, the conceptualization and measurement of electronic service quality (e-SQ hereinafter) is still at an early stage of development and most of the online service quality dimensions identified are to some extent incomplete and incongruent (Ladhari, 2010; Petnji et al., 2012). Since, many of the prior service quality measures do not take into account the entire process from pre-purchase and even after-purchase. Besides, the scales developed in those studies also raise some important questions that call for additional research on the topic (Parasuraman et al., 2005). Thus, understanding how to deliver superior e-banking service quality is of paramount importance.

Nevertheless, one study (Parasuraman et al., 2005) appears to be the most thoroughly conducted studies on the topic as it produced a service quality scale E-S-QUAL and the recovery scale E-RecS-QUAL that appear to capture the general domain of e-SQ fairly

well and have approached the issue of the shopping or buying interaction in its totality. Yet, because the instruments are fairly recent, debate about their usefulness can be expected among academics and practitioners (Petnji et al., 2011). Above and beyond, there are many different types of Internet sites and all phases of the scales development focused only on Web sites that sold physical products, in contrast to pure-service sites such as those offering e-banking or information services. Therefore, the questions that then arise are whether the scales are applicable in e-banking, and are they applicable and stable across all industries and cultures.

Moreover, these two e-service scales have enabled researchers to examine the relationships that exist between e-quality and various other constructs such as perceived value, satisfaction, and loyalty (Srinivasan et al., 2002; Sigala & Sakellaris, 2004; Huang, 2008; Fuentes-Blasco et al., 2010; Marimon et al., 2010). These relationships are important in all services, but they are especially significant in the case of e-services because the cost (to the customer) of changing his or her provider is low and the change is as easy as a 'click'. One can argue that switching online banking provider is not as easier as in e-tailing, given that e-banking may be tight to traditional accounts and switching requires at least setting up a new account, closing the earlier account. It incorporates setting up balances transfer, wage payments and initiating new automatic payments and direct debit to replace those operating at the old bank (Marimon et al., 2012).

However, in the past few years online banks competitors have started to actively promote switching provider as part of their "free" services. They often claimed that switching banks is easier today than it used to be, since they have made the process as simple and as easy as possible. This view is supported from the extant of literature. E.g. Sherry (2002) argued that in the 70's customers were at the mercy of the bank and that changing banks was effectively impossible due to the penalties that existed; whereas nowadays she argued that it simply takes a phone call to switch. In the same vein, Trout (2006) in his study found that 70% of respondents expected changing banks would be a hassle, but nearly 90% of switchers found it easier than expected. Obviously, competing in such condition is as thorny as in an online shopping setting (Marimon et al., 2012). As a consequence, several authors have emphasized the importance of enhancing loyalty among internet consumers. Likewise, it is self-evident that an understanding of

the antecedents of e-loyalty is likely to enhance business performance (Petnji et al., 2011).

Although there is compelling anecdotal and empirical evidence to suggest that desirable outcomes such as repeat purchases, eventually profitability and customer loyalty will simply not occur unless firms have succeeded in satisfying their customers' service quality needs first (Boshoff, 2007), few companies seem to succeed in creating e-loyalty, and little is known about the mechanisms involved in generating customer loyalty on the internet (Ribbink et al., 2004). In an attempt to understand the main drivers of online loyalty, several antecedents have been proposed in a growing body of literature. For example, service quality and service recovery are related to customer loyalty in different ways. Whereas quality is only indirectly related to loyalty via perceived value and satisfaction, recovery has a direct relationship with loyalty. The question that then arises for e-commerce is the extent to which loyalty depends on online service quality (e-quality) or the extent to which it depends on online service recovery (e-recovery). Particularly while considering the mediating effect of online satisfaction. In other words, when considering customer loyalty, which is more important, online service quality or online service recovery?

Furthermore, the consequence chain models, that link service quality to loyalty with perceived value and satisfaction as mediators, have been firmly advocated. Recent conceptual work has questioned the universality of this link (Ribbink et al., 2004), since, empirical work from earlier studies are not consistent because of diverging results in online contexts. For example, the well-established quality-satisfaction-loyalty chain was not supported in one of the online services they studied (Harris and Goode, 2004). Thus thorough understanding of factors that may influence customer e-loyalty is of paramount importance, as it may help e-banking providers to gain competitive advantage by implementing precise strategies to increase e-loyalty.

Likewise, it has been argued that service recovery is a crucial element of any service management strategy (Boshoff, 2005). It has also been reported that customers who experience service failure typically discuss the incident with 10 other persons, while those not experiencing failure only tell 5 other persons about their positive experience (Oliver, 2010). Few attempts have been made to examine empirically the role of service

recovery in customer satisfaction and loyalty. This is perhaps because it is a very new concept, or possibly because it is difficult to analyze due to the fact that samples of customers who have used the system and encountered service problems are of limited size. For whichever reason, little is known about customer behavior with regard to service recovery.

Finally, in settings such as e-banking, service providers compete with companies very similar to themselves so that they often respond by employing customer retention strategies (Egan, 2004). Thus, realizing customers are very demanding in terms of service quality, and the possibility of having a disparity between what customers need and what service provider think their customers need. Numbers of service providers were keen to adopt ISO 9001:2008 with the scope directly related to customers (offices, claims, etc.) as a key ingredient to service quality differentiation. Therefore it is essential for banks managers to understand the influence and the effectiveness of ISO 9001:2008 certification towards their organization's performance from the customers' perspective.

1.2 Structure of the thesis

The remainder of this thesis is structured in the following way. Chapter 2: setup the research questions of the thesis based on the gap found on the extant literature. Thereafter the chapter pronounced the justification and motivation of the study as well as illuminating the contribution of the study, relevance and opportunities. Chapter 3 briefly presents a synopsis of the extant literature on the conceptualization of traditional and electronic service quality (e-service quality). Then the chapter described some existing e-service quality scales. Thereafter, the chapter presents (in 3.6) a review of literature of the E-S-QUAL scale by thoroughly analyzing and discussed in details the dimensions structure and the methodology adopted from different studies. Finally, the chapter closed with general discussion on banking and especially the Spanish banking system. Chapter 4 follows and develops the study objective into a bigger picture of research model and specific research hypotheses for testing. The chapter includes the summary of the extant literature and outline of the key findings

Moreover, Chapter 5 discusses the research methodology by expounding the questionnaire development based on the summary of the quality work undertaken from the extant literature and the actual survey process is detailed thereafter. Chap 6 present a brief descriptive analysis results of the data collected. Chapter 7 provides the empirical results of the thesis by breaking down the main objectives into sub-objectives and then presents the results in the form of sub-models. The thesis outcome begins with some basic findings like grounded on the raw data from customers' perspective, the thesis investigated if the implementation of ISO 9001 with the scope directly related to customers (offices, claims, etc.) offspring any discrepancies. Then validated the propose scale to measure service quality and service recovery in e-banking sector. Thereafter, the thesis presented the results that examine the relationship between service quality, service recovery, customer value, satisfaction, and customer loyalty. From then on, the thesis move through to investigate the impact of ISO 9001 on customer loyalty and its antecedents, as well as on demographic characteristics. The thesis closed with Chapter 8 that includes some major conclusions and managerial implications, in addition to suggestions for future research

2 CHAPTER 2: OBJECTIVES

2.1 The research questions

Based on the preceding backgrounds information, the research questions and associated objectives and expected outcomes of this study are established. As noted above and discuss in chapter 3, the absence of a valid and reliable scale to measure e-service quality forced early researchers to make use of some fairly unsatisfactory alternatives. To improve on these previous studies, Parasuraman et al., (2005) developed and operationalized E-S-QUAL a multi-item scale for examining website service quality. This leads directly to the first research questions that is

1. *To examine if the adopted E-S-QUAL and RecS-QUAL scales are applicable in an online banking setting?*

Given that there are many different types of Internet sites and all phases of the scales development focused only on Web sites that sold physical products. Hence, this provides an opportunity to examine the stability of the scales. The related question is:

2. *Is the E-S-QUAL applicable and stable across all industries and cultures?*

From the traditional service it was established that service quality and service recovery are positively related to value, customer satisfaction and loyalty. In the same vein, this thesis question:

3. *If service quality and service recovery are positively related to value, customer satisfaction and loyalty in an online service setting?*

Moreover, a growing body of extant literature has shown service quality and service recovery to be related to customer loyalty in different ways. From the extant literature, it was evidence that while quality is only indirectly related to loyalty via perceived value and satisfaction, recovery has a direct relationship with loyalty. The question that then arises for e-commerce is the extent to which loyalty depends on online service quality (e-quality) or the extent to which it depends on online service recovery (e-recovery). Thus, this thesis question

4. *When considering perceived online service quality and online service recovery as antecedents to online satisfaction and value, which factor has the most significant impact on online customer satisfaction, value and loyalty?*

It is self-evident that an understanding of the antecedents of e-loyalty is likely to enhance business performance. However the academic world has not yet reached a consensus view on the mediating/moderating role of customer satisfaction and value between the relationship of service quality and customer loyalty. Thus, prompting call for thorough examination of the relationships. Therefore, this thesis question

5. *If value and satisfaction mediate/moderate the relationship between service quality and service recovery in an online banking setting?*

The extant literature on traditional services quality evidenced that ISO 9001 is an important factor of differentiation. This gives rise to the final research question:

6. *If like in traditional service, ISO 9001 is positively and directly related with service quality, customer satisfaction and loyalty in an online banking setting?*

The need to better understand the service quality development, leads to the following associated main objectives and expected outcome of this study:

Objective 1: To develop and empirically test a multi-item scale for measuring electronic service quality and service recovery of e-banking services based on E-S-QUAL and E-RecS-QUAL scales.

Objective 2: To determine the relevant quality dimensions of e-banking service quality that affect customer value, satisfaction and loyalty.

Objective 3: To test the direct effects of value and satisfaction on loyalty, and to confirm/reject the mediating role of value and satisfaction in the relationship between service quality and customer loyalty

Objective 4: To confirm/reject that ISO 9001 is positively related to electronic service quality, customer satisfaction and loyalty.

These objectives are developed into more specific hypotheses in chapter 4. Thereafter, the hypotheses are grouped into sub-objectives, and presented and tested in 5 distinct sub-models in chapter 7.

Expected outcome 1: The modified E-S-QUAL and E-RecS-QUAL scales will be confirmed as an appropriate tool to evaluate service quality and service recovery in an online banking setting.

Expected outcome 2: the mediating/moderating role of value and satisfaction will be confirmed.

Expected outcome 3: From customer outlook, the implementation of ISO 9001 will enhance customer perception of service quality, customer satisfaction and loyalty.

2.2 Justification and motivation of the study

The revolutionary nature of electronic commerce provides adequate incentive to study electronic service quality in general and e-banking in particular to increase our understanding of their impact on service offerings for traditional and electronic service industries, as well as the economy as a whole. Various studies have developed scales for assessing the service quality of brick and mortar banks; however, there are very few studies that have developed scales for assessing the service quality of e-banking services. Hence, improvements in the quality of service delivered can be made if it can be measured in the first place.

Likewise, online banking has become an essential part of bank offerings and indeed is a fast-growing sector and banks can exploit it as an opportunity to gain competitive advantage. Likewise, Jayawardhena (2004) observed that with the increase in the usage of internet banking, the attractiveness of the banking sector to a range of potential new entrants has also increased considerably. Primarily, this is due to factors such as the cost of entry being low, returns that are very promising and a risk that appears manageable. Additionally, customers are very demanding in terms of service quality and undeniably delivering a superior quality of service as compared to that of competitors can help to improve the allocation of resources and segmentation of customers and therefore, achieve competitive differentiations.

Moreover, the setting of this thesis was Spanish online banking and before the 90's some banks operations were limited to specific regions or provinces. After the barrier was lifted, except two savings banks that have branches all over the country, most of them are traditionally cramped to a specific region or province. In addition Spanish banks in general are well regulated, but it is often said they have one of the highest ratios of branches per capita in Europe; over and above they have a tendency to be

significantly overstaffed. Moreover Spanish population is already involved in the Internet as a fortunate means of communication. 71.8% of the populations were internet users in December 2009. This was up by 440.0% compared to 2000 (Internet World Stats, April 2010). However the echelon of online banking penetration rate remains substantially lower compare to their western European counterpart.

Furthermore with 68730 cumulated ISO 9001:2000/2008 certificates issues, Spain is ranked second in Europe after Italy and third worldwide after China and Italy (ISO Survey 2008). Hence, because ISO 9001 is undoubtedly the most widely used in Spain this motivate the choice of quality management to be investigated.

Finally the post hoc world financial crisis that brought a great bump to Spanish financial system in general, obliges the Spanish government to shake up the banking industry. Thus the government persuades some Spanish banks to merge in order to yield Spanish financial holdings that could adequately compete with foreign banks. Thus, great numbers of branches will close, giving way to online banking.

Based on these facts, online banking in Spain constitutes a very interesting research field as banks need to implement strategies to satisfy and retain their existing profitable customers. Hence there is urgent need exploring and fully understand

- how do customers judge the quality of online banking service
- how to retain the treasured existing customers and recruit the new one

Especially after the implementation of ISO 9001 with the scope directly related to customers. As it may provide a useful thought to bank managers and support them in their aim to improve important e-service quality aspects in an attempt to expand the use of e-banking.

2.3 Contribution of the study: relevance and opportunities

Obviously, this study attempt to contribute to the literature as follows:

- (i) By addressing a critical question on if E-S-QUAL and E-RecS-QUAL are useful tools to measure electronic service quality and service recovery across different industries and cultures and particularly in online banking.
- (ii) Identify specific occurrences of the E-S-QUAL dimensions across industries and cultures providing rich details that could be useful in scale development of e-SQ or in providing new insights.
- (iii) Identify specific dimensions of service quality and service recovery that influences customer value, satisfaction and loyalty provides rich details that could be useful in new insights as competitive advantage.
- (iv) Ascertain performance effects of the adoption of the scale and comparability (considering potential similarities and differences of the number of E-S-QUAL variables used) across different industries and cultural contexts and to provide potential new insights of the E-S-QUAL.
- (v) Ascertain whether the proposed dimensions of E-S-QUAL and E-RecS-QUAL scale and its psychometric properties are generically applicable in all service contexts in general and particularly in online banking.
- (vi) Recent research indicates that perceived service quality in the context of online services in general and e-banking in particular is a more complex construct than was previously believed. Accordingly, there is some uncertainty regarding the exact nature of the drivers of online loyalty. This thesis gives strong and definitive evidences on the direct/indirect effects on loyalty of its antecedents.
- (vii) In terms of electronic service providers, no research up to date has been conducted into the simultaneous role of both online service quality and

service recovery and into which is the more important role between the two. This thesis takes the challenge to investigate these issues together with the contributory role of customer satisfaction in relation to online loyalty

- (viii) Despite the extend research undertaken with respect to ISO 9001 in traditional services, all of the studies on the impact of ISO 9001 have adopted the perspective of the organization (rather than that of the customer), and none appear to have investigated the impact of the ISO 9001 standard in the context of e-commerce. Finally, the last contribution of this thesis is to hear directly from customers their standpoint of ISO 9001.

3 CHAPTER 3: LITERATURE REVIEW

3.1 Services

In the USA, in terms of employment, the service sector has been bigger than the manufacturing sector since 1929, with 55% of the labor force working in the service sector. This increased to 82% in 2006 and the services represent 80% of the Gross Domestic Product (Zeithaml et al., 2009). Similarly the service sector in the European Union in 2005 represented 71.6% of the GDP with around 75% employed in the service sector (Palmer, 2008).

Unlike products, which are created and “exist” before being purchased and used, service come to existence at the same moment they are being provided and used. More specifically a service is a form of product consisting of activities, benefits, or satisfactions that are offered for sale (Armstrong & Kotler, 2008). In the same vein, Casadesus et al., (2002) observed that one of the characteristics that differentiates a service from a product or material goods is that the service is sold first and later “manufactured”. Similarly, services are type of economic activities that are intangible, that is, they cannot be touched, tested, or stored and does not result in ownership (Eiglier, 1977). Moreover, services are consumed at the point of sale and are one of the two key components of economics, the other being goods. Examples of services include the transfer of goods, such as the postal service delivering mail, and the use of expertise or experience, such as a person visiting a doctor (Normann, 2000).

Services bid unique experiences due to their vastly interactive nature. Hollensen, (2002) describes three categories of service: people-processing, possession-processing and information-based services. In people-processing services customers become part of the production process (e.g. healthcare, food service). Possession-processing services on the other hand involve the objects in the production process as can be seen in laundry services, car repair services, or freight transport. For information-based services there is minimal tangibility and customer involvement in the production process (e.g. banking, internet services, or telecommunication services).

Sometimes services are difficult to identify because they are closely associated with products. According to Fitzsimmons & Fitzsimmons (2004), the purchase of a product is accompanied by some facilitating service (e.g. installation) and the purchase of a service often includes some facilitating product (e.g. food in a restaurant). Moreover, from the combination of a diagnosis with the administration of a medicine, no transfer of possession or ownership takes place when services are sold, and they (i) cannot be stored or transported, (ii) are instantly perishable, and (iii) come into existence at the time they are bought and consumed (Kotler et al., 2002)

However, some authors have highlighted some clear differences between services and products from marketing point of view. For example, Gronroos (2000) summarized the main differences between services and products characteristics (see table 1)

Table 1: Summary of the differences between products and services

Products	Services
Tangible	Intangible
Homogeneous	Heterogeneous
Production and distribution separated	Production and distribution and
From consumption	Consumption as simultaneous processes
A thing	An activity or a process
Core value produced in factory	Core value produced in buyer-seller interactions
Customers do not (normally) participate in the production process	Customers participate in production
Can be kept in stock	Cannot be kept in stock
Transfer of ownership	No transfer of ownership

Source: Gronroos, 2000

Furthermore, according to Armstrong & Kotler, (2008) there is a big difference in characteristics between the products and services. First, the satisfaction criterion is different. With products, the consumer can access the product (e.g. TV, car, clothes, etc.) and see/test it. A consumer will never know how good the service is until after he gets it. This can be disconcerting for the consumer. Second, with a service, the consumer is, essentially, "in the factory" watching production all along the way. Thus, it appears obvious and very important for a service provider to carefully manage the "production process" given that customers' are able to observe it and make judgments about the service quality and value.

Moreover, Parasuraman, et al. (1985) observed that service quality is an abstract and elusive construct because of three features unique to services.

- (i) **Intangibility:** It is not possible to taste, feel, see, hear or smell services before they are purchased, for example, transportation or education. In this sense buyers or services cannot claim ownership.
- (ii) **Heterogeneity:** Service cannot be separated from the person or the seller. Products are purchased, sold and consumed whereas services are sold and then produced and consumed. The service is at the point of sale making economies of scale and benefits of experience curve difficult to achieve. Besides, Markovic, (2006) asserted that services are “heterogeneous” because they can differ from day to day, from place to place, from producer to producer, and from customer to customer);
- (iii) **Inseparability of production and consumption:** It is difficult to have standardization on certain services because many of them are simultaneously produced and consumed. Services are not the same because they involve a great deal of interaction among people. While you may have a standard system, e.g. ticketing system, one unit of service may be different from another unit of service.

Furthermore, Hollensen, (2002) observed that services are “Perishable” since they cannot be stored. Once offered and not taken, it is gone. E.g. unfilled airline seats are lost once the plane takes off.

3.2 Service quality

Service quality has been conceptualized and defined in various ways. One approach has been to conceptualize service quality as “...the difference between customer expectations of what customer feel a company should offer (i.e., expectations) and the company’s actual perceived service performance” (Parasuraman et al., 1985). In the same vein, Asubonteng et al., (1996) defined service quality as “...the difference between customers’ expectations for service performance prior to the service encounter

and their perceptions of the service received”. Whereas Gefen (2002) accentuate that service quality is “...the subjective comparison that customer makes between the quality of service that they wish to receive and what they actually get”.

Furthermore, Ennew et al. (1993) defined Quality as the ability of product or service to perform its specified tasks. Judging the quality of products appears to be a simple process since is usually a matter of examining the performance specifications. In contrast, in the case of services the process is not obvious given that a service is an act rather than something tangible. Hence, Fitzsimmons & Fitzsimmons, (2004) argued that the quality of services will be judged based on the outcome and the process of service delivery. There are many customer contacts during the process. In each of these contacts the customer can either be satisfied or dissatisfied. In the same vein Parasuraman, Zeithaml and Berry (1985) reasoned that service quality can be judged by comparing the perceptions of the service received with the expectations of service desired. If expectations are exceeded, then the service is perceived to be of high quality and the customers are delighted, if the expectations are not met, then the service quality is considered unacceptable

During the last 25 years, the role of service quality has been emphasized and scrupulously studied in service literature, because of its vital role as a key factor in differentiating service offerings; and its strong impact on customer trust, customer satisfaction, customer loyalty and business performance (Parasuraman et al., 1988; Reichheld and Sasser, 1990; Saurina, 1997; Sahadev and Purani, 2008; Herington and Weaven, 2009; Marimon et al., 2011). Up in the same direction, some authors have contended that good service quality leads to critical success factor in a firm’s endeavors to differentiate itself from its competitors. These includes the retention of existing customers and the attraction of new ones, reduces costs, and enhances corporate image, positive word of mouth recommendation, value, and, ultimately, enhances profitability (Reichheld and Schefter, 2000; Cronin et al., 2000; Kang and James, 2004; Chiou et al., 2009; Fuentes-Blasco et al., 2010).

Service quality is also perceived as an abstract and elusive construct because of three features that are unique to services: intangibility, heterogeneity, and inseparability of production and consumption (Parasuraman et la., 1985). Besides, customers evaluate

service quality based on their own criteria, such as past experience or personal favoritism. This experience-judging phenomenon indicates that service quality is not an evaluation by service providers but depends on the judgment from each customer's perceived performance (Yang and Fang, 2004). On this basis, traditionally, researches in this field have contributed in the extant of literature aiming to conceptualize and to measure the quality service.

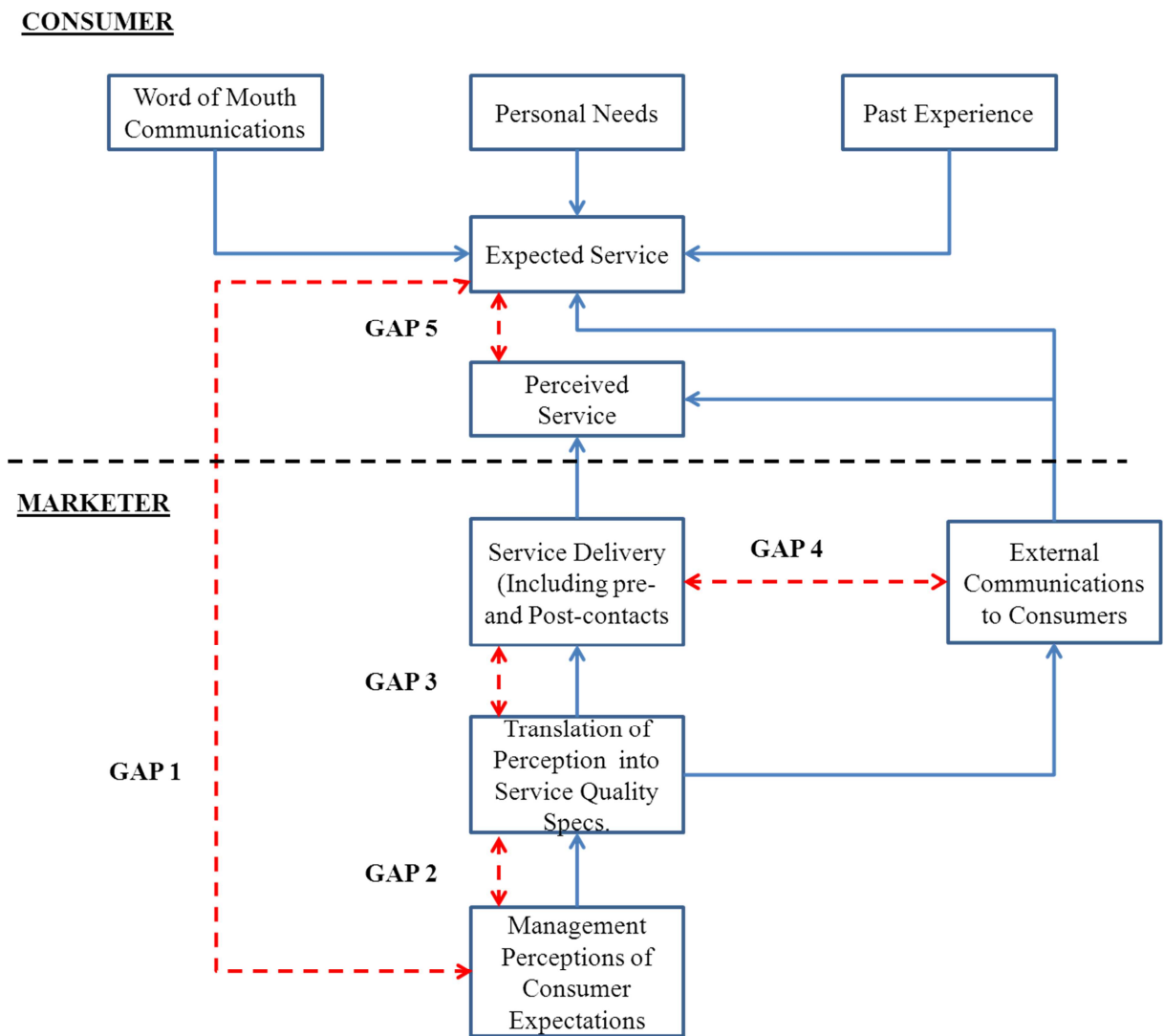
One of the pioneer models to illustrate service quality was proposed by Gronroos, (1982). The model is based on the disconfirmation principle. The study proposed that good service quality is obtained when the experienced quality meets the expectations of the customer (the expected quality). If expectations are unrealistic, the total perceived quality will be low, even if experienced quality measured in an objective way is decent. The expected quality is a function of several factors such as marketing communication, word of mouth, company and/or local image, price, customer needs and values. On the other hand, With the objective of providing a generic instrument for measuring service quality across a broad range of service categories, Parasuraman et al. (1985) observed that customers' perceptions of service quality are influenced by five gaps (see Figure 1) as follows:

- ❖ **Gap 1** represents the difference between customer expectations and management perceptions of customer expectations.
- ❖ **Gap 2** is the difference between management perceptions of consumer expectations and the translation of these perceptions into service-quality specifications.
- ❖ **Gap 3** is the difference between the service actually delivered by frontline service personnel on a day-to-day basis and the specifications set by management.
- ❖ **Gap 4** represents the difference between service delivery and what is promised in external communications to consumers. Finally,

- ❖ **Gap 5** is the difference between customer expectations and perceptions (that is, perceived service quality, as described above).

Parasuraman et al (1985) argued that such “gap analyses” are critical for identification of discrepancies between the provider’s perceptions of service-quality dimensions and the consumers’ perceptions of those dimensions.

Figure 1: Service Quality: Gap Model



Source: Parasuraman, Zeithaml, and Berry (1985)

Because delivery of high service quality gives companies the opportunity to differentiate themselves (Karatepe, et al., 2005). Service providers need to determine the elements and factors that drive service quality so that they can achieve differentiation in their offerings. Apart from determining the dimensions of service quality, which can differ across service products, there is also the need to measure these dimensions (Seth et al., 2005). In an attempt to proposed scale to measure service quality, Parasuraman et al. (1985) observed that Gap 5 is influenced by Gaps 1-4, which are all within the control of an organization and therefore need to be analyzed to identify any changes that should implemented to reduce or eliminate Gap 5. According to Engelland et al. (2000), such gap analyses [. . .] focus managers' attention on possible causes for each gap and on developing strategies to close each gap. On the basis of this background Parasuraman et al. (1985) proposed the most prominent and most commonly used service quality measurement largely based on SERVQUAL.

Founded on Gap 5 and on the basis of information from 12 focus-group interviews with consumers the SERVQUAL initially revealed ten dimensions:

- (1) tangible,
- (2) reliability,
- (3) responsiveness,
- (4) communication,
- (5) credibility,
- (6) security,
- (7) competence,
- (8) courtesy,
- (9) understanding the customer,
- (10) and access

The scale was further purified as well as condensed and consists of 5 dimensions (Parasuraman et al., 1988) as follows:

- (1) **Reliability**: (measured five items) the ability to perform the service accurately and dependably, e.g. on time, in the same manner and without errors every time.

- (2) **Responsiveness**: (measured by four items) the willingness to help customers and to provide prompt service, e.g. customers are not kept waiting for no apparent reasons.
- (3) **Assurance**: (measured by four items) the knowledge and courtesy of employees and the ability to convey trust and confidence. Other dimensions include competence, politeness, respect, communication with the customer.
- (4) **Empathy**: (measured by five items): the provision of caring, individualized attention to customers. Other dimensions include: approachability, sensitivity, and understanding of customer's needs.
- (5) **Tangibles**: (measured by four items) the appearance of physical facilities, equipment, personnel, and communication channels.

These five dimensions are assessed by a total of 22 items. Each item is measured on the basis of responses to two statements that measure:

- (1) the general expectations of customers concerning a service; and
- (2) the perceptions of customers regarding the levels of service actually provided by the company within that service category.

The gap between the expected service and the perceived service measures the service quality, the narrower the gap the greater is the perceived service quality.

The SERVQUAL has been successfully adapted for use in a wide variety of service industries and contexts such as restaurants, career centres, hospitals, higher education, banks, internet retail, hotels and many more. Besides, it has been successfully adapted in many different countries including United Kingdom, USA, United Arab Emirates, Australia, Japan, India, Korea and Hong Kong. However, the SERVQUAL dimensions range from one dimension to as many as ten and the number of items ranged from 14 to 75. Besides, the number of dimensions was dependent on the service context and culture (Ladhari, 2009). Nevertheless, it has been shown to be a very useful benchmarking diagnostic and prescriptive tool (Engelland et al., 2000; Cook and Thompson, 2000;

Kilbourne et al., 2004; Arasli et al., 2005; Lai, 2006; Cristobal et al., 2007; Petnji et al., 2011).

Several researchers have applied the SERVQUAL in the banking sector. For example Saurina (1997) adopted 19 out of 22 items of SERVQUAL that cover the cultural aspects of service quality in the financial sector in Spain and confirmed only 4 factors for expectation and 2 factors for perception. In the same vein Saurina and Coenders (2002) applied SERVQUAL items to evaluate service quality in Spanish banks and concluded that the SERVQUAL questionnaire can at most constitute a valuable starting point for model and item development. However, they cautioned that for each particular service it is necessary to do a considerable amount of qualitative research in order to better identify the domains which are specifically relevant. Moreover, Zhou et al. (2002) applied SERVQUAL to measure banking service quality in the Chinese context and reported six-factor pattern on expectation scores and a three-factor structure on perception scores and gap scores. Similarly, Lam (2002) applied SERVQUAL in the context of banking services in Macau and confirmed six dimensions (assurance, tangibles, empathy 1; empathy 2; reliability; responsiveness). In the same vein, Chi Cui et al. (2003) applied SERVQUAL in the banking service sector in Korea and their findings revealed a three-dimensional structure (reliability, tangibles, and responsiveness/empathy). More recently, (Ladhari, 2009b) investigates the psychometric properties of the SERVQUAL model in the Canadian banking industry. Their results support the dimensionality, reliability, convergent reliability, discriminant validity and predictive validity of the scale in this service setting. More recently, Ladhari et al. (2011) used SERVQUAL to compare perceptions of bank service quality among Tunisian and Canadian customers. Their results indicated that Canadians reported higher perceived service quality than Tunisians for all five SERVQUAL dimensions, and for 21 of the 22 individual items. In the Canadian sample, empathy and reliability were found to be the most important predictors of satisfaction and loyalty, while in the Tunisian sample, reliability and responsiveness were the most important predictors of satisfaction and loyalty.

Nonetheless, although researchers and practitioners continue to find that the instrument is useful, there have been debates about various aspects of the instrument. For example, according to Buttle (1996) the criticism can be divided into two parts:

(1) The theoretical criticism that contents

- ❖ Paradigmatic objections: It would be more suitable if the model is based on the attitudinal model and not the disconfirmation model.
- ❖ Gaps model: There is a lack of evidence to suggest customers assess service in terms of perception minus expectation.
- ❖ Process orientation: The focus of the SERVQUAL is on the process of the service rather than the outcome of the service
- ❖ Dimensionality: The five dimensions are not applicable in all industries and contexts; in addition, that there are inter-correlations amongst the five dimensions which weakens the model.

(2) Operational criticisms contents

- ❖ Expectation: Customers do not use expectations to evaluate services and there is no measure of absolute expectations.
- ❖ Item composition: The number of items under each dimension is not enough to measure that dimension.
- ❖ Moment of truth: The moment of truth might change from time to time when customers are evaluating the service.
- ❖ Polarity: The negative items in the scale cause confusion among respondents
- ❖ Two administrations: Measuring service quality before and after the service results in customer confusion.
- ❖ Variance extracted: The variance explained in service by the SERVQUAL instrument is low.

Moreover, from the extant literature, several theoretical and empirical problems associated with the measure have been raised. Such as problems with some components of exploratory or confirmatory factor analysis, the hierarchical nature of the service quality constructs; the use of reflective rather than formative scales, the applicability of the scales to an online environment, and etc. Nevertheless, after reviewing the numerous concerns and critics of SERVQUAL, Cronin and Taylor, (1992) provides positive criticisms. Besides, Ladhari (2009a) concluded that [...] despite legitimate concerns

about the validity of the scale, it remains a useful tool for measuring and managing service quality.

3.3 E-services

Since its formal introduction of the term “e-government” in 1993 by the US Government, it was recognized as research domains especially in the context of public policy and now have been rapidly gaining strategic importance in public sector modernization. E-service is one of the branches of this domain and its attention has also been creeping up among the practitioners and researchers (Löfstedt, 2005). E-service is a generic term, usually referring to the provision of services via the Internet. E-service includes e-Commerce, given that it may also include non-commercial services online such as web portals, government services. E-services can be defined as: “...deeds, efforts or performances whose delivery is mediated by information technology. Such e-service includes the service element of e-tailing, customer support, and service delivery” (Rowley, 2006). This definition reflects three main components: (i) service provider, (ii) service receiver and (iii) the channels of service delivery (e.g. technology). Some e-services may be done at a Web site directly (e.g. purchasing transaction), whereas others e-services are done in the background without the customer's immediate knowledge (e.g. news updates to subscribers)

According to Surjadjaja et al. (2003), an e-service operation is one where all or part of the interaction between the service provider and the customer is conducted through the Internet. An e-service has a ‘front-end’ Web-based systems and ‘back-end’ information systems. It also includes the interface between them, which has an important role in the e-service. Whereas, Fassnacht & Köse (2007) classified e-services into two categories: (i) stand-alone services where the service provided benefits the customer at the same time. This in turn is subdivided into pure service and content offers. Pure service enables customers to perform tasks such as keeping a bank account. Content offers provide access to content that customers can obtain such as news coverage. (ii) Supporting services that facilitate the purchase of goods (e.g. online bookshop) or services (online ticketing).

Moreover, Boyer et al. (2001) argued that e-services provide a unique opportunity for businesses to offer new models for service design strategies and new service development. Since, all service providers, whether they are traditional ‘brick-and-mortar’ or pure Internet players, now have more delivery channel options for competing. Additionally, many new services can be offered more economically with both greater geographic reach and product variety. Besides, Essen and Conrick (2008) contended that the development of e-services includes three main elements: (i) service concept innovation, (ii) service system innovation, and (iii) service process innovation.

There are some key differences between traditional and e-services. Fitzsimmons & Fitzsimmons (2004) looked at various features of e-services and highlighted some differences such as the nature of service encounter, availability of the service, access to the service, area of operation, environment around which the service is provided, nature of differentiation and privacy of the interaction. Table 2 shows the summary of the differences between electronic and traditional services.

Table 2: Summary of the differences between e-service and traditional service

Features	Electronic Service	Traditional Service
Service encounter	Screen-to-face	Face-to-face
Availability	Anytime	Standard working hours
Access	From home	Travel to location
Market area	Worldwide	Local
Ambiance	Electronic interface	Physical environment
Competitive differentiation	Convenience	Personalization
Privacy	Anonymity	Social interaction

Source: Fitzsimmons & Fitzsimmons, 2004

This thesis observes that, in many instances, electronic service enjoys transaction cost advantages over traditional service. For example, Ryan Air is using their Web sites to cut distribution costs by selling directly on the internet instead of through travel agents. Thus, reduce the thousands of seats that were unsold on flights every day. It is no longer necessary to either go to a bookstore or kiosk to buy a book or magazine, nor go to music stores to buy a CD. Since, e-service held the promise of low overhead and quick

profitability, most of books, magazine, music etc. are digitize and discounted as much as more than 50%.

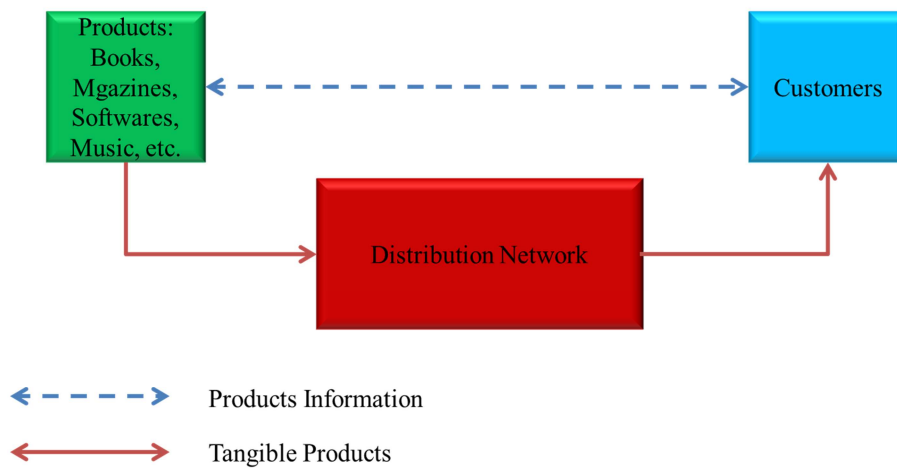
Moreover, traditionally, the value chain that supplied cut flowers involved a grower, jobber to transport to a wholesaler, and finally a florist. From a survey of Boston florists in July 1995, the price, including delivery charge and tax, for an example arrangement of flowers was \$60. Calyx & Corolla are able to provide an electronic market to customers to buy directly from growers with the flowers being shipped using Federal Express. Their delivered price is \$54 (Applegate et al., 1996). Furthermore, Strader and Shaw, (2000) argued that there are economic incentives (both from reduction of costs as well as creation of new revenue sources) for electronic service. It is not just a fad that will go away. Electronic services are a kind of new foundation of capitalism. They are useful because they economize on transaction costs in many instances when compared with other available transaction ascendancy mechanisms (such as traditional service). Because of these transaction cost advantages, this thesis proposes an extended list of differences between e-service and tradition service. Table 3 shows the extended list of the differences between electronic and traditional services. In addition, these differences are further portrayed in figure 2 and figure 3 by means of examples of transactions in traditional service in comparison to the electronic service.

Table 3: Extended list of the differences between e-service and traditional service

Features	Electronic Service	Traditional Service
search costs (money, time and effort spent to gather product information and price)	Costless	Expensive
Search options	Search engine and comparison web-sites for price comparison	unaware of the other prices
Intermediaries	Eliminated	Strongly depend
Products	Digitization	Tangible
Distribution	Seconds	Days
Prices	Lower	Higher

Source: own elaboration

Figure 2: Traditional service transactions structure



Source: own elaboration

Figure 3: Electronic service transactions structure



Source: own elaboration

Overall, more and more companies are making the web their storefront. It's cheap, global, and quick, with no margin-sapping middlemen. That's why forecasters predict that online-retail transactions will explode, reaching \$10 billion annually by 2000 (Schmitz, 2000). However, Boyer et al., (2001) argued that there have been very conflicting results in e-services. Airlines, stock trading, and office supply retailers have benefited from the Internet and e-services, but many others have spent millions without improving delivery or cost of the service.

3.4 Conceptualization of e-service quality

Electronic service delivery is different from traditional service delivery, owing to the lack of human interactions so fundamental to traditional service encounters that has been replaced by technology. Unlike the service quality literature, the number of studies on electronic service quality is still at its preliminary phase both from theoretical and empirical perspectives (Akinici et al., 2010). Literally, electronic service quality is a new concept and the way is conceptualized varies greatly. E.g. Fassnacht & Köse, (2007) define e-service quality as the degree to which an electronic service is able to effectively and efficiently fulfill relevant customer needs. Whereas Rowley (2006) argued that in e-service, customer's interaction or contact with the service providers is via technology, such as the websites. Besides, e-service encounter customers have to rely on information technology. Consequently, they defined e-service "...as deeds, efforts, or performances whose delivery is mediated by information technology". In contrast, Santos (2003) defines service quality in e-commerce as "...the consumers' overall evaluation and judgment of the excellence and quality of service offerings in the virtual market place". This definition is in a somewhat circular way (Kim et al., 2006) and do not capture all the aspects of the purchasing process (Parasuraman et al., 2005).

In nowadays, one of the widely accepted definitions of e-service was conceptualized by Zeithaml et al. (2000, 2002) who stated that "electronic service quality is the extent to which a web site facilitates efficient and effective shopping, purchasing, and delivery of products or services". Explicably, this definition encompasses all phases of customer's interaction with the web site, by capturing all the aspects of purchasing process from pre-sale to the post-sale. Moreover, the meaning of service in the definition is comprehensive and includes prior technical aspects (e.g. secure electronic transaction symbols, search engines and one click order placement) and aspects subsequent to the website service (e.g. delivery period, exchanges, and refund) (Parasuraman et al., 2005).

In general, online transaction is a complex process that can be divided into various sub-processes such as navigation, information searching, negotiation, online payment, delivery, and after-sales service. Hence, e-service quality contains multi-components, which reflects two attributes in its measurement: (i) system attribute and (ii) service attribute. System attribute stresses technological elements, such as efficiency, speed,

and security. On the other hand, e-service quality is not solely an evaluative outcome of a system, but the essence of service quality in customer service such as order delivery and after-sales service (Yen and Lu, 2008). Given that, it is much easier to compare the technical features and prices of products online than through traditional channels, e-service quality becomes a key factor for customers (Santos, 2003). However, contrary to traditional service quality, very limited scholarly articles deal directly with how customers assess e-SQ and its antecedents and consequences (Parasuraman et al., 2005). Thus, understanding how to conceptualize and measure online service quality became pivotal.

3.5 Measurement of e-service quality

In the recent years the awareness in conceptualizing and measure e-service quality in general and in particular in e-banking sector gained ground, due to e-commerce escalation and speedy technological advances. Besides, the internet retailing market grows at an exponential rate and online customers are becoming more and more clued-up. Since online customers are not only increasingly eager to use search engines and comparison websites in product evaluation and selection, they are also keen to share their experiences through social media. Furthermore, recent research shows that price, web presence and promotion are no longer the main draws for customer to make a decision on a purchase. More and more sophisticated online customers would rather pay a high price to e-tailers who provide a high service quality (Reichheld and Schefter, 2000). To compete in such a complex and dynamic business environment is difficult and complicated. Thus, understanding how to deliver superior service quality is of paramount importance.

The most successful e-commerce companies have started figuring out how to harness the potential of the Web by delivering superior service quality that will create exceptional value for customers. It was evidenced that those who succeed in doing so could lock in many profitable relationships at the expense of slow-footed rivals. Besides, without the glue of superior online service quality, even the best-designed e-business model will collapse (Reichheld and Schefter, 2000). Since, from the extant literature and market research it has been shown that online service quality has a

significant impact on consumer trust, site equity, consumer attitudes towards the site, willingness to pay more and attitudes toward e-shopping (Yoo and Donthu, 2001; Kim et al., 2006; Sahadev and Purani, 2008; Ladhari, 2010). Likewise, it was also evidenced that online service quality have been recognized as the most important determinant of consumer value, satisfaction, loyalty, site recommendation, actual purchase, company's financial performances, retention and purchase decision, etc. (Parasuraman et al., 2005; Connolly et al., 2010; Marimon et al., 2010; Petnji et al., 2011).

Additionally, it was observed that more and more consumers are making use of the possibilities offered by the Internet, the novelty of electronic services wears off, and consumers are less willing to tolerate poor service quality. Thus, researchers argued that in the context of electronic services, quality may be the most important determinant of long-term success (Zeithaml et al 2000, 2002; Fassnach and Koese, 2006). However, more recently based on the fact that key determinants of success or failure of e-tailers are not merely web presence or low price but delivering height quality of e-services. It was widely accepted that to deliver superior online service quality, managers of companies with Web presences must first understand how consumers perceive and evaluate online customer service (Parasuraman et al., 2005). Consequently, an increasing number of research studies have focused on understanding online service quality and many different scales measuring online service quality have been developed (see table 4). These include WebQual (Barnes and Vidgen, 2002), WebQualTM (Loiacono et al., 2000), E-Qual (Kaynama and Black, 2000), SITEQUAL (Yoo and Donthu, 2001), e-SQ (Zeithaml et al., 2002), and eTailQ (Wolfenbarger and Gilly, 2003). Additionally, the E-S-QUAL and the E-RecS-QUAL proposed by Parasuraman et al., (2005), eTransQual (Bauer et al., 2006) and PeSQ (Cristobal et al., 2007). Overall these studies provided useful insights about criteria that are relevant for evaluating electronic Service Quality (e-SQ).

Table 4: E-service quality scales development

Study	Type of web site	Dimensions
Cristobal et al., (2007) PeSQ	Online shopping	1-web design, 2-customer service, 3-assurance and 4-order management
Bauer et al., (2006) eTransQual	Online shopping	1-Functionality/design, 2-Enjoyment, 3-Process, 4-Reliability, 5-Responsiveness
Parasuraman et al., (2005), E-S-QUAL/E-RecS-QUAL	Online shopping	Core e-SQ: 1-Efficiency, 2-System availability, 3-Fulfillment, 4-Privacy Recovery e-SQ: 1-Responsiveness, 2-Compensation, 3- Contact
Wolfenbarger and Gilly (2003) eTailQ	Online shopping	1- Fulfilment/Reliability; 2- Web site design; 3- Privacy/Security; and 4- Customer service
Gefen (2002)	Online shopping	1-Tangible; 2- a combine dimension of Responsiveness, Reliability, and Assurance; 3- Empathy
Barnes and Vidgen, (2002) WebQual	Internet bookshop	1-Usability; 2- Design; 3- Information; 4-Trust; and 5- Empathy
Madu and Madu (2002)	Online shopping	1-Performance, 2- Features, 3- Structure, 4-Aesthetics, 5- Reliability, 6- Storage Capacity, 7- Serviceability, 8- Security and system integrity, 9- Trust, 10- Responsiveness, 11- Product/service differentiation and customization, 12- Web store policies, 13- Reputation, 14- Assurance, 15- Empathy
Yoo and Donthu (2001) SITEQUAL	Books, Music and video, department stores, computers, apparel and accessories, travel and auto	1-Ease of use; 2- Aesthetic design; 3- Processing speed; and 4- Security
Cox and Dale (2001)	Online shopping	1- Accessibility, 2- Communication, 3- Credibility, 4- Understanding, 5- Appearance, 6- Availability
van Riel et al. (2001)	Medical information web portal	1-Core service, 2-Supporting services, 3- User interface
Zeithaml et al. (2000) E-SERVQUAL	Online shopping	1-reliability, 2-responsiveness, 3-access, 4-flexibility, 5-ease of navigation, 6-efficiency, 7-assurance/trust, 8-security/privacy, 9-price knowledge, 10- site aesthetics, and 11- customisation/personalization
Loiacono et al.(2000) WebQual TM	12 Selected websites selling books, music, airline tickets and hotels reservation	1- Information fit-to-task; 2- Interaction; 3-Trust; 4- Response time; 5- Ease of understanding; 6- Intuitive operation; 7- Visual appeal; 8- Innovativeness; 9- Flow emotional appeal; 10- Consistent image; 11- Online completeness; and 12-Better than alternative channel
Liu and Arnett (2000) Web site Design Quality	Webmasters for Fortune 1,000 companies	1- Quality of Information, 2-Service, 3-Security, 4.-Playfulness perceived by consumers, 5-Design of the web site

Kaynama and Black (2000) E-Qual	online travel services	1-content and purpose, 2- accessibility, navigation, 3-design and presentation, 4- responsiveness, 5- background, 6- personalization and 7- customization
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Source: Own elaboration

Unlike the traditional service, Cox & Dale (2001) applied the gap analysis for service quality assessment in e-services. Their study shows that Gap 3 does not exist because the service specifications are on the web site and do not differ for each customer. Gap 1 can exist when management does not perceive well what the customers' needs and expects. Gap 5 is relevant because it measures the gap between the customers' perceptions before and after delivery of service. In the same vein, Tsuang Kuo et al. (2005) observed that traditional service quality is different from web-based service quality. Given that (i) web-based customer service is much more efficient than traditional service due to the absence of human intervention and (ii) web customers are not passive recipients because web-based services can be interactive. Besides, Fassnacht & Köse, (2007) initiated that e-service quality differs from traditional service quality in 2 ways: e-service has a self-service character and its service environment is created by the design features of the graphic user interface. Besides e-services give the possibility to personalized or customize the service offer to individuals.

Drawing on the above discussion, numerous researchers have sought to uncover the global services attributes that contribute the most significantly to relevant electronic service quality assessments (see table 4). However, in an extensive literature review on e-services, Rowley (2006) found that online service delivery is very different from traditional service delivery. In the logic that information provided or collected from customers can be gathered and analyzed by the e-service provider and used as the basis for the customization of the service that the organization offers to customers. Moreover, they identified from the extant literature that they were 10 common dimensions that contribute to customer experience of e-services as follows:

- (1) Site features
- (2) Security
- (3) Information
- (4) Accessibility

- (5) Reliability
- (6) Responsiveness
- (7) Communication
- (8) Customer support
- (9) Delivery
- (10) Personalization

In addition, Rowley's (2006) study concluded that, a considerable amount of research efforts already exists on the subject matter exploring different aspects of e-service and e-service delivery. It is worth to note that one the most important findings of their study is that there is need to explore dimensions of e-service delivery not focusing only on service quality as they put it in their own words "In order to understand e-service experiences it is necessary to go beyond studies of e-service quality dimensions and to also take into account the inherent characteristics of e-service delivery and the factors that differentiate one service experience from another". Hence, this conclusion was a good stimulus for this thesis to do a review of literature based on E-S-QUAL in the section 3.6 of this thesis.

Recently Ladhari (2010) also reviews the literature on e-service quality (e-SQ) and concluded that certain general observation can be made regarding the dimensionality and structure of the e-SQ construct as follows:

- (i) There is no consensus on the number and nature of the dimensions in the e-SQ construct but globally six dimensions recur more consistently
 - (1) Reliability/fulfillment
 - (2) Responsiveness
 - (3) Ease of use/usability
 - (4) Privacy/security
 - (5) Web design
 - (6) Information quality/benefit
- (ii) Some of the e-SQ dimensions are identical (or at least similar) to those reported for traditional service quality

- (iii) Most of studies concentrate on functional quality and only few deal with outcome quality
- (iv) Despite the general support for hierarchical multi-dimensional model of service quality, little effort is made by the authors to examine a structure for e-SQ

Another stream of scholars scrutinized e-service quality in e-banking contexts specifically. For example Chau & Lai (2003) applied the Technology Acceptance Model (TAM) to investigate factors that affected adoption of e-banking. They suggested that perceived usefulness and perceived ease of use make technology acceptable. In the same vein, Liao et al., (2008) proposed a technology acceptance model that takes into account 6 core service attributes (perceived usefulness, ease of use, reliability, responsiveness, security, and continuous improvement) to measure customer satisfaction in Hong-Kong. Moreover, some studies investigated the quality dimensions of e-banking. For instance, Broderick et al., (2002) attempted to gain some insight into customers' perceptions of service quality in e-banking in the UK by investigating how and what influences their ongoing service evaluations. Jayawardhena (2004) used modified SERVQUAL to develop scales to assess service quality in e-banking services. Their study used MBA students with some banking experience in the UK and proposed 21 items grouped in 5 dimensions (access, website interface, trust, attention, and credibility).

More recently, Loonam and Deirdre, (2008) proposed 10 dimensions (web usability, trust, access, information quality service recovery, flexibility, security, reliability, responsiveness, personalization/ customization) to evaluate customers' perceptions e-banking self-service and to identify the key dimensions salient to customers when evaluating the service quality of e-banking in Ireland. Furthermore, Herington et al., (2009) question if online service quality in e-banking can positively impact on the level of customer delight and on the development of customer relationships. Based on E-SQUAL and WEBQUAL, they proposed 4 dimensions (efficiency, personal needs, user friendliness and sites organization) to measure service quality in e-banking.

In addition, Khan and Mahapatra (2009) assessed the overall service quality using regression analysis, based on a sample of 2,500 e-bank users in India, and identified four dimensions. Akinci et al., (2010) adopted the E-S-QUAL and E-RecS-QUAL scale developed by Parasuraman et al., (2005), applied it to a sample of 4,096 e-bank users in Turkey, and refined the E-S-QUAL scale to produce a more stable version of the E-S-QUAL for Internet banks. In the same vein, Petnji et al., (2011) proposed a scale to measure e-SQ in online banking in Spain based on the modified E-S-QUAL. However, in considering that the E-S-QUAL instrument is fairly recent, of course debate about its usefulness is expected both in the academic field and also among practitioners of e-business. Therefore the following section will take a review of literature on the application of E-S-QUAL.

3.6 Assessing e-service quality: literature review on the current state of E-S-QUAL

3.6.1 Introduction

The conceptualization and measurement of e-SQ quality are still at an early stage of development and most of the online service quality dimensions identified are to some extent incomplete and incongruent (Ladhari, 2010; Petnji et al., 2011). Furthermore, although there is general agreement that service quality is crucial in the online environment, significant confusion in the literature seems to exist in regards to the number and nature of the dimensions influencing consumer perceptions of online quality (Ladhari, 2010). Given that many of the prior service quality measures do not take into account the entire process from pre-purchase and even after-purchase. Besides, the scales developed in those studies also raise some important questions that call for additional research on the topic (Parasuraman et al., 2005).

Nevertheless, one study (Parasuraman et al., 2005) appears to be the most thoroughly conducted studies on the topic as it produced a service quality scale E-S-QUAL and the recovery scale E-RecS-QUAL that appear to capture the general domain of e-SQ fairly well and have approached the issue of the shopping or buying interaction in its totality (Boshoff, 2007; Yen and Lu, 2008; Akinci et al., 2010; Connolly et al., 2010; Marimon et al., 2010; Fuentes-Blasco et al., 2010; Meng and Mummalaneni, 2010). Since its publication, this instrument has received considerable attention in the research literature

and has been shown to demonstrate good psychometric properties as a means of evaluating e-service quality. However, because the E-S-QUAL instrument is fairly recent, debate about its usefulness can be expected among academics and practitioners (Petnji et al., 2011). Above and beyond, there are many different types of Internet sites and all phases of the E-S-QUAL scales development focused only on Web sites that sold physical products, in contrast to pure-service sites such as those offering financial or information services. As such, Parasuraman et al., (2005) suggested that there is need to further examine the scales in different context and different settings. Hence, the question that then arises is how stable is the E-S-QUAL scales across different industries and different cultures? Therefore this study seeks to holistically undertake a comprehensive review of the current state of the E-S-QUAL scales 6 years after its publication (methodology used, suggestions, and limitations associated with the adoption of the E-S-QUAL).

The remainder of this section is structured in the following way. It starts with a brief presentation of a synopsis of the extant literature on the conceptualization of traditional service quality, the e-service quality. Please note that some existing e-SQ scales were already discussed in the previous section of the thesis. Thus, this part will only thoroughly analyzed and discussed in details the dimensions structure of E-S-QUAL and the methodology adopted from different studies. Thereafter, this section closed with some major conclusions and managerial implications, as well as suggestions for future research.

3.6.2 Measuring online service quality: shortcoming of the past studies

Some of the shortcoming of the past studies on e-service quality evaluation is presented in Table 5. It was observable that the recent works fall into three main categories: (i) technical quality of the Web sites, (ii) the dimensions that affect customer satisfaction and (iii) Website service quality (Akinçi et al., 2010). Initially, the absence of a valid and reliable scale to measure electronic service quality forced early researchers to make use of some fairly unsatisfactory alternatives to measure electronic service quality, such as using selected generalizable items from the SERVQUAL scale to measure electronic service quality (Chiou et al., 2009). Among them, Gefen (2002) applied an adapted SERVQUAL scale to measure electronic service quality and reported that the SERVQUAL dimensions do not fit the data adequately. Since the initial five dimensions

collapsed into only three: 1-Tangible; 2- a combine dimension of Responsiveness, Reliability, and Assurance; 3- Empathy, and do not serve to capture fully all the dimensions of service quality related to e-commerce. These unsatisfactory practices must compromise some of the empirical results that emanated from those early studies (Boshoff, 2007). Moreover, one major concern raised with this instrument is that service quality dimensions tend to be context-bounded and service type depend (Paulin and Perrien, 1996). Likewise, the five dimensions of SERVQUAL primary address service quality based on human to human interaction, but not human with technology. Hence, Riel et al., (2001) cautioned on the use of this instrument for the purpose of assessing the service quality of websites.

Moreover, some researchers have attempted to identify key attributes that best fit the online business environment. Yet, many of the proposed scales to evaluate websites do not provide a comprehensive evaluation of the service quality of the website (see criticism and limitation of early attempt to develop e-SQ on table 5). For example, according to Wolfinbarger and Gilly, (2003) and Parasuraman et al., (2005), the 12 dimensions of WebQual™ scale (Loiacono et al., 2000) are the most comprehensive research, both theoretically and empirically on identifying the website technical quality. However, the study was conducted using convenient sample of students' not actual purchasers and did not include fulfillment as a dimension of SQ. Besides, the proposed scale geared toward helping website developers' better design website rather than providing specific service quality measures from customer perspective. Thus, not suitable for measuring e-service quality, since the focus of the proposed dimensions are based more on design evaluations rather than service quality assessment (Zeithaml et al., 2002).

Furthermore, like WebQual™, the SITEQUAL scale proposed by Yoo and Donthu, (2001) that content 9 items grouped in four dimensions used convenience samples of students and did not capture all aspects of the purchasing process. Similarly, Szymanski and Hise's (2000) proposed scale that excludes dimensions considered central to the evaluation of website service quality such as "Fulfillment". Besides, deeply focus on satisfaction rather than service quality (Zeithaml et al., 2002; Boshoff 2007). Other scales such as Barnes and Vigden's (2002) four dimensions of WebQual (confusingly originally given the same name as that of Loiacono et al., 2000) provide a transaction-specific assessment rather than a detailed service quality assessment of a website and

would therefore be equally unsuitable for measuring website service quality in the public sector (Connolly et al., 2010; Parasuraman et al., 2005). Moreover, Wolfinbarger and Gilly (2003) used a robust psychometric method (online and offline focus group, a sorting task, and online customer panel survey) to developed 14 items grouped in 4 distinct factors (1- Fulfilment/Reliability; 2- Web site design; 3- Privacy/Security; and 4- Customer service) scale initially title .comQ and which later progressed to eTailQual. However, recent criticisms such as Parasuraman et al, (2005) have uttered concern regarding the consistency and appropriateness of dimensions used in the eTailQ. Given that the dimensions of privacy/security and fulfillment/reliability show strong face validity, whereas the statement defining other two dimensions do not have internal consistency and dimensionality. Similarly, Bauer et al., (2006) criticize the scale for only evaluating service quality in online shopping and lack important facets such as hedonic aspects of online shopping.

Additionally, the extant literature shows that recent studies go beyond the measurement of mere Web site quality and try to capture the domain of electronic service quality more fully by adding important facets such as order fulfillment and returns (e.g. IRSQ, Janda et al., 2002; Santos, 2003; Collier and Bienstock 2003; Yang and Fang, 2004; PeSQ, Cristobal et al., 2007). Santos (2003) argues that both active and incubative dimensions are important in eservice quality, and both of the dimensions should be taken into account in eservice quality assessment. Hence, he proposed 11 sub-dimensions scale based on the two dimensions of eservice quality. Moreover, drawing on the differentiation of dimensions to online service satisfaction and dissatisfaction, Yang and Fang (2004) suggest that there are four salient quality dimensions leading to both satisfaction and dissatisfaction: responsiveness, reliability, ease of use and competence. Furthermore, Cristbal et al., (2007) content that the perceived quality of a web site or the degree of customer's satisfaction to a web site is especially relevant to customer's loyalty to a web site, and propose a four dimensions scale of eservice quality based on customer's satisfaction and web site loyalty

However, some major shortcomings can be noted about these previous studies. Firstly, it should be noted that most authors neither define the exact domain of their quality construct nor provide a clear-cut definition of electronic services (Fassnacht and Koesel 2006). Secondly, most scales developed or currently under development do not provide a comprehensive evaluation of the service quality of the website and were not examined

for their psychometric properties and improved where needed (Zeithaml et al., 2002; Parasuraman et al., 2005; Boshoff, 2007; Connolly et al., 2010; Akinci et al., 2010). Thirdly, most of these studies often conceptualize electronic service quality identical to web interface design quality. Besides, in general the factors listed are taken from studies on service quality in the physical offline domain and to some extent in a very arbitrary way.

To improve on these previous studies, (Parasuraman et al., 2005) developed and operationalized a multi-item scale for examining website service quality. This scale, called E-S-QUAL consists of 22-item, four-dimensional scale that captures the critical dimensions of core service quality delineated in the extant literature. Besides, it has an accompanying subscale called E-RecS-Qual which contains items focused on handling service problems and is germane to customers who had non-routine encounters with the website. E-RecS-Qual consists of 11 items, three-dimensional, scale. Both scales, whose specific purpose is the measurement of website service quality, have been subjected to reliability and validity tests and demonstrate good psychometric properties. The succeeding paragraph discusses the conceptualization and development of the E-S-QUAL.

Table 5: limitations and criticisms related to early attempts to measure electronic service

Study	Limitations and criticism	Sources
Wolfenbarger and Gilly (2003) eTailQ	Did not capture the entire buying process. Also Doubts were raised on the proposed dimensions since they were less internally consistent and distinct. Elimination of item referring to hedonic aspects of online shopping	Zeithaml et. (2002); Parasuraman et al. (2005); Bauer et al. (2006); Boshoff (2007); Akinci et al. 2010
Gefen (2002)	SERVQUAL dimensions originally develop to measure service quality in a traditional offline environment, do not fit the data adequately	Riel et al. (2001); Parasuraman et al. (2005); Ladhari 2009a; Connolly et al. (2010)
Szmanski and Hise (2000) e- Satisfaction model	Excludes important aspects dimensions of customer service such as "Fulfilment". Besides, deeply focus on satisfaction rather than service quality	Zeithaml et. (2002); Boshoff (2007); Connolly et al. (2010)
Barnes and Vidgen, (2002) WebQual	Did not capture all aspects of the purchasing process. Moreover, focus is to provide a transaction- specific assessment rather than a detailed service quality assessment of a website	Parasuraman et al. (2005); Connolly et al. (2010)

Yoo and Donthu (2001) SITEQUAL	Used convenience samples of students and did not capture all aspects of the purchasing process like WebQual	Parasuraman et al. (2005); Boshoff (2007); Connolly et al. (2010); Akinci et al., 2010
Loiacono et al.(2000) WebQual™	Convenient sample of students' not actual purchasers and did not includes fulfillment as a dimension of SQ. Besides, the proposed scale geared toward helping website developers better design website rather than providing specific service quality measures from customer perspective	Zeithaml et. (2002); Parasuraman et al. (2005); Wolfenbarger and Gilly, (2003)

3.6.3 E-S-QUAL development

More recently, in an attempt to address all the concerns mentioned above, Zeithaml et al., (2000) systematically investigated, analyzed and identified a number of website features at the perceptual attribute level and categorized them into e-SERVQUAL scale. Using insight from the previous studies, the scale was developed through a three-stage process: exploratory focus groups and two phases of empirical data collection. The scale measure e-service quality along 11 dimensions: 1-reliability, 2-responsiveness, 3-access, 4-flexibility, 5-ease of navigation, 6-efficiency, 7-assurance/trust, 8-security/privacy, 9-price knowledge, 10- site aesthetics, and 11-customisation/personalization.

Moreover, on the basis of a comprehensive review and synthesis of the extant literature on e-SQ, (Zeithaml et al., 2002) detailed five broad sets of criteria as relevant to e- SQ perceptions: (a) information availability and content (b) ease of use or usability, (c) privacy/security, (d) graphic style, and (e) reliability/fulfillment. Drawing on that, e-SERVQUAL was painstaking examined and more comprehensive conception of e-service quality in terms of evaluation of the whole service encounter, including both the transaction and the post-transaction process arose. The process used in refining the scales through both qualitative and empirical research, and the scale's psychometric properties. The results produced seven dimensions for evaluating e-service quality efficiency, reliability, fulfillment, privacy, responsiveness, compensation, and contact

Based on the explorative study by Zeithaml et al., (2002) the authors have recently refined and validated the instrument. Consequently, the seven dimensions were split and two different scales were derived to measure e-SQ (Parasuraman et al., 2005). The "E-

S-QUAL” scale that addresses core service quality aspects and consists of 22 items and grouped in four quality factors that capture the critical dimensions of service quality outlined in the extant literature. Note that the authors changed one of the dimensions slightly from reliability to system availability.

1. Efficiency: The ease and speed of accessing and using the site.
2. Fulfillment: The extent to which the site’s promises about order delivery and item availability are fulfilled.
3. System availability: The correct technical functioning of the site.
4. Privacy: The degree to which the site is safe and protects customer information.

The second scale, titled E-RecS-QUAL to be germane when customers had non-routine encounters to measure the effectiveness of handling problems and return, compensation for problems cropped up and availability for assistance. Consistent with Zeithmal et al., (2002) who observed that recovery service involves different dimensions than core dimensions and that most of the ”personal service” issues such as: product returns, problems, compensation for problems, ways to reach the company for information or to deal with problems, etc. are part of recovery service rather than core service. E-RecS-QUAL scale is composed of 11 items and grouped in three quality dimensions:

1. Responsiveness: Effective handling of problems and returns through the site.
2. Compensation: The degree to which the site compensates customers for problems.
3. Contact: The availability of assistance through telephone or online representatives.

Both scales were successfully tested in a study using a quota-sampling method. One-third of respondents were asked to evaluate their favorite sites, one-third was asked to evaluate their second-favorite sites, and one-third was asked to evaluate their third-favorite sites. Likewise, they were both subject to exploratory and confirmatory factor analyses. The results obtained demonstrated high internal consistency and hence reliability of each dimension in the scale. Besides, the convergent validity of both scales was supported given that all items had a higher loading and represented their underlying construct. Moreover, both scales were subjected to nomological validity by means of structural equation modeling. Their proposed model considered e-service quality as an

exogenous construct that influences the higher order constructs of perceived value and loyalty intentions. This handpicked was justified on the grounds that the items that represent perceived value are consistent with the conceptualization of perceived value as customer trade-off between benefits and costs and focus on consumers' higher order evaluations that have been posited to contribute to the web sites (perceptions of the overall price, convenience and control) (Zeithaml et al 2000). The data from the samples used and the overall results denoted that the goodness of fit statistics fit the proposed model well. Altogether, these evidences provide good support of the psychometric soundness of both scales.

Moreover, both scales provided an important step forward in the conceptualization of e-service quality as they address and resolve many of the concerns about previous scales (Connolly et al., 2010). For example, both scales provide a comprehensive and empirically validated means of measuring website service quality from a customer perspective, thus overcoming the shortcomings of the scales proposed by Loiacono et al., (2000) and Barnes and Vidgen (2002). They also include all of the service quality dimensions which were found to be central to the evaluation of website service quality, thus overcoming the deficiencies in the scales of Szymanski and Hise (2000) and Yoo and Donthu (2001). Likewise, as previously mentioned, the internal consistency of the measures used in the E-S-QUAL scale has been empirically validated and published.

In summary, even though past studies provide insights about criteria that are relevant for evaluating e-SQ, the scales developed in those studies also raise some important questions that call for additional research on the topic (Parasuraman et al., 2005). Recent research indicates that e-service perceived quality cannot be reflected in a uni-dimensional or simple customer evaluation (Zeithmal et al., 2002). Besides, the literature review of scales development shows the dimensionality of e-SQ construct is not stable across studies (Ladhari, 2010). In this sense, too little is known from the nature of e-SQ. Thus, leads to confusion when managers are trying to improve electronic service, for service components must be fully understood from the customer's point of view to improve perception. Conversely, although E-S-QUAL has received relatively little attention compare to the well-known SERVQUAL, it appears to be the most psychometric soundness and suitable instrument for assessing e-SQ evaluation.

Some authors have applied the E-S-QUAL in a variety of settings and countries (Boshoff, 2007; Akinci et al., 2010; Fuentes-Blasco et al., 2010; Connolly et al., 2010; Marimon et al., 2010; Petnji et al., 2011). However, the question remains about whether the scale is an appropriate tool to capture all the domain of e-SQ and if is universally applicable. Given that, the scale development described by Parasuraman et al., (2005) focused only on Web sites that sold physical products. However the authors suggested that these two scales may be modified to measure service quality in different settings and different culture. The following lines describe in details the various application of E-S-QUAL identified in the extant literature. Please note this study would emphasis on E-S-QUAL merely and not on E-RecS-QUAL. Since, from the extant literature service recovery in general has received limited attention in the context of online setting. In particular there are very few articles that deal with E-RecS-QUAL directly. Perhaps because is a new concept, and acquiring data to measure e-service recovery is difficult.

3.6.4 Research method and data collection of this study

To gather information for this study, a formal data collection process was set out. This study adopted content analysis to examine articles that were published. This study first described research practices regarding the utilization of E-S-QUAL. considering the sector, the sample size and sample characteristics. Secondly, the study pays particular attention to the evaluation of the scale reliability, convergent validity, discriminant and predictive validities along with the dimensionality of E-S-QUAL. The data collection process was done through an exhaustive search of the largest well-known databases and search engines such as Science Direct, Emerald Insight, EBSCO host, ABI/INFORM and Google Scholar. The searching keywords comprised: E-S-QUAL; website or web site or online or electronic service quality evaluation or assessment or measurement, etc. This study decided to exclude any internet columns or book reviews. For an article to be retained, it had to fit the succeeding criterions: use E-S-QUAL or of modified E-S-QUAL scale, study of electronic service quality in a given sector following an empirical method; and supplying in results indicators concerning the reliability, validity or dimensionality of the scale. After a careful screening it was decided to retain articles that are directly pertained to the issue of E-S-QUAL. However, acknowledging that the direct search may lead to some limited results, it was decided to search the references of the articles that were retrieved, determined which of those seem relevant; find those,

read their references thereafter, and then the process was repeated until a point where no new relevant article were identified.

This process yield a total of 21 published articles since the appearance of E-S-QUAL six years ago that are determined to be relevant for this study. Noteworthy that some articles could contain the analysis of e-service quality in more than one sector or country in such case this study considered the sector examined or the sample per country to be sample unit, which gives a total of 25 observations. Table 6 summarized and categorized the review of the paper on the basis of the country of research and the domain of measure. It also lists the type of website, targeted sample and sample characteristic. Detailed discussions of these subjects are presented below.

3.6.5 Results

The succeeding section will analyze the type of survey, data collection and methodology used in different studies.

3.6.5.1 Widespread use of E-S-QUAL scale: Domain and type of service industries

The Web has become ubiquitous and the internet retailing market grows at an increasing rate. However, in the case of internet retailing, owing to the intrinsic borderless nature of the internet, it may be assumed that e-service quality measures are equally applicable internationally, when, in fact, they are not. Thus, external validation of e-service quality measures through replication is extremely important, particularly in the cases where measures such as E-S-QUAL developed in the USA are intended for use in other countries. From the extant literature it was evidence that replications not only help to determine the reliability and validity of newly developed scales but also help to define the scope and limits to their generalizability to other contexts. Therefore, in order to assess robustness or identify limitations that it may have with respect to its generalizability, the E-S-QUAL was tested in 11 countries and different languages such as: English, Turkish, Chinese, Croatian, Taiwanese, Hindi, Spanish, Catalan, etc. (see table 6).

Moreover, the studies presented in table 6 shows that E-S-QUAL has been used to measure e-service quality in a variety of domain and type of service industries including: Sites offering music, books, DVDs, department stores, electronics, computers (Parasuraman et al. 2005; Mekovec et al., 2007; Wu and Ding 2007; Boshoff 2007; Marimon et al., 2010). Whereas, other studies focus on specific sectors such as: online banking (Akinci et al., 2010; Herington and Weaven, 2009; Petnji et al., 2011), online Job Portal (Sahadev and Purani, 2008), Online HR service (Lin et al., 2009), online taxation filing service (Connolly et al., 2010) online auction (Chiou et al., 2009; Yen and Lu, 2008), online travel agencies and online book store (Fuentes-Blasco et al., 2010) and in pure online service (Chang 2011).

3.6.5.2 Methodology and survey administration used

From the extant literature, studies of e-SQ measurement use a variety of methodologies: Qualitative (Zeithaml et al 2000), quantitative (Bauer et al., 2006) and mixed of both qualitative and quantitative (Wolfenbarger and Gilly, 2003; Cristobal et al., 2007). However, Ladhari, (2010) point out that in developing e-SQ measurement scales, researcher should use qualitative research at the earliest stage possible of their work, using one of the several methods such as the critical incidence technique (CIT). Given that E-S-QUAL is an existing theoretically supported scale; it is not a surprise that most of the studies listed in table 6 adopted a quantitative methodology.

Furthermore, an online survey administration was the most frequently used as the data collection method. Giving that, using the internet for data collection of e-SQ offers several benefits. First, because the desired samples are internet users; therefore, the internet is the most appropriate medium to reach the sample of internet users. Second, web surveys do not suffer from interviewer bias that makes the online research medium much less intrusive than traditional offline methods. Third, in the case of larger sample sizes, the quality and accuracy of web data is increased due to fewer errors in data entry. Nevertheless, contrary to the above mentioned, researchers such as Herington and Weaven, (2009) used off-line data collection whereas Sahadev and Purani, (2008) and Lin et al., (2009) used a combination of both online and off-line data collection in their studies. Considering that the object of the research is e-service quality, researchers are expected to use web based or e-mail-based surveys. Using other modes of administration may cause a disparity between the target population and the frame

population (Ladhari 2010). Consequently, in their study, not every population member of internet user has an equal chance of being included in the sample.

3.6.5.3 Targeted sample

Previous studies on scales development of e-SQ used convenient sample of students (e.g. Yoo and Donthu, 2001; Loiacono et al., 2000), even though a major limitation being that these respondents are not usually actual internet purchasers. Besides, Loiacono et al., (2000) observed that while these subjects are typical substantial body of web users, they are not a representative sample of all users. Hence, the student populations may limit the generalizability of the scales and reduce their applicability to the broader population of online users (Ladhari, 2010). To address this issue, Parasuraman et al., (2005) utilized a wide range of respondents who had sufficient online shopping experience, visited the internet on at least 12 occasions and made at least three purchases during the preceding 3 months. However, they advocated that an important research priority is to examine the scale in the context of more diverse web sites in general and in particular in the context of pure-service sites with actual consumers of e-services.

The studies reviewed (table 6) shows, three studies use student samples: Mekovec et al., (2007) used respondents from 2nd year university and Sahadev and Purani, (2008) used a convenient sampling of executives and final year students in three MBA and Meng and Mummalaneni, (2010) used Chinese and African American students. Nonetheless, they were consumers of online shopping. The remainder of the studies was based on actual consumer of e-services in their respective sectors. Moreover, the majority of the studies used convenient sampling, since, providing services on the internet is not yet a common phenomenon, respondents from a random sample could have limited or no experience with internet services (Meuter et al., 2000).

3.6.5.4 Sample and Sample characteristics

In general, the studies reviewed (table 6) shows that several studies used limited sample sizes. However, the number of observations per scale item for verifying the factor structures and dimensionality of the scales through confirmatory factor analysis ranges from 5.95 (Marimon et al., 2010) to 333.05 (Connolly et al., 2010). Thus, indicating that

the sample size in each study at best exceeded the conventional requirement that around five observations per scale item are needed for conducting factor analyses (Hair et al., 1998)

The sample characteristics in table 6 shows only 12% of the samples of respondents is balance in terms of the gender of respondents. The results show 64% of the studies reviewed displays female bias sample profile of the respondents. Besides, the majority of the sample respondents were aged less than 44 and the education level was high with more than two-third of the sample of respondents having a college graduate or university degree. In general the profiles of the samples are comparable to the world total population of internet users (Internet world stats, 2011). Nonetheless few studies (Lin et al., 2009; Sun et al., 2009 and Yang et al 2010), did not report the sample characteristics of their study.

Table 6 Selected studies, summary of methodology use and sample characteristics

Author(s)/Year	Country	Domain of measure	Type of website	Methodology	Survey administration	Target sample	Sample and sample characteristics
Petnji et al., 2011	Spain	E-banking service quality	Online banking	Quantitative	Online administration	Random sampling, consumer of e-banking	n = 428, No gender bias, 2/3 less than 34 years old and having university degree
Chang, 2011	Taiwan	Electronic service quality in a pure service	WebATM e-service, Yahoo auction e-service and Free e-services (Google, Online dictionaries)	Quantitative	Online administration	Convenient sampling, experienced users of WebATM e-service, Yahoo auction e-service and Free e-services (Google, Online dictionaries)	n = 123, Gender bias female 53,6 % ; 80 % aged 19-35 or 100 % aged 19-45, 100% college graduate or more
Rafiq et al., 2011	UK	Internet retail service quality	Internet grocery	Quantitative	Online administration	Convenient sampling, e-grocery shoppers	n = 491 No Gender bias; 47,4 % aged lower than 40, age 41-55, 39 %; 76% have some college and above
Meng and Mummalaneni, 2010	USA and China	Service quality in online shopping	Online retailing	Quantitative	Online administration	Convenient sampling, Chinese and African American students consumers of online shopping	USA: n = 228, Female bias female 60 % ; 78,1 % age under 30, at least 55,9% were full time student; China: n = 147, female bias 60,3% average age 20,2 years
Akinci et al., 2010	Turkey	Electronic service quality in a pure service	Online banking	Quantitative	Online administration	Convenient sampling, Academic staff of 81 Turkish Universities	n = 2017, Gender bias male 70 % ; 70,2% aged 25-40, 70% or more have University degree
Marimon et al., 2010	Spain	Service quality in online shopping	Online supermarket	Quantitative	Online administration	Convenient sampling, Actual online purchases	n = 131, Gender bias female 75.6 % ; half aged 35-44, 57.3% have University degree
Fuentes-Blasco et al., 2010	Spain	E-service quality in retailing	Online travel agencies and online book store	Quantitative	Online administration	Convenient sampling, lecturers at a Spanish University	n = 191, Gender bias male 57.3 % ; Average age 32.7% (+ or - 5.6), 100% have University degree
Connolly et al., 2010	Ireland	Service quality in tax filing and collection system	Online taxation filing service	Quantitative	Online administration	Convenient sampling, citizens and tax practitioners who used e-Government system	n = 6661, No gender bias male; 60,7 % aged 31-50 Education level: 73% Third level qualification and the majority were in business discipline
Yang et al., 2010	Taiwan	e-Service quality in online shopping	Online retailing	Quantitative	Online administration	Convenient sampling, experience consumers of online shopping	n = 234, Sample characteristics N/A
Chiou et al., 2009	Taiwan	E-service quality for buyer and seller	Online auction	Quantitative	Online administration	Convenient sampling, Online auction buyers	n = 221, Gender bias female 73.8 % ; 83.2 % aged 18-35, 76.8% or more have University degree
Herington and Weaven, 2009	Australia	Online banking service	Online banking	Quantitative	Off-line administration	Convenient sampling, consumer of online banking	n = 200, Gender bias female 55 % ; 44 % aged 20-40 Education level N/A

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Lin et al., 2009	Taiwan	Electronic service quality of the HR service agency	Online HR service agency	Quantitative	Online and Off-line administration	Convenient sampling, job seekers who had experience of using 104 HR service industry	n = 309, sample characteristics N/A
Sun et al., 2009	China	Online banking service	Online banking	Quantitative	Online administration	Convenient sampling, consumer of online banking	n = 276 , Sample characteristics N/A
Yen and Lu, 2008	Taiwan	E-service quality for buyer and seller	Online auction	Quantitative	Online administration	Convenient sampling, Online auction buyers	n = 619 , Gender bias female 62 % ; 86 % aged 21-40, 75,3% or more have University degree
Sahadev and Purani, 2008	India	Electronic service quality in online job portals	Online Job Portal	Quantitative	Online and Off-line administration	Convenient sampling, executives and final year students in three MBA	n = 350 , Gender bias female 73 % ; Average age = 27.3 Education level N/A
Boshoff, 2007	South Africa	Online retailing service quality	Internet retailing market	Quantitative	Online administration	Convenient sampling, Customer base of internet marketing firm	n = 1409 , Gender bias female 65.5 % ; 58.4% aged 25-39, 26.5% or more have University degree, 51.7% secondary school 44.6% graduated
Mekovec et al., 2007	Croatia	E-service quality in retailing	E-retailing web sites	Exploratory and Quantitative	Online administration	Random sampling, 2nd year university students	9 Retailing websites; 28 raters/evaluators = 14 trained and 14 non trained
Wu and Ding, 2007	USA	Electronic service quality in electronic retailing	Online electronics retailing	Quantitative	Online administration	Quota and snowball sampling, electronics e-tailers	n = 276 , Gender bias male 60 % ; 83 % aged 18-45, 47 % or more have University degree and 40.2 college graduate
Yang & Tsai, 2007	Taiwan	Electronic service quality in online shopping	Online retailing	Quantitative	Online administration	Convenient sampling, e-shopper	n = 278 , Gender bias female 5.2 % ; 94,6% age 21 to 50, 82,4 % have college degree
Kim et al., 2006	USA	Apparel website quality	Apparel retailers	Exploratory (Content analysis)	No survey, Directories of apparel retail web sites	(No survey) instead collection of apparel websites	111 web sites, No sample characteristics
Parasuraman et al., 2005	USA	E-service quality in e-retailing	Online stores	Quantitative	Online administration	Random sampling, Respondents are online store shopper	n = 205 Walmart.com , Gender bias female 78 % ; 53 % aged lower than 40, age 41-55, 34 %; 78% have some college and above / n = 653 Amazon.com , Gender bias female 74 % ; 50% aged lower than 40, age 41-55, 34 %; 76% have some college and above

3.6.5.5 Scales used

On their initial stage of the scales development, Parasuraman et al., (2005) used focus groups to understand respondents' reactions to alternative ways of phrasing scales items and anchors (likert-type versus low high performance anchors). In general, Likert-type scale format is simply a statement which the respondent is asked to evaluate (agreement or disagreement) according to any kind of subjective or objective criteria. It is often accompanied by a visual analog scale (numerical value) on which respondent indicates his or her response by circling or checking. On the basis of insights from focus groups, Parasuraman et al., (2005) adopted a 5-points likert-scale (1= strongly disagree, 5 = strongly agree) format for collecting responses. The studies reviewed (See table 7) showed that 66% of the studies adopted the same 5-point likert type scale format. However, as opposed to the original 5-point scale, Boshoff (2007) used a 6 point likert-type. The extant literature shows, there are inconclusive results on the use of an even-point or neutral point e.g. 6-point vs. a 5- point scale. Some scholars advocate a five point scale where respondents can have a neutral middle point whereas others prefer the respondents force choice to select a negative or positive position with a six point scale. In addition, the use of "I don't know" option appears to be inconclusive.

Moreover, in contrast to the majority, Yang & Tsai, (2007), Yang et al (2010), Rafiq et al (2011) and Chang (2011) adopted a seven point Likert scale. One of the justifications put forward is that the seven point scale extends the range and variability of responses and potentially increases the reliability of the results. However, Dawes (2008) study found that the 5- and 7-point scales produced the same mean score as each other, once they were rescaled. Whereas, the 10-point format tended to produce slightly lower relative means than either the 5- or 7- point scales. Besides, in terms of the other data characteristics, there was very little difference among the scale formats in terms of variation about the mean, skewness or kurtosis.

Furthermore, Kim et al., (2006) skipped likert-type scales instead they extended the E-S-QUAL by using a coding guide. The majority of the online service attributes were coded as "unavailable" "available in the text only" or "available both in in the text and with a picture". In the same vein, Mekovec et al., (2007) advocated that the usage of likert-scale is a subjective evaluation of service quality attributes, given that; even the

experts or trained evaluators may themselves differ and be inconsistent in their judgments when likert-scale are used for the assessment of various quality attributes. Thus, they redefine E-S-QUAL items in a way that replaces its likert type scales with check-lists that include specific observable elements for appraisal and a scoring procedure. Additionally, there have been numerous studies on the topic of how scale format affects scale reliability and validity. Suffice to say, simulation studies and empirical studies have generally concurred that reliability and validity are improved by using 5- to 7-point scales rather than C-OAR-SE ones (those with fewer scale points). But more finely graded scales do not improve reliability and validity further (Dawes 2008).

3.6.5.6 Dimensions and Items initially considered

The literature review on traditional service quality shows that dimensions of service quality differ from one country to another (Ladhari, 2009). Nevertheless, the review of the studies (table 7) shows the majority of the studies primarily considered the four dimension of E-S-QUAL with the exception of (Chiou et al., 2009; Yen and Lu, 2008) who dropped the dimensions of Fulfilment for Auction website and Efficiency, System Availability, Privacy for Auction seller. Herington and Weaven, 2009 and Connolly et al., 2010 also excluded the dimension of fulfillment. Besides, table 7 shows the number E-S-QUAL items initially considered vary from 4 (Chang, 2011) to 22 (Boshoff, 2007; Meng and Mummalaneni, 2010; Yang et al 2010)

3.6.5.7 Issue of adequacy of extra dimensions considered and E-S-QUAL items drop

Kim et al. (2006) advocate that only E-S-QUAL as a whole does not capture extensive service attributes available on apparel retail web sites. Thus, they complemented the scale with two dimensions of E-RecS-QUAL (Responsiveness and contact) and three others (personalization, information, and graphic styles) borrowed from the extant literature. In the same vein (Yen and Lu, 2008; Chiou et al., 2009; Fuentes-Blasco et al., 2010; Connolly et al., 2010) added E-RecS-QUAL dimensions in their evaluation of e-core service Quality. Furthermore, Yang et al (2010) study incorporated both utilitarian and hedonic e-service quality dimension in their model. Moreover, Sun et al., (2009) accompanied the E-S-QUAL with the dimension of Trust/Assurance. In contrast,

Herington and Weaven, (2009) excluded the dimensions of Fulfilment and Privacy. Instead they included the items from the dimensions of the ease of use, e-scape, responsiveness, customization and assurance of Ribbink et al., (2004).

Moreover, this study observed that the dimension of fulfillment is ostensibly problematic, since 52 % of the published paper vetoed from 1 item (Boshoff, 2007; Marimon et al., 2010; Rafiq et al 2011) to the whole dimension of Fulfillment (Herington and Weaven, 2009; Chiou et al., 2009; Connolly et al., 2010). In contrast, only 20% of the studies disallowed items either from Efficiency, System availability and Privacy. According to Zeithalm et al., (2002), having products in stock, delivering the products within the time frame promised, and accuracy of the service promises are requisite to be incorporated into the dimension of fulfillment. Hence, Wolfinbarger and Gilly, (2003) found Fulfillment to be one of the most crucial factors related to judgments concerning the quality of online site. However, this study raises doubt and suspicion on the general applicability of Fulfillment dimension on all web sites. Since Fulfillment dimension pertain to order fulfillment and is deemed not relevant for online banking (Herington and Weaven, 2009), auctioneers' web site (Yen and Lu, 2008; Chiou et al., 2009) and tax revenue (Connolly et al., 2010). Besides, Parasuraman et al., (2005) in their study also question if the dimensions of Fulfilment, Responsiveness, and Compensation are applicable in the context of pure-service sites.

3.6.5.8 Precedents and cross references from other author(s)

For the reason that e-SQ is a relatively new concept, beyond E-S-QUAL 22 original items, some additional items were generated using both inductive methods (such as literature reviews) and deductive methods (such as exploratory research), but most came through deductive methods (see table 7) . E.g. drawing on the extant literature, Kim et al., (2006) generated an extensive list of 62 extra items. Whereas, Yen and Lu, (2008) and Herington and Weaven, (2009) generated 1 and 20 additional items respectively. Moreover, Akinci et al., (2010) did an in-depth interview with bank senior managers and collected an extra 2 items. Chiou et al., (2009) conducted some exploratory study with focus groups that included students, experienced sellers and buyers, and the modification according to the pre-test results generated 2 extra items to explore basic function of an auction web site. Furthermore, in some studies experts or manager were asked to comment on the wording of items and or to proposed items. Hence, the HR

service agency proposed 20 extra items in Lin et al., (2009) study. Likewise, in Connolly et al., (2010) the tax revenue agency proposed 8 additional items related to the Irish revenue.

In addition, Mekovec et al., (2007) did not supplement any extra items; however, 2-19 scoring criteria elements were added. It is noteworthy, that adding or retrieving items to the original E-S-QUAL is in accordance with Parasuraman et al., (2005) who admitted that “to capture the full range of customer-service issues (e.g., product returns), all phases of their research focused on Web sites that sold physical products (in contrast to pure-service sites such as those offering financial or information services). As such, an important research priority is to examine the scale in different context by making any necessary modifications by eliminating and perhaps supplemented with additional items if necessary”.

Table 7 Likert-type format and generation of items

Author(s)/Year	Likert-type	Initial E-S-QUAL dimensions taken	E-S-QUAL dimensions drop	Number of items initially retained (E-S-QUAL only)	Number of Items drop	Items added	Precedents or cross references from other author(s)
Petnji et al., 2011	1 to 5	4: Efficiency, Fulfillment, System availability, Privacy	None	19 = Efficiency (8), System availability(4), Fulfillment(4), Privacy(3)	3 = Fulfilment (3)	None	None
Chang, 2011	1 to 7	7: Efficiency, Fulfillment, System availability, Privacy, responsiveness and contact	None	4 = Efficiency (1), System availability(1), Fulfillment(1), Security (1)	18 = Efficiency (7), Fulfillment (6), System Availability (3) Privacy (2)	None	None
Rafiq et al., 2011	1 to 7	4: Efficiency, Fulfillment, System availability, Privacy	None	21 = Efficiency (8), System availability(4), Fulfillment(6), Privacy(3)	1 = Fulfillment (1)	None	None
Meng and Mummalaneni, 2010	1 to 5	4: Efficiency, Fulfillment, System availability, Privacy	None	22 = Efficiency (8), System availability(4), Fulfillment(7), Privacy(3)	None	None	None
Akinci et al., 2010	1 to 5	4: Efficiency, Fulfillment, System availability, Privacy	None	17 = Efficiency (8), System availability(4), Fulfillment(2), Privacy(3)	5 = Fulfilment (5)	3 = Fulfilment (2), Privacy (1)	In-depth interview with senior managers
Marimon et al., 2010	1 to 5	4: Efficiency, Fulfillment, System availability, Privacy	None	21 = Efficiency (8), System availability(4), Fulfillment(6), Privacy(3)	1 = Fulfilment (1)	None	None
Fuentes-Blasco et al., 2010	1 to 5	6: Efficiency, Fulfillment, System availability, Security = Privacy, responsiveness and contact	None	15 = Efficiency (6), System availability(2), Fulfillment(4), Security (3)	7 = Efficiency (2), Fulfillment (3) System Availability (2)	3 = Responsiveness/C ontact (3)	None
Connolly et al., 2010	1 to 5	5: Efficiency, System availability, Privacy, responsiveness and contact	2 = Fulfilment and Compensation	15 = Efficiency (8), System availability(4), Privacy (2)	8 = Fulfilment (7), Privacy (19)	8 = Efficiency (3) Responsiveness (2), Contact (3)	Items proposed by tax revenue agency
Yang et al., 2010	1 to 7	4: Efficiency, Fulfillment, System availability, Privacy	None	22 = Efficiency (8), System availability(4), Fulfillment(7), Privacy(3)	None	None	None
Chiou et al., 2009	1 to 5	5: for Online Auction website : Efficiency, System availability, Privacy, Contact, Compensation; 4: Online Auction seller: Fulfilment, responsiveness, Compensation, contact	1 = Fulfilment for Auction website and 3= Efficiency, System Availability, Privacy for Auction seller	15 = Efficiency (8), System availability(4), Privacy(3); for Auction website 7 = Fulfillment(7) for Auction seller	7 = Fulfilment (7) for Auction website and 15 = Efficiency (8), System Availability (4), Privacy (3) for Auction seller	2 = Efficiency (2)	Modification according to pre-test results
Herington and Weaven, 2009	1 to 5	2: Efficiency and System Availability	2 = Fulfilment and Privacy	12 = Efficiency (8), System Availability (4)	10 = Fulfillment (7), Privacy (3)	20 = Ease of use; e-scape; responsiveness;	Ribbink et al., 2004

						customization; assurance	
Lin et al., 2009	1 to 5	7: Efficiency, Fulfillment, System availability, Privacy, responsiveness, Compensation and contact	None	22 = Efficiency (8), System availability(4), Fulfillment(7), Privacy(3)	None	30 = Efficiency (19), Privacy(1), Responsiveness(4), Compensation (2) Contact(4),	Items proposed by HR service agency
Sun et al., 2009	1 to 5	4: Efficiency, Fulfillment, System availability, Privacy	None	22 = Efficiency (8), System availability(4), Fulfillment(7), Privacy(3)	None	None	None
Yen and Lu, 2008	1 to 5	3: Efficiency, System availability, Privacy protection for the Auctioneer's e-service quality, and 3 dimensions measuring seller's e-service quality: Contact, fulfilment and responsiveness	1 = Fulfilment for Auctioneer's website and 3= Efficiency, System Availability, Privacy for Auction seller	11 = Efficiency (4), System availability(4), Privacy(3); for Auctioneer's website 4 = Fulfillment(4) for Auction seller	11 = Efficiency (4) Fulfilment (7) for Auctioneer's website and 15 = Efficiency (8), System Availability (4), fulfilment (3) Privacy (3) for Auction seller	1 = Privacy (1)	Bauer et al., 2006; Wolfinbarger and Gilly (2003); Smith and Barclay, (1997)
Sahadev and Purani, 2008	1 to 5	4: Efficiency, Fulfillment, System availability, Privacy	None	22 = Efficiency (8), System availability(4), Fulfillment(7), Privacy(3)	None	None	None
Boshoff, 2007	1 to 6	The number of factors were not predetermined at first	None	22 = Efficiency (8), System availability(4), Fulfillment(7), Privacy(3)	1 = Fulfilment (1)	None	None
Mekovec et al., 2007	Check-list	4: Efficiency, Fulfillment, System availability, Privacy	None	22 = Efficiency (8), System availability(4), Fulfillment(7), Privacy(3)	None	No items added, however, 2-19 scoring criteria elements added	None
Wu and Ding 2007	1 to 5	4: Efficiency, Fulfillment, System availability, Privacy	None	22 = Efficiency (8), System availability(4), Fulfillment(7), Privacy(3)	None	None	None
Yang & Tsai, 2007	1 to 7	4: Efficiency, Fulfillment, System availability, Privacy	None	22 = Efficiency (8), System availability(4), Fulfillment(7), Privacy(3)	None	None	None
Kim et al., 2006	Coding guide	6: Efficiency, Fulfillment, System availability, Privacy, responsiveness and contact	None	19 = Efficiency (8), System availability(2), Fulfillment(6), Privacy(3)	3 = Fulfilment (1), Syst Availability (2)	62 = Efficiency (7), Privacy(5), Responsiveness(2), Contact(2), Personalization (18), information (7), and graphic style (21)	Montoya-Weiss et al.,2003; Wolfinbarger and Gilly, 2003; Zeithalm et al., 2002

Parasuraman et al., 2005	1 to 5	4: Efficiency, Fulfillment, System availability, Privacy	None	22 = Efficiency (8), System availability(4), Fulfillment(7), Privacy(3)	None	None	None
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3.6.5.9 Data analysis procedure for assessing factor structure

Research on e-service quality has just started gaining momentum, and the main research question that all relevant studies try to address pertains to the factorial structure of the construct and measurement issues (Wolfenbarger & Gilly, 2003). As a general rule, the dimensionality of the scale is assessed using exploratory factor analysis (EFA) and/or confirmatory factor analysis (CFA). EFA is used to uncover the underlying structure of a relatively large set of variables. The researcher's a priori assumption is that any indicator may be associated with any factor and factor loadings are used to intuit the factor structure of the data. The studies reviewed shows several studies such as Parasuraman et., (2005); Boshoff, (2007); Yang & Tsai, (2007); Akinici et al., (2010); Herington and Weaven, (2009); Marimon et al., (2010); Fuentes-Blasco et al., (2010); Connolly et al., (2010); and Petnji et al., (2011) have used EFA.

Whereas CFA seeks to determine if the number of factors and the loadings of measured indicator variables on them conform to what is expected on the basis of pre-established theory. Assuming that E-S-QUAL is an existing theoretical supported scale, studies such as Chiou et al., (2009); Wu and Ding (2007); Sahadev and Purani, (2008); Meng and Mummalaneni, (2010); Yen and Lu, (2008); Sun et al., (2009); Yang et al (2010) and Rafiq et al (2011) merely used CFA to see if the indicator variables load as predicted on the expected number of factors.

Even though EFA is often used before conducting CFA some authors still criticized its use. E.g. Gerbing and Anderson (1988) argue that because factors obtained via EFA are defined as the weighted sum of all observed variables, they do not represent the theoretical constructs underlying each set of indicators. In contrast, CFA allows researchers to compare several model specifications and to examine invariance of a specific parameter in the factor solution. Hence given the limitations of EFA, researchers should use a combination of EFA and CFA (Ladhari, 2010). As noted, most of the studies reviewed used both EFA and CFA to reduce the number of items in their corresponding construct. However, some of the studies scales reported are problematic since they did not applied neither EFA nor CFA to define the number of factors. E.g. although Lin et al., (2009) averred they were provided 20 extra items from the HR service agency and Chang (2011) used E-S-QUAL as a mixed initiative model for

quality based e-services pricing; both studies did not applied psychometric test to reject/confirm the items added in their representing factors.

3.6.5.10 Scales reliability

Generally, scale internal consistency is often assessed by Cronbach's alpha or composite reliability. Cronbach's alpha is widely believed to indirectly indicate the degree to which a set of items measures a single unidimensional latent construct. Whereas, the composite reliabilities can be calculated as follows: $(\text{square of the summation of the factor loadings}) / \{(\text{square of the summation of the factor loadings}) + (\text{summation of error variables})\}$, where the factor loadings are obtained directly from the program output, and the error variable is the measurement error for each indicator. The interpretation of the composite reliability is similar to that of Cronbach's alpha; expect that it also takes into account the actual factor loadings, rather than assuming that each item is equally weighted in the composite load determination (Sun et al., 2009). The studies reviewed in table 8 shows the preponderance of coefficient alpha or the Jorskog's value exhibited exceeded the conventional minimum of 0.7 (Nunally and Bernstein, 1994), except the study of Meng and Mummalaneni, (2010) who used $\alpha = 0,69$. However, they exceeded the minimum satisfactory value of 0.6 (Malhotra, 2004). Therefore, demonstrating a high internal consistency and hence reliability of each dimension presented. In general the findings validate the cohesiveness of the E-S-QUAL scale.

Noticeably, most studies used Cronbach's alpha to evaluate the reliability of E-S-QUAL. However, opponents articulate Cronbach's alpha appears to be an absurd practice of exploratory factor analysis. Consequently not the most appropriate measure of psychometric quality (Ladhari 2009). To palliate such, Rossiter (2002) proposed a new approach for scale development C-OAR-SE, which is according to the author a rational, content-validity based, expert judgment procedure. The author also argued that the appropriate method for scale score reliability differs according (i) who is performing the rating (individual, self-rating, panel of experts, group of consumers and so on) and (ii) the type of attribute in the construct (concrete, formed, eliciting, and soon)

3.6.5.11 Scales convergent validity

Is the extent to which measures of constructs that theoretically should be related (converges on) to each other are in reality observed to be related to each other on the same construct. The studies reviewed in table 8 shows wide variety of labels are used to describe the convergent validity of the measure. For example Yang & Tsai, (2007); Akinci et al., (2010); Sun et al., (2009); Marimon et al., (2010) and Petnji et al., (2011) adopted Fornell and Larcker (1981) method where all indicator factor loadings should be significant and exceed 0,5; and AVE by each construct should exceed the variance due to measurement error for that construct (i.e. should exceed 0,5). Whereas Parasuraman et al., (2005); Wu and Ding (2007); Rafiq et al., (2011); Boshoff, (2007) adopted Hair et al., (1998), by assessing factor loadings on individual items are all high and significant (p-value lower than 0.01) along with high coefficient alpha values. Other studies such as Chiou et al., (2009); Fuentes-Blasco et al., (2010); Meng and Mummalaneni, (2010) implemented Anderson and Gerbing (1988) by determining whether each indicator's estimated pattern coefficient on its proposed underlying construct is significant (greater than twice its standard error).

The factor loading pattern of E-S-QUAL in studies reviewed revealed some weakness in convergent validity, given that some items in these studies had a higher loadings on dimensions that were different from those suggested for items by Parasuraman et al, (2005). E.g. Akinci et al., (2010) reported that only 8 (two for each dimension) out of 22 items loaded as expected. Whereas the item EFF51 "it loads its pages fast" moved from the dimension of Efficiency to System Availability in Petnji et al., (2011), Marimon et al., (2010) and Fuentes-Blasco et al., (2010) studies. It is not a surprise, since the intensified competition in the industry has forced most of internet providers to roll out a broadband or fiber-optic plan that offers more reliable and uncapped speeds of internet.

Likewise, Rafiq et al., (2011) results show the dimensions of Efficiency and System Availability were too closely correlated at the measurement level and therefore need more refinement to improve their discriminant validity. Moreover, they discarded FUL 7 as it loaded equally with FUL 1. Similarly, Boshoff (2007) study shows the items EFF5, EFF7 and SYS 2 were grouped under the dimension of Speed; and the fulfillment

¹ In this paragraph, the acronym EFFx means "Item x" of the subscale Efficiency in Parasuraman et al., (2005). The same is applied for, FUL means Fulfillment and SYS means System availability.

dimensions split into two as follows: the items of FUL1 to 3 and FUL4 to 6 were congregated under the dimensions of Delivery and Reliability. Consequently, the author concluded that the 22 items did not clearly illustrate the 4 dimensions configuration of electronic service quality proposed by Parasuraman et al., (2005) than the six-factor configuration does.

3.6.5.12 Scales Discriminant validity

Is the extent to which measures of constructs that theoretically should not be related to each other are in fact observed to not be related to each other. Like the convergent validity, the studies reviewed in table 8 shows different methods were used to describe discriminant validity of the measure. E.g. Yen and Lu, (2008); Marimon et al., (2010) and Petnji et al., (2011) adopted Fornell and Larcker (1981) method by examining whether Inter-factor correlations are less than the square root of the average variance (AVE). Chiou et al., (2009) took on Smith and Barclay, (1997) method that examine whether the confidence interval around the correlation between any two latent constructs does not include 1. Whereas, Boshoff (2007) adopted Loiacono et al., (2000) by comparing the fit of two correlated factors with the fit of a single factor model for each pair of dimension and discriminant validity is established when the fit of two factors is better than the fit of one factor.

Furthermore, Rafiq et al., (2011) followed Hair et al., (2006) method by making sure that each AVE exceeded its respective shared variance (squared correlations) between the factors. Moreover, the studies of Parasuraman et., (2005); Sahadev and Purani, (2008); and discriminant validity was evidenced following Gerbing and Anderson (1988) by constraining each of the correlations (one at a time) to unity in the measurement model (leaving all other parameters to be free) and repeated the CFA. In every case, the discriminant validity is confirmed when the constrained model in CFA produced an increase in the chi-square statistic (χ^2) compared with non-constrained model. In other studies discriminant validity is confirmed by examining all the differences in χ^2 values were significant and the confidence interval around the correlation estimate between any two construct did not include 1.0 (Yang & Tsai, 2007). Moreover, authors such as Akinici et al., (2010) adopted combine methods. They first compared the fit of two correlated factors with the fit of a single factor (did not work). After trimming the scale by deleting 12 problematic items, they deep-rooted discriminant validity by (i)

constraining the correlation between two factors to one and compare with factor model and (ii) Square root of AVE greater than the correlation presented by each construct with other construct. Whereas some authors (Meng and Mummalaneni, (2010); and Connolly et al., 2010) did not report discriminant validity in their study.

Table 8: Internal consistency, convergent validity and discriminant validity

Author(s)/Year	Items loading ^(a)	Internal consistency ^(b)	AVE ^(c)	R2 ^(d)	Convergent validity	Discriminant validity
Petnji et al., 2011	0.681 to 0.920	0.887 to 0.906	N/A	0.431 to 0.674	AVE greater than 0.5 and factor loading of the CFA is significant (0.05 level) and greater than 0.5 point	Square root of AVE greater than the correlations presented by each construct with other constructs
Chang, 2011	N/A	N/A	N/A	N/A	N/A	N/A
Rafiq et al., 2011	0.64 to 0.89	0.83 to 0.96	0.6 to 0.76	0.39	Assess factor loadings on individual items on CFA along with high coefficient alpha	Constrained each of the correlations (one at a time) to unity in the measurement model (leaving all other parameters to be free) and repeated the CFA. In every case, the constrained CFA produced an increase in the chi-square statistic
Meng and Mummalaneni, 2010	0.51 to 0.88 for both AA and Chinese	0.73 to 0.94 for AA and from 0.69 to 0.80 for Chinese	N/A	N/A	Indicator's estimated pattern coefficient on its proposed underlying construct is significant	N/A
Akinci et al., 2010	0.66 to 0.88 after erasing 12 items ranges from 0.64 to 0.85	0.84 to 0.92 after erasing 12 items 0.83 to 0.87	0.59 to 0.70 after erasing 12 items it ranges from 0.71 to 0.77	N/A	AVE greater than 0.5 and factor loading of the CFA is significant (0.05 level) and greater than 0.5 point	1- Comparing the fit of two correlated factors with the fit of a single factor (did not work) 2- constraining the correlation between two factors to one and compare with factor model. After dropping 12 items, 3- Square root of AVE greater than the correlation presented by each construct with other construct
Marimon et al., 2010	0.471 to 0.902	0.756 to 0.887	ranges from 0.500 to 0.960	0.079 to 0.430	AVE greater than 0.5 and factor loading of the CFA is significant (0.05 level) and greater than 0.5 point	Square root of AVE greater than the correlations presented by each construct with other constructs
Fuentes-Blasco et al., 2010	0.63 to 0.94	0.80 to 0.91	0.50 to 0.74	0.29 to 0.96	Indicator's estimated pattern coefficient on its proposed underlying construct is significant	Square root of AVE greater than the correlation presented by each construct with other constructs
Connolly et al., 2010	0.507 to 0.903	0.79 to 0.90	N/A	0,66	correlation of total score of items an overall quality single item measures	N/A
Yang et al., 2010	0.55 to 0.91	0.84 to 0.91	0.57 to 0.66	0.563 to 0.725	Assess factor loadings on individual items CFA plus AVE greater than 0.5 and factor loading of the CFA is significant (0.05 level) and greater than 0.5 point	All the differences in chi-square are significant and the confidence interval around the correlation estimate between any two construct did not include 1.0,
Chiou et al., 2009	0.46 to 0.97 Auction	0.79 to 0.97	N/A	N/A	Indicator's estimated pattern coefficient on its proposed	Confidence interval around the correlation between any two latent

	website and 0.62 to 0.96 Seller website				underlying construct is significant	constructs does not include 1
Herington and Weaven, 2009	0.775 to 0.955	0.80 to 0.96	0.70 to 0.93	0.38	N/A	All the AVEs larger than inter-correlations and all greater than 0.50
Lin et al., 2009	N/A	0.7747 to 0.9320 for performance and from 0,8097 to 0,9260 for Importance	N/A	N/A	N/A	N/A
Sun et al., 2009	N/A	0.72 to 0.86	N/A	0.521 to 0.614	AVE greater than 0.5 and factor loading of the CFA is significant (0.05 level) and greater than 0.5 point	N/A
Yen and Lu, 2008	0.68 to 0.90	0.87 to 0.94	0.63 to 0.72		Assess factor loadings on individual items (CFA)	Square root of AVE greater than the correlations presented by each construct with other constructs
Sahadev and Purani, 2008	0.689 to 3.927	0.712 to 0.804	N/A	N/A	Assess factor loadings on individual items on CFA	Running CFA across pairs of construct with unrestricted inter-construct correlation and set at 1.00. The difference in chi-square value is significant for all pairs constructs
Boshoff, 2007	0.628 to 0.957	0.764 to 0.938	N/A	N/A	Assess factor loadings on individual items EFA and CFA	Comparing the fit of two correlated factors with the fit of a single factor
Mekovec et al., 2007	N/A	N/A	N/A	N/A	N/A	N/A
Wu and Ding, 2007	0.84 to 0.93	0.93 to 0.97	N/A	N/A	Assess factor loadings on individual items on CFA	No
Yang & Tsai, 2007	0.662 to 0.891	0.863 to 0.937	0.613 to 0.788	0.646 to 0.782	AVE greater than 0.5 and factor loading of the CFA is significant (0.05 level) and greater than 0.5 point	All the differences in chi-square are significant and the confidence interval around the correlation estimate between any two construct did not include 1.0
Kim et al., 2006	N/A	N/A	N/A	N/A	N/A	N/A
Parasuraman et., 2005	0.71 to 0.88 for Amazon; ranges from 0.68 to 0.91 for Walmart	0.85 to 0.94 for Amazon and from 0,83 to 0,94 for Walmart	N/A	0.56 to 0.67	Assess factor loadings on individual items along with high coefficient alpha	Constrained each of the correlations (one at a time) to unity in the measurement model (leaving all other parameters to be free) and repeated the CFA. In every case, the constrained CFA produced an increase in the chi-square statistic

(a) These represent the standardized loading estimates from CFA;

(b) Internal Consistency or Construct Reliability coefficients are represented by Croanbach's Alpha or Jorskog's p or Composite Reliability

(c) Average Variance Estimate

(d) Root-square

3.6.5.13 Fitness of the structural model used

Since the generally used goodness-of-fit indices such as χ^2 , Goodness-of-Fit Index (GFI) and Adjusted Goodness-of-Fit Index (AGFI) are considerably influenced by variations in sample size and non-normality of the variables, current researchers recommend that a model reporting the relative chi-square χ^2/df and the more robust measures such as Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and the Root Mean Square Error of Approximation (RMSEA) will often provide sufficient unique information to evaluate a model (Hair et al., 2006). Table 9 shows the measurement model fit used in various studies and the recommended threshold. Before discussing the different results, it is worth mentioning that during the E-S-QUAL scale development, the overall goodness-of-fit statistic result for the CFA were reasonably well above conventional cutoff value, with the possible exception of the root mean square error of approximation (RMSEA), which was slightly above the cutoff value of .06 suggested by Hu and Bentler (1999). Even so, was well within the criteria suggested by Browne and Cudeck (1993) (lower than .08) for inferring acceptable fit.

The results of several fit indexes and the cutoff values from the studies review are as follows: χ^2/df range from 1.24 to 6.29 (≤ 3); CFI range from .90 to 1.00 (≥ 0.90); NFI range from .90 to .98 (≥ 0.90); NNFI range from .89 to .94 (≥ 0.90); GFI range from .82 to .99 (≥ 0.90); AGFI from .91 to .98 (≥ 0.90); BB-NFI range from .90 to .93 (≥ 0.90); RFI/IFI range from .90 to .97 (≥ 0.90); TLI/TFI range from .91 to .99 (≥ 0.90) and RMSEA range from .04 to .11 ($\leq .06$) (See note under table 9 for acronyms description). Taken as a whole, the statistics result of the majority of the studies suggested adequate model fit for the dimensions structure. However, some of the fit indexes appear to be doubtful and suspect. For example in the studies of Parasuraman et al., (2005); Boshoff, (2007) and Chiou et al., (2009) reported the value of χ^2/df was somewhat above the acceptable threshold value (≤ 5) recommended by Bagozzi and Yi (1988). Whereas, Wu and Ding 2007; Yang et al., (2010) reported GFI slightly lower than the conventionally cutoff value (≥ 0.90) recommended by Hu and Bentler (1999). Moreover, Yang et al., (2010), Wu and Ding (2007) studies show RMSEA value equal .09. In the same vein, contrary to the acceptable results of the original scale, Parasuraman et al., (2005) reported RMSEA values (.09 for Amazon and .11 for

Walmart) somewhat above the acceptable threshold value ($\leq .08$) recommended by Browne and Cudeck (1993) during their scales reassessment.

Regarding the somewhat high RMSEA values, Parasuraman et al., (2005) argued that it is worth noting that the interpretation of any fit index in isolation could be problematic because trade-offs between Type I and Type II errors call for the interpretation of combinations of indexes in various model contexts. Hu and Bentler (1999) and McQuitty (2004) offer insightful discussions of this issue and recommend interpretation guidelines. A related issue is statistical power, which depends on sample size as well as the degrees of freedom in the structural model and can be either too low (leading to non-rejection of incorrect models) or too high (leading to rejection of correct models) (McQuitty 2004). As such, situations in which power is overly great (i.e., > 0.9) may require a more relaxed interpretation of fit than is typical. Conversely, a more stringent interpretation of fit statistics is required when power is low, especially when goodness-of-fit statistics are not exemplary (McQuitty 2004). This review shows all the studies have the minimum acceptable sample sizes (see table 6) necessary for achieving specified levels of statistical power in testing structural models with varying degrees of freedom (see table 9). Hence, the high statistical power and exemplary values of different fit indexes presented in table 9 in most of the cases mitigate the fairly high root mean square error of approximation (RMSEA) values.

On the whole, the results reported in the review support the distinctiveness of each scale's component dimensions and provide good support for the soundness of E-S-QUAL scales' factor structures. However, while Parasuraman et al., (2005) originally proposed four dimensions that were supposed to measure e-service quality universally in any industry, this review shows more than 50% of studies that have used the instrument have reported a number of dimensions other than four. The final number of dimensions will be thoroughly discussed in the next section.

Table 9 Fit indices and recommended value

Author(s)/Year	EFA	Confirmatory Factor Analysis (CFA) Goodness of fit statistics										
		χ^2/df ≤ 3.00	CFI ≥ 0.90	NFI ≥ 0.90	NNFI ≥ 0.90	GFI ≥ 0.90	AGFI ≥ 0.80	BB-NFI ≥ 0.90	RFI/IFI ≥ 0.90	ECVI	TLI/TFI	RMSEA ≤ 0.06
Petnji et al., 2011	YES	2.78	0.93					0.92				0.06
Chang, 2011	No	N/A										
Rafiq et al., 2011	No	4.12	0.93	0.91					0.90		0.92	0.08
Meng and Mummalaneni, 2010	No	2.09/2.13	0.95/0.90		0.94/0.89				0.95/0.90			0.07/0.07
Akinci et al., 2010	YES	4.68	1.00			0.99					0.99	0.04
Marimon et al., 2010	YES	1.34	0.94					0.93				0.05
Fuentes-Blasco et al., 2010	YES	1.24	0.95		0.94			0.90				0.04
Connolly et al., 2010	YES	N/A										
Yang et al., 2010	No	2.83	0.93	0.90		0.86					0.92	0.09
Chiou et al., 2009	No	5.49	0.91	0.97	0.94							
Herington and Weaven, 2009	YES	N/A										
Lin et al., 2009	No	No										
Sun et al., 2009	No	1.49	0.94	0.95	0.91	0.97	0.98					0.04
Yen and Lu, 2008	No	2.41	0.99	0.98	0.99	0.88						0.04
Sahadev and Purani, 2008	No	2.97										0.07
Boshoff, 2007	YES	5.72	0.98				0.91			0.81		0.04
Mekovec et al., 2007	No	N/A										
Wu and Ding, 2007	No	3.23	0.93	0.90		0.82					0.92	0.09
Yang & Tsai, 2007	YES	2.34	0.91						0.91		0.91	0.07
Kim et al., 2006	No	N/A										
Parasuraman et., 2005	YES	6.29/3.64	0.98/0.97	0.98/0.96					0.97/0.95		0.98/0.96	0.09/0.11

NOTE: CFA = confirmatory factor analysis; EFA = exploratory factor analysis; CFI = Comparative Fit Index; NFI = Normed Fit Index; NNFI = non-normalized fit index; GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index; BB-NFI = Bentley-Bonnet non-normed fit index; RFI = Relative Fit Index; TLI = Tucker-Lewis Index; RMSEA = root mean square error of approximation;

3.6.5.14 Nomological validity and the relationship strength between service quality and predictive dimension(s).

Predictive/Nomological validity

Nomological validity is a form of construct validity. It is the degree to which a construct behaves (predict or are predicted) as it should within a system of other conceptually related constructs called a nomological net. The studies reviewed shows authors have examined the impact of e-service quality dimensions on overall service quality (Parasuraman et al., 2005; Rafiq et al., 2011); satisfaction (Wu and Ding 2007; Herington and Weaven, 2009; Petnji et al., 2011); perceived value (Parasuraman et al., 2005; Boshoff, 2007; Akinci et al., 2010; Marimon et al., 2010); loyalty (Yang & Tsai, 2007); trust (Sahadev and Purani, 2008); overall satisfaction (Chiou et al., 2009); switching cost (Fuentes-Blasco et al., 2010); important performance analysis and important performance gap analysis (Lin et al., 2009); Perceived Public Value (Connolly et al., 2010); Disconfirmation (Yen and Lu, 2008) and ISO 9001 (Petnji et al., 2011)

Relationship Strength with predictive dimension(s)

The testing of the relationship strength between e-SQ and the predictive dimensions is intended to demonstrate further validation of the instrumentation. If the constructs perform as predicted by theory (based on traditional service or emerging evidence on the field), then it can infer that the measurement of the constructs is nomologically valid. To test the nomological validity of E-S-QUAL, various methods were used. Example Parasuraman et al., 2005 opted to use the summed scores for the four E-S-QUAL dimensions as indicator of e-SQ. Alternatively, some authors' modeled e-SQ as a first order exogenous construct that influences the higher order constructs of predictive dimensions in the structural model (Akinci et al., 2010; Chiou et al., 2009; Marimon et al., 2010). Whereas others preferably treat e-SQ as a second-order latent construct in the structural model. With the dimensions of e-SQ serving as first order constructs, which in turn a presented by the scale items (Wu and Ding 2007; Yang & Tsai, 2007). Table 10 shows the relationship strength between e-SQ and the predictive

dimensions (in decreasing order). Except Kim et al., (2006) and Mekovec et al., (2007) who did not examine the predictive validity, the studies reviewed results indicated that regardless of the method used to test the nomological validity, most of the relationship between the dimensions of E-S-QUAL and the predictive dimensions were confirmed. Henceforth, were signifying further authentication of the psychometric properties of the E-S-QUAL scale. Nonetheless, there is no consensus on the nature of the relationship strength between e-SQ dimensions and the dependent variable used in assessing nomological validity across studies. These observations are discussed in greater detail below.

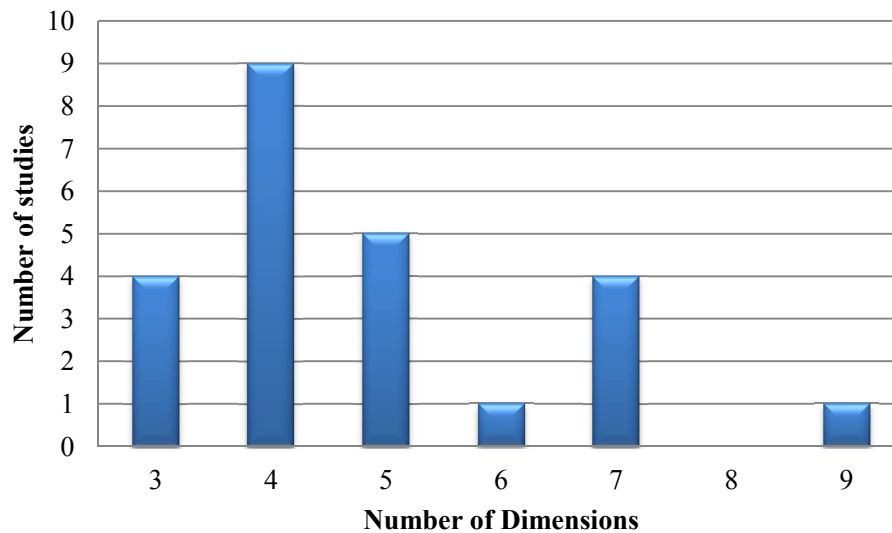
3.6.5.15 Final painstaking dimensions and number of items structure

While the original study by Parasuraman et al. (2005) proposed four universal dimensions which were supposed to measure e-service quality in any sector, the vast majority of studies report a number of dimensions other than 4. Figure 4 illustrates the instability associated with the number of dimensions. Figure 4 also shows the use of E-S-QUAL in several sectors raises questions on the number of dimensions and their stability from one context to another. Excluding the study of Mekovec et al., (2007) who examined only the dimension of Efficiency, the remaining cases (96%) shows the number of dimensions varies between three (Yen and Lu, 2008, Petnji et al., 2011) and nine (Kim et al. 2006). Hence, all of these studies confirmed the construct of e-service quality is multidimensional. However, the reviewed studies result invalidates the invariance of the scale's structure. The dimensional structure is very unstable, even within a given sector. For example While Akinci et al., (2010) confirmed the four dimensions of E-S-QUAL in online banking in Turkey, Petnji et al., (2011) found only three dimensions in Spain. Moreover, Wu and Ding (2007) deep-rooted the four dimensions of E-S-QUAL in online shopping in the USA, whereas Boshoff 2007 established 6 dimension in South Africa. Furthermore, Rafiq et al., (2011) study in the UK only originated 3 dimensions. Likewise, in Taiwan, Yen and Lu, (2008) study engender 3 dimensions for auctioneers' website and 3 dimensions for auction seller, while Chiou et al., (2009) study produced 5 and 4 respectively in the same country.

These result supports the work of Ladhari, (2010) who initiated that e-SQ dimensions tend to be contingent on the service industry involve. Even in the same industry, the author found that dimensions e-SQ depend on the type of user service. For instance,

information content is essential to portal web and internet banking services and less important for companies such as Amazon.com that produce physical products. Nonetheless, among the various dimensions cited in the reviewed studies in table 10, the following three dimensions Efficiency, System availability and Privacy appear (in decreasing order) consistently in most of the studies. On the other hand, the dimension of Fulfillment appears not to be generic but specific to particular e-service context. Studies related to pure service did not apply the dimension of fulfillment. In contrast, Petnji et al., (2011) included the dimension of fulfillment in their study, however it was discarded as it failed the psychometric test. In the same vein, the fulfillment dimension was divided into two Speed and Reliability during the EFA process in Boshoff, (2007) study.

Contrariwise, it is genuine from this review to observe that the Fulfillment dimension is one of the prominent dimensions of the E-S-QUAL referring to web sites that sell physical goods. Given that this dimension was dyed-in-the-wool in most of the studies investigating web sites that sell physical goods (e.g. Wu and Ding 2007; Sahadev and Purani, 2008; Yen and Lu, 2008; Chiou et al., 2009; Lin et al., 2009; Marimon et al., 2010; Fuentes-Blasco et al., 2010; Chang 2011). Nonetheless, Rafiq et al., (2011) study on online grocery service reported some covariance problems between the residuals of Fulfillment and Privacy dimensions and their regression weights also showed evidence of cross loading. Such misspecification means that the Fulfillment items could measure Privacy or vice versa. Hence, relying on Wolfinbarger and Gilly's (2003) study, Rafiq et al., (2011) regarded Fulfillment as one of the core elements of the online grocery service. Thus, they discarded the Privacy dimension instead for the reason that it was an augmented part of the service.

Figure 4: Final painstaking numbers of dimensions

3.6.5.16 Differences across studies

Although research on measurement issues is quite advanced, cross-national considerations of the electronic service quality construct are scarce in the literature. Wolfinbarger and Gilly (2003) explicitly recognized this research gap and called for more research in the investigation of electronic service quality vis-à-vis international populations. Collectively the findings of the studies reviewed reveal important differences in acceptance and usage of the E-S-QUAL to evaluate e-SQ in different sectors and across countries (see table 10). For example: Kim et al., (2006) and Mekovec et al., (2007) scale re-assessment in the women's apparel industry and general retailing website, (i) reports more items and dimensions than the original scale, (ii) no costumers rate of the service attributes of the websites, and (iii) no test of nomological validity was applied. Whereas Boshoff (2007) considered factor loading from 0.35 significant; Chiou et al., (2009) and Fuentes-Blasco et al., (2010) used service recovery dimensions to evaluate e-core service quality. In the same vein, Chang (2011) convert e-SQ to unique customer base perceived value which in turn is use to generate the price of e-service and also emphasize experience e-services but not purchasing physical goods over the internet. Farther, Connolly et al., (2010) found un-importance or even irrelevance of loyalty intentions and compensation dimension in the revenue website. Since their statistical analysis combined Perceived value, loyalty and website quality

under one dimension called Perceived Public value. According to them, all the three dimensions have different meaning in the public sector.

Moreover, the relationship strength between e-SQ dimensions and the dependent variable used in assessing nomological validity across studies appear to be inconsistent. Parasuraman et al., 2005, Wu and Ding 2007, Akinci et al., (2010), Sun et al., (2009) and Chang (2011) found Efficiency, fulfillment, system availability and privacy predictor of perceived value. In contrast, Marimon et al., (2010). Found Efficiency and Privacy are not predictors of Perceived value in online shopping. In the same vein, Boshoff (2007) established that Speed, Delivery and System availability are not predictors of perceive value

While Petnji et al., (2011) found Privacy is the second strong predictor of satisfaction and loyalty after the Efficiency dimension in online banking contrary to (Parasuraman et al., 2005) who found it was less significant. Herington and Weaven, (2009) found Efficiency was the lowest predictive of satisfaction although rated the most important in term of mean score. However, the overall level of satisfaction was considerably lower than the overall service quality indicating that some other unknown factor is negatively impacting on overall satisfaction. Also, Chiou et al., (2009) originated that System availability and contact do not predict overall satisfaction on auction website. Wu and Ding (2007) presented the global measure of Electronic service quality as the second order latent factor. Still it had a weak direct negative effect on satisfaction in electronic retailing websites. Sahadev and Purani, (2008) found Privacy not to be a predictor of Trust, Fulfillment not a predictor of Satisfaction, Satisfaction not a predictor of loyalty. Furthermore, when Yen and Lu, (2008) found System Availability not to be a predictor of Disconfirmation for both auctioneer and Seller website, Sun et al., (2009) initiated that Overall service quality had no effect on loyalty. All this evidenced that customer online service quality priorities seem to differ between countries.

3.6.5.17 Snappy studies limitations

Also this study identified some cross studies limitations that need to be kept in mind in conducting, interpreting, and making use of the results of studies in the cross-settings or countries, in order to keep the attributes that customers desire in an ideal Web site and the performance levels that would signal superior e-SQ.

Connolly et al., (2010) indicated that the 4 items measuring Web Service Quality dimension were strongly correlated with value and loyalty thus it was impossible to test the direct effects of e-service quality to the website service quality. Thus, according to the authors responsiveness dimension was weak and erase because the original 5 items were reduce to 2 and on balance it was considered that the cooperation and input of Revenue outweighed the disadvantages of having modify the E-S-QUAL. Akinci et al., (2010) study displays Efficiency-System Availability; Fulfillment-System Availability; Fulfillment-Privacy seem not to be distinct from each other (inter factor correlation were very high) however after deleting 12 items they had a better result.

Mekovec et al., (2007) used of small group of trained and untrained evaluator (students) and very limited number of commercial web sites. In addition they had a complex scoring procedures and only one dimension was investigated. Also, like in Kim et al., (2006) study, they have no conclusive inferences about online service quality. Since the scale is design to be answer without a respondent needing to complete the purchasing process. In the same direction, Chang (2011) utilized simulation to generate service quality and thereafter perceived value and no practical data from industry. Finally, Sahadev and Purani, (2008) and Lin et al., (2009) had a cross sectional data nature (online and off line sampling process)

3.6.5.18 Cultural context

Traditionally, several researchers questioned the applicability of SERVQUAL in certain cultural contexts. In particular, it would seem that measurement of service quality in the brick-and-mortar banking industry is dependent on the cultural context (Ladari 2009). Similarly, this review also questioned if the applicability of E-S-QUAL in online banking depend on cultural context. Given that, Sun et al., (2009) applied the E-S-QUAL to measure online banking service quality in the Chinese context. They first translated the original 22 items of E-S-QUAL into Chinese before collecting data and the results confirmed the four dimensions of E-S-QUAL. Likewise, Akinci et al., (2010) applied E-S-QUAL in the context of online banking in Turkey; however they were forced to drop 14 items of the original Greek translated version of the scale during the CFA before confirming the 4 dimensions of E-S-QUAL. Petnji et al., (2011) applied E-S-QUAL in the context of online banking in Spain. After translating the scale items in Spanish and Catalan they collected data from a random sample of 428 Spanish online

banking users. Their findings showed that the dimensionality of E-S-QUAL yielded only three dimensions. These results support the controversy that the dimensionality of E-S-QUAL is unstable in the e-banking across cultural contexts.

From the extant literature, several studies have found that cultural differences can create bias. Example Herk et al., (2005) found that translation of the research instrument into another language can result in higher measurement error due in part to the absence of precisely equivalent terminology. Similar view was expressed by Diamantopoulos et al. (2006) who reported that cultural differences in response styles (such as use of the mid-point, modesty bias, extreme responding) are sources of bias that can threaten the validity of scales. Furthermore, Liao and Cheung, (2001) found that culture plays a significant role in internet-based e-shopping behaviors and that the strength and relative importance of extraneous factors may differ by culture. Whereas, Furrer et al. (2000) established that the importance of SERVQUAL dimensions varies across people from different cultural backgrounds.

On the other hand, The E-S-QUAL appears to be somewhat stable for web sites selling physical goods in term of different cultural contexts. Since the four dimensions of E-S-QUAL were confirmed in the USA (Parasuraman et al., 2005; Wu and Ding 2007); in Taiwan (Yang & Tsai, 2007); in India (Sahadev and Purani, 2008); in Ireland (Connolly et al., 2010) and in Spain (Marimon et al., 2010). Moreover, Meng and Mummalaneni, (2010) used the scale to test measurement equivalence on Chinese and African American consumers. They concluded that the instrument can be used to analyze web service quality perceptions in other culture and to compare web service quality perception among different cultures. However, they observed that contrary to their African American counterpart, Chinese consumers had significantly lower perceptions on all dimensions of e-SQ, with Efficiency, Privacy and System availability exhibited larger differences than Fulfilment. This findings are supported by Zhang et al., (2008) who reviewed several empirical studies and identified consistent results showing that service users from different countries and cultural backgrounds record different expectations, react differently to service encounters, and show dissimilar behavioral intentions.

Table 10: Predictive/nomological relationship strength, differences and limitations across studies

Author(s)/Year	Final N of dimensions	Final number of items	Predictive/Nomological	Relationship Strength (in decreasing order)	Differences	Limitations
Petnji et al., 2011	3	17 = Efficiency (7), System availability(7), Privacy (3)	Satisfaction; Loyalty; ISO 9001	Efficiency, Privacy, System availability predicted satisfaction and loyalty	1- Fulfillment dimension discarded because it loaded poorly; 2-EFF5 moved to System Availability; 3- Privacy is the second strong prediction of satisfaction and loyalty contrary to (Parasuraman et al., 2005) who found it was less significant.	Solely on e-banking
Chang, 2011	7	7 = Efficiency (1), System availability (1), Fulfillment (1) Privacy (1), Responsiveness (1), Compensation (1) and Contact (1)	Perceived value	Efficiency, fulfillment, system availability were predictor of average perceived value in term of service quality; responsiveness and compensation in term of service recovery	1-Convert e-SQ to unique customer base perceived value which in turn is use to generate the price of e-service 2- Emphasize experience e-services but not purchasing physical goods over the internet 3- Recovery dimensions were used to evaluate e-core service Quality 4- No EFA and CFA	1- utilized simulation to generate service quality and thereafter perceived value and no practical data from industry
Rafiq et al., 2011	3	18 = Efficiency (8), System availability(4), Fulfillment(6)	Over all service quality, satisfaction and loyalty	E-SQ is treated as a second factor order. Fulfillment, system availability and Efficiency positively affect over all service quality wish in turn is a predictor of loyalty	1- No EFA; 2- Ful 7 discarded as it loaded equally with Ful 1; 3 -likert scale 1 to 7; 4-Ful5 loaded poorly, 5- problem with discriminant validity: Efficiency and system availability appear not to be different to each other because of strong correlation 0,88 between Pv and EFF5, 6- the issue was addressed by erasing Privacy	limited to e-grocery shopping which is a replenishment low involvement goal-directed activity
Meng and Mummalaneni, 2010	7 for AA and 7 China	both AA and China 33 = Efficiency(8), Fulfillment (7), System availability (4), Privacy(3), responsiveness (5), Compensation (3) and contact(3)	No test was applied	1- The same variables load on the same construct in both cultures tested and factor loadings can be constrained to be equal between the 2 cultures. 2- Partially supported the hypotheses of the equivalence of variances of latent variables and the correlation between latent variables among the two cultures. 3- Errors correlations being equal were not supported.	1-No EFA, 2- the instrument can be used to analyze web service quality perceptions in other culture & to compare web service quality perception among different culture. However, Chinese consumers had a significantly lower perceptions on all seven dimension of the web service quality with Efficiency, Privacy and System availability exhibited larger differences than others	1-convenient samples of students 3- No test on predictive variables
Akinci et al., 2010	4	8 = Efficiency (2), System availability(2), Fulfillment (2),	Perceived value	Efficiency, fulfillment, system availability and	Problems with discriminant validity	efficiency-system availability; fulfillment-system availability;

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		Privacy(2)		privacy predictor of perceived value		fulfilment privacy seem not to be distinct from each other (inter factor correlation are very high (0.79-0.889) better result after deleting 12 items
Marimon et al., 2010	4	15= Efficiency (3), System availability(4), Fulfillment (5), Privacy(3)	Perceived value, Loyalty, Actual Purchases	System availability and Fulfillment predict perceived value;	1- EFF5 shifted to System Availability; 2-the dimensions of Efficiency and privacy are not predictors of Perceived value	
Fuentes-Blasco et al., 2010	5	18 =System Efficiency (5), System availability (3), Fulfillment (4) Security (3), Responsiveness/Contact (3)	Perceived value, loyalty and Switching cost	E-service quality have a positive and direct effect on perceived value which in turn has a direct and significant effect on loyalty	1- Recovery dimensions were used to evaluate e-core service Quality 2-EFF5 shifted to System Availability 3	Chi-static in the causal model below recommended threshold
Connolly et al., 2010	5	20 = Efficiency (8), Ease of Completion (3), System availability (4), Privacy (2) and contact (3)	Perceived Public Value (combined: Website Service Quality (4 items) + Perceived Value (3 items) + Loyalty (6 items)	Efficiency, Ease of Completion exert the strongest effect on Perceived Public Value, System Availability and Privacy are also significant predictive variable but to a lesser degree finally Contact weakest contribution	1- Recovery dimensions were used to evaluate e-core service Quality; 2- No CFA; 3- Adding new Items generated a new and important dimension "Easy for completion" 4-No discriminant validity, 5-predictive variable "Perceived Public value" combined Perceived value, loyalty and website quality since they all have different meaning in the public sector (according to them), 4-unimportance or even irrelevance of loyalty intentions and compensation dimension	1-The 4 items measuring Web Service Quality dimension were strongly correlated with value and loyalty thus it was impossible to test the direct effects of e-service quality to the website service quality 2- according to the authors responsiveness dimension was weak and erase because the original 5 items were reduce to 2, 3- on balance it was considered that the cooperation and input of Revenue outweighed the disadvantages of having modify the instrument
Yang et al., 2010	5	27 = Efficiency (8), System availability(4), Fulfillment (7), Privacy(3), Enjoyment (5)	Satisfaction, value, loyalty	Quality is treated as a second factor order and directly affects loyalty, but also indirectly affects loyalty through customer satisfaction and perceived value	1- No EFA, 2- New dimension of enjoyment was added to evaluate e-SQ, 3-service quality is treated as second order factor loading 4-likert scale type 1 to 7	RMSEA larger than the threshold
Chiou et al., 2009	5 for Auction website and 4 for Auction seller	23 = Efficiency (10), System availability (4), Privacy (3), Contact (3) compensation (3) for Online Auction; 18 = Fulfillment (7), Responsiveness (5) Compensation (3) Contact (3) for seller Auction	Overall satisfaction with the Auction website and Overall satisfaction with Seller website	Efficiency, privacy and compensation have strong impact on Overall Auction. satisfaction; fulfillment, Responsiveness, contact and compensation have significant impact on Overall Seller Satisfaction	1- Recovery dimensions were used to evaluate e-core service Quality; 2- No EFA; 3- System availability and contact do not predict overall satisfaction on auction website	Cross sectional design
Herington and Weaven, 2009	4	14 = Personal needs (3); Site organization (4); User Friendliness (4) Efficiency of	Satisfaction	Personal needs; Site organization; User Friendliness; Efficiency	1-No CFA, 2- Efficiency was the lowest predictive of satisfaction although rated the most important in	1- Not all service quality dimensions were captured (the overall level of Satisfaction rated

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		web site (3)			term of mean score 3-However, efficiency is the most important predictor in term of actual performance. 4-Overall level of satisfaction was found to be considerably lower than the overall service quality indicating that some other unknown factor is negatively impacting on overall satisfaction	lower than Service quality meaning some unmeasured factors was negatively impacting on overall satisfaction)
Lin et al., 2009	7	52 = dimensions: Efficiency(27), Fulfillment (7), System availability (4), Privacy(4), responsiveness (4), Compensation (2) and contact(4)	Important Performance Analysis (IPA) and Important Performance Gap Analysis (IPGA)	Introduced a concept of service quality gap model (IPGA) to correct the traditional IPA model, the results show: 1- from IPA model only EF16 has a positive gaps analysis and the remaining 51 service items have a negative gaps 2- From IPGA model, among the 51 service attribute with negative gaps, the relative importance of 31 evaluations items was higher than the total average importance	1-No EFA and CFA, 2- IPA model only uses comparison with the total average level to plan its resources strategy, whereas IPGA model consider the status quo of the service quality gap by calculating the standardized distance between each service item and the intersection coordinates (0,1)	online and off line sampling process
Sun et al., 2009	5	28 = Efficiency (8), System availability(4), Fulfillment (7), Privacy(3), Trust/Assurance (6)	Over all service quality measure, Perceived value, customer satisfaction and loyalty	Efficiency, fulfilment, system availability, privacy and Trust are positively related to overall service quality which in turn have positively effect on customer satisfaction and perceived value but not on loyalty	1- No EFA, 2- E-SQ includes five dimensions New dimension of Trust/Assurance was added to evaluate e-service quality, 3- Overall service quality had no effect on loyalty,	
Yen and Lu, 2008	3 for Auctioneer's website and 3 for Auction seller	12 = Efficiency (4), System availability (4), Privacy (4) for Online Auction; 12= Contact (4) Fulfillment (4), Responsiveness (4) for seller Auction	Disconfirmation, satisfaction and loyalty for both auctioneer and Seller website	Disconfirmation, satisfaction and loyalty for both auctioneer and Seller website	1-No EFA , 2-Recovery dimensions were used to evaluate e-core service Quality 3- System Availability found not to be a predictor of Disconfirmation	1- sampling process self-selection
Sahadev and Purani, 2008	4	20 = Efficiency (8), System availability(4), Fulfillment(5), Privacy(3)	Satisfaction, Trust	Efficiency, system availability and fulfillment were predictor of Trust (No Privacy); Efficiency system availability and privacy were predictors of Satisfaction (No fulfillment)	1-No EFA , 2- Privacy found not to be a predictor of Trust, Fulfillment not a predictor of Satisfaction, Satisfaction not a predictor of loyalty	1- Data cross sectional nature 2-online-off line sampling process)
Boshoff, 2007	6	21 = Efficiency (6), Delivery (3),	Perceived value,	Reliability, Efficiency,	1-6 points likert-type scale; 2- factor	

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		Privacy (3), Speed (3), System Availability (3), Reliability(3)	Loyalty	Privacy predictor of perceived value	loading from 0.35 were considered significant; 3- three new dimensions: fulfillment dimension split into two, Delivery and Reliability and a new dimension Speed composed of EFF5, EFF7 and SYS 2; 3- Speed, Delivery and System availability are not predictors of perceive value	
Mekovec et al., 2007	Only the dimension of Efficiency was investigated	8 =Efficiency the others unknown as only Efficiency was investigated	No test was applied	No test was applied	1-No EFA and CFA, 2- No test on predictive variables	1- use of small group of trained and untrained evaluator and limited number of commercial web sites 2- complex scoring procedures 3- only one dimension was investigated 4- the scale is designed to be answered without a respondent needing to complete the purchasing process
Wu and Ding, 2007	4	22 = Efficiency (8), System availability(4), Fulfillment (7), Privacy(3)	Perceived value, Satisfaction and loyalty	Service quality is predictor of perceived value but not satisfaction, instead it indirectly affect satisfaction via perceived value	1 No EFA, 2 - No discriminant validity 3- the global measure of Electronic service quality was presented as the second order latent factor and had a weak direct negative effect on satisfaction	1-Quota and Snowball sampling, 2- Socio demographic characteristics samples partially matched those of Quota sample
Yang & Tsai, 2007	4	22 = Efficiency (8), System availability(4), Fulfillment(7), Privacy(3)	Satisfaction, loyalty	E-SQ is treated as a second factor order. Fulfilment and Efficiency follows by System availability and privacy directly and indirectly affects loyalty through customer satisfaction.	1-service quality is treated as second order factor loading 2-likert scale type from 1 to 7	
Kim et al., 2006	9	81 = Efficiency (15), Fulfillment (6), System availability(2), Privacy(8), Responsiveness(2), Contact(2), Personalization (18), information (7), and graphic style (21)	No test was applied	No test was applied	1- More items and dimensions than the original scale, 2-No costumers rate of the service attributes of the websites, 2- research isolated from women´s apparel websites, 3- lack of EFA and CFA 4- No test on predictive variables	-No conclusive inferences about online service quality -the scale is design to be answer without a respondent needing to complete the purchasing process
Parasuraman et al., 2005	4 for Both	22 = Efficiency (8), System availability(4), Fulfillment (7), Privacy(3)	Overall quality measure, Perceived value and loyalty	Efficiency and Fulfilment strongest effects on over all service quality, Perceived value and loyalty in both studies followed by System Availability and then Privacy	No	High RMSEA from the initial phase of the scale development and during the scale validation phase

3.6.6 Punch line on E-S-QUAL and some direct management implications

3.6.6.1 Important inferences

Practitioners in general need a generic scale that provides the potential for cross-industry and cross-functional comparisons. In this new environment of electronic service, the absence of a valid and reliable instrument to measure e-service quality has hard-pressed early researchers to make use of some fairly inadequate alternatives, such as using subjective quality attributes or selected generalizable items from the SERVQUAL. Hence, confused the endeavors of both scholars and practitioners to effectively measure and consequently manage e-service quality strategies. Besides, due to the importance of service quality in the success of e-retailers, external validation of e-service quality measures through replication is extremely important, particularly in cases where measures developed in one country are intended for use in other countries. As observed by Fariq et al., (2011), replications not only help to determine the reliability and validity of newly developed measurement instruments but also help to define the scope and limits to their generalizability to other contexts. Drawing on the precedent, the measure of electronic service quality bids a challenge.

However, the knowledge of consumers' evaluation of electronic service quality in terms of E-S-QUAL dimensions equips the online service providers with the advantage of differentiation and sustainable competitive advantage. Still, some critics argued that the leading academic measure of e-retailing service quality E-S-QUAL (and E-RecS-QUAL) multiple-item scale by Parasuraman et al. (2005) is shown to be based on an inadequate conceptual definition. E.g. their definition of the e-retailing object of the construct identifies only two stages of e-retailing instead of six stages in the overall e-retailing process. Additionally, nor does E-S-QUAL distinguish e-retailers who sell products from those who sell services Rossiter (2009).

Above all, this review demonstrated that among several instruments that have been proposed for assessing electronic service quality, the E-S-QUAL (Parasuraman et al., 2005) has received the most recognition. Since, the scale has been to a certain extent successfully replicated and applied in 11 countries and a variety of e-service settings. Collectively, the findings of the studies reviewed reveal important differences in a

number of final painstaking dimensions of E-S-QUAL and the number of items used in the scale across industry. In addition, this study raised concern about several theoretical and empirical problems associated with the reassessment of the E-S-QUAL such as: the use of different scores, the scale reliability, the convergent validity, the discriminant validity, the predictive/nomological validity and the applicability of the scale to different cultural contexts.

On the whole, this study has brought to light the results reached by several authors who duplicated the E-S-QUAL scale. The results revealed that the scale is effective in capturing the core of electronic service quality. Yet, both scholars and practitioners must assess the underlying factor structure of their data before drawing any conclusions from their study. Given that, the dimensional structure of E-S-QUAL appears to be very unstable, even within a given sector. Nevertheless, the dimensions of Efficiency, System Availability and Privacy appear consistently in the various models, indicating that there are some common dimensions of E-S-QUAL used by customers in evaluating e-SQ regardless of the type of e-service delivered. On the other hand, the dimension of Fulfillment appears not to be generic but specific to particular e-service context such as web site selling physical goods. Together, these results reinforce the support obtained in the scale development phase for the psychometric soundness of E-S-QUAL.

3.6.6.2 Management implications

Drawing to the fact that e-business competitors are only a click away and that online customers are becoming more and more expert. In harmony with these study findings, I propose several recommendations for consideration by e-business manager. Firstly, the methodological approach used by Parasuraman et al., (2005) in developing and refining E-S- QUAL was more rigorous than those used by the authors of the alternative scales. The studies reviewed results have confirmed the strength of the scale worldwide. Thus, it is the contention of the present study that the scale is the most useful model for measuring electronic service quality. The use of the E-S- QUAL to evaluate e-SQ can assist managers to achieve a competitive advantage. Since, the knowledge of the scale components is useful to identify not only the weaknesses but also the strengths of their

own e-businesses and to make comparisons with competitors in the same e-service industry, in different contexts and regions.

Secondly, given the fact that the dimensions of Efficiency, System Availability and Privacy appear consistently in the various models, online retailers and electronic service provider managers must ensure that sufficient information on the desired product and services should be easy to find and understand. This study also recommends that they ensure that their website has an uncluttered look and provide the service they promise accurately and on time. Besides, they must closely look at the correct functioning of the website and the ability to swiftly fulfill the promised service reliably and correctly. Moreover, managers should provide meaningful guarantee ensuring that all personal and transactional information is transmitted over a secure encrypted server which protects personal information at all times.

Thirdly, providing the dimensional structure of E-S-QUAL appears to be very unstable even within a given sector, managers should first use a focus groups or conduct interviews with customers to ascertain what they perceive to be the key determinants in their evaluations of e-service quality, and how well their e-business performs on the dimensions identified. Furthermore, given that the dimension of Fulfillment appears not to be generic but specific to particular e-service context. Managers should be careful in applying this dimension in contexts that have few elements in common with industry-specific which the site's did not promise about order delivery and item availability are fulfilled.

3.7 ISO 9000: 2008 family of standards

The ISO 9000 family of standards are related to quality management systems that was developed to assist organizations of all types and sizes, to ensure that they meet the needs of customers and other stakeholders (Poksinska et al., 2002). The ISO 9000 family since 1987 consists of:

- ❖ ISO 9000: describes fundamentals of quality management systems and specifies the terminology for quality management systems.

- ❖ ISO 9001: specifies requirements for a quality management system where an organization needs to demonstrate its ability to provide products that fulfill customer and applicable regulatory requirements and aims to enhance customer satisfaction.
- ❖ ISO 9002: Model for quality assurance in production, installation, and servicing
- ❖ ISO 9003: Model for quality assurance in final inspection and test
- ❖ ISO 9004: provides guidelines that consider both the effectiveness and efficiency of the quality management system. The aim of this standard is improvement of the performance of the organization and satisfaction of customers and other interested parties.
- ❖ ISO 19011: provides guidance on auditing quality and environmental management systems.

ISO 9000 deals with the fundamentals of quality management systems and includes 8 management principles: 1- Customer focus, 2- Leadership; 3- Involvement of people; 4- Process approach; 5- System approach to management; 6- Continual improvement; 7- Factual approach to decision making; 8- Mutually beneficial supplier relationships (Tsim et al., 2002). However, the ISO 9000 family has gone through some processes of evolution over the past several years. For example in 1987, the ISO 9000:1987 was based on three models of quality management systems (ISO 9001, ISO 9002 and ISO 9003) the selection of which was based on the scope of activities of the organization (Karapetrovic, 1999; Casadesus et al. 2001). In 2000, ISO 9001:2000 combined the three standards (9001, 9002, and 9003) into one standard, called ISO 9001. The 2000 version pursued to make a radical change in thinking by actually placing the concept of process management front and center (Rajan and Tamimi, 2003). More recently in 2008 the new version only introduced amplifications to the existing requirements of ISO 9001:2000 and some changes intended to improve consistency with ISO 14001:2004 (Karapetrovic et al., 2010). Therefore, it is suffice to say ISO 9000 family standard is continuously being revised.

This thesis will focused only on ISO 9001. Since, the numbers of certified organizations are endlessly increasing and the majority of European companies require their supplier to have ISO 9001 certification. Furthermore, in traditional services, Heras et al., (2002) in their longitudinal analysis of performance before and after accreditations, showed that companies implementing ISO 9001 have superior performance and demonstrated that this was statistically significant and not a function of organization size. Similarly, Corbett et al., (2005) showed that certified organizations achieved superior return on assets compared to otherwise similar organizations without certification. In the same vein, Naveh and Marcus (2007) showed that implementing ISO 9001 led to superior operational performance.

3.7.1 ISO 9001

ISO 9001 is a quality-management system that belongs to the ISO 9000 family of standards. As a generic management system, ISO 9001 can be applied to any organisation that wishes to implement a quality management system with the goal of enhancing quality assurance (Petnji et al., 2011). The objectives of ISO 9001 as quoted in the present release (2008) are:

- ... This International Standard specifies requirements for a quality management system where an organization:
 - a) needs to demonstrate its ability to consistently provide product that meets customer and applicable regulatory requirements, and
 - b) aims to enhance customer satisfaction through the effective application of the system, including processes for continual improvement (ISO, 2008).

ISO 9001 has proved to be very popular, with more than a million certifications in 178 countries worldwide (ISO survey 2009). However, the extant literature shows the importance and the diffusion of ISO 9001 in different countries has been widely studied. One of the common agreements in the existing literature is that the number of certificates worldwide presents a "*saturation effect*". Giving that the number of certified organizations reaches a certain limit (Marimon et al., 2006; Casadesus et al., 2008). Consequently, the certification loses its connotation and becomes less attractive for the remaining companies (Franceschini et al., 2004). However, Simon et al., (2012) argued

that, despite the "*saturation effect*", the standard act as frameworks for quality management in a great number of organizations worldwide. Moreover, the standard "provides confidence for business-to-business transactions, for consumers when choosing products, for government departments when awarding procurement contracts, and for enterprises when qualifying suppliers in global supply chains" (ISO, 2009).

Moreover, the popularity of ISO 9001 has meant that the standard no longer appears to provide the external benefit of a competitive advantage—because so many of the competitors in any given industry are already ISO-registered. As a consequence, many companies are now looking for tangible *internal* benefits from the ISO 9001 standards (Casadesus and Karapetrovic, 2003; Karapetrovic *et al.*, 2010)

In this regard, it is interesting to note that Vloegeberghs and Bellen (1996) have claimed that the most important benefits of ISO 9001 certification are internal. These include:

- (i) improved awareness of the importance of quality;
- (ii) identification of the problems of the company; and
- (iii) Improvement in product quality.

In contrast, Quazi and Padibjo (1998) insisted that the most important benefits are external:

- (i) increased satisfaction of customers' requirements; and
- (ii) improvement in product quality and market competitiveness.

This difference in opinion arises because the benefits of ISO 9001 certification are, in general, difficult to measure (Karapetrovic *et al.*, 2010). It is not easy to ascertain whether ISO 9001 has been directly responsible for a rise in productivity or an increase market share (Jones *et al.*, 1997). Indeed, following a review of the literature on this issue, Rusjan and Alic (2010) stated that some studies have concluded that there is definitely a significant relationship between the implementation of a quality management system and a company's performance, whereas other researchers concluded that this relationship is either weak or even non-existent. Nevertheless, several studies have suggested that the relationship between quality management and

business performance is different for manufacturing organizations and service organizations (Anderson et al., 1997; Johnson and Nilsson, 2003; Rönnbäck and Witell, 2008). This is because the notion of ‘quality management’ has different connotations in manufacturing and services. However, no references have been found on the literature related specifically to e-services, objective of this thesis.

3.8 Banking

The ultimate global financial crisis shows that nowadays, the banking sector is the backbone of modern business. Since, the development of any country depends mainly on the banking system. The term “bank” comes from the Italian word “banco” which means merchant’s bench in medieval market places where lenders or money changers used to display coins of different countries on benches or tables for the purpose of lending or exchanging (Tyree, 2005). Generally, in ancient times the temple was likely to be the location of much of what will be recognized as banking business. Moreover, in Mesopotamia, money could be borrowed at interest from the temple; in Greece, sanctuaries and temples were often the store house or place of safe custody for bullion and valuables; and in Jerusalem money-changers located in the temple precinct would exchange currency and allow interest on deposits with them (Green, 1989). Nowadays, the word bank have different connotation. Banks are large and complex organizations and may be a person, firm or a company. A banking company means a company which is in the business of banking. A bank acts as a connecting link between borrowers and depositor. Banks collect money from those who have surplus money and lend to those who are in need of money (Rose, 1993). Contrary to the medieval market places, their clients range from individuals and institutions, all the way up to the governments and central banks of entire countries. The definition of a bank varies from country to country (Boland, 1999). However, according to Oxford Dictionary the word “bank” means: "an establishment for custody of money, which it pays out on customer's order". In general terms, it means a bank is the business activity of accepting and safeguarding money owned by other individuals and entities, and then lending out this money in order to earn a profit. Besides, the word “bank” or “banking” is often referred to as financial institution or services that include: banks, building societies, credit unions, credit card institutions, etc.

3.8.1 Traditional Banks

Traditional banks are profitable institutions that have a service oriented approach and are structure in four broad categories as follows:

- ❖ Retail Banking: dealing directly with small businesses and individuals and there exist different types as follows:
 - Commercial bank: the term used for a normal bank to distinguish it from an investment bank
 - Community banks: locally operated financial institutions that empower employees to make local decisions to serve their customers and the partners
 - Community development banks: regulated banks that provide financial services and credit to under-served markets or populations
 - Postal savings banks: savings banks associated with national postal systems.
 - Private Banks: banks that manage the assets of high net worth individuals.
 - Savings bank: provide easily accessible savings products to all echelons of the population.
 - Building societies: institutions that conduct retail banking
 - A Direct or Internet-Only bank is a banking operation without any physical bank branches, conceived and implemented wholly with networked computers.

- ❖ Commercial or Corporate Banking: offering banking facilities to medium-to-large businesses

- ❖ Private Banking : a one-to-one service for rich individuals

- ❖ Investment Banking: generally related to helping clients raise capital, often by investing in the financial markets.

Other type of banks:

- ❖ Central banks: Is generally own by government and those responsibilities are based on total regulatory and supervision of commercial banks, or controlling the cash interest rate. They generally provide liquidity to the banking system and act as the lender of last resort in event of a crisis.

- ❖ Islamic banks: That is based on the concepts of Islamic law.

Commonly, most banks are profit making, private enterprises. However, some are owned by government or under Islamic law. Thus may be non-profitable organizations.

Characteristics / Features of Banks

Generally, a traditional bank provides various banking facilities to their customer that includes general utility services and agency services. Besides, traditional retail banks offer an exhaustive list of products among them

Transactional/current accounts: are meant neither for the purpose of earning interest nor for the purpose of savings, but for convenience of the business or personal client. Hence, they tend not to bear interest. Instead, a customer can deposit or withdraw any amount of money any number of times, subject to availability of funds through a variety of different channels (ATM cards, debit card, cheque, Online banking, etc.)

Savings accounts: These accounts let customers set aside a portion of their liquid assets while earning a monetary return. Customers can deposit or withdraw their money with a passbook and some banks can restrict the amount of money that can be withdrawn. Withdrawals from a savings account are occasionally costly and are sometimes much higher and more time-consuming (Rose, 1993).

A credit card: is different from a charge card: a charge card requires the balance to be paid in full each month. In contrast, credit cards allow the consumers a continuing balance of debt, subject to interest being charged. A credit card also differs from a cash card, which can be used like currency by the owner of the card (Schneider, 2010).

Overdraft: is a prior agreement that authorized customers holding a current account to withdraw money from their bank account (s) and the available balance goes below zero subject to a pre-arranged limit (known as an authorized overdraft limit), then interest is normally charged at the agreed rate. If the negative balance exceeds the agreed terms, then additional fees may be charged and higher interest rates may apply. The interest rate charges are usually higher than those from the loan.

A loan: is a type of debt, the borrower initially receives or borrows an amount of money, called the principal, from the lender, and is obligated to pay back or repay an equal amount of money to the lender at a later time. Typically, a loan is given against certain guarantees such as security of properties (e.g. houses, lands, etc.) or some personal securities (e.g. payrolls). The loan can be granted to customers for short-term, medium term or long-term and the money is paid back in regular installments, or partial repayments (Guttentag, 2007)

Furthermore, traditional retail banks give safety to the deposits of its customers and also acts as a guardian of funds of its customers. Additionally, Rose, (1993) highlighted other services offered by banks such as giving personal advice to their customers on any type of investments they intend to undertake. Banks also engaged in foreign exchange trading, sending and receiving money to foreign country on behalf of their customers, stream any trade information and act as a place of safe keeping valuable assets of customers. However, a noticeable omission from the definition of banking business was the involvement of banks in the payments system under which payments are made or funds transferred by such mechanisms as the collection and payment of cheques, direct credits and debits, debit and credit card payments and high value payments (Tyree, 2005).

3.8.2 E-Banking

Banking is an evolutionary concept. Since, there is a continuous expansion and diversification in respect to its functions, services and activities. Obviously, most of us would recognize that the conceptualization of banks is changing and the last decade

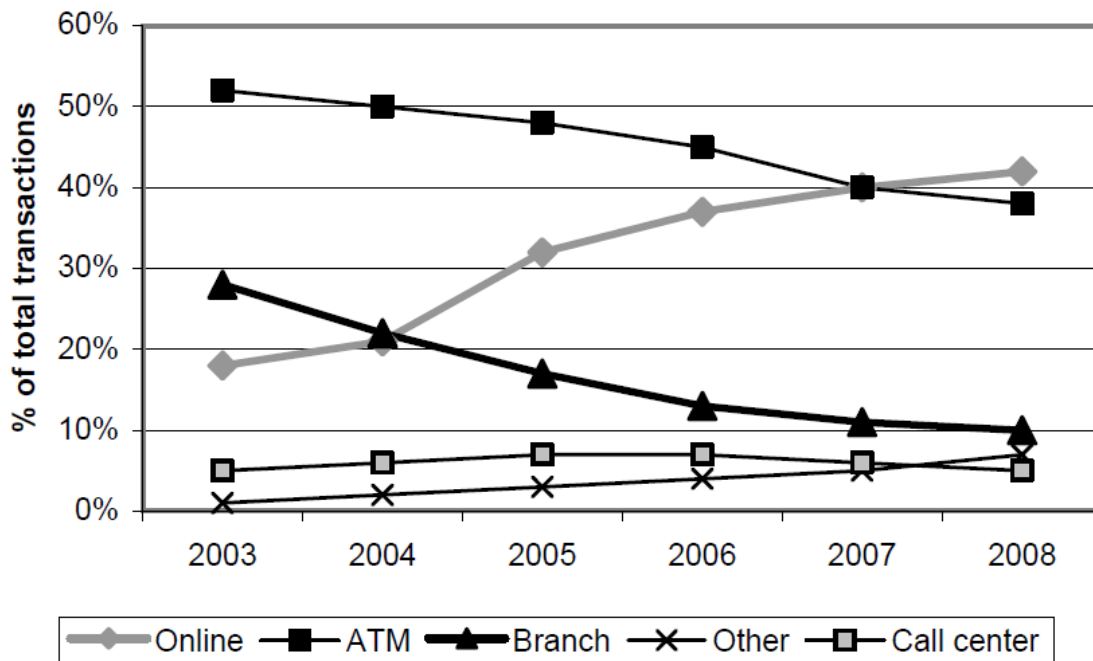
particularly has been a period of accelerated change due to technological innovations that gave birth to online banking. In recent years online banking has been one of the most prevailing developments in the delivery of financial services. It continues to grow and propagate in importance and has become an integral and key element of banks multi-distribution strategy (Marimon et al., 2012). An important feature which differentiates e-banking from traditional bricks-and-mortar banks is the fact that e-banking are typically offered as part of a broader multi-channel service package (Sousa and Voss, 2006). That might combined the internet with other channels of service delivery such as the telephone, TV based or PC based offline banking. Thus, the conceptualization and definition of e-banking varies amongst researches somewhat because it might refers to several types of services through which a bank's customers can request information and carry out most retail banking services. However, Luššik, (2004) defined e-banking as a variety of the following platforms: (a) Internet banking (or online banking), (b) telephone banking, (c) TV-based banking, (d) mobile phone banking, and (e) PC banking (or offline banking). Whereas, Daniel, (1999) define e-banking as the provision of information or services by a bank to its customers through electronic means such as the computer or mobile telephone. According to the European Central Bank (Eurosystem, 2007), e-banking is an umbrella term for the process whereby consumers may handle their banking business electronically, without visiting a bricks-and-mortar institution.

Traditionally, the way in which banking was done, was through the use of a local branch. This meant that a person would have to physically be involved with the banker and the bank and all the transactions were done through one on one contact. Indeed, in order to reduce service time, cost, and offer effective and efficient service quality; the nascent of online banking have either introduced or improved a wide range of products and services. Furthermore, e-banking offers to customers a very simple way of being able to access their accounts (via the internet, mobile phone) to transfer funds, and handle all their banking needs with only the click of mouse or the touch of the screen.

According to a new brief by Forrester, (2003) research, in the late 2002, one in five Europeans already banks online. Furthermore, online bankers represented 37 percent of Internet users and online banking services now attract 18 percent of all European adults. Moreover, Forrester (2003) projects that the number of Europeans using online banking

will double to reach almost 130 million users in five years a total of 21 percent. While online banking penetration in the Nordic countries and the Netherlands will climb to 60 percent of Net users in 2003, Italy and Greece, which had fewer than 5 percent of adults banking online a year before, struggled to achieve a situation with a third of Net users banking online in 2003. Besides, according to another Forrester, (2008) research, a typical European bank has the following perspective (see Figure 5). Figure 5 shows online, ATM, branch, other and call centre trend in 6 years. In six years the proportion of transactions made online will exceed 40% of all transactions, while the transactions in the traditional branches will be below 10%.

Figure 5: Trends of the transaction volume by channel in a typical European bank



Source: Forrester, June 2008

Like any online services, online banking is primarily seen by many as the future for the industry. Since, it was developed to increase efficiency and also to respond to the logical consequence of the lower cost of online operations see table 11. According to the study of Booz-Allen and Hamilton (1996), USA and European banks ranked the Internet as the most important customer interface in 10 years. Besides, an estimated cost providing the routine business of a full-service branch in the USA is \$1.07 per transaction, compared to 54 cents for telephone banking, 27 cents for ATM and 1.5 cents for Internet banking. According to (Luštsik, 2004), in the Nordea Bank (Finland),

one online transaction costs the bank an average of mere 11 cents, compared to \$1 per transaction in the branch. Besides, the Net has helped Nordea eliminate half of its branches and 5,000 jobs in Finland over the past five years, even as the bank has increased its number of transactions by a third (Bloomberg, 2001). The difference in net cost between the US and Finnish banks can be explained by Finland's smaller population and the scale effect in case of the USA. Forrester research (June 2003) covered Europe's largest banks and found that on average online transactions cost 93% or 14 times less than those made by branch tellers'.

Moreover, Siriluck and Speece, (2003) study in Thailand show that e-banking has successfully reduced operating and administrative costs. Whereas, Jun and Cai, (2001) intimates that cost savings have helped e-based banks offer lower or no service fees, and offer higher interest rates on interest bearing accounts than traditional banks. Overall, the marginal cost of e-banking transactions was shown to be a tiny fraction of the cost of branch banking. Thus, it was the chart that launched dozens of standalone Internet banks. Therefore, European banks have poured billions of euros into building direct channels like the Web, upgrading branches and call centers, and trying to integrate all these channels (Luštšik, 2004)

Table 11: Unit cost of transaction in different distribution channels

Channel	Europe average (Forrester, 2003)		US average (Booz-Allen and Hamilton, 1996)		Nordea Finland (Bloomberg, 2001)	
	Euro	%	US \$	%	US \$	%
Branch	2.00	100	1.07	100	1	100
Call Center	0.96	48	0.54	50		
Mail	0.27	14				
ATM	0.22	11	0.27	25		
IVR	0.19	10				
Online	0.14	7	0.01	1	0.11	11
Direct Debit	0.04	2				
PC bank			0.015	1		

Online banking services take many forms, for example online transactions, bank transfers, account inquiries bill paying or e-checking and buying stock (Gehling et al, 2007). Moreover, recent advances in online banking include the increasing impact of social media networks and online communities, such as Facebook and Twitter. Retail banks are sometimes slow to embrace new technologies. But these technologies are

here to stay and can no longer be ignored (Klimis, 2011). Although there is a great enthusiasm and commitment from bank institutions to adopt innovative approaches or to engage more actively with their customers online, The question remain on how should banks respond to the changing world of online financial services.

3.8.3 Spanish banking system

The Spanish banking industry involves banks of different size and ownership. According to Delgado et al., (2006), before 1996 the Spanish banks were diversified and there were three forms of ownership (commercial, savings banks and credit cooperatives) with no clear market dominance of one form over the others. Commercial banks are companies owned by shareholders and residual decision rights belong to the shareholders that may in turn delegate them to the management team. Besides, they are subject to the same regulatory and competitive conditions than the rest of ownership forms. Savings banks can be assimilated to non-profit commercial organizations, since, the profits they make have as destination either retained earnings or a “social dividend” pays for social or cultural programs in benefit of the community. Moreover, the decision rights are allocated to a General Assembly of representatives elected by public authorities (up to 50%), by depositors, by workers and by the founding entity which can be a civic, religious or government-related organization. Besides, the General Assembly elects the Board of Directors that in turn elects the management team. Credit cooperatives were first created to lend to producer cooperatives in the agriculture sector and, at the same time, to provide bank services in rural areas. The closest organization that credit cooperatives resemble is a mutual company of borrowers, since, farming cooperatives and the individual partners also held deposits in the bank. Today, Savings banks and credit cooperatives are expected to have higher reputation concerns and can perform the same operations as commercial banks (Hansmann, 1996).

According to Iniesta and Sanchez, (2003) study, from 1993 to 2001 the Spanish banking industry as a whole intensified on the development of a strategy of closeness to the customer because of its usefulness in implementing a relational strategy. This strategy was based on the control of territories or geographical areas, having now been translated into the presence of a wide range of branches, the highest in Europe. Besides, the authors thoroughly analyzed the evolution of the banking branches and savings banks in

Spain as well as the number of inhabitants per branch during the last nine years. The results show a reduction in the number of inhabitants per branch and a continual increase in the number of branches for the savings banks (35 per cent over nine years) are observed. Moreover, the authors this was a signal of the proximity policy that they hold and that the high number of branches was a very important entry barrier.

More recently, the Banco de España (2010) report there was an increase by 3% in the number Serving employees per 10,000 inhabitants, 2% increase of Operational offices per 10,000 inhabitants, 4% of banks Automated Teller Machine (ATM), 5% increase of Point-of-sale terminals per 10,000 inhabitants and 10% increase of Cards per inhabitants over 16 years old between 2006 and 2007 (see table 12). Thereafter, there was a sharp decrease in all mentioned components starting from 2008 and following in 2009 mainly due to the financial crisis. However, it was reported that 62.2% of Spanish general populations were internet users in April 2011 (Internet World Stats, April 2011). Besides, according to the European Central Bank (Eurosystem, 2007) the number of internet user increases by 33% between 2003 and 2006. Moreover, the success of online banking in Spain was evidenced by the number of current and potential users of these services, with 14.68 million internet users frequenting banking websites in 2008 (Fundacion Orange, 2008)

Table 12: Serving employees, Operational branches, ATMs and Agents

	2006	2007	2008	2009
Serving employees per 10,000 inhabitants	70.7	73.1	72.4	70.0
Operational offices per 10,000 inhabitants	11.8	12.0	12.0	11.6
ATM per 10,000 inhabitants	15.5	15.9	16.0	15.6
Point-of-sale terminals per 10,000 inhabitants	352.4	357.0	368.6	375.2
Cards per inhabitants over 16 years old	2.4	2.5	2.6	2.5

SOURCE: Banco de España. Data available on the 13 April 2010

Furthermore, during the period 1996 to 2003, Spain was in the process of joining the Euro zone and has evolved from tight to loose monetary policy. Consequently, an intense merger activity took place, involving banks of all sizes and in particular mergers among the largest commercial banks. However, ownership diversity has increased over time since savings banks and credit cooperatives today represent half of the market share of Spanish retail banking, compared with one third ten years ago (Delgado et al., 2006). Nowadays, the level of competition has intensified given that the three forms of Spanish banks offers the same types of products and services. Likewise, the Spanish

banking system has undergone through a deep transformation during the last four decades. Overall, deregulation has transformed both the behavior of banks (liberalization of interest rates, fees and commission) and the industry structure and distribution (entrance of new competitors, removal of artificial barriers between commercial, savings and cooperative banks) (Benito, 2008). All these changes are expected to have a significant impact on the structure, the size distribution and the dynamics of the banking industry.

Additionally, before the 90's some banks operations were limited to specific regions or provinces. After the barrier was lifted, except two savings banks that have branches all over the country, most of them are still traditionally cramped to a specific region or province. More recently, the post hoc world financial crisis that brought a great bump to Spanish financial system in general, together with the serious economic recession have resulted in an intensively adverse environment for the Spanish financial sector and hence in lower levels of banking activity. In addition an increase in the levels of delays in payments, as well as, difficulties for obtaining financing from international markets altogether obliges the Spanish government to shake up the banking industry. Spanish banks in general were forced to respond to such conditions by reducing operative costs, intensifying efforts to gain new deposits and reinforcing the quality of own funds. However, regarding saving banks, the financial crisis highlighted two main weaknesses. On the one hand, there is an excess of capacity and on the other hand there is a need for greater flexibility both in access to capital resources and in the adjustment processes. Hence, the government persuades Spanish banks in general and in particular savings banks and credit cooperatives to merge in order to yield Spanish financial holdings that could adequately compete with foreign banks see table 13 for the last merging and takeovers.

In earlier 2009 there were 195 banks in Spain composed of 66 commercial banks, 45 savings banks and 83 credit cooperatives banks (The Banco de España, 2010). Currently, 23 out of 45 savings banks that represent a 39.1% of the total assets of the savings banks sector are undergoing restructuring or have done throughout the Sistema

Institucional de Protección (SIP)² or through mergers and takeovers initiated by Fondo de Reestructuración Ordenada Bancaria (FROB) (see table 13). For those receiving public funds from the FROB, there are mandatory projects to consider the reductions of the offices branches by 25% on average, and reductions of staff between 15% and 18% (Roldán, 2010). Besides, some of the merging and takeovers were supervised by the Banco de España, since, some the banks were first under the Banco de España administration before being auctioned.

Banco de España has issued a 45 page presentation under the title "The Spanish banking sector: outlook and perspectives" in 2010 and concluded that [...] The Spanish bank industry is resilient overall. However, the public revelation was to say the least, curious, since at more or less exactly the same time they repeat "No Money, No Credit, No Jobs". Moreover, Journalists are undoubtedly having hard time following official economic policy related to banks reform in Spain at the moment. The core of the problem they face is that they have a hydra headed government which speaks with many tongues. For example the deputy Prime Minister Soraya Saenz de Santamaria said: "the government was determined to meet the 4.4 percent goal and if more reforms and greater rigor were needed to achieve it, they would be enacted". This appeared to deviate from what has been a strict policy of deficit-cutting (Hugh, 2012)

Regardless the debate, it appears that in terms of customers, the Spanish banking sector has gone from bad to worse and the future is grim for the Spanish banking industry as a whole. Given that the global financial crisis involves less demand for credit. Besides, there is downward trend of credit to the resident private sector because banks have tightened their credit standards due to the deterioration of customers' credit quality. Subsequently, there is a climate of frustration between customers and banks providers. Hence, retaining existing customers is of paramount importance.

Likewise, in the last decade, Spain has seen overrepresentation of certain banks in certain locations. According to Jiménez et al., (2008), Spain has by far the largest per capita bank branch density among European countries. Besides, in the past five years,

² According to the Capital Requirements Directive, an Institutional Protection Scheme (SIP) is defined as "A contractual or statutory liability arrangement which protects those institutions and in particular ensures their liquidity and solvency to avoid bankruptcy in case it becomes necessary" (Roldán, 2010)

the number of branches has increased at an annual rate above 4%. Moreover they have a tendency to be significantly overstaffed (Petnji et al., 2011). Above and beyond, the European Central Bank (Eurosystem, 2007) intimates that banks in many European countries took steps to cut their branch networks. In part, this was due to increased competition, which led to cost-cutting programs that reduced the number of branches and replaced them with other distribution channels viewed as less costly alternatives. Moreover, in order to reduce the excess capacity of the banks and trying to attain a more efficient and rational banking system, the high value of proximity assigned to branches, with respect to the client, could cease. The new channels of distribution and online (Internet) banking will make it possible for the goal of the branch that goes to the client and not the opposite to be achieved (Casilda et al., 1997). Obviously, such condition might bring a gradual reduction in the number of branches of banks and savings banks in the future.

According to Badra, (2002) the Spanish financial entities have found some problems increasing the penetration rate of the Internet mostly due to safety issues, slower adoption by consumers than expected, and some important mistakes from the banks such as insufficient customized service, confusing Webs, etc. In addition, Iniesta and Sanchez, (2003) intimated that the evolution of online banking in Spain is slower than in other European countries. For example while in Europe the figure is higher as 4 per cent, only 3 per cent of Spanish bank customers use the Internet as their main channel. Besides, evidence also shows that online distribution models do not fully succeed because 60 per cent of the total sales will continue coming from branches in 2004. Nowadays, 80 per cent of new accounts are opened in physical branches.

Indeed, the strong buildups of broadband services and multimedia corridors have changed the life style of the consumers and more and more business transactions are done using the online potential. Based on these facts, online banking constitutes a very interesting research field as banks need to implement strategies to satisfy and retain their existing profitable customers. Hence there is need exploring and fully understand how do customers judge the quality of online banking service in general and in particular after the implementation of ISO 9001 by banks. As it may provide a useful thought to bank managers to comprehend the current usage trend, expand the use of e-banking and support them in their aim to improve important e-service quality aspects.

Particularly, in the Spanish context where customers were accustomed to have their bank branches under their buildings.

Table 13: Spanish Banks Mergers and Takeovers

BANKS MERGERS				
Banks	Merging under	Entities	Grants^a (million €)	Date
Banca Cívica, S.A.	Banca Cívica	Caja Navarra, Caja Canarias, Caja de Burgos y Cajasol+Caja de Guadalajara	0	Jul 2010
Banco Grupo Cajatres, S.A.	Caja3	Caja Inmaculada, Caja Círculo y Caja de Badajoz	0	Dec 2010
Banco Financiero y de Ahorros, S.A.	Bankia	Caja Madrid, Bancaja, Caixa Laietana, La Caja de Canarias, Caja Ávila, Caja Segovia y Caja Rioja	4.464	Jan2011
Banco Mare Nostrum S.A., BMN	Banco Mare Nostrum	Caja Murcia, Caixa Penedès, Sa Nostra y Caja Granada	915	Jan 2011
		Unicaja+Caja de Jaén, Caja España+Caja Duero	0	Sept 2011
Effibank, S.A.	Liberbank	Cajastur+Caja Castilla-La Mancha, Caja Cantabria y Caja de Extremadura	0	2011
Kutxabank, S.A.	Kutxabank	BBK+CajaSur, Kutxa, Caja Vital	0	Jan 2012
SAVINGS AND CREDIT COOPERATIVES BANKS MERGERS				
Caixa d'Estalvis Unio de Caixes de Manlleu, Sabadell i Terrassa	Unnim	Caixa Sabadell, Caixa Terrasa y Caixa Manlleu	380	Jul 2010
Caixa d'Estalvis de Catalunya, Tarragona i Manresa	Catalunya Caixa	Caixa Catalunya, Caixa Tarragona y Caixa Manresa	1.250	Jul 2010
Caja España de Inversiones, Salamanca y Soria, Caja de Ahorros y Monte de Piedad	Caja España-Duero	Caja España y Caja Duero	525	Oct2010
Monte de Piedad y Caja de Ahorros San Fernando de Guadalajara, Huelva y Jerez	Cajasol	Cajasol y Caja Guadalajara	0	Oct 2010
Caja España de Inversiones, Salamanca y Soria, Caja de Ahorros y Monte de Piedad	Caja España-Duero	Caja España y Caja Duero	525	Oct 2010
Monte de Piedad y Caja de Ahorros San	Cajasol	Cajasol y Caja Guadalajara	0	Oct 2010

Fernando de Guadalajara, Huelva y Jerez				
Caixa de Aforros de Galicia, Vigo, Ourense e Pontevedra	Novacaixagalicia	Caixanova y Caixa Galicia	1.162	Dec 2010
Caixa de Aforros de Galicia, Vigo, Ourense e Pontevedra	Novacaixagalicia	Caixanova y Caixa Galicia	1.162	Dec 2010
SAVINGS BANKS TAKEOVERS				
Resulting entity	Entity absorbed			
CajAstur	Caja Castilla-La Mancha		7.100	Sept 2010
La Caixa	Caixa Girona		0	Nov 2010
BBK	CajaSur		800	Dec 2010
Banco Sabadell	Caja de Ahorros del Mediterráneo		0	-
BBK	CajaSur		800	Dec 2010

Source: (El País Jan, Nov and Dec 2011, Jan 2012)

^a Grants are offered by the government institution name the FROB (The Fund for the Orderly Restructuring of the Banking Sector). The FROB is as an intervention mechanism is or an instrument that facilitates the adjustment process of those institutions badly affected by the Spanish banks restructuration to ensure that they return to a medium-term profitability path: this is the best way to absorb legacy assets. It will also contribute to adjust the excess capacity of certain institutions. This objectives will be attain with the minimum costs for taxpayers (Roldán, 2010)

4 CHAPTER 4: HYPOTHESES FRAMEWORK

4.1 Introduction relationship and hypotheses

Grounded on the objectives of these thesis set above in Chapter 2, on the discussions and review of extant theoretical and empirical literature; this thesis proposed a wide-ranging model for customers' loyalty in online banking. The wide-ranging model represents a gigantic picture of what this thesis aim for. However, it will be first and foremost fragmented and mainly discussed in five sub-models in chapter 7. The end results of the wide-ranging model will be presented thereafter.

The conceptualization framework of the research model is portrayed in figure 6. The overall conceptualization framework of the wide-ranging model is presented in the form of two blocks put together as follows:

- (1) **Customers' loyalty and its antecedents** that emphasis on the proposed relationships between demographic characteristics, electronic service quality, electronic service recovery, customer satisfaction, value and loyalty.
- (2) **Customer's loyalty and perception of ISO 9001** that focuses on the impact of ISO 9001 on electronic service quality, electronic service recovery, customer satisfaction, value and loyalty.

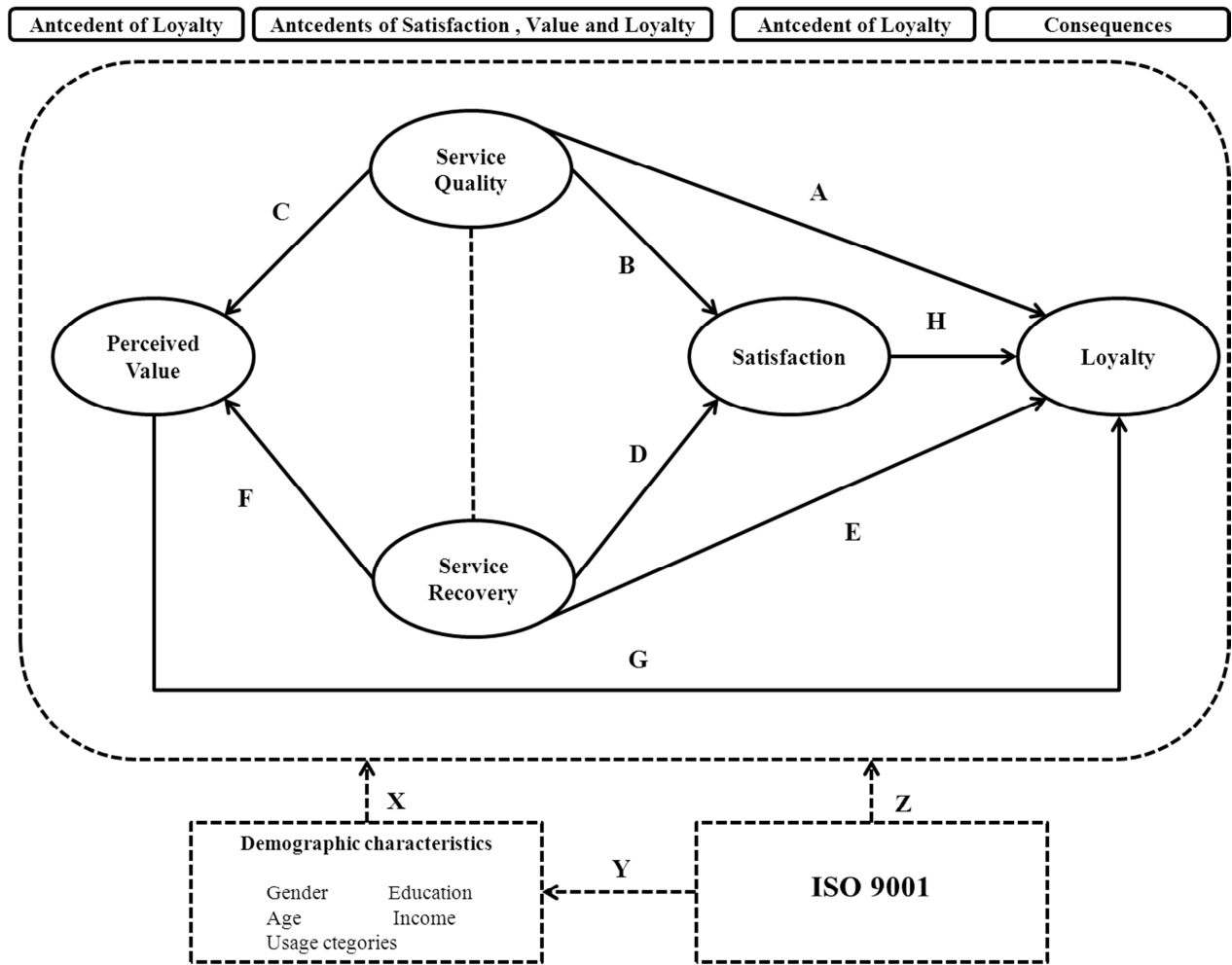
The general framework in figure 6 represent loyalty as a consequence of direct and indirect relationships with satisfaction, value, online service quality, online service recovery and ISO 9001 as well as the impact of demographic characteristics on all the mentioned variable. However, there is no representation of the moderation/mediation effects of satisfaction in the link between customer perceived service quality and loyalty as well as customers choice between service quality and service recovery. In pursuit of these objectives, the study also investigates:

- (i) The validity of a proposed scale for measuring e-service quality and recovery in online banking services; and
- (ii) Factors that might influence customer satisfaction and loyalty in the context of online banking services.

On the other hand, the presentations of the general hypotheses of the research are first portrayed below. Thereafter, they are presented in the form of sub-hypothesis and the results are discussed in sub-models as mentioned before.

Theoretical framework and hypotheses

Figure 6: Conceptualization framework of the thesis broader model



4.2 Service quality and loyalty

The biggest mistake most of e-service providers commit is, they concentrate all their attention on attracting customers rather than retaining them. Hence, some experts argue that internet has overturned all the old rules of business. However, when it comes to customers' loyalty, the old rules are as vital as ever (Anderson & Srinivasan, 2003), special in the context of e-services. According to Reichheld and Scheffer, (2000) Contrary to the common view that

online customers are fickle by nature and will flock to the next new idea, the Web is actually a very sticky space in both the business-to-consumer and the business-to-business spheres. Consequently, if managers don't quickly gain the loyalty of their most profitable existing customers and acquire the right new customers, they will face a dismal future catering to the whims of only the most price-sensitive buyers (Reichheld and Schefter, 2000).

Although there is compelling anecdotal and empirical evidence to suggest that desirable outcomes such as repeat purchases, eventually profitability and customer loyalty will simply not occur unless firms have succeeded in satisfying their customers' service quality needs first (Boshoff, 2007), few companies seem to succeed in creating e-loyalty, and little is known about the mechanisms involved in generating customer loyalty on the internet (Ribbink et al., 2004). However, Ladhari (2009b) found a direct relationship between perceived service quality and behavioral intention. Additionally, in the traditional service, Yaghi, (2010) found a direct relationship between service quality and loyalty. Furthermore, Marimon et al. (2010) argued that there is a positive relationship between perceived service quality and repurchase intention, thus capturing the attitudinal part of loyalty. Whereas, Gefen (2002) argued that one way of increasing customer loyalty is through superior service quality. The author further explains that service quality is something that customers typically want and value and therefore, providing high service quality will increase their willingness to come back and do more business.

Moreover, the unique economics of e-business make customer loyalty more important than ever. Therefore, in a competitive e-commerce environment an offensive marketing strategy is essentially determined by the online provider's ability to expand and maintain a large and loyal customer base. Hence, delivering superior service quality to customers is a key determinant in the formation of customer loyalty (Parasuraman et al., 1988). Considering the aforementioned arguments this thesis hypothesized that:

A: online perceived service quality directly and positively affects customer loyalty

4.3 Service Quality and satisfaction

Customer satisfaction is understood as a process of evaluating a product or service after consumption to discover whether customer's expectations have been met or even exceeded. According to Oliver, (2010) customer satisfaction generally means customer reaction to the state of fulfilment, and customer judgment of the fulfilled state. When the customer's

expectations are exceeded, the customer is highly satisfied, however, if the customer's expectations are not met, then the customer will feel dissatisfied with the service (Kotler & Armstrong, 2010). According to Saurina and Coenders (2002), satisfaction and quality are the same construct in the context of traditional banking services in Spain. Given that the results of their study showed customers seem not to perceive the minor differences between the conceptual definitions of both concepts as given by marketing theoreticians. In this respect, the authors concluded that discussion regarding whether satisfaction precedes quality or the other way around seems to be meaningless. Contrariwise, some scholars asserted that service quality and satisfaction were different constructs. For example Parasuraman et al. (1988) suggested that perceived quality was a form of attitude, relevant but not equivalent to satisfaction, and caused by a comparison of expectations with perceived performance. Whereas, Oliver (1997) indicated that service quality judgments were more cognitive reactions and evaluations of specific attributes. Besides, satisfaction judgments are more comprehensive, affective, and emotional reactions. However, unequivocally ambiguous opinions have however been expressed regarding the conceptual relationship between customer satisfaction and service quality (Cronin and Taylor, 1992).

Despite the fact that there is no clear understanding of the relationship between perceived service quality and satisfaction, both concepts have generally been perceived as distinct constructs. Moreover, Cronin and Taylor (1992) examined the causal relationships among service quality and customer satisfaction and the results showed that service quality was an antecedent of consumer satisfaction. Likewise, Herington et al., (2009) found e-service quality to be predictor of overall customer satisfaction with banking performance. In case of automated banking service quality dimensions, the studies of Al-Hawari & Ward (2006) revealed the positive effects of e-service quality on customer satisfaction and that customer satisfaction contributed towards improved financial performance of banks. On their part Kim (2005) developed an index to measure online customer satisfaction to help banks to assess their e-service quality. Furthermore, given that the products offered to the customers of a bank are more or less standardized in nature, banks are feeling an increasing need to differentiate themselves from the competitors on other criteria such as perceived service quality that can influence customer satisfaction and loyalty (Shirshendu and Sanjit, 2010). This is so because customer satisfaction and loyalty has been shown to be of utmost importance for firm performance in the long run (Hallowell, 1996). Hence, this thesis hypothesized that:

B: online perceived service quality directly and positively affects customer satisfaction

4.4 Service Quality and Perceived value

Zeithaml (1988) conceptualized perceived value as “the consumer’s overall assessment of the utility of a product based on perceptions of what is received and what is given. The competitive advantage of successful service providers and retailers is often explained with a logic wherein service quality contributes to customer value, resulting in increased satisfaction and behavioral intentions, eventually creating loyalty that manifests itself in enhanced Profitability (Rintamaki, Kuusela & Mitronen, 2007). In general, most scholars regard quality as antecedent to perceived value and as a significant variable with strong influence on customers’ natural behavior. For example, Parasuraman and Grewal (2000) intimates that service quality is a logical driver of perceived value and even in instances where the buyer-seller exchange involves a physical product, superior pre-sale and post-sale service rendered by the seller can add to the perceived value.

More recently, Fuentes-Blasco (2010) found in their research that value is largely defined by perceptions of service quality and according to them, service consumers place greater importance on the quality of a service, than they do on the costs associated. Besides, Akinci et al., (2010) appraised the electronic service quality offered by 13 banks in Turkey, providing a refined and more stable version of the E-S-QUAL scale for the internet banks. They found that e-service quality have a strong direct effects with the overall perceived value construct. In the same vein (Marimon et al., 2012) indicated as well that e-service quality has an important role in the development of perceived value in the online environment. According to the authors e-consumers expect equal or higher levels of service quality, than customers in traditional brick-and-mortar and as a result when online shoppers perceive high e-service quality, they will exhibit high customer perceived value and become a loyal customer. Therefore, this thesis posited that:

C: online perceived service quality directly and positively affects customer value

4.5 Service recovery and satisfaction

According to Parasuraman et al., (2005) service recovery refers to the actions taken by a firm in response to a service failure. Whereas, service failure often occurs when the customer's

perceived service quality falls below customer expectations. For example, delivery and Web site design problems are two major types of service failure in online retailing (Holloway & Beatty, 2003). Such failures may cause significant costs to the firm, such as lost customers and negative word of mouth (Boshoff, 2005). As stated by Tax, Brown & Chandrashekaren, (1998), firms should not regard service failure as a problem but as an opportunity to create satisfied customers. Henceforth, recovery strategies have a dramatic impact on a firm's revenue and profitability.

Hitherto, few online service providers have determined the precise degree of satisfaction of complaining customers after service recovery efforts have been completed. Thus online service providers are oblivious to the damage caused by poor recovery, simply because there is no assessment of customer satisfaction with service recovery (Boshoff, 2005). Research into this issue has not gone far enough to determine the negative effects of recovery on satisfaction and how they can be dealt with. This is particularly alarming if one considers that online service firms' responses can be highly variable and that only about half the total number of service failure complaints are satisfactorily addressed (Estelami, 2000). Therefore, this thesis posited that:

D: online service recovery directly and positively affects customer satisfaction

4.6 Service recovery and Loyalty

According to Tax, Brown & Chandrashekaren, (1998), firms learn from experiences of service recovery when they may not be able to prevent service failure. Besides, customer behavioral intentions are more favorable when customers believe that firms consistently implement service recovery when failures occur. Furthermore, in an online setting, effective service recovery is essential because online customers are difficult to attract and retain (Srinivasan et al., 2002), and it is easy for them to switch their online providers (Reichheld & Scheffer, 2000; Semeijn et al., 2005). It is therefore extremely important that service providers on the Internet know how to improve loyalty levels and repeat purchasing decisions among their customers (Anderson & Srinivasan, 2003). Besides, Robbins and Miller (2004) found that well-handled service recovery strongly affects customer loyalty. Therefore, this thesis posited that:

E: online service recovery directly and positively affects customer loyalty

4.7 Service recovery and perceived value

An understanding of effective recovery management is particularly relevant for service providers because the distinctive characteristics of services (especially the inseparability of production and consumption) make it impossible to ensure 100% error-free service (Fisk et al., 1993). Furthermore, it was reported that customer who experience service failure typically tell 10 others, while those not experiencing failure only tell 5 about their positive experience (Oliver, 2010). Few attempts have been made to empirically examine the role of service recovery on customer value and loyalty. Perhaps because it is a very new concept, or because it is difficult to analyze due the fact that there are limited sample size of customers that have use the system and encountered any service problems. Therefore, little is known about customer behavior with regard to service recovery. Therefore, this thesis posited that:

F: Online service recovery directly and positively affects customer perceived value

4.8 Perceived value and loyalty

A view that is share by several researchers is that in order to attract more consumers it is not enough only to develop customer satisfaction, but it is of a paramount importance to also develop customer value. According to Zeithaml (1988) perceived value “is the consumer’s overall assessment of the utility of a product based on perceptions of what is received and what is given”. Moreover, Kotler (2000) defines it as the difference between total customer value and total customer cost, where customer value is the benefits the customer expects to get from a given product and service. Customer perceived value is by some even considered as the source of all other values in an organization (Hammer, 1996). Delivering this requires a clear understanding of exactly what kind of value is desired by customers, importantly, customer perceived value is not inherent in the product or services themselves; rather it is experienced by customers as a consequence of using the supplier’s product and services for their own purposes (Woodruff & Gardial, 1996).

According to Chang, (2009) perceived value contributes to the loyalty of an e-business by reducing an individual’s need to seek alternative service providers. When the perceived value is low, customers will be more inclined to switch to competing businesses, thus contributing to a decline in loyalty. Therefore, every organization must find ways to extract from customers how they see value, for the reason that value is how customers perceive it.

Moreover, perceive value is regarded as a strong predictor of re-purchase intention (Marimon et al., 2010). Moreover, perceived value is not only influential at the pre-purchase phase, but it also affects customer satisfaction, intention to recommend and return behavior at the post-purchase phase (Harris and Goode, 2004).

Previous researches from traditional service show there is positive relationship between perceived value and loyalty (Parasuraman et al., 1998, Anderson & Srinivasan, 2003). More recently, Parasuraman et al., (2005) thoroughly assessed service quality in two online stores (Amazon and Walmart) one for books and the other one for general online shopping, respectively with 653 and 205 respondent and the results from the both studies indicated that there is a direct and positive effects of perceived value on online loyalty. This positive relationship between perceived value and loyalty was also confirmed in different context such as online banking (Sun et al., 2009; Marimon et al., 2012), Tax revenue (Connolly et al., 2010)

However, according to Sun et al., (2009) and Chang and Wang, (2011) little empirical research has been conducted in regard to relationships between customer perceived value, satisfaction and loyalty in an online environment. Therefore, on the basis of the preceding this thesis posited that:

G: Perceived value directly and positively affects loyalty

4.9 Satisfaction and loyalty

It has been shown that the increase in profit resulting from a 5 percent increase in retention varies between 25 and 85 percent (Herington and Weaven, 2009). Loyalty is still about satisfying the right kinds of customers for whom you can deliver such a consistently superior experience that they will want to do all their business with you (Boshoff, 2007). In that sense, Wolfenbarger & Gilly, (2003) argued that satisfied customers are more likely to revisit the website, reuse or repurchase the same product/service in the future, recommend it to others and to resist from competitors. Some scholars state that customers are loyal, because they are satisfied. Drawing on that, Cristobal (2007) intimates that the economic results of increasing consumer satisfaction are demonstrated in the long term and have a direct effect on e-loyalty

In keeping with earlier research Ladhari (2009b) showed there is a direct relationship between satisfaction and behavioral intention in the traditional services. Moreover, Fornell

(1992) found that high satisfaction results in customers with increased loyalty and less prone to be receptive to approaches from the competitors. Anderson and Sullivan (1993) established that satisfied customers have a greater propensity to be retained and to resist alternative options. However, this theory is hardly applicable in an online setting. Given that online customers are becoming more and more knowledgeable, since, they often used search engine and comparison web sites for products evaluation. Henceforth, competitors are just a click away. Still, Anderson & Srinivasan, (2003) stressed that the effect of satisfaction on loyalty is even stronger in an online environment than in a traditional brick-and-mortar. Moreover, to sustain in long-term relationships, banking institutions have to embrace the concept of customer satisfaction. This point of view is supported by Petnji et al., (2010), for banks to survive in the e-banking era, banks providers will have to earn consumer loyalty by improving customer satisfaction through product features and services excellence. Furthermore, a Yang & Peterson (2004) intimate that satisfaction is important because it is an antecedent to loyalty and loyalty is an antecedent to customer retention which is important for the financial success of the company.

However, the study of van Riel et al., (2001) appears to have diverging results from earlier studies. Moreover, Hellier et al. (2003) argued that customers are influenced by a mixture of positive and negative bonds, where the negative bonds (e.g. consumer inertia, brand promotion, customer information processing limitations, supplier monopoly) tie the customer to the vendor, even though customer satisfaction with the company may not be particularly high. In the same vein, Shankar et al. (2003) asserted that it is possible for a customer to be loyal without being highly satisfied (e.g., when there are few other choices) and to be highly satisfied and yet not be loyal (e.g., when many alternatives are available). Thus, from the extant literature the relationship between customer satisfaction and loyalty are blurred and further examination is needed. Considering the aforementioned arguments this thesis hypothesized that:

H: Customer satisfaction directly and positively affects loyalty

4.10 Moderating/Mediating role of satisfaction between service quality and loyalty

More recently, researchers were attracted to study the mediating role of consumer satisfaction and value in the relationship between service quality and customer loyalty. For example the

study of Dabholkar, Shepherd, and Thorpe (2000) found that customer satisfaction strongly mediated the effect of service quality on behavioral intentions. Moreover, Petnji et al., (2011) did a research in online banking in Spain and the results revealed that customer satisfaction does play a mediating role in the effect of service quality on loyalty. In the same vein, Yang and Tsai (2007) found that in an online environment e-service quality also influences e-loyalty via customer e-satisfaction.

However, the consequence chain models, that link service quality to loyalty with perceived value and satisfaction as mediators, have been firmly advocated (Harris and Harrington, 2000; Parasuraman et al., 2005; Boshoff, 2007; Marimon et al., 2010; Meng, 2010; Petnji et al., 2011). However, recent conceptual work has questioned the universality of this link (Ribbink et al., 2004), while empirical work has found that diverging results from earlier studies in online contexts are not consistent. For example, the well-established quality-satisfaction-loyalty chain was not supported in one of the online services they studied (Harris and Goode, 2004). Thus thorough understanding of factors that may influence customer e-loyalty is of paramount importance, as it may help e-retailers gain competitive advantage by implementing precise strategies to increase e-loyalty. Considering the aforementioned arguments this thesis hypothesized that:

I: Online satisfaction will mediate the effect of e-service quality on e-loyalty.

Moreover, Chang and Wang (2011) found that e-service quality does not significantly affect customer loyalty, but it influences it through perceived value in online retail store. Hence, this thesis also posited that:

J: Online value will mediate the effect of e-service quality on e-loyalty.

K: Online satisfaction will mediate the effect of ISO 9001 on loyalty

4.11 ISO 9001 Impact on service quality and service recovery

According to Karapetrovic, (1999) the ISO 9001 is undoubtedly the most comprehensive and most widely used and it present a sound basis for assuring the customer of quality of products and services, as well as the processes that create them. However, Casadesus et al., (2002) and Marimon et al., (2002) used SERVQUAL to assess the quality of the service offered by 87 Spanish companies that had used consultants when introducing their quality system in keeping with the ISO 9000 standards. The results show only three factors (Customer service,

assurance and empathy; Scheduling; and Tangibles) out of five define the perceived quality of ISO 9000 consultancy. Besides, the service quality expectation shows that there is still room for improvement of the service offered by quality consultants. However, the analyses point to the existence of a significant relationship between the efforts of the consultant to provide a better quality service and the client's perception of improved benefits. These mixed results encourage to thoroughly assessing whether ISO 9001 is positively related to the service quality delivered online. Thus, this thesis hypothesized that:

Z1: ISO 9001 is positively related to customer perceived service quality.

Moreover, it was reported that customer who experience service failure typically tell 10 others, while those not experiencing failure only tell 5 about their positive experience. However, according to (Tsuang Kuo., et al., 2009) ISO certification significantly improve the effectiveness of quality management practices and that service experienced better improvement than manufacturing in five out of six areas investigated after recovery. Therefore, this thesis hypothesized that:

Z2: ISO 9001 is positively related to customer service recovery

4.12 ISO 9001 Impact on customer satisfaction and value

According to the Internationalization Standard (ISO; 2008) ISO 9001 specifies requirements for a quality management system where an organization needs to demonstrate its ability to provide products that fulfill customer and applicable regulatory requirements and aims to enhance customer satisfaction. In that sense Karapetrovic, (1999) intimated that service quality is a set of characteristics that bear on the service's ability to satisfy customer requirements. Similarly, Nemati et al., (2010) defined customer satisfaction as a business terminology to evaluate how much a product or service supplied by company has been able to satisfy or please the customer. Moreover, it was shown that a high level of customer satisfaction reduces the customer's perception of the potential characteristics of alternative suppliers, increases customer loyalty, and thus enhances purchase intentions with the present supplier (Petnji et al., 2011).

In general, one of the core components of management standards is customer satisfaction. Since, ISO 9001:2008 (clause 8.2.1) requires that customer satisfaction must be monitored. Indeed companies that implement ISO 9001 have to explore and find ways to serve customer

needs and expectations at the best. However, In order to achieve customer satisfaction, firms need to create an environment and culture to find ways to serve customer needs and expectations. For this reason, ISO 9001 that aim at satisfying customer needs, are becoming more and more popular. More recently Simon and Petnji, (2012) surveyed 76 Spanish organizations registered to at least both ISO 9001:2008 and ISO 14001:2004 to investigate the impact of Management System Integration on organization innovation and customer satisfaction. The results of the study showed that all the integration characteristics were positively related to innovation and satisfaction and that innovation was only partially linked to satisfaction. In the same vein, this thesis anticipated that:

Z3: ISO 9001 is positively related to customer Satisfaction.

Furthermore, (Quazi and Padido, 1998) study found that the most important benefits of ISO 9001 certification are external like: increased satisfaction of customers' requirements, value and improvement in product quality and market competitiveness. Hence, this thesis also anticipate that

Z4: ISO 9001 is positively related to customer perceived value

4.13 ISO 9001 Impact on customer loyalty

The literature on traditional (non-online) service providers generally supports the notion that the implementation of ISO 9001 is beneficial for organizational management (Lima et al., 2000; Ruzevicius et al., 2004; Boiral and Roy, 2007). However, it is not easy to ascertain whether ISO 9001 has been directly responsible for a rise in productivity or an increase market share (Jones et al., 1997). Indeed, following a review of the literature on this issue, Rusjan and Alic (2010) stated that some studies have concluded that there is definitely a significant relationship between the implementation of a quality management system and a company's performance, whereas other researchers concluded that this relationship is either weak or even non-existent. Nevertheless, several studies have suggested that the relationship between quality management and business performance is different for manufacturing organizations and service organizations (Anderson et al., 1997; Johnson and Nilsson, 2003; Rönnbäck and Witell, 2008). This is because the notion of 'quality management' has different connotations in manufacturing and services. However, no references have been found on the literature related specifically to e-services, objective of this Thesis.

Moreover, in the traditional business loyalty is one of the core benefits of the standard implementation (Vloeberghs and Bellens 1996; Leung et al., 1999; Mathews 2005; Van der Wiele et al., 2005; Kumar and Antony, 2008). Despite the logical arguments, little empirical evidence has so far been offered to support the proposition of a link between ISO 9001 and Loyalty intention. Furthermore, Casadesus and Karapetrovic, (2003) argued that quality-management standards no longer provide discernible external benefits and competitive advantages. Notwithstanding the debate, virtually all of the studies on the impact of ISO 9001 have adopted the perspective of the organization (rather than that of the customer), and none appear to have investigated the impact of the ISO 9001 standard in the context of e-commerce. Despite the acknowledged lack of any empirical evidence in this area, it is intuitively reasonable to suppose that ISO 9001 certification would enhance e-service quality (as perceived by customers), and that this would lead to greater customer satisfaction and loyalty intention. Thus, this thesis anticipated that:

Z5: ISO 9001 is positively related to loyalty intention

4.14 Other aspects that influences loyalty and its antecedents (Gender, Usage category, education, age)

According to Ganesan-Lim et al., (2008) it is important to understand the relationship between the customer's perception of service quality and demographic information such as age, gender, education and income level. This information is useful for ensuring there are suitable products available for the target market. Moreover, Elanain, (2003) ascertain that demographic information allows researchers to obtain characteristics of their sample therefore making the classification of the data more meaningful. In the same vein, Meng et al (2009) intimates that customers with different demographic characteristics such as income level shop at different stores which further indicate that they might be differences in the perception of service quality customer satisfaction, customer value and loyalty based on income level. According to (Eagle, 2009), people in the same age group display similar shopping behavior and this information is important to retailers to understand more about their market. Besides, Ganesan-Lim et al., (2008) found that age has a big influence on the perception of service quality. Likewise, Kotler & Armstrong (2010) intimates demographic characteristics are an accepted basis of segmenting markets and customers and there has been

an increase in educated people in the United States and this leads to an increase in the demand for quality products. Other studies such as Parasuraman et al., (2005) have considered the occurrence of the website visits. Based on these backgrounds, this thesis hypothesized that

X: Demographic characteristics (Gender, Age, Education level, Income, usage categories) are positively related to Service quality, service recovery, customer satisfaction, value and loyalty

Y: ISO 9001 is positively related to the demographic characteristics (Gender, Age, Education level, Income, usage categories)

5 CHAPTER 5: RESEARCH METHODOLOGY

Before answering the main research questions and thus achieves the research objectives, it was judged adequate to described, explained, clarified and justified in details the methodology and all the different method steps used such as: the thesis instrumentation, the questionnaire development, pilot study, data collection, etc. However, before doing this, it was crucial to configure the outfit of the sub-models research objectives. In addition it was essential to labelled in details the hypothesis from the sub-models and their matching in the main framework. Therefore, this chapter start with the outline of the sub-models objectives, followed by a clear description of methods and methodology used in this study thereafter.

5.1 Sub-models research objective and Hypothesis

The main aim of this short section is to present first the objective and methodology for each of the sub-models that will be presented in this study. As well as the summary of the general hypothesis and their corresponding hypothesis in the sub-models as follows:

Sub-model 1: seeks to investigate from customers' perspective, if the implementation of ISO 9001 with the scope directly related to customers (offices, claims, etc.), spawn any discrepancies on service quality, customer perceived value, customer satisfaction, customer loyalty and customer service recovery; in the backdrop of e-services in Spain. An analysis of variance (ANOVA) was performed to a convenience sample customers of e-banking services and those of them who reported a complained about the service in 16 banks.

Sub-model 2: The purposes are twofold: (i) to propose and apply a scale to measure service recovery in the electronic banking (e-banking) sector; and (ii) to examine the relationship between service recovery and customer loyalty in the setting of e-banking services. The data are analyzed by exploratory factor analysis to: (i) test the applicability of the scale to the setting of online bank services: and (ii) generate a model including constructs for e-recovery and e-loyalty.

Sub-model 3: The purposes are twofold: (i) to propose and apply scales to measure service quality and service recovery in the setting of electronic banking (e-banking) services; and (ii)

to examine the impact of electronic service quality (e-quality) and service recovery (e-recovery) on loyalty (e-loyalty) in the setting of e-banking services. The data are analyzed by exploratory factor analysis to: (i) test the applicability of the scales to the setting of online banking services; and (ii) generate and test a model of e-quality, e-recovery, and e-loyalty using structural equation modeling (SEM).

Sub-model 4: This part of the study developed and empirically tested a model that considers perceived online service quality and online service recovery as antecedents to online satisfaction for the purposes of investigating which factor has the most significant impact on online customer satisfaction and loyalty. Exploratory Factor Analyses (EFA) was used to examine scales validity and structural equation modeling based on partial least square (PLS) techniques were used to evaluate the causal model.

Sub-model 5: This last section of the thesis results investigates whether ISO 9001 certification by banks affects customers' perceptions of e-service quality (and hence customer satisfaction and loyalty) in online banking services. In pursuit of this objective, the study also investigates: (i) the validity of a modified scale for measuring e-service quality in online banking services; and (ii) the factors that might influence customer satisfaction and loyalty in the context of online banking services (and the possible mediating/moderating effects of customer satisfaction on the relationship between service quality and customer loyalty). Exploratory factor analyses, multi-regression analyses, and Mann-Whitney U tests are utilized to assess (i) the proposed scales; (ii) the relationships among the constructs of service quality, satisfaction, and loyalty; and (iii) whether ISO 9001 certification affects customers' perceptions of e-service quality (and hence satisfaction and loyalty).

All the hypothesis from the conceptualization framework of the thesis broader model and their equivalent hypothesis in the sub-models are summarized in the table 16

Table 16: Summary of Hypothesis and their equivalent in the sub-models

Hypothesis ^a	Descriptions	S-M ^b	Descriptions
Sub-model 1			
Z	Z1: ISO 9001 → Quality	H1	ISO → Efficiency
		H2	ISO → Syst Availability
		H3	ISO → Fulfilment
		H4	ISO → Privacy
	Z4: ISO 9001 → Value	H5	ISO → Value
	Z3: ISO 9001 → Satisfaction	H6	ISO → Satisfaction
	Z5: ISO 9001 → Loyalty	H7	ISO → Loyalty
	Z2: ISO 9001 → Recovery	H8	ISO → Responsiveness

		H9	ISO → Contact
		H10	ISO → Compensation
Sub-model 2			
E	E: Recovery → Loyalty	H1	Responsive → Loyalty
		H2	Contact → Loyalty
Sub-model 3			
C	C: Quality → Value	H1	Efficiency → Value
		H2	Syst Avail → Value
		H3	Privacy → Value
G	G: Value → Loyalty	H4	Value → Loyalty
E	E: Recovery → Loyalty	H5	Responsive → Loyalty
		H6	Contact → Loyalty
J	J: Value Mediates/Moderates the effect of e-service quality on loyalty		Efficiency → Loyalty
			Syst Avail → Loyalty
			Privacy → Loyalty
Sub-model 4			
B	B: Quality → Satisfaction	H1a	Efficiency → Sat
		H1b	Syst Avail → Sat
		H1c	Privacy → Sat
D	D: Recovery → Satisfaction	H2d	Responsive → Sat
		H2e	Contact → Sat
H	H: Satisfaction → Loyalty	H3	Satisfaction → Loyalty
A	A: Quality → Loyalty	H4a	Efficiency → Loyalty
		H4b	Syst Avail → Loyalty
		H4c	Privacy → Loyalty
E	E: Recovery → Loyalty	H5d	Responsive → Loyalty
		H5e	Contact → Loyalty
Sub-model 5			
A	A: Quality → Loyalty	H1	Efficiency → Loyalty
			Syst Avail → Loyalty
			Privacy → Loyalty
Z	Z5: ISO 9001 → Loyalty	H1'	ISO → Loyalty
B	B: Quality → Satisfaction	H2	Efficiency → Sat
			Syst Avail → Sat
			Privacy → Sat
Z	Z3: ISO 9001 → Satisfaction	H2'	ISO → Satisfaction
H	H: Satisfaction → Loyalty	H3	Satisfaction → Loyalty
I	I: Satisfaction Mediates/Moderates the effect of e-service quality on loyalty	H4	Efficiency → Loyalty
			Syst Avail → Loyalty
			Privacy → Loyalty
K	K: Satisfaction mediates/Moderates the effect of ISO 9001 on loyalty.	H4'	ISO → Loyalty
Z	Z1: ISO 9001 → Quality	H5	ISO → Efficiency
			ISO → Syst Availability
			ISO → Privacy
Descriptive analysis, Sub-model 1 and Sub-model 5			
X	X: Effects of Demographic Characteristics (DC)	X1	DC → Quality
		X2	DC → Recovery
		X3	DC → Satisfaction
		X4	DC → Value
		X5	DC → Loyalty
Y	Y: ISO 9001 → DC		ISO → DC

^a HY= Hypotheses from the conceptualization framework of the thesis broader model

^bS-M = Sub-Models corresponding Hypothesis

→: Positively Related to or Impact on

5.2 Instrumentations

5.2.1 Electronic service quality (modified E-S-QUAL)

E-service quality was adapted from the original E-S-QUAL (Parasuraman et al., 2005). In accordance with Akinci et al. (2010), some items in the original scales were removed to facilitate application of the scales in online banking services. From the 22 items originally developed for the E-S-QUAL scale, three items (FUL2, FUL4, and FUL5) in the “fulfillment” dimension were removed because they evaluate “items available for delivery in a suitable time frame, accurate item order and having in stock what the company claim to have” all deemed not relevant in the present case of online banking. Hence only 19 items were adapted in this study. The four e-service quality dimensions were: efficiency (8 items), system availability (4 items), fulfilment (4 items), and privacy (3 items). They were reworded to fit in the context of online banking as suggested by (Parasuraman et al., 1988, 2005) e.g. the word “delivers” was replaced by “performs”. See Appendix 2 for the full list of items of e-service quality.

5.2.2 Electronic service recovery (modified E-RecS-QUAL)

E-RecS-QUAL scale was also drawn from (Parasuraman et al., 2005). In accordance with Akinci et al. (2010), some items were removed as follow: The first two items of the original “responsiveness” dimension and the second and third items of the “compensation” dimension were cast-off, because they were not applicable to this particular sector. This process yielded 7 items, as it is shown in Appendix 2, covering three dimensions namely responsiveness (3 items), contact (1 item) and compensation (3 items). All the retaining items were modified or reworded to fit in the context of online banking. See Appendix 2 for the full list of items of e-service recovery

To ensure content validity, the items used in the questionnaire are constructed on the basis of the extant literature as discuss earlier. However, it was imperative to adopt modified scales because:

5.2.3 The necessity of a modified scale

In traditional services, Parasuraman et al., (1998) recommended the need to refine the SERVQUAL scale by adding or removing items or dimensions to make the scale more culturally meaningful. From a review of the literature (Ladhari, 2009a) concluded The SERVQUAL is an appropriate tool to measure traditional service quality. However, it is important to modify the scale when it is measuring service quality in a different context or country (Yaghi, 2010). Since, the scale was developed in USA and therefore need modification to be more context or country specific (Ladhari, 2009a). Moreover, Furrer et al. (2000) established that the importance of SERVQUAL dimensions varies across people from different cultural backgrounds. The authors also suggested that other dimensions of service quality might exist in other cultures. In the same vein, Witkowski & Wolfinbarger, (2001) study on service quality for banks and restaurants in Japan and Thailand found a new dimension relevant in international studies and the authors suggested the need to take into consideration other dimensions when conducting studies in non-western countries. Whereas Diamantopoulos et al. (2006) found that response style such as item bias, the wording of the items and the scale layout differs between countries which might have an impact on the relationship between variables. Thus, researchers must be careful when adapting scales from other countries because adapting the scale might alter the meaning of the items.

Furthermore, Hu & Jasper (2007) in their cross cultural study that involved a sample of Chinese and US students on the effect of social perception on store image it was found that Chinese students are more aware of the social cues (personalized customer service and in-store graphics) in the retail store environment than the US students. Furthermore, according to Yaghi, (2010) an instrument that is applied in the western European countries to measures service quality will not fit Asian markets without modifications or without verifying the validity and reliability of the scale in the Asian countries. In the same vein Reynolds and Smith (2010) argued that customers from Asian and African countries might perceive service quality dimensions differently to European customers because Asian and African countries are more of a collectivist society and Europeans are more of an individualistic society. Furthermore, the service quality dimensions are influenced by the cultural background of the customers and culture has an effect on customer satisfaction (Tsoukatos & Rand, 2007). Besides, Meng and Mummalaneni (2010) argue that simply using the E-S-QUAL and RecS-QUAL is incongruous because questions that are important in one culture might not be

important in another culture which makes the scales inaccurate in cross cultural studies. Thus, the authors concluded that the scales should not be applied to other cultures without modification as e-retail customers in one culture may differ from customers in another culture which might makes the generalizability of the scale questionable. Moreover, the review of literature on E-S-QUAAL in chapter 3 shows the scale has been to a certain extent successfully replicated and applied in 11 countries and a variety of e-service settings. Collectively, the findings of the studies reviewed reveal important differences in a number of final painstaking dimensions of E-S-QUAL and the number of items used in the scale across industry. More evidence on the need to modify a scale to be more country or context specific was more emphasized in chapter 3, as the dimensional structure of E-S-QUAL appears to be very unstable, even within a given sector.

Against these backgrounds, this thesis adopted a modified E-S-QUAL and RecS-QUAL to measured service quality and service recovery in e-banking. Since, the study was conducted in Spain which is a non-speaking English country and culturally different from their American counterpart. Moreover, the scales were originally developed to measure service quality and recovery in online shopping settings whereas this study intend to measure service quality and recovery in online banking.

5.2.4 Customer loyalty

From the extant literature, the studies of customer loyalty fall into three broad categories: the behavioral approach, the attitudinal approach and the integrated approach. The behavioral approach examines the customer's continuity of past purchases, and then measures customer loyalty by rate of purchase, frequency of purchase and possibility of purchase. The attitude approach infers customer loyalty from psychological involvement, favoritism, and a sense of goodwill towards a particular product or service. It intends to include positive word of mouth (WOM). Finally, the integrated approach takes account of both behavioral and attitudinal variables, in order to create its own concept of customer loyalty. While drivers of purchase or repeat purchase intentions can be numerous, both commitment and WOM reflect a true, behavioral and attitudinal form of loyalty (Chang et al., 2009). Thus, in order to measure true consumer loyalty, this study adopts the integrated approach and the items used for loyalty were drawn from Parasuraman et al., (2005) with minor alterations (see Appendix 2).

5.2.5 Customer satisfaction

The extant literature conceptualized costumers' satisfaction in two comprehensive categories. According to Shankar et al., (2003), if satisfaction is seen as an emotional response to performance on specific attributes of a service encounter, it is conceptualized as transaction specific satisfaction. Alternatively, if satisfaction is more likely to depend on factors that occur over repeated transactions, it is conceptualized as a cumulative outcome or overall satisfaction. However, in an online context, when consumers make one time purchases from a new service provider, such as making a hotel reservation at a holiday resort, website satisfaction is likely to be transaction specific; whereas, in the case of repeating customers who have been buying from the same online service provider, satisfaction is likely to be a cumulative outcome (Chang et al., 2009). Moreover, Compared to transaction specific satisfaction, overall satisfaction reflects customers' cumulative impression of a firm's service performance. In turn, it may serve as a better predictor of customer loyalty (Cronin and Taylor 1992, Parasuraman et al., 1988). Besides, Ribbink et al., (2004) consider overall satisfaction to be primarily a function of perceived service quality. This study adopted a cumulative outcome rather than specific transaction satisfaction, for the reason that this study aims to collect data from customers who do their online banking regularly. Hence, the construct of "Satisfaction" was evaluated using four items adopted from Ribbink et al., (2004) with minor alterations (see Appendix 2).

5.2.6 Customer perceived value

According to Chang et al., (2010) the common denominator of different authors' definitions concerning customer perceived value is that: (i) value for a consumer is related to his expertise or knowledge, of buying and using of a product (ii) value for a consumer is related to the perception of a consumer and cannot be objectively defined by an organization (iii) the customer perceived value is a multidimensional concept, (iv) and it presents a trade-off between benefits and sacrifices perceived by customers in a supplier's offering. Based on a synthesis of previous definitions, Parasuraman et al., (2005) proposed a scale to assess value. Hence, the items used to assess perceived value in this study were drawn from Parasuraman et al., (2005). The items were adopted with minor alterations. See appendix 2 for a full list of items.

5.2.7 Likert type scale

The main reason for having a questionnaire was to obtain information from the respondents about their perception of e-service quality offer, e-service recovery, perceived value, satisfaction and loyalty; it was logical to follow a certain order that allows respondents to record facts, comments or attitudes. A popular method of collecting data for surveys is using Likert scales. Likert scales are a dominant method used for measuring service quality and twenty five out of the thirty studies that developed industry specific scales, used a Likert scale to measure service quality (Ladhari, 2009a). Likert scales are summated rating scales (Hair et al., 2006) and these are used for measuring attitudes which require respondents to choose a statement from a number of statements that range from 'strongly agree' to 'strongly disagree' (Zikmund, 2010).

According to Hair et al., (2006) the original likert scale used a five-point scale with the descriptors defined as follows: “Strongly agree” “agree”, “neither agree nor disagree” “disagree” and “Strongly disagree”. However, in the review of literature on E-S-QUAL presented earlier in this study, it was observed that this original five-point scale has been modified with some studies using a six-point scale, which forces a choice to be made as there is no neutral point, while others have re-introduced a neutral point but further extended the scale to seven-points. Nonetheless, this study adopted the original five-point likert scale. For the reason that, the original scale development of E-S-QUAL and RecS-QUAL used the five-point likert scale (Parasuraman et al., 2005). Moreover, five- point scales reduce the level of frustration among respondents, and increases the rate and quality of the responses (Sahadev and Purani, 2008, Akinci et al., 2009, Meng and Mummalaneni, 2010, Connolly et al., 2010). Besides, 66% of the studies reviewed on E-S-QUAL adopted the same 5-point likert type scale format.

5.3 Questionnaire development

The questionnaire development, pilot test and sampling plan are described in this section. The questionnaire was designed and formatted in accordance with the principles upheld by Billé, (2010) to enhance the response rate. For example the questions wording were kept simple, brief and balanced. The specificity of the response required was avoided and each question was intended to measure one and only one principle. To assure that perceptions are based on

actual experience, screening questions are asked primarily to guarantee that the respondents have used e-banking services before. Thereafter, this study included some demographic questions based on the followings:

5.4 Socio demographic questions

Traditionally, women were more in favor of shopping activities. Because they were usually in charge of household shopping and hold more positive attitudes towards the traditional store and catalogue shopping than their male counterparts (Ganesan-Lim et al., 2008). However, the new shopping channel provided by the internet seems to result in a different, if not opposite, gender pattern. Although there was no significant difference between online shoppers and non-shoppers in terms of gender, men were found to make more purchases and spend more money online than women (Donthu and Garcia 1999). The changing of gender pattern in the online shopping behavior prone calls for further investigation. Hence this study incorporated a dichotomy question related to gender

Moreover, according to Yaghi (2010) age is an important predictor when evaluating physical aspects of service, caring and commitment in a college shop. However, it was reported that early internet users were primarily middle-aged and younger and unfortunately had less purchasing power than those who were older. As a result, early research showed either no significant age difference among online shoppers or that online shoppers were older than traditional store shoppers (Donthu and Garcia 1999). In this day and age, the age gap between online and non-online consumers is diminishing, but the effect of age on consumers' intention to purchase online remains unclear (Zhou et al., 2007). It has then become apparent the necessity to confirm that age could be a factor that may influences customer perception of service offer in online banking setting. Therefore, this study included a socio demographic question related to age.

Furthermore, according to the review of literature, education level produces mixed effects ranging from no effect to a positive effect on online shopping (Zhou et al., (2007). However, Lee et al. (2006) tested the extended technology acceptance model which divided social influence into subjective norm and self-identity about "internally generated role expectation."

Within the Internet experienced and Internet inexperienced group, research supported that inexperienced people tend to simultaneously depend on subjective norm as well as self-identity. Conversely, experienced people are more likely to be explained only by self-identity. Chau & Lai (2003) identified that several individual differences including level of education and extent of prior experience have significant effects on ATM's beliefs. Thus, this study included an education variable. Because it was anticipated that people with lower education levels are less likely to use online banking, since, is a type of technology that might be a kind of barrier to them.

In addition, online shoppers tend to earn more money than traditional store shoppers. Because, most popular items purchased online, including books, CDs, holiday and leisure travel, PC hardware, and software, are all normal goods which demand increases as income increases (Donthu and Garcia, 1999). Besides the review of literature on online shopping shows income is positively related to online shopping tendency (Zhou et al., (2007). By anticipating that the same might be applying in online banking, this study also includes a question related to income.

According to Liao et al., (2008) there is a positive relationship between Internet usage and online shopping intention. However, Zhou et al., (2007) review of literature shows there are mixed results for the effects of Internet usage on online shopping intention. Since, increasing penetration of the Internet into our daily life, and the tremendous increase in the Internet population may have led to the diminishing effect of Internet experience in recent years. Thus this study included a question related to customer usage of online banking.

Overall, the section of the questionnaire that included a socio-demographic profile consisted of five demographic questions that include gender, age, education income and the frequency of usage of online banking. All items related to socio demographic questions in this section were multiple-choice questions.

5.5 Survey

Two separate surveys were used, one for online banking users and one for banks managers. The survey for online banking users was subdivided in four sections. The first section

contained “filter” questions to ensure that all respondents used Internet banking and to ascertain (from a list of banks that was made available) which bank they used. Considering the possibility that respondents may have more than one online bank, they were asked to report the one they used most frequently. Section 2 contained the items for measuring the constructs of e-service quality, perceived value, satisfaction, and loyalty (as detailed in the Appendix 2). Straight after a filter question seeking only those who experienced at least one problem with e-banking services or needed help. Those who answer yes were directed to Section 3 that contained items of e-service recovery. The final section sought demographic data on respondents (gender, age, education level, annual income, frequency of use).

The survey address to banks managers was subdivided in three sections. The first section asked banks managers to identify from the preset list the standards their bank are certified with as well as stating what the scope of each specific standard is. In section 2, banks managers were asked to list any management standards they implemented not mention in section 1. Given that most companies are moving toward implementing standards such as environmental management systems or integrating different management standards. The last section was composed of some definition of management standards listed in section 1

5.6 Pilot study

The questionnaire needed to be pre-tested through a pilot study. Online banking users from the University of Girona were selected as pretest sample respondents. Based on their feedback, the questionnaire was further revised and finalized. According to (Hulley, 2007) a pilot study is a small scale preliminary study conducted in order to evaluate feasibility, time, cost, adverse events, and effect size (statistical variability) in an attempt to predict an appropriate sample size and improve upon the study design prior to performance of a full-scale research project. The pilot study is important because it provides confirmation that the procedures used are suitable helps to refine the survey questions and makes sure that the survey used in the main study is appropriate (Zikmund et al., 2010). Moreover, it is a potentially valuable insight and should anything be missing or any weaknesses in the design of the scale in the pilot study it can be added to the full-scale (and more expensive) experiment to improve the chances of a clear outcome.

Besides, Billé, (2010) argued that extrapolation from a pilot study to large scale environmental strategy cannot be assumed to be possible, partly due to the exceptional resources and favorable conditions that often accompany a pilot study. Moreover, the pilot test could be repeated many times in order to refine the scale before conducting the main study. Hence, this study used a pilot study in a small scale research project that collects data from respondents (Professors and students from the University of Girona) with profiles similar to those that will be used in the full study. The questionnaire was translated from the original English statement to Spanish and Catalan. A pilot test was conducted on a small group of 25 online banking customers from the university to check the content validity of the questionnaire in terms of ambiguity of wordings or misunderstanding of technical terms.

The responses received from these respondents were very useful and changes were made to the question and questionnaire. In particular, useful comments included the suggestion that the demographic characteristics must be the last and ultimate part of the survey. Therefore, one of the biggest questions this research project faced was its presentation order. Does it matter if I put the demographics first? Or should I put the cognitive items up front because they require more attention?

My choice was based on some recent research in the *Journal of Business and Psychology* that reveals that placing demographic items at the beginning of a survey increases the response rate to those items in comparison to demographic items placed at the end. And more importantly, it did not affect scores on the three non-cognitive measures that came afterward, in this case: leadership, conflict resolution, and culture and goals measures (Teclaw et al., 2011). Furthermore, there were some other useful comments included the need of restricting the research only to Spanish residents (excluding those having oversea address) and the need for rewording some statements to be more understandable. In general, all the respondents found most of the questionnaire items understandable. However some minor wording mistakes were found. Adjustment was made and the survey was translated from Spanish and Catalan to English to verify in the opposite direction the content validity.

5.7 Sample and data collection methods

5.7.1 Data collection method

To examine the associations between the constructs and to test the hypotheses mentioned above, one of the most important and equally difficult decisions to make is whether to use quantitative or qualitative research methods or a mixed method approach. Observably, from the extant literature, studies of e-SQ measurement use a variety of methodologies: Qualitative (Zeithaml et al 2000), quantitative (Bauer et al., 2006) and mixed of both qualitative and quantitative (Wolfenbarger and Gilly, 2003; Cristobal et al., 2007). Generally, quantitative research generates numerical data or information that can be converted into numbers and analyze it statistically to test an objective theory (Creswell, 2007). On the other hand, qualitative researchers aim to gather an in-depth understanding of human behavior and the reasons that govern such behavior. Besides, it investigates the why and how of decision making, not just what, where, when (Denzin and Lincoln, 2005). Qualitative research is normally used when the researcher wants to explore a problem and gain a deeper understanding by talking to people or observing them (Creswell, 2007).

Drawn on the objectives of this study, a quantitative method was deemed appropriate. For the reason that, the original scale development was based on the quantitative method. Moreover, this thesis previously observed that E-S-QUAL is an existing theoretically supported scale; therefore it was not a surprise that most of the studies in the literature reviewed on E-S-QUAL adopted a quantitative methodology. Besides, Ladhari, (2008) looked at 30 different service quality scales and found that the quantitative method was the main approach for data collection.

Furthermore, after the literature review on e-service quality development, Ladhari (2010) intimates that several studies used convenience sampling of student and only few used random sampling. Likewise, providing the samples used in most of the studies consists of student populations may limit the generalizability of the scales and reduce their applicability to the broader population of online users. Additionally, according to Zikmund, (2003) a sample must be taken from the target population being researched. If the sample is adequate it will have the same characteristics of the population and the findings are usually used to make conclusions about the population. Hence, as an alternative of students sampling, this thesis

will use a random sample method to collect data from the general population of online banking in Spain.

The sample was derived from a database maintained by Spanish banks. Online banking users were selected by choosing a random starting point and choosing every fiftieth individual customer in succession thereafter. This technique yielded 1,600 potential respondents, who were invited by email to participate in the survey and were directed to a specific website containing the structured questionnaire, which they then self-administered. The survey was made available in three languages (Catalan, Spanish, and English), with respondents being invited to complete the survey in the language of their choice.

5.7.2 Sample size

One of the most difficult problems for researchers is to get the appropriate sample size that has an effect on how the sample findings accurately represent the population. From the extant literature there is no consensus on the minimum sample size that will perfectly represent the population. For example, as a general rule of thumb according to Hair et al., (1998) the conventional requirement is that around five observations per scale item are needed for conducting factor analyses. Moreover, Tabachnick and Fidell (2007) established that a sample size of 300 is adequate for factor analysis and for regression analysis a sample size of $N \geq 50 + 8 * m$ is adequate where m is the number of independent factors. Furthermore, according to Hair et al. (2006), small or very large samples have a negative impact on the statistical tests because the sample is either not big enough to make generalizations or too big to reach any conclusions. However, the study suggested that a sample size larger than 100 is good enough for factor analysis.

Similarly, structural equation modeling requires a large sample size because the estimation procedure and the estimation for the model fit are based on the assumption of a large sample size (Hair et al., 2006). Nonetheless, according to Kelloway (1998) a sample size of at least 200 observations would be an appropriate minimum for structural equation modeling. On the whole, the extant literature generally accepted that the larger the sample is, the more appropriate it is for factor analysis and the more likely that the generalizations are an accurate reflection of the population.

Excluding customers' demographic characteristics, the Overall number of variables in this study before factor analysis was 39 observed variables (19 items for e-service quality, 7 items for e-service recovery, five items for customer loyalty, 4 items for customer satisfaction and four items for perceived value) which suggest that the sample size should be larger than 195 Hair et al., (1998, 2006). There were three independent factors (value, satisfaction and loyalty) in this study and according to Tabachnick and Fidell (2007) the sample size of 300 is adequate for factor analysis, structural equation modeling and a sample size of $50 + 8 * 3 = 74$ is adequate for regression analysis.

5.7.3 Survey process

Generally, the survey delivery methods depend largely on cost factors and response rate requirements and the response rates vary depending on the delivery method adopted. Surveys can be implemented in a number of different ways e.g. post mail, telephone, online, home interviews, etc. However, with the increasing use of the Internet, online surveys have become a popular way of collecting information. The review of literature on electronic service quality development showed an online survey administration was the most frequently used as the data collection method (Ladhari, 2010). In addition to this reason, this study similarly adopted online survey because (i) the desired samples are internet users; therefore, the internet is the most appropriate medium to reach the sample of internet users, (ii) web surveys do not suffer from interviewer bias that makes the online research medium much less intrusive than traditional offline methods, (iii) in the case of larger sample sizes, the quality and accuracy of web data is increased due to fewer errors in data entry and (iv) It offers near real-time collection and analysis of data.

Moreover, the survey process of this study involved sending electronic mails which was design to enhance response rate to the randomly selected respondents. An invitation letter was firstly send by mail and comprised a short introduction that informs the respondents on the purpose, why the questionnaire is being conducted and end with a direct link to the Web page set for. The invitation letter was tailored to the targeted respondents and sought to encourage participation by recipient. According to Billé, (2010) the content and appearance of the covering letter (in our case the invitation mail) can influence the response rate of mail survey, although the effect depends on type of appeal and the way in which it is conveyed. In

this study the invitation letter had a general appeal, and was written in a reasonably formal style to enhance its credibility and appear professional.

Furthermore, each potential respondent from our target population were automatically given a specific identification. Two weeks after a first mail was send, a computer program was able to identify those who did not participated. Thereafter, a second electronic invitation mail was sent to encourage non-respondents to participate in the study. This was motivated by Hulley, (2007) and Billé, (2010) studies who suggested that many non-respondents are not actually refusing to participate, rather they put the survey aside with the intention of coming back to it later, but as time passes the priority attached to looking at the survey diminishes until it is completely forgotten lost or thrown away. Two weeks thereafter, the same process was repeated by sending the third and final electronic invitation mail to the remaining non-respondents. In all cases the completed surveys was received and save automatically in a specific repository design for.

Data collection was completed in May 2010 and 1,600 questionnaires were dispatched to bank users. A response rate of 52% was recorded from bank users. After rejecting some incomplete or invalid questionnaires, 428 valid questionnaires remained from Spanish customers of e-bank, which include 123 of them who experienced problems with the service. In any cases the sample size was well above the minimum requirement for factor analysis, structural equation model and also exceeded the minimum requirement for regression analysis as stated by Tabachnick and Fidell, (2007)

To measure ISO 9001 variables, a formal letter was sent by post mail to banks managers with a short questionnaire to collect a wide range of information, including the scope of ISO 9001 certification, the implementation process or any other related quality management standards. The letter design was in line with Girona University standard marking guide line that ensured the questionnaire, was properly design and included the university logo. In so doing the questionnaire was seen as having the authority of the university behind it, and consequently enhanced the perceived professionalism and therefore the research project credibility from bank managers' standpoint. The letter was addressed to the bank manager of quality department and a prepaid return envelope was included.

A total of 20 banks were called to participate. For the same reasons mentioned above, two weeks after an electronic mail followed by phone call were made to encourage non-respondents to participate (see questionnaire and letters in appendix 1, 2, 3, 4 and 5). These processes yield a total of 80% participation from bank managers. After rejecting some incomplete or invalid questionnaires, 16 banks were retained. Overall, the response rates from online bank customers and bank managers were excellent which indicates that bank managers and customers didn't have a problem completing the questionnaires.

5.8 Data analysis method

This section of the thesis sightsee the data analysis methods stance of the researcher which will clarify the reasons for the choice of different techniques used for data analysis. The first step of this thesis data analysis was to perform a data cleaning or data scrubbing. According to Han and Kamber, (2001), data cleaning or data scrubbing is the process of detecting and correcting (or removing) corrupt or inaccurate records from a record set, table, or database. In the same vein, Malhotra, (2004) acknowledge that consistency checks that includes: identifying incomplete, incorrect, inaccurate, irrelevant, out of range, logically inconsistent or have extreme value parts of the data is of paramount importance before any data analysis. Evidently incorrect or inconsistent data can lead to false conclusions. Hence, this preliminary process of data cleaning help researchers to determine how to deal appropriately with missing responses by taking suitable actions such as replacing, modifying, or deleting the dirty or unwanted data.

The data out of range values were checked in Excel and SPSS with the use of statistical methods such as using counts by response option and frequency analysis to detect anomalies and contradictions. Some inconsistencies were noted. For example although potential respondents was derived from a database maintained by Spanish banks, they were asked to identify themselves as Spanish or Non-Spanish resident. Those who were not Spanish resident were kindly thanks for their cooperation, but were encouraged not to participate in the study because the underlying basis of the research was restricted in Spanish. This restriction was necessary because non-Spanish respondents may assess the perceived service quality by comparing the service received in Spain to those of other countries, which is out of the scope of this study. Hence, these respondents' data were erased from the sample database.

Furthermore, respondents were given a list of banks and asked to select the bank they used on a regular basis to do your internet banking. However, some of the respondents selected more than two banks were only one was besought. Likewise, some of the respondents selected multiple answers of age, education, income and usage categories, where only one response was appropriate and requested. Yet, in any of the cases where such inaccuracy(s) was detected a decision was made to erase the respondent's data in the sample data base.

Additionally, the most difficult task to deal with was missing responses. For example, some respondents chose not to answer some specific questions related to demographic characteristics such as income or age. Equally, although some respondents acknowledge they experienced problem(s) or needed help on their bank web side while doing their online banking, they simply did not respond to questions such as "My bank site takes care of problems promptly" or "My bank site compensates me for problems it creates". Nonetheless, the issues were considered on the case by case basis. For example, given that the statistical software dealt with missing values during the analysis it was agreed to keep the two survey responses with only one missing value each on service recovery. However, responses with missing value (s) on demographic characteristics were erased because they might induce complexity in the data analysis. After the data scrubbing it was judged necessary to check whether the sample contains duplicate representations of the same entity and any data duplication was erased. Thereafter, this study proceeded with basic descriptive data analysis such as each demographic sample profile frequency as well as analyzing the data using the values of mean and standard deviation with the aim to provide simple summaries about the sample and the measures (see Chapter 6: Descriptive analysis results).

Furthermore, depending of the circumstances this thesis used t-test or ANOVA or Mann-Whitney test to investigate as it was hypothesized for example that banks implementing ISO 9001 perform better than those without, that different groups based on their demographic characteristics profiles have different perception of e-service quality, e-service recovery, customer value satisfaction and loyalty intention. In general, any of these tests are used to determine whether the means of the groups of interest are in fact statistically different.

A t-test is the most commonly used method to evaluate the differences in means between two groups. It is generally applied when the test statistic would follow a normal distribution if the value of a scaling term in the test statistic were known. On the other hand, one way ANOVA

use the t-test for comparing means of three or more groups, to avoid performing multiple t-tests. Given that, doing multiple two sample t-tests would result in an augmented chance of committing a type I error³. ANOVA overcomes this problem by enabling researchers to detect significant differences between the variables as a whole. Hence, ANOVAs are useful in comparing three, or more means. However, according to Field, (2009) when there are only two means to compare, the t-test and the ANOVA F-test are equivalent; the relation between ANOVA and t is given by $F = t^2$. On the other hand, the Mann-Whitney U test is used to compare differences between two independent groups when the dependent variable is either ordinal or interval but not normally distributed. Besides, instead of comparing the means of the two groups of interest, as in the case of the t-test, the Mann-Whitney U test actually compares the medians. It converts the scores on the continuous variable to ranks, across the two groups. It then evaluates whether the ranks for the two groups differ significantly. As the scores are converted to ranks, the actual distribution of the scores does not matter (Nicewander, 1988; Molinowski, 2002; Pallant, 2007; Field, 2009)

Furthermore, Mann-Whitney U test is the nonparametric alternative to the independent t-test. According to Han and Kamber, (2001) a potential source of confusion in working out what statistics to use in analyzing data is whether your data allows for parametric or non-parametric statistics. Obviously, getting it wrong in the first place could lead to the use of erroneous, incorrect or less powerful statistics procedure. According to Field, (2009) non-parametric statistical procedures are less powerful because they use less information in their calculation. For example, a parametric correlation uses information about the mean and deviation from the mean while a non-parametric correlation will use only the ordinal position of pairs of scores. Likewise, Pallant, (2007) advised that If the data distributions are approximately normal, then data is supposed to take parametric statistics and the best way to identify a relatively normal distribution by means of Skew and Kurtosis measures from the frequency output from SPSS. Moreover, the author advocates other considerations which have to be taken into account such as (i) if your measurement scale is nominal or ordinal then you use non-parametric statistics, (ii) if you are using interval or ratio scales you use parametric statistics

³ In each t-test it is usually accepted a 5% chance of the results being wrong ($p < 0.05$). Therefore, by performing N tests you would expect that one test would give you a false result.

Given that some of the variables to be analyzed were slightly off-center, this thesis followed Molinowski, (2002) approach to address some of the normality issues, which was to group some demographic characteristics and transformed the data so that the condition of normality is satisfied. Since, the advantage of transformations is that they make it possible to use standard techniques to construct standard errors for estimating between-group differences. Thereafter, a descriptive analysis was done using t-test and ANOVA to depict if the sample characteristics profiles were positively related to customer perceived service quality, service recovery, customer value, satisfaction, and loyalty intention. Moreover, a comparison of means among the two independent samples that were not normally distributed (those cases that have not reported any problems and those cases that reported a problem) was conducted using the Mann-Whitney U test. Thereafter, this study proceeded with the factor analysis. Additionally, Mann-Whitney U test was used to compare ISO 9001 certified and non-certified organizations

5.8.1 Factor Analysis

Factor analysis is a mathematical tool for examining a wide range of data sets, with applications especially important to the design of experiments Molinowski (2002). Generally, factor analysis aim to find relationships or natural connections (covariance) where variables are maximally correlated (positively or negatively) with one another and minimally correlated with other variables and then groups the variables accordingly under specific factors. In that sense, DeCoster, (1998) defined factor analysis as a collection of methods used to examine how underlying constructs influence the responses on a number of measured variables. According to Field, (2009) the three main reasons for using factor analysis are to (i) to develop a scale to measure an underlying theme such as service quality, (ii) to reduce the variables to a manageable size and (iii) to have a better understanding of the variables. Moreover, Factor analysis is related to principal component analysis (PCA), but the two are not identical. Factor analysis use regression modeling techniques to test hypotheses producing error terms, while PCA is a descriptive statistical technique (Bartholomew et al., 2008). Moreover, factor analysis assumes no specification of dependent variables, independent variables, or causality. However, it assumes that all the rating data on different attributes can be reduced down to a few important dimensions. More recently, there have been heated debates on selecting an appropriate procedure between PCA and common factor

analysis given that they differ in terms of their conceptual underpinnings. However, Velicer and Jackson, (1990) study exhibited that although there have been heated debates over the merits of the two methods, a number of leading statisticians have concluded that in practice there is little difference

Regardless of the debates, Factor analysis has been widely used in social sciences and the most common method of factor analysis is the principal component and the most common method of factor rotation is the varimax rotation (Molinowski, 2002). Rotation serves to make the output more understandable, by seeking so-called "Simple Structure": A pattern of loadings where items load most strongly on one factor, and much more weakly on the other factors. Besides, rotations can be orthogonal or oblique by allowing the factors to correlate (Ledesma and Valero-Mora, 2007). Furthermore, two tests are performed to ensure that the data is suitable for factor analysis, the Kaiser-Meyer-Olkin (KMO) measure for sampling adequacy and the Bartlett's test of sphericity (Bollen and Long, 1993). The KMO value is low if it is between 0.5 and 0.7 and excellent if it is above 0.90 (Field, 2009). Commonly, factors with an eigenvalue equal or greater than 1 are usually retained (Hair et al., 1998; Parasuraman et al., 2005, Petnji et al., 2011, Marimon et al., 2012).

According to Pallant, (2007) researchers often start the scales with a large number of questions. Then after data collection and by using factor analysis the larger number are reduced to a smaller number of questions and the results might be used for other type of analysis such as structural equation modeling, multiple regression analysis, etc. Moreover, there are basically two types of factor analysis: exploratory and confirmatory. In general, researchers want to use EFA if they do not have strong theory about the constructs underlying responses to their measures and CFA if they do (DeCoster, 1998). In this study, identification of underlying factors was done through both exploratory factor analysis and confirmatory factor analysis. Because the scales adopted in this study was originally developed to evaluate service quality of e-retailing that sales physical goods different from those offering pure services and principally e-banking.

5.8.2 Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA)

Exploratory factor analysis (EFA) attempts to discover the nature of the constructs influencing a set of responses, whereas Confirmatory Factor Analysis (CFA) tests whether a specified set of constructs is influencing responses in a predicted way (Molinowski, 2002).

According to DeCoster, (1998) some common uses of EFA are to

- (1) Identify the nature of the constructs underlying responses in a specific content area,
- (2) Determine what sets of items “hang together” in a questionnaire
- (3) Demonstrate the dimensionality of a measurement scale.
- (4) Determine what features are most important when classifying a group of items and
- (5) Generate “factor scores” representing values of the underlying constructs for use in other analyses.

And on the other hand, some common uses of CFA are to

- (1) Establish the validity of a single factor model.
- (2) Compare the ability of two different models to account for the same set of data.
- (3) Test the significance of a specific factor loading.
- (4) Test the relationship between two or more factor loadings.
- (5) Test whether a set of factors are correlated or uncorrelated.
- (6) Assess the convergent and discriminant validity of a set of measures.

This thesis first performed exploratory factor analysis (EFA) using SPSS 19 software on the items from the modified E-S-QUAL, RecS-QUAL, perceived value, satisfaction and loyalty intention scales using normalized varimax as the rotation method and the Kaiser criteria of eigenvalues greater than 1 (Hair et al., 1998). EFA is often recommended when researchers have no hypotheses about the nature of the underlying factor structure of their measure. This study seeks to group the variables related to the characteristics of the above mentioned factors in order to create a small number of unobservable latent variables. Close inspection of the loadings of the items was done and items that loaded poorly or equally in more than two factors were erased. Additionally, this thesis performed confirmatory factor analysis and the results are interpreted by one rule of thumb which is the loadings should be 0.707 or higher to confirm that independent variables identified a priori are represented by a particular factor (Carmines and Zeller, 1979). Subsequently, EQS software package was used to assess the first-order confirmatory factorial analyses (CFA) utilizing robust maximum-likelihood

estimation to ascertain that global fit of our data was acceptable following the criterion of Byrne, (1994) and Hu & Bentler, (1999).

5.8.3 Reliability and Discriminant Validity of the proposed scales

Even though the items used to measure the constructs in this study were based on items from the extant literature, it was necessary to check their validity in the current context by conducting tests to evaluate the reliability of individual items, internal consistency, convergent validity, and discriminant validity. The initial dimensionality proposals were doomed to be confirmed after arrays of Confirmatory Factor Analysis (CFA) were conducted to assess the factor structure. First, this study computed the internal consistency of the dimensions considering two indicators: the composed reliability Cronbach's alpha coefficient, whose minimum threshold is 0.7 (Nunnally and Bernstein, 1994). Finally, the validity of the individual items on their corresponding factors are confirmed by load values greater than 0.707 (Carmines and Zeller, 1979). However, before rejecting some items, it was first assessed if their loadings were statistically significant ($P < 0.05$) and greater than 0.5 (Sanzo et al., 2003). Besides, it was ascertain that the item loading was close to the threshold set by Carmines and Zeller, (1979). If so, they were admitted following the relaxed criterion suggested by Barclay et al., (1995).

Furthermore, the discriminant validity was assessed by verifying that the average variance extracted (AVE) for every scale was greater than the recommended value of 0.5 (Fornell and Larcker, 1981), and each individual item's coefficient was more than double the value of its standard error, hence, reflecting that the items represent their underlying construct. Additionally, each possible correlation between pair constructs was assessed. The square root of the AVE must be greater than the correlations presented by each construct with other constructs (Fornell and Larcker, 1981). Besides, correlation coefficients were less than 1 by an amount more than doubles its respective standard error (Ribbink et al., 2004). Taken as a whole, this evidence support the discriminant validity of the items as measures of their respective underlying constructs.

5.8.4 Correlation analysis

According to Rodgers and Nicewander, (1988), a correlational analysis is the use of statistical correlation to evaluate the strength of the relations between variables. There are several correlation coefficients, often denoted ρ (rho) or as r , measuring the degree of correlation. The most common of these is the Pearson correlation coefficient, which is sensitive only to a linear relationship between two variables which may exist even if one is a nonlinear function of the other (Myers and Well, 2003). The Spearman correlation coefficient is often described as being "nonparametric" and the correlation coefficient is a measure of linear association between two variables (Nicewander, 1988). Generally, the values of the Spearman correlation coefficient are always between -1 and +1 and the sign of the correlation indicates the direction of association between (Yaghi 2010). Obviously, two variables are perfectly related in a positive linear sense if a correlation coefficient is closer or equal +1; on the other way around, a correlation coefficient of -1 indicates that two variables are perfectly related in a negative linear sense. Besides, a correlation coefficient of 0 designates that there is no linear relationship between the two variables.

More recently, based on Spearman correlation coefficient, Burns and Bush (2010) set a rule of thumb about the strength of the association between variables (see table 14). The interpretation of the table is that if the Spearman correlation coefficient of the interaction between two variables is closer or equal 1 in absolute value then there is strong association or perfect positive correlation. Contrariwise, if the Spearman correlation coefficient of the interaction between two variables is closer or equal 0 in absolute value, then there is no association or very weak correlation. To put it in our context, the interaction between two strongly correlated factors induces both factors measure the same thing, hence they should not be presented as two distinct elements. However, pending this study is to have interactions between the factors set forth to be "weak" or less in order to corroborate the findings from the EFA and CFA and also pave the way for further statistical analysis possible such as regression analysis and structural equation modeling.

Table 14 Strength of correlation coefficient in absolute value

Spearman correlation coefficient	Strength of association
0.81-1.00	Strong
0.61-0.80	Moderate
0.41-0.60	Weak
0.21-0.40	Very weak
0-0.20	None

Source: Burns and Bush (2010)

This thesis conducted and interpreted a correlation analysis based on the dimensions set forth of service quality, service recovery, customers' perceived value, satisfaction and loyalty intention after EFA and CFA. The null hypothesis was that there is no association between all the factors. The results were interpreted based on the reading of the Spearman correlation coefficient and the rule of thumb set by Burns & Bush, (2010). Obviously, correlation analysis is often carried out before regression analysis and causal relationship to rule out strong relationships between the independent variables.

5.8.5 Regression analysis

According to Box, Hunter and Hunter (1978) correlation analysis assumes no causal⁴ relationship between variables because two variables can be very strongly correlated, but both can be caused by a third variable. For example, consider two variables: (i) how much my grass grows per week, and (ii) the average depth of the local reservoir. Both variables could be highly correlated because both are dependent upon a third variable (iii) how much it rains. Contrariwise, regression analysis assumes that one variable is dependent upon another single independent variable (Simple Regression) or multiple independent variables (Multiple Regression). Regression is another way to determine the association between variables; this is similar to bivariate correlation as it assumes that there is a link between the dependent and independent variable (Hair et al., 1998). In other words, the regression analysis helps to understand how the typical value of the dependent variable changes when any of the independent variables is varied, while the other independent variables are held fixed. In most

⁴ Broadly speaking, Causality is to find out what happens when you change something, it is necessary to change it (Box, Hunter and Hunter, 1978)

cases, the regression analysis estimates the conditional expectation of the dependent variable given the independent variables. According to Pallant, (2007), simple regression analysis and correlations are mathematically the same in many respects. However, multiple regression analysis is more complex than correlation and is used to find the ability of a set of independent variables in predicting the dependent variable.

Generally, regardless of the regression analysis type, the goodness of fit often includes the R square because it measures the fraction of the total variation in the dependent variable explained by the variation in the independent variable ranges. Its value can range from 0 which means that variation in the independent variable explains none of the variation in the dependent variable, to 1 meaning variation in the independent variable explains all the variation in the dependent variable. To put it short, the higher the R square the stronger the association between the dependent variable and the independent variable (Burns & Bush, 2010). Moreover, the interpretation of the direction of the relationship between variables is indicated by the signs (plus or minus) of the regression or β (beta) coefficients. If a β coefficient is positive, then the relationship of this independent with the dependent variable is positive; if the β coefficient is negative then the relationship is negative. Of course, if the β coefficient is equal to 0 then there is no relationship between the variables (Hair et al., 1998).

Occasionally, two or more predictor variables in a multiple regression model might be highly correlated. This statistical phenomenon is recognized as Multicollinearity⁵. According to Molinowski, (2002) collinearity is a linear relationship between two explanatory variables and Multicollinearity refers to a situation in which two or more explanatory variables in a multiple regression model are highly linearly related. Furthermore there is perfect multicollinearity when the correlation between two independent variables is equal to 1 in absolute value. However, O'Brien, (2007) analyzed a “caution regarding rules of thumb for variance inflation factors” and found that construction of a pairwise correlation matrix will yield indications as to the likelihood that any given couplet of right hand side variables are multicollinear. Besides, correlation values 0.4 and higher can indicate a multicollinearity issue, but sometimes variables may be correlated as high as 0.8 without causing such issues.

⁵ Generally, multiple regression procedures will estimate a linear equation of the form: $Y = a + b_1 \cdot X_1 + b_2 \cdot X_2 + \dots + b_p \cdot X_p$ where (a) is a constant, (bi) a slope and the independent variable X_i . The constant is also referred to as the intercept, and the slope as the regression coefficient or β coefficient (Molinowski, 2002).

Additionally, the author observed that a tolerance⁶ of less than 0.20 or 0.10 and/or a variance inflation factor (VIF) of 5 or 10 and above indicate a multicollinearity problem. In the same vein Pallant, (2007) argued that the preferred correlation value in a regression analysis should be between 0.3 and 0.7 because the correlation value above 0.9 indicates strong correlation which weakens the regression model.

According to Tabachnick & Fidell, (2007) to performed (multi) regression analysis, the sample size must be greater or equal 50 plus 8 times the number of independent variables for testing multiple correlations. Moreover the authors intimate that when performing a regression analysis, it is often assumed that the residuals (predicted minus observed values) are distributed normally or followed the normal distribution. Again, even though most tests specifically the F-test are quite robust with regard to violations of this assumption, the results are slightly improved if the data is normally distributed.

In this study multiple regression analysis was used because the sample size exceeded by far the acceptable conditions set by Tabachnick & Fidell, (2007) and there was more than one independent variable. This study used multiple regression analysis to check the causal relationship between the independent variable of customer perceived service quality and the dependent variables customer satisfaction and loyalty. Moreover, regression analysis was used to check the causal relationships between independent variable of ISO 9001 and the dependent variables of customers perceived service quality, satisfaction and loyalty intention. In addition multi regression analysis was used to assess the mediating/moderating role of satisfaction between customer perceived service quality and loyalty in accordance with the procedure of Baron and Kenny, (1986). In any cases this study checked the goodness of fit that includes the R-squared, analyses of the pattern of residuals and hypothesis testing. Besides, the statistical significance was checked by an F-test of the overall fit, followed by t-tests of individual parameters.

⁶ tolerance = $1 - R_j^2$, $VIF = \frac{1}{\text{tolerance}}$, where R_j^2 is the coefficient of determination of a regression of explanator j on all the other explanators (O'Brien, 2007)

5.8.6 Causal relationship estimate

Generally, two different approaches are available for the estimation of a structural equation model (SEM): a covariance structure-based approach, maximum likelihood estimation of structural equation models (SEM-ML), also known as linear structural relations (LISREL), and a component-based (or variance-based) approach, PLS approach to structural equation modeling, also known as partial least squares path modeling (PLS-PM). The two approaches are more complementary than competing, and the choice of one rather than the other should depend on the purpose of the analysis, the nature of the model and the research context (Esposito et al., 2008).

However, in this study the proposed structural models were estimated by means of Partial Least Squares (PLS version 2.0). Indeed, the use of PLS was motivated by the following considerations: (i) after screening the distribution of the data for normality, it was evidenced that most variables were slightly off-centre, and (ii) the limited sample size. PLS makes no assumptions regarding the distribution of the variables and ensure optimal prediction accuracy (Fornell and Cha., 1994). It has special abilities that make it more appropriate than other techniques when analyzing small sample sizes, it is shown to be very robust against multicollinearity (Cassel et al., 2000) and it is often more adapted to empirical data.

Furthermore, the goodness-of-fit index was assessed following Tenenhaus et al. (2004), which take into account both the explained variances for the latent dependent variables and their commonalities. Plinth on the model performance statistic results, it can be concluded that the proposed model exhibited or not an acceptable fit to the data and in case of good GoF⁷ the hypothesized relationships were tested. The goodness-of-fit was manually computed based on the following formula proposed by Tenenhaus et al. (2004)

5.8.7 Structural model

This thesis used causal modeling, or path analysis, which hypothesizes causal relationships among variables and tests the causal models with a linear equation system. Causal models can involve either manifest variables, latent variables, or both. To analyze the extent to which

⁷ GoF= Square Root (Mean R2 * Mean Communalilty); Tenenhaus et al. (2004)

different factors were interrelated between them, the thesis used Structural Equation Modeling (SEM). Because, SEM has become an indispensable methodology for specifying, estimating, and testing hypothesized interrelationships among set of substantively meaningful variables. SEM is often used to test complex relationships between observed variables measure and unobserved latent variables as well as the relationships between two or more latent variables. Commonly, researchers used two different kinds of variables, namely exogenous and endogenous variables. The distinction between these two types of variables is whether the variable regresses on another variable or not (Bollen and Long, 1993). In the SEM the variables sending out arrowheads to indicate which variable they are predicting are recognized as exogenous variables, whereas those receiving an arrowhead are recognized as endogenous (Schumacker et al., 2004).

Usually, in regression analysis the dependent variable regresses on the independent variable, meaning that the dependent variable is being predicted by the independent variable. Equally, SEM determinations are similar to those of regression analysis, but in a more powerful way. Given that SEM is more general than regression analysis and a variable can act as both independent and dependent variable. Moreover, SEM is an extension of the general linear model of which regression is a part (Gefen et al., 2000).

SEM typically distinguished two main components of models (i) the structural model showing potential causal dependencies between endogenous and exogenous variables and (ii) the measurement model showing the relations between latent variables and their indicators (Bartholomew and Knott, 1999). Besides, according to Gefen et al., (2000) and Schumacker et al., (2004) SEM offer more flexible assumptions than regression, mainly

- (1) by tolerating interpretation even in the face of multicollinearity,
- (2) use of confirmatory factor analysis to reduce measurement error by having multiple indicators per latent variable,
- (3) offers the desirability of testing models overall rather than coefficients individually,
- (4) the ability to test models with multiple dependents,
- (5) permits rigorous analysis of all the variance components of each observed variable (common, specific, and error)
- (6) maps reflective and formative observed variables
- (7) Analyzes all the paths, both measurement and structural, in one analysis.

- (8) is an umbrella concept for analyses such as mediation and moderation,
- (9) Offers the ability to handle difficult data such as non-normal data, and incomplete data.

Likewise, where regression is highly susceptible to error of interpretation due to misspecification, the SEM appear to be more robust because of its strategy of comparing alternative models to assess relative model fit (Bollen and Long, 1993). Additionally, Structural Equation Modeling (SEM) techniques such as Partial Least Squares (PLS) are second generation data analysis techniques that can be used to test the extent to which a research meets recognized standards for high quality statistical analysis (Bagozzi and Fornell, 1982). This capability for simultaneous analysis differs greatly from most first generation regression models such as linear regression, which can analyze only one layer of linkages between independent and dependent variables at a time (Gefen et al., 2000). Hence, to analyze the extent to which different factors were interrelated between them, Structural Equation Modeling (SEM) was conducted using a partial least squares (PLS) procedure with the Smart-PLS software package. PLS allows path modeling with latent variables (Ringle et al., 2005). The significance of the paths of the inner model was calculated by using bootstrapping based on 1,000 re-samples to ascertain the stability and the statistical significance of the parameter estimates.

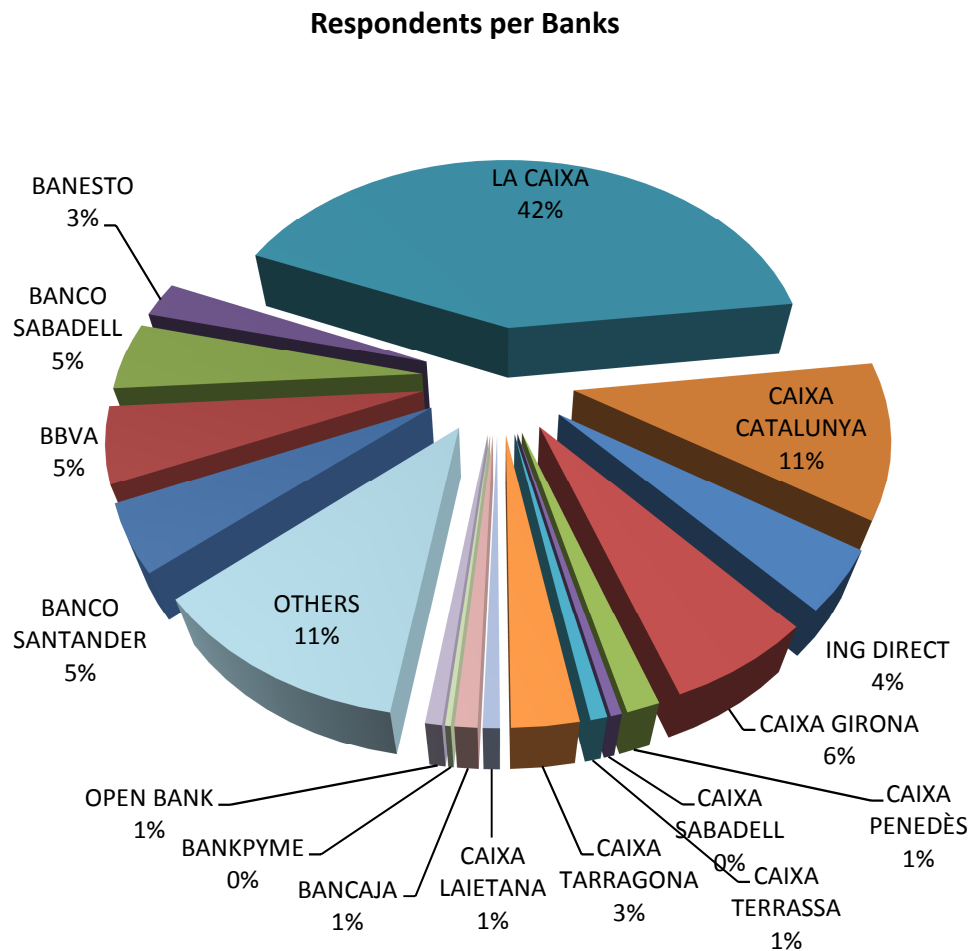
6 CHAPTER 6: DESCRIPTIVE ANALYSIS RESULTS

Descriptive Statistical Analysis was used in order to summarize the characteristics of respondents and better understand each research variable. Respondents' frequency distributions per banks, sample characteristics profile and measures of items trend were reported as follows:

6.1 Respondents per banks

Respondents were asked to select only one of the banks they used on the regular basis most frequently and to make sure that they used that answer throughout the questionnaire. Figure 7 shows the number of respondents per banks. The results show from the 428 Spanish customers of e-bank, 42% were la Caixa customer, followed by Caixa Catalunya 11%, Caixa Girona, Banco Santander 5%, BBVA 5%, Banco Sabadell 5%, etc. Moreover, 11% of respondents said they do their banking with other bank institutions not in the list. It was not a surprise given that some banks operations are still limited to some specific regions or provinces as it was explained earlier.

Overall it can be observed that more than 60% of e-banking user in Spain preferred saving banks. This is consistent with Iniesta and Sanchez, (2003) study who also found that the large savings banks and the small and medium sized banks are the ones that contribute most to forming the first factor of their study. Obviously, from an economic point of view this preference is justifiable for the reason that, savings banks have been throughout their history a significant driving force for growth, savings, allocation of resources and financial inclusion in Spain. They have also grown to be an essential element for the credit access of households and small and medium size family business which constitutes one of the biggest segments of Spanish economy. Another crucial aspect that explains the importance of saving banks for the Spanish society is their effect on the general interest through the compliance with their social duties. More importantly, the allocation of surpluses to the provisions of goods and services in the region or province in which they are present appear to be very valuable accompaniment of customers' benefit.

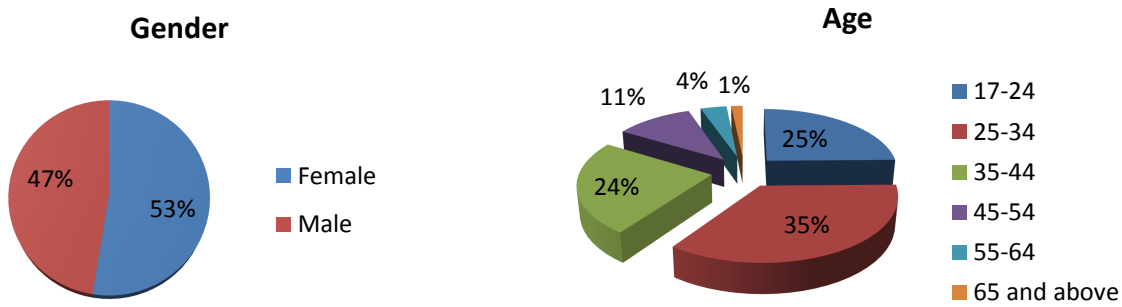
Figure 7 Respondents per banks

Demographic characteristics of sample profile.

6.2 Gender and Age Characteristics

The sample respondents profile show from the 428 respondents no gender bias was detected. 35% were of respondents were aged between 25-34, followed by respondents aged between 17-24 and 35-44 corresponding to 25% and 24% respectively. Overall, two thirds of the respondents were aged less than 34 years. Figure 8 presents the frequency distribution of the respondents' gender, age

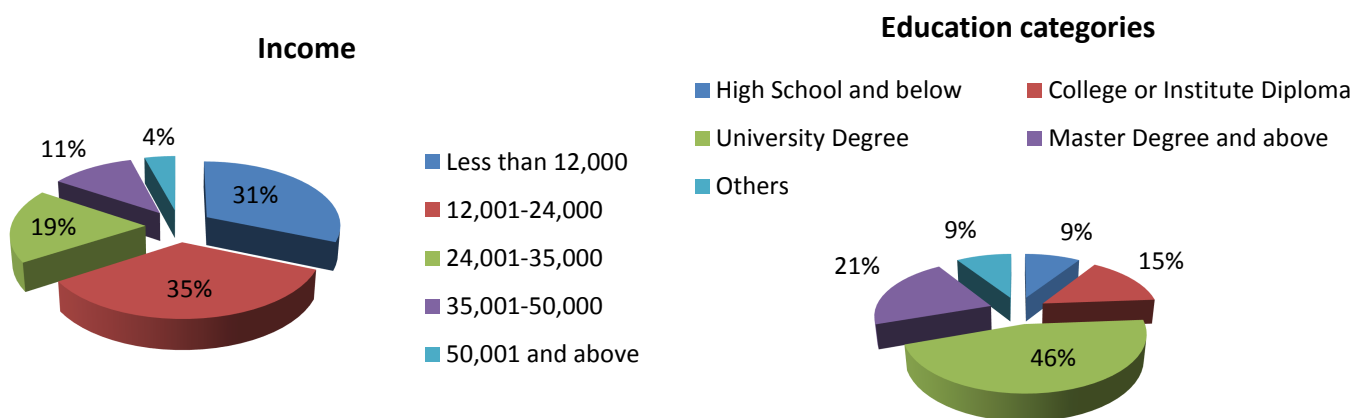
Figure 8: Gender and Age Characteristic



6.3 Income and Education Characteristics

The sample shows the largest income group (35%) earned between 12001-24000 and the second largest was respondents(31%) with annual income less than 12000, thereafter by those who earned between 24001-35000 and very few earned more than 50 000. The sample profile also shows the majority of respondents were very educated with the largest educational group (42%) have University Degree followed by the second largest educational group, which was slightly fewer than the half of largest group (21%) have a Master Degree and above. Only an insignificant segment (9%) of the sample profile have a high school education of below. Overall, the educational level of the sample was high, with more than two thirds of the sample having a university degree or a master degree. Overwhelming majority (65.9%) of the respondents earned less than € 24,000 annual incomes. Figure 9 presents the frequency distribution of the respondents' income and education

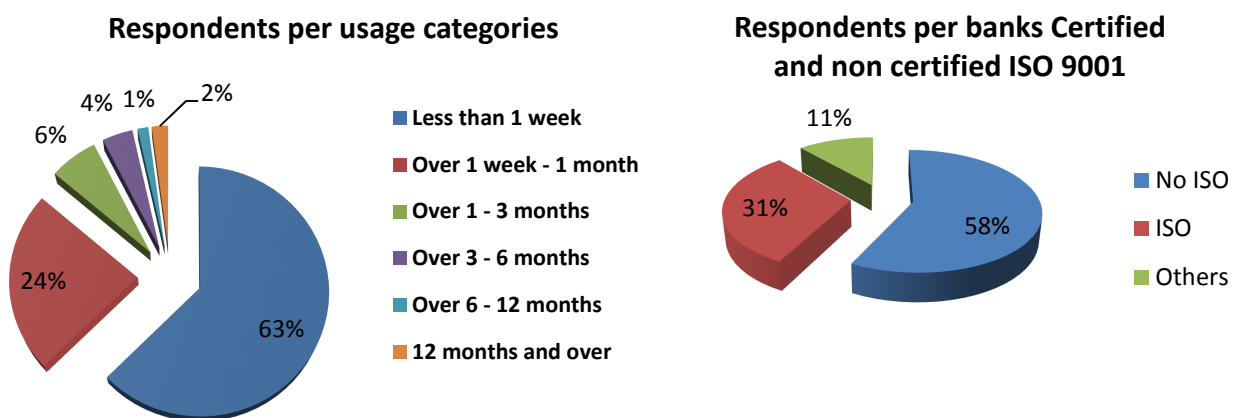
Figure 9 Income and Education Characteristics



6.4 Usage and ISO 9001 Banks categories

The number of time online customers do their banking online might give a hint about their level of perception of service quality, service recovery, satisfaction and loyalty. Thus, respondents were asked to indicate when was the last time they did their online banking. The sample profiles show the majority of respondents were up-to-date users of online banking. Since, the largest group of respondents (two thirds) used e-banking less than one week ago followed by those who do their e-banking between 1 week and 1 month and very few (7 %) did their e-banking more than 6 months ago. Likewise, the sample is skewed toward banks with no ISO 9001. Given that the largest group of banks (57.5%) intimated they are not ISO 9001 certified, followed by the second largest group (16%) who are ISO 9001 certified. Besides 11% of banks sample were classified as “others” because they were implementing integration of management system standards. consequently this study was unable to outline the scope of the standard implemented (see figure 10).

Figure 10 Respondents per usage categories and per ISO 9001 certified and noncertified



6.4.1 Demographic characteristics of the sub-sample

From the 428 respondents, 123 valid completed questionnaires remained from Spanish customers of e-bank who complained or experienced problems with the service received. It also shows no gender bias detected, that half of the respondents were aged less than 34 and the educational level was high, with two thirds of the sub sample having a university or a master degree.

To ascertain that the sample of this study was representative of the whole population this study compared the sample profile to the general population of e-banking user in Spain. The results show the sample replicates the general population in term of gender, age, education and annual income. Moreover, the sample of service recovery (123) was constructed by self-selection of respondents. It was as well necessary to assess representativeness of the final data of service recovery with the aim population sample (428). The findings indicated that no differences were detected in “gender” and “educational” level. However, the characteristics of “age” and “annual income” p-value ≤ 0.05 , indicates that there was some differences. Please see sub-model 3 for thorough discussions and explanations. To assess the representativeness of the sample characteristics profile, a comparison of demographic variables between the 16 banks sample was conducted using the Wilcoxon–Mann–Whitney test. The findings indicated that no differences were detected in gender, educational, age, income and the usage. Thus, the sample was not biased towards any bank in particular.

In addition, descriptive statistical analysis was used to illustrate the means, and standard deviations of each research variable. The electronic service quality scale consisted of 19 items and composed of four dimensions: efficiency, fulfillment, system availability, and privacy. The electronic service recovery consisted of 7 items and composed of three dimensions: responsiveness, contact and compensation. Both scales were adopted and modified from the E-S-QUAL and RecS-QUAL developed by Parasuraman, et al., (2005). The dimension of perceived value comprised of 4 items, satisfaction entailed 4 items and loyalty was composed of 5 items. Respondents were asked to indicate their answers to each item measured by the original five-point likert scale (Hair et al., 2006) with the descriptors defined as follows: 5 = “Strongly agree”; 4 = “agree”; 3 = “neither agree nor disagree” ; 2 = “disagree” and 1= “Strongly disagree”.

6.5 Descriptive Analysis of Electronic Service Quality

The descriptive analysis of the total mean of the overall electronic service quality (e-SQ) was 75.22, with a possible range from 19 to 95, and the total average item score for the e-SQ scale was 3.96. The dimension with the highest mean score was Privacy (4.21) and the dimension with the lowest mean score was fulfillment (3.84). The total mean score of the efficiency dimension was 31.40 with a possible range of 8 to 40, and the average item score for the efficiency dimension was 3.92. The total score of the system availability dimension was 15.82, with a possible range from 4 to 20, and the average item score for the system

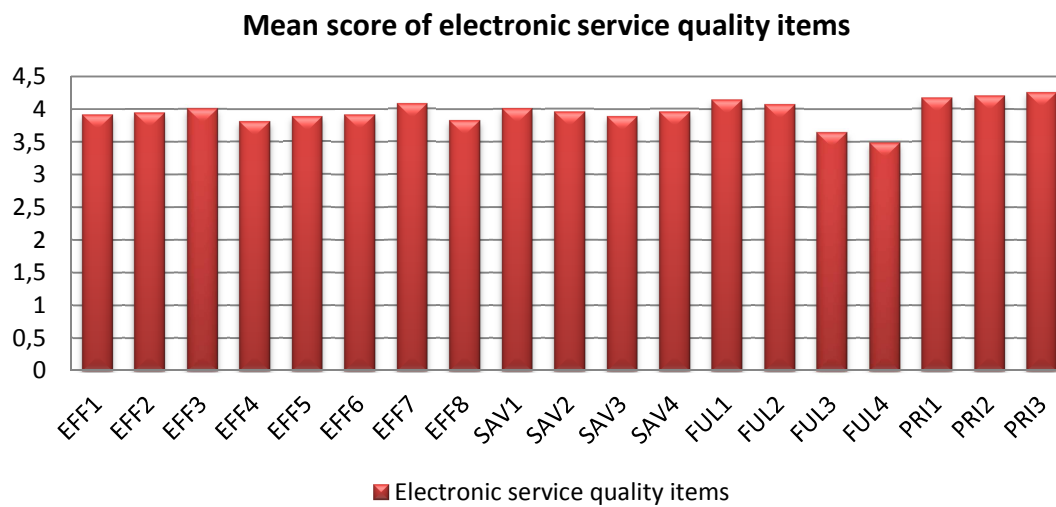
availability dimension was 3.95. The total score of the fulfillment dimension was 15.36, with a possible range from 4 to 20, and the average item score for the fulfillment dimension was 3.84. The score of the privacy dimension was 12.64, with a possible range of 3 to 15, and the average item score for the privacy dimension was 4.21. The item with the highest mean score was PR3 “My bank X site protects information about my credit and debit cards” with a mean (M) score of 4.26 and standard deviation (SD) of 0.86, followed by PR2 “ My bank site does not share my personal information with other sites” (M = 4.21, SD = 0.92). The item with the lowest mean score was FUL4 “My bank site makes accurate promises about performance of online banking” (M = 3.49, SD = 0.88). The results of descriptive statistical analysis of electronic service quality items are presented in Table 17 and Figure 11.

Table 17: Descriptive analysis of electronic service quality (N= 428)

Indicators	Items	Mean	Standard deviation
Efficiency		3.92	
EFF1	It is easy to find what I need on my bank X web site	3.92	.87
EFF2	It is easy to get anywhere on my bank X site	3.95	.86
EFF3	My bank X enables me to complete a transaction quickly	4.01	.92
EFF4	Information at this site is well organized.	3.81	.92
EFF5	My bank X site loads its pages faster	3.88	.94
EFF6	This site is simple to use.	3.92	.84
EFF7	This site enables me to get on to it quickly.	4.08	.82
EFF8	This site is well organized.	3.83	.86
<i>Efficiency Dimension total score (possible range 8-40)</i>		<i>31.40</i>	
System Availability		3.95	
SAV1	This site is always available for business.	4.01	.94
SAV2	This site launches and runs right away.	3.96	.88
SAV3	This site does not crash.	3.89	.98
SAV4	Pages at my bank X site does not freeze after I enter my order information	3.96	.94
<i>System Availability dimension total score (possible range 4-20)</i>		<i>15.82</i>	
Fulfillment		3.84	
FUL1	It performs orders when promised.	4.15	.81
FUL2	It quickly delivers what I order.	4.07	.79
FUL3	It is truthful about its offerings.	3.65	.90
FUL4	It makes accurate promises about performance of online banking.	3.49	.88
<i>Fulfillment Dimension total score (possible range 4-20)</i>		<i>15.36</i>	
Privacy		4.21	

PR1	My bank web site protect information about my online banking behavior	4.17	.88
PR2	It does not share my personal information with other sites	4.21	.92
PR3	My bank X site protects information about my credit and debit cards	4.26	.86
<i>Privacy dimension total score (possible range 3-15)</i>		<i>12.64</i>	
Average item score for the e-SQ scale		3.96	
Total score (possible range 19-95)		75.22	

Figure 11: Electronic service quality by mean score



6.6 Descriptive Analysis of Electronic Service Recovery

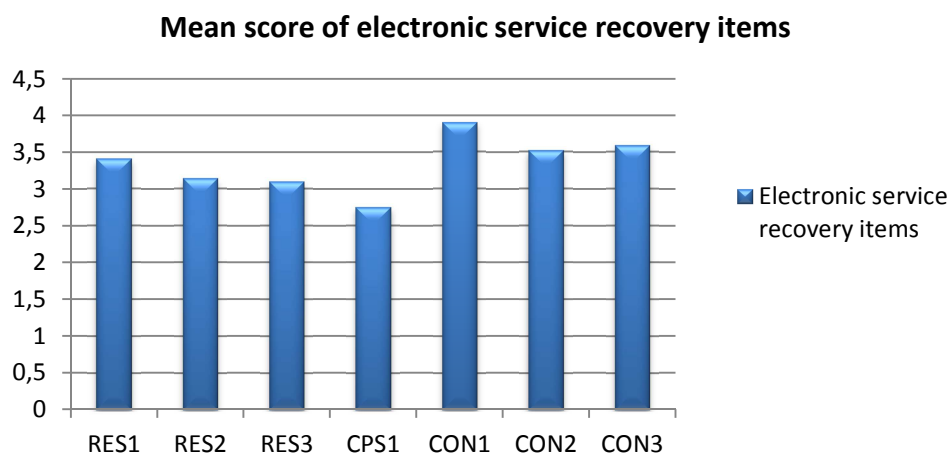
The descriptive analysis of the total mean of the overall electronic service recovery was 23.41, with a possible range from 7 to 35, and the total average item score for the e-SQ recovery scale was 3.41 slightly lower than the total average score of e-SQ (3.96). The dimension with the highest mean score was contact (3.67) and the dimension with the lowest mean score was compensation (2.75). The total mean score of responsiveness dimension was 9.65 with a possible range from 3 to 15, and the average item score for the responsiveness dimension was 3.21. The total score of the compensation dimension was 2.75, with a possible range from 1 to 5, and the average item score for the responsiveness dimension was 2.75. The total score of the contact dimension was 11.01, with a possible range from 3 to 15, and the average item score for the contact dimension was 3.67. The item with the highest mean score was CON1 ($M = 3.90$, $SD = 1.18$) "It performs orders when promised". The item with the lowest mean score was CPS1 "This site is always available for business" ($M = 2.75$, $SD = 1.24$). However, the average item score of e-SQ is 14 percent higher than item score of

e-SQ recovery. The results descriptive statistical analysis of electronic service recovery items are presented in Table 18 and Figure 12.

Table 18: Descriptive analysis of electronic service recover (N= 123)

Indicators	Items	Mean	Standard deviation
Responsiveness		3.21	
RES1	It is easy to find what I need on my bank X web site	3.41	1.08
RES2	It is easy to get anywhere on my bank X site	3.14	1.19
RES3	My bank X enables me to complete a transaction quickly	3.10	1.14
<i>Responsiveness Dimension total score (possible range 3-15)</i>		<i>9.65</i>	
Compensation		2.75	
CPS1	This site is always available for business.	2.75	1.24
<i>Compensation dimension total score (possible range 1-5)</i>		<i>2.75</i>	
Contact		3.67	
CON1	It performs orders when promised.	3.90	1.18
CON2	It quickly delivers what I order.	3.52	1.16
CON3	It is truthful about its offerings.	3.59	1.23
<i>Contact Dimension total score (possible range 3-15)</i>		<i>11.01</i>	
Average item score for the e-SQ recovery scale		3.41	
Total score (possible range 7-35)		23.41	

Figure 12: Electronic service recovery by mean score



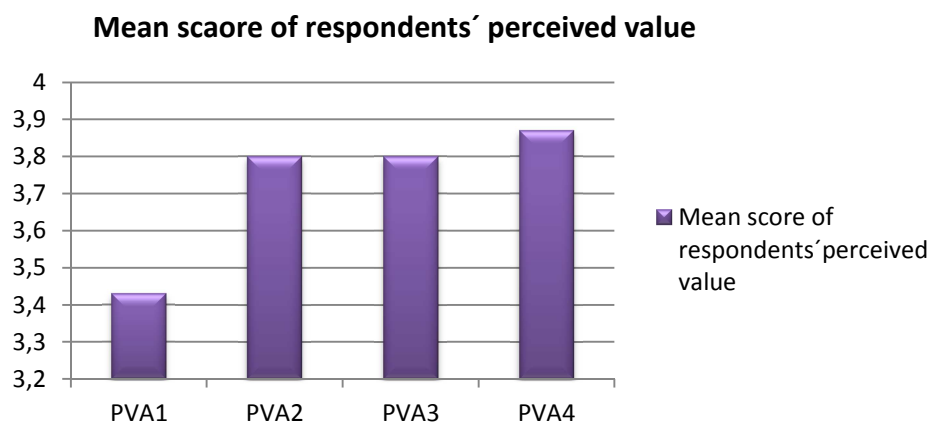
6.7 Descriptive Analysis of respondents' perceived value

The customers' perception of perceived value was evaluated by four items that consisted of a trade-off between price and service quality (Parasuraman et al., 2005). The total average perceived value scale was 14.9, with a possible range of 4 to 20. The average item score for perceived value scale was 3.72, slightly higher than the average score of service recovery (3.41). However, it was lower than the average score of service quality (3.96). The item with the highest average score was PVA4 "The overall value you get from this site for your money and effort" (M = 3.87, SD = 0.82). The item with the lowest average score was PVA1 "The prices of the services available at this site (how economical the site is)" (M = 3.43, SD = 1.11). The results of descriptive statistical analysis for perceived value items are presented in Table 19 and Figure 13.

Table 19: Descriptive analysis of respondents' perceived value (N= 428)

Indicators	Items	Mean	Standard deviation
Perceived value		3.72	
PVA1	The prices of the services available at this site (how economical the site is).	3.43	1.11
PVA2	The overall convenience of using this site.	3.80	.849
PVA3	The extent to which the site gives you a feeling of being in control.	3.80	.87
PVA4	The overall value you get from this site for your money and effort.	3.87	.82
Average item score for perceived value scale		3.72	
Total score (possible range 4-20)		14.9	

Figure 13: Respondents' perceived value by mean score



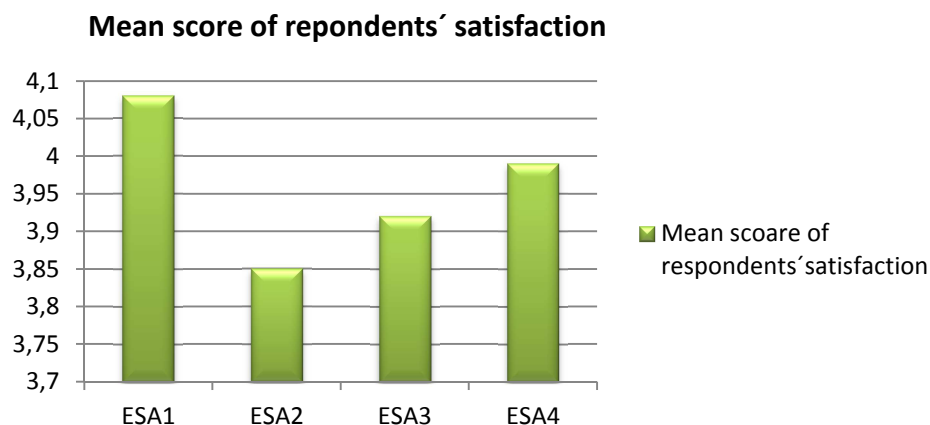
6.8 Descriptive Analysis of respondents' satisfaction

The customers' satisfaction scale was evaluated by four items borrowed from Ribbink et al., (2004). The total average of respondents scale was 15.84, with a possible range of 4 to 20. The average item score for respondents satisfaction scale was 3.95, slightly higher than the average score of service recovery (3.41) and perceived value (3.72). However, it was slightly lower than the average score of service quality (3.96). The item with the highest average score was ESA1 "I am generally pleased with Bank X's online services" (M = 4.08, SD = 0.81). The item with the lowest average score was ESA2 "The web site of this online bank X is enjoyable" (M = 3.85, SD = 0.91). The results of descriptive statistical analysis of respondents' satisfaction are presented in Table 20 and figure 14.

Table 20: Descriptive analysis of respondents' satisfaction (N= 428)

Indicators	Items	Mean	Standard deviation
Satisfaction		3.95	
ESA1	I am generally pleased with Bank X's online services.	4.08	.815
ESA2	The web site of this online bank X is enjoyable.	3.85	.918
ESA3	I am very satisfied with this bank X's online services.	3.92	.837
ESA4	I am happy with this online bank X.	3.99	.837
Average item score for satisfaction scale		3.95	
Total score (possible range 4-20)		15.84	

Figure 14: Respondents' satisfaction by mean score

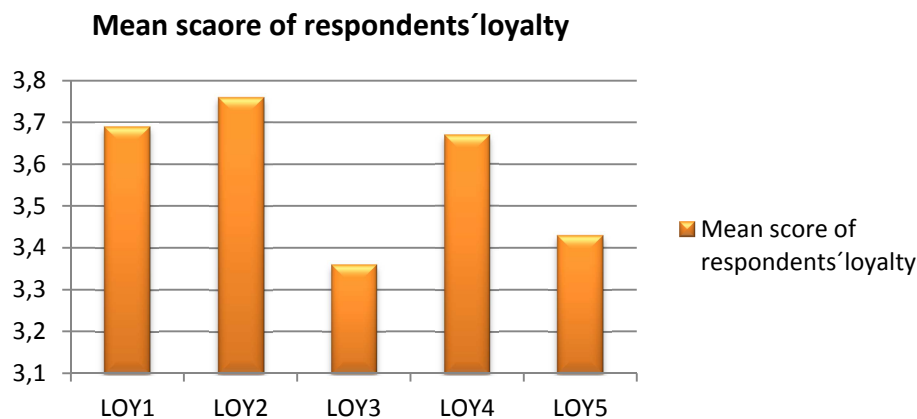


6.9 Descriptive Analysis of the Loyalty intention from respondents

This study adopted an integrated approach to evaluate customers' loyalty that takes into account both behavioral and attitudinal variables and the five items used for loyalty were drawn from Parasuraman et al., (2005). The total average of respondents scale was 17.91, with a possible range from 5 to 25. The average item score for respondents' loyalty scale was 3.58, slightly higher than the average score of service recovery (3.41). Conversely, it was slightly lower than the average score of service quality (3.96), satisfaction (3.95) and perceived value (3.72). The item with the highest average score was LOY2 "I will recommend this online banking site to someone who seeks your advice." (M = 3.76, SD = 0.99). The item with the lowest average score was LOY3 "I will encourage friends and others to do business with this site" (M = 3.43, SD = 1.12). The results of descriptive statistical analysis of respondents Loyalty are presented in Table 21 and figure 15.

Table 21: Descriptive analysis of respondents' loyalty intention (N= 428)

Indicators	Items	Mean	Standard deviation
Loyalty		3.58	
LOY1	Say positive things about this online banking site to other people.	3.69	1.03
LOY2	Recommend this online banking site to someone who seeks your advice.	3.76	.99
LOY3	Encourage friends and others to do business with this site.	3.36	1.14
LOY4	Consider this online banking site to be your first choice for future transactions.	3.67	1.04
LOY5	Do more business with this site in the coming months.	3.43	1.12
Average item score for the Loyalty scale		3.58	
Total score (possible range 5-25)		17.91	

Figure 15: Respondents' loyalty by mean score

Overall, the mean was used to give an indication of the average response for each item under each dimension and the standard deviation was made available to show the level of spread of the data. The standard deviation suggests that the perception of service quality is consistently above average given that most of the responses were around 1 point away from the mean. Moreover, the average highest item was service quality (3.96) followed by satisfaction (3.95), perceived value (3.72) and loyalty (3.58) and finally service recovery was rated the lowest (3.41). This implies that customers might be satisfied, perceived a high value or loyal to their banks if they are offered a high service quality in the first place rather than therapy their dissatisfaction through recovery.

6.10 Impact of demographic variables on customers' perceived service quality

Descriptive analysis was also used to identify if the respondents' characteristics profile in term of gender, age, education and income can influence the dimensions of service quality. This study first applied a normality test given that outliers often have a dramatic effect on the fitted model. The univariate skewness and kurtosis were computed to test the normality of each variable. The results show skewness was ranging from -.13 (Education) to .79 (Age) and from -1.99 (Gender) to .32 (Age) for kurtosis, were within the maximum limits of an absolute value of two for skewness and seven for kurtosis, as recommended by West et al. (1995). It was also clear that most variables were slightly off-center. Thus, the characteristic variables data were further grouped to meet the normality criteria condition as follow: The three subgroups of age respondents' (45-54; 55-64, and 65 and above) were brought together under the subgroup "45 and above". Moreover, this study put together the subgroups with

very small data by grouping some elements of the variables of education, income and usage. Consequently, this study shrunk the usage data into 3 categories “less than 1 week”; “over 1 week-1month” and “over 1 month”. Furthermore, the subgroup “others” was rejected from education categories because the number of respondents were insignificant and the remaining were grouped as “college and below” “University degree” “Master degree and above”. The same was applied for incomes categories and they were grouped as follow “less than 12000” “12001-24000” and “more than 24001”. Finally, it was necessary to do a data check to see if there was any error. The overall results were perfect and the statistical normality test was positive.

Thereafter, the sample was subjected to statistical analysis using T-student and ANOVA tests. Since both can detect any interaction effects between variables and examine comparison of means among the two or more independent samples groups. Generally, T-student is use to compare two subcategories, while ANOVA test is often use to compare more than two subgroups. Besides, the theory acknowledged that means of two groups are significantly different from each other if F-distribution is greater than 1 or P-value is lower than 0.05.

Drawing on what was obtained from the T-student and ANOVA tests, the overall results show respondents’ gender, age, education and income are not factors that can influence customers’ perception of service quality in Spanish online banking setting (See arrays of all the analyses in Appendix 6 and 7). However, 12% of female have different view on EFF7 and PRI1 variables, and 16 % have different view on PRI3 variable than men. More explicitly, those female were generally pleased with their online bank website as they do not shows their online banking behavior as well as protecting information about their credit cards and debit cards. These findings are consistent with the study of Bigne et al. (2005) who found that men and women did not show significantly different behaviors in shopping through the mobile technology for users in Spain with 86% of penetration rate. According to the review of literature in online shopping acceptance model, Zhou et al., (2007) also concluded that the effect of age on consumers’ intention to purchase online remains unclear. Likewise, Ganesan-Lim et al., (2008) found no differences in the perception of service quality based on gender. Moreover, Straughan & Albers-Miller (2001) found no relationship between age and domestic retail store loyalty in traditional service.

However, the extant literature indicates that some studies found different results. For example, according to (Eagle, 2009) gender is important in the Arab world, for instance females prefer to go to banks that have dedicated female branches because they are in line with social and religious values. Likewise, Spathis et al., (2004) intimates that male customer of Greek banks have a more positive perception of the quality of service they receive than women. Besides, male customers perceived receiving a higher level of quality than female in 29 of the 31 banking service quality items. Once more men ranked effectiveness and reliability highest and assurance second; whereas, for women, price ranked first and access ranked second. Moreover, the review of literature in online shopping acceptance model observed that male consumers make more online purchases and spend more money online than females; they are equally or more likely to shop online in the future, and are equally or more favorable of online shopping. Besides, women have a higher-level of web apprehensiveness and are more skeptical of e-business than men (Zhou et al., 2007). This finding may be justified by the study of Swaminathan et al. (1999) in traditional service who stressed that shopping orientation was found to influence consumers' shopping activities, interests, and opinions. Men and women were found to have different shopping orientations; men were more convenience-oriented and less motivated by social interaction, while women were just the opposite. Moreover, Zhou et al., (2007) observed that online shopping is a relatively easy task, which does not require higher education. Given that even though some studies identified a positive relationship between education and the time and money consumers spent online, the majority did not.

Furthermore, according to Rashid and Bangladesh (2009) men and women used different criteria in selecting banks in Bangladesh. Besides, customers with undergraduate level found Corporal Efficiency was the most influential factor, whereas those who have completed postgraduate put close importance to corporal efficiency and Confidence. They have also chosen Core Banking services at the second stage important factor have completed postgraduate, put close importance to Corporal efficiency. Moreover, Donthu and Garcia (1999) found that men appeared to make more purchases and spend more money online than women.

Also in contrast to this study, customers with high income might favor traditional retailers with high levels of service quality while customers with low incomes might be more tolerant to lower levels of service quality in Hong-Kong (Sum & Hui, 2009). This view was further emphasized by Meng et al., (2009) who found Chinese consumers shop at different stores

based on their income level implicating that income level might be a source of discrepancies in the perception of service quality in China. Likewise, Homburg and Giering (2001) found income has a relationship with purchasing decisions and that high income customers gather information prior to buying a product which may have an influence on satisfaction. Moreover, most popular items purchased online, including books, CDs, holiday and leisure travel, PC hardware, and software, are all “normal goods”, those for which demand increases as income increases (Donthu and Garcia, 1999; Swaminathan et al., 1999; Zhou et al., 2007; Sum & Hui, 2009)

According to Zhou et al., (2007) literature review on online shopping adoption some study used 10-year span, whereas others used 15-year span or 20-year span. Hence, according to the authors there was no standard age categorization scheme making cross-study comparisons impossible. However, Homburg and Giering (2001) intimated that there is a relationship between age and service quality dimensions. In the same vein, Ganesan-Lim et al., (2008) found that age has a big influence on the perception of service quality. In addition, Rashid and Bangladesh (2009) found in their study that Compliance with banks Cost-Benefit were first priority for the age group of 31-40 years and Confidence level of the customer with banks was the most important factor for respondents from 40+ age category.

Additionally, according to Rashid and Bangladesh (2009), respondents who have completed postgraduate, put close importance to banks Corporate efficiency and Confidence. They have also chosen Core Banking services at the second stage important factor. Likewise, Chau & Lai (2003) identified that several individual differences including level of education and extent of prior experience have significant effects on ATM's beliefs.

7 CHAPTER 7: RESULTS

As explained earlier, this section first presents the objective and methodology of each sub-model of the thesis. Given that all five proposed sub-models are different from each other, it was considered necessary to introduce and justify the motivation of the proposed model. Moreover, given that the literature review discussed in chapter 3 of the present thesis was guided toward the introduction of main framework, it was judge appropriate to extend, discussed in depth and narrowed the existing literature toward each proposed sub-model. Besides, it was deemed necessary to justify the rationale for each assumption in the sub-model by means of brief literature review. In addition, each proposed sub-model required different statistical analyzes and the use of different software package. Therefore, it was deemed necessary to describe and include all the steps used. Furthermore, since this study have no hypothesis about the nature of the underlying factor structure of the measures; this study deliberately used SPSS 19 to unveil the factor structures of the reported dimensions. Hence, all the values reported for EFA were calculated using SPSS software because PLS does not carry out EFA (Gefen, 2005). Likewise, the CFA outer loadings of the same data from PLS are slightly different from those of SPSS loadings in general term. Hence, AVE and CR assessment based on those values may be slightly different from those reported on the model fitness using PLS. Because the AVE and CR reported are based on the model fitness, which in turn is reported based on the outer loadings. Therefore, justifying why the outcome of EFA, AVE and CR may be slightly different from those reported in some sub-models.

7.1 Sub-model 1:

This sub-model seeks to investigate from customers' perspective, if the implementation of ISO 9001 with the scope directly related to customers (offices, claims, etc.), spawn any discrepancies on service quality, customer perceived value, customer satisfaction, customer loyalty and customer service recovery; in the backdrop of e-services.

An analysis of variance (ANOVA) was performed to the convenience sample. The results reveal that e-banking customers were not sensitive to the usage of ISO 9001. However, customers from banks that do not implement ISO 9001 perceived that the prices of the service available on their bank site were more economical. Based on the extant of literature

reviews, this proposed sub-model will be one of the first to carry out such research from customers' perspective and more specifically in Spain.

7.1.1 Sketch and motivation for the proposed sub-model

Intensifying competition and rapid deregulation have led many service and retail businesses to seek profitable ways to differentiate themselves (Parasuraman et al., 1998). Although no longer believed to be revolution previously conceived, the internet remains a critical channel for selling most goods and services (Parasuraman et al., 2005). Fuelled by the growth of electronic commerce, many businesses have incorporated the use of the Internet to enhance their service delivery. In particular, service industries that are information-based, such as the banking industry, have invested heavily on providing electronic services to their customers (Wong, et al., 2008).

Observably customers' fondness for e-services is due to the convenience it offers, like making it possible to embark on business transaction without any restriction on opening time from wherever internet access is available. Since there are no geographic or physical constraints associated with e-service, in other words competing services are just a mouse click away from each other, e-service providers have to compete on quality of service delivered in order to attract and retain their customers. In an online setting, service providers compete with companies very similar to themselves so that they often respond by employing customer retention strategies (Egan, 2004).

Thus realizing customers are very demanding in terms of service quality, and the possibility of having a disparity between what customers need and what service provider think their customers need. Numbers of service providers were keen to adopt ISO 9001:2008 with the scope directly related to customers (offices, claims, etc.) as a key ingredient to service quality differentiation.

Observably ISO 9000:2005 principles and practices of quality management have its origin from the manufacturing settings (Tsuang Kuo., et al., 2009). The great success of the standard encouraged practitioners and scholars in transferring and applying them to e-service sector. Therefore it is essential for managers to understand the influence and the effectiveness

of ISO 9001:2008 certification towards their organization's performance from the customers' perspective.

Given that some of the service providers are directly involved in the implementation of the standard, one can clearly assumed significant bias in this investigation. Evidently much has already been written about the impacts and benefits of ISO 9000 (principle) and ISO 9001 (system) standards on business performance. The findings mostly support the notion that the implementation of this standardized quality assurance system is beneficial for organizations. However, those who are not in favor argued that the benefits of ISO 9000:2005 has brought leads to much more confused and uneven results from the point of view of organizations. For example, while some companies highlight organizational improvement, others emphasized only the marketing benefit (Casadesus et al., 2001).

Based on literature reviews this study acknowledge that there have been number of published papers that have attempted to deliver an understanding of the impact and benefits of ISO 9000:2005, the evolution of the standard from the past, present and future (e.g. Vloegeberghs and Bellen 1996; Quazi and Padido, 1998; Casadesus et al 2001; Casadesus & Karapetrovic, 2005; Marimon et al., 2005; Heras 2006, Tsuang Kuo., et *al.*, 2009). Since countless, if not all the published papers have entrenched their investigation from the organizations standpoint. This thesis was unable to locate any empirical research that firmly grounded their investigation from customers' perspective. Therefore this study has chosen to conduct our research drawing heavily on this foundation.

7.1.2 Objective of the proposed sub-model

The rationale of ISO 9001:2008 is quality management system applicable to all organizations' products and services, it help to ensure that quality is built into a process and is achieved. It ensures that an organization has quality policy, that procedures are standardized, that defects are monitored, that corrective and preventative action systems are in place (Dale 2003). Such observation highlight a critical importance to understand, the merit of quality of service delivered drawn from ISO 9001:2008. However the literature review reveals confusion and gaps in understanding the nature of ISO 9001:2008 from the organizations standpoint. Thus this gap provides the impetus to scrutinize from customers' perspective if:

- * *Hypothesis H1*: ISO certification in e-service is positively related to higher levels of customers' perception of efficiency
- * *Hypothesis H2* ISO certification in e-service is positively related to higher levels customers' perception of system availability
- * *Hypothesis H3* ISO certification in e-service is positively related to higher levels of customer s' perception of fulfillment
- * *Hypothesis H4* ISO certification in e-service is positively relate to higher levels of customers' perception of privacy
- * *Hypothesis H5*: ISO 9001 certification in e-service is positively related to higher levels of customers' perceived value
- * *Hypothesis H6* ISO 90001 certification in e-service is positively related to higher levels of customer's satisfaction
- * *Hypothesis H7* ISO 90001 certification in e-service is positively related to higher levels of customers' loyalty intension on the website.
- * *Hypothesis H8* ISO 9001 certification in e-service is positively related to higher levels of customers' perception of responsiveness in respect to website
- * *Hypothesis H9* ISO certification in e-service is positively related to higher levels of customers' perception of contact with regard to a website.
- * *Hypothesis H10* ISO certification in e-service is positively related to higher levels of customers' perception of compensation.

This paper is organized as follows: it opens with section 3 literature reviews that introduce all the concepts to analyze and the consequence chain between concepts, as well as updated information about the important aspect of e-service to customers. In section four the methodology will be described. The results and findings will be presented in section five, conclusion in section six, references in section 7.

7.1.3 Preceding background on the topic

7.1.3.1 Customer satisfaction

More than just attracting customers, there is need to retain them and keep them coming back to the site and this can only happen if they are satisfied. Customer satisfaction is define as a

person's feeling of pleasure or disappointment resulting from comparing a product's perceived performance (or outcome) in relation to his or her expectations (Kotler, 2003).

Harris and Harrington (2000) pointed out that customer satisfaction can be attained by companies, which have understood their customers' needs and make every effort to provide services in an effective and efficient manner. Whereas Goode *et al.* (1996) asserted that customer satisfaction plays a vital role in marketing because it helps to have repeat sales, gather positive word-of-mouth recommendations and build brand loyalty. In general, higher levels of customer satisfaction can lead to a reduction of the perceived benefits of alternative suppliers and hence to higher repurchase intentions (Anderson and Sullivan, 1993). Moreover customer satisfaction leads to greater trust which in turn enhanced customer loyalty, willingness to pay more and cross-buying. Cristobal *et al.* (2007) initiate that perceived e-service quality affect positively customer satisfaction and loyalty. Indeed satisfaction with electronic environments drives traffic to web sites and encourages repeated use of the site (Qimei Chen *et al.*, 2008). Ultimately the quality of e-service leads to trust and satisfaction (Sahadev & Purani, 2008).

Various studies appear consensus emerging that customer satisfaction is a key determinant of customer loyalty. (Bloemer et al., 1999) states that the precise nature of the interaction between customer satisfaction and loyalty is notoriously elusive but satisfaction would appear to have a positive effect on service loyalty. Fornell (1992) found that high satisfaction results to customers with increased loyalty, less prone to be approached from competition. Whereas Anderson and Sullivan (1993) found that satisfied customers have greater propensity to be retained and resist to alternative options. Similar results were reported in e-banking services e.g. (Al-Hawari & Ward 2006) established that customer satisfaction contributed towards improved financial performance of banks as well as the positive effects of e-service quality on customer satisfaction.

7.1.3.2 Impact of ISO9001

In a global market quality remains a competitive reality. Undoubtedly for numbers of organizations in general and banks in particular the issue of improvement in the quality of products and services remain imperative. ISO 9001:2008 which belong to the family of ISO 9000:2005 standard is a generic management system that can be applied to any organization.

Furthermore is a widespread model for quality management systems with a goal to guarantee quality control and assurance. Often branded as competitive advantage, with the endeavor to identify and anticipate customer requirements. As well as enhance internal and external performance of the organization while keeping to its optimum satisfaction and loyalty of customers and other parties involved.

ISO 9001:2008 has gain popularity as number of certifications that have been issued soared to more than 982,832 in 176 countries worldwide ISO survey (2008). The popularity of ISO 9000:2005 implementations, unfortunately, also translates into a dilemma. With mixed success in implementation, praise and criticism on ISO 9000:2005 certification are easy to find from trade magazines, news media and the business community. These standards do not seem to provide many external benefits and competitive advantage any more, as most competitors in the industries that require ISO registration are already registered. Those companies are now looking for tangible internal benefits from the new ISO 9000:2000 standards (Casadesus & Karapetrovic, 2005).

Nevertheless related scholar research on the benefits of ISO 9000:2005 has been extensively conducted from many perspectives with different outcomes. E.g. Vloegeberghs and Bellen (1996) emphasized that the most important benefits are internal like: improve awareness of the importance of quality, of the problems of the company and improvement in product quality. While Quazi and Padido (1998) affirmed the most important benefits are external like: increased customer satisfaction, satisfaction of customers' requirements and improvement in product quality and market competitiveness. (Tsuang Kuo., et al., 2009) substantiate that ISO certification significantly improve the effectiveness of quality management practices and that service experienced better improvement than manufacturing in five out of six areas investigated.

The benefits of ISO 9000:2005 certification in general are very difficult to measure by, for example, rises in productivity or increase market share (Jones et al .,19997) despite these difficulties in quantifying and measuring benefits, "internal" and "external" aspects companies can be distinguished (Tsiotras and Gotzamani, 1996). This distinction is used in this study, by calling e-service users to help interpret the results of implementing ISO 9001:2008 standards in e-service setting.

7.1.3.3 Measuring Service Quality

During the past few decades, service quality played vital role as a key factor in differentiating service offerings. Service quality has been a centre of attention from practitioners and scholars; because of its strong impact on customer trust, customer loyalty, customer satisfaction, business performance. (Guo *et al.*, 2008) confirmed that service quality helps to maximize profits of service providers and to reduce uncertainty for the buyer of services. Service quality is defined as a measure of how well the level of the delivered services matches customer's expectation (Parasuraman *et al.*, 2005).

It should be noted that e-service quality has the potential to increase attractiveness, hit rates, customer retention and positive word of mouth (Santos, 2003). Different instruments were developed to capture and elucidate service quality by various researchers to numerous service industries, but most of measuring instruments were largely based on SERVQUAL, service quality models developed by (Parasuraman *et al.*, 1988). The primary value of SERVQUAL lies in its powerful benchmarking, diagnostic, and prescriptive tools (Kettinger and Lee, 1997).

Nonetheless with the development of e-commerce and e-service, SERVQUAL has been subjected to critical theoretical and experimental assessments, as it is not fairly appropriate to evaluate e-service quality. E-service quality is the overall customer assessment and judgment of e-service delivery in the virtual marketplace (Santos, 2003 p.235).

In these circumstances instrument such as E-S-QUAL was developed (Parasuraman *et al.*, 2005). The instrument demonstrate good psychometric properties as a meant of evaluating e-service quality and has received considerable attention in the academic literature. Boshoff (2007) extended the original instrument to six dimensions instead of four, and demonstrated important relationships between the dimensions of e-service quality and the construct of perceived value and loyalty; consistent with Parasuraman *et al.*, (2005) findings. Marimon *et al.* (2010) expanded the Boshoff model in a setting of an online supermarket in Spain, adding a new construct, analyzing the relationship between customers' loyalty and purchasing. Recently, Meng (2010) also conducted measurement equivalence tests, applying the two scales (E-S-Qual and E-RecS-Qual) to the African American and Chinese cultural settings, and found that the e-service quality measurement can be generalized to different cultures. Fuentes-Blasco *et al.*, (2010) for measuring the e-service quality dimensions adapted the

items from E-S-Qual and E-Resc-Qual scales, and confirmed consequence chain: electronic service quality -perceived value - e-loyalty adapted from Parasuraman and Grewal's (2000) theoretical proposal

Another stream of scholars' scrutinized e-service quality in e-banking contexts specifically (Al-Hawari & Ward 2006; Kim 2006; Akinci *et al.*, 2010). Kim (2006) developed an index to measure online customer satisfaction to help banks to assess their e-service quality. Akinci *et al.*, (2010) appraised the electronic service quality offered by 13 banks in Turkey, providing a refined and more stable version of the E-S-Qual scale for the internet banks. They found that e-service quality have a strong direct effects with the overall perceived value construct.

In considering that the instrument is fairly recent, of course debate about its usefulness is expected both in the academic field and also among practitioners of e-business. However authors such as (Akinci *et al.* 2010; Parasuraman *et al.*, 2005; Boshoff, 2007, Marimon *et al.*, 2010) confirmed that E-S-SQUAL in general is a useful instrument to evaluate e-service quality in a variety of situations.

7.1.3.4 Customer perceived value

Within the field of marketing, the construct of perceived value has been identified as one of the most important measures for gaining competitive edge. It has been argued to be the most important indicator of repurchase intentions (Parasuraman and Grewal 2000). Zeithaml (1988) conceptualized perceived value as "the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given. In the same line (Chen and Dubinsky 2003) define perceived value as "consumer perception of the net benefits obtained in exchange for the costs incurred to obtain the desired benefits".

According to Woodruff (1997), "If consumer satisfaction measurement is not backed up with in depth learning about customer value and related problems that underlie their evaluations, it may not provide enough of the customer's voice to guide managers where to respond". Thus since quality is defined to be the result of a customer's subjective evaluation of a company's product or service, most scholars regard quality as antecedent to perceived value and as a significant variable with strong influence on customers' natural behavior (Parasuraman *et al.*, 2005, Boshoff 2007, Marimon *et al.*, 2010). Moreover perceived value in e-service is an

influential element in the future shopping intention, either as a consequence or moderator in the loyalty chain (Parasuraman & Grewal, 2000). In the same line Heinonen (2004) confirmed that the dimensions which affect e-service quality have an indirect influence on perceived value. Hence if customers do not trust organizations within the context of process quality, their perceptions of value in doing business with the company will be weakened.

7.1.3.5 Customer loyalty

Customer loyalty is considered essential to business survival, especially in the context of e-commerce (Reichheld & Scheffer, 2000). It was asserted that 5 per cent improvement of customer retention can cause a profitability increase that ranges between 25 per cent and 85 per cent. In addition loyal customers are less likely to change provider because of price, while they also tend to recommend the business to others (Reichheld and Scheffer, 2000). In addition it was emphasized that loyal customers make further purchases and generate positive word-of-mouth, in addition to a powerful influence on the behaviour of others (Gremler and Brown, 1999).

In a fundamental contribution to the loyalty literature, there are many different approaches aiming at the definition and conceptualisation of loyalty. One approach regards loyalty in behavioural lens as “a customer who continues to buy” (Buttle & Burton, 2002, p. 218). In the same line, (Oliver, 1999 P. 34) define customer loyalty as “a deeply held commitment to re-buy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behaviour”. Whereas other approach is that there is an affective component to customer loyalty where feelings are important.

Thus loyalty is also examined under the attitudinal lens, which can be derived from psychological involvement, favouritism and a sense of goodwill towards a particular product or service (Kim et al., 2006). In our context of e-banking, this thesis adopted more specific definition which reflect both views, provided by Anderson and Srinivasan (2003, p. 125), who define e-loyalty as “the customer’s favourable attitude toward an electronic business, resulting in repeat purchasing behaviour”. Some authors have emphasized the need to examine how to improve loyalty levels and the Internet consumer purchasing decision.

Understanding these antecedents can help e-retailers gain competitive advantage by carrying out specific strategies to increase e-loyalty (Srinivasan et al., 2002).

7.1.3.6 Service recovery

The study of service recovery has already received significant attention in the academic literature (e.g. McCoUough et al. 2000, Tax et al., 1998, Parasuraman et al., 2005). Service recovery refers to the action taken by a service provider to address a customer complaint regarding a perceived service failure (Gröngröos, 1988). It is the process by which steps are taken as a result of negative customer perception of initial service delivery. Recovery management is considered to have a significant impact on customers who experienced service failures because they are usually more emotionally involved and observant of service recovery efforts (Berry & Parasuraman, 1991). Recovering service failure should not only address putting things right when they go wrong, but extend to preventing the error happening in the future (McCollough et al., 2000). Although service recovery has been described as a short-term activity that should, in the long term, be embedded within reliability. (Tax and Brown, 1998) argument that it forms a cornerstone of a customer satisfaction strategy appears stronger when service recovery is considered within the context of customer satisfaction and loyalty.

In general, companies fare better in the eyes of consumers by avoiding service failure than by responding to failure with superior recovery. When the failure has occurred, customer loyalty is considered essential to business survival (Berry & Parasuraman, 1991), especially in the context of e-commerce (Reichheld & Schefter, 2000). Since is so expensive to retain and attract customers (Srinivasan et al., 2002) and it is so easy to switch online (Reichheld & Schefter, 2000).

7.1.4 Research methodology

The setting of our research was e-banking service in Spain. Before the 90's some banks operations were limited to specific regions or provinces. After the barrier was lifted, except two savings banks that have branches all over the country, most of them are traditionally cramped to a specific region or province. In addition Spanish banks in general are well

regulated, but it is often said they have one of the highest ratios of branches per capita in Europe; over and above they have a tendency to be significantly overstaffed.

Spanish population is already involved in the Internet as a fortunate means of communication. 71.8% of the populations were internet users in December 2009. This was up by 440.0% compared to 2000 (Internet World Stats, April 2010) and the region of Catalonia had one of the highest internet penetration rate 58.1% (Asociacion para la Investigacion de Medios de Comunicacion). However the echelon of online banking penetration rate remains substantially lower compare to their western European counterpart.

Furthermore with 68,730 cumulated ISO 9001:2000/2008 certificates issues, Spain is ranked second in Europe after Italy and third worldwide after China and Italy (ISO Survey 2008). Catalonia is the region that accumulates by far the highest number of companies certified in Spain. As consequences of world financial crisis, Spanish government persuades banks in general and in particular those operating in Catalonia to merge in order to yield Spanish financial holdings that could adequately compete with foreign banks. Hence great numbers of branches will close, giving way to online banking.

Based on these facts, online banking in Catalonia constitutes a very interesting research field as banks need to implement strategies to satisfy and retain their existing profitable customers. Consequently there is need exploring and fully understand how do customers judge the quality of online banking service after the implementation of ISO 9001:2008. As it may provide a useful thought to bank managers and support them in their aim to improve important e-service quality aspects in an attempt to expand the use of e-banking.

7.1.5 Questionnaire design

Based on literature review, a structure questionnaire was designed by a blend of existing constructs. E-service quality was adapted from the original E-S-QUAL (Parasuraman et al., 2005). From the 22 items originally developed; the second, the four and the fifth item were removed as they evaluate “items available for delivery in a suitable time frame, accurate item order and having in stock what the company claim to have ” all deemed not relevant for online banking by the authors. The four e-service quality dimensions were: efficiency (8

items), system availability (4 items), fulfilment (4 items), and privacy (3 items). They were reworded to fit in the context of online banking as suggested by (Parasuraman et al., 1988, 2005) e.g. the word “delivers” was replaced by “performs” as shown in Appendix 2.

The items used for perceived value and loyalty were also drawn from Parasuraman et al., (2005) and e-satisfaction was evaluated using a four items scale formerly used by (Ribbink et al., 2004) see Appendix 2. Finally the E-RecS-qual scale was also drawn from (Parasuraman et al., 2005). The first two items of the original responsiveness dimension and the second and third of compensation dimension were dropped because they had no sense at all for online banking. This process yielded 7 items, as it is shown in Appendix 2, covering three dimensions namely responsiveness (3 items), contact (1 item) and compensation (3 items). Since in the original E-S-QUAL all responses were measured using items recorded on five-point Likert-type scales with anchors of 1=strongly disagree and 5= strongly agree. The same five-point Likert-type was adopted for the E-S-QUAL, Rec-S-Qual, as well as for perceived value, loyalty and e-satisfaction.

The survey was subdivided in four sections. The first section includes filter questions in order to seek only respondents who use internet to do their banking. In addition a list of banks was made available. Considering the possibility that respondents may have more than one online bank, they were asked to report the one they used on a regular basis. Section 2 contents demographic questions. Section 3 included items adapted from E-S-QUAL as well as items from perceived value, e-satisfaction and loyalty. Straight after a filter question seeking only those who experienced problems or needed help. Those who answer yes were directed to Section 4 that contained items of e-service recovery E-RecS-Qual.

The questionnaire was translated from the original English statement to Spanish and Catalan. A pilot test was conducted on a small group of 15 online banking customers from the university to check the content validity of the questionnaire in terms of ambiguity of wordings or misunderstanding of technical terms. All the respondents found most of the questionnaire items understandable. However some minor wording mistakes were found. Adjustment was made and the survey was translated from Spanish and Catalan to English to verify in the opposite direction the content validity.

7.1.6 Sampling and data collection

The majority of banks in provide online services that are available in Catalan, Spanish and very few in English. The survey was made available in three languages (Catalan, Spanish and English) and respondents were given a possibility to complete the survey in the language they understood the best. The sample was derived from a database maintained by Spanish banks. Online banking users were selected by choosing a random starting point and choosing every fiftieth individual customer in succession thereafter. This technique yielded 1,600 potential respondents, who were invited by email to participate in the survey and were directed to a specific website containing the structured questionnaire, which they then self-administered. This approach was appraised appropriate in our context as it provides the dual benefit of accessing prospects from a broad range of back grounds, as well as providing the captive audience for achieving a high response rate

Most of banks in Spain as general information often published in their websites the International standards they implemented in their institution. Since the main interest of the study was to identified banks that implement ISO 9001 with the scope directly related to customers (offices, claims, etc.). A formal letter was sent to bank managers with a very short questionnaire included.

Data collection was completed in May 2010, a total of 20 banks were called to participate and 1600 questionnaires were dispatched to bank users. A response rate of 52% was recorded from bank users and 80% from bank managers. After rejecting some incomplete or invalid questionnaires, 16 banks were retained and 428 valid questionnaires remained from Spanish customers of e-bank, which include 123 of them who experienced problems with the service.

7.1.7 Data analysis and findings

7.1.7.1 Sample profile

Table 22 present a summarized sample's demographic characteristics and profile respondents per banks. 74% of the respondents filled the survey in Catalan since is the most spoken language in the region. As it can be seen in table 22, no gender bias was detected. Two thirds of the respondents were aged less than 34 years. The educational level of the sample was high, with more than two thirds of the sample having a university or a master degree.

Overwhelming majority (65.9%) of the respondents earned less than € 24,000 annual incomes, two thirds used e-banking less than one week ago. Also the sample is skewed toward banks with no ISO 9001(57.5%). 16% of our samples were “others”, referring to banks this study was unable to outline the scope of the standard implemented.

Table 22 also shows characteristics demographics of the sub-sample of those clients who complained or experienced problems in the service received. It shows no gender bias detected, that half of the respondents were aged less than 34 and the educational level was high, with two thirds of the sub sample having a university or a master degree.

A comparison of means among the two independent samples (those cases that have not reported any problems and those cases that reported a problem) was conducted using the Wilcoxon–Mann–Whitney test. Four contrasts were assessed between the two groups assuming a null hypothesis that there was no difference of means between the groups. There were no differences detected neither in gender nor in educational level, but those who experienced problems are in the higher age categories and also with higher annual incomes.

Since most of banks in Spain are traditionally cramped to a specific region or province. The respondents’ profiles were comparable to the total population of the banks in Spain. Thus, the sample was not biased towards any of the banks.

Table 22: demographic characteristics of the response sample

	Complete sample			Sub sample of customer that have reported a problem	
	Item	n	%	n	%
Gender	Female	225	52,6	62	50,4
	Male	203	47,4	61	49,6
Age	17-24	106	24,8	15	12,2
	25-34	150	35,0	48	39,0
	35-44	102	23,8	40	32,5
	45 and above	70	16,4	20	16,3
Education	College or institute diploma and below	102	23,8	35	28,5
	University degree	196	45,8	48	39,0
	Master degree and above	91	21,3	32	26,0
	Others	39	9,1	8	6,5
Annual income (€)	Less than 12,000	134	31,3	27	22,0
	12,001-24,000	148	34,6	44	35,8

	24,001 and above	146	34,1	52	42,3
Last use of e-banking	Less than 1 week	268	62,6	75	61,0
	Over 1 week - 1month	101	23,6	33	26,8
	1month and above	59	13,8	15	12,2
Respondents per banks with ISO or not	No ISO	246	57,5	67	54,5
	ISO	133	31,1	40	32,5
	Others	49	11,4	16	13,0
Customers who experienced any problem or needed help	No	305	71,3		
	Yes	123	28,7		

7.1.7.2 Results

One way ANOVA was carried out instead of simple t-test because any interaction effects between variables can be easily detected to examine comparison of means among the two independent samples (banks implementing ISO 9001 or not). One way ANOVA was based on: service quality, customer satisfaction and customer perceived value, customer loyalty and customer service recovery (see table 23 and 24). The theory acknowledged that means for two groups are significantly different from each other if F-distribution is greater than 1 or P-value is lower than 0.05. Findings: In general, excluding EFF5 (efficiency dimension) and PVA1 (perceived value) all the variables did not statistically reach the significance level. Hence we rejected Hypothesis H2, H3, H4, H6, H7, H8, H9, and H10. The next step was to assess in depth customers' level of discrimination on the two variables.

Table 23: ANOVA analysis and Eta-value by ISO category

ISO_CAT		Sum of squares	Degree of freedom	Mean sum of square	F	Sig.	Eta	Eta squared
EFF5	Between	4.821	1	4.821	5.495	.020	.120	.014
	Within	330.767	377	.877				
	Total	335.588	378					
PVA1	Between	4.803	1	4.803	4.007	.046	.103	.011
	Within		377	1.198				
	Total	456.633	378					

Table 24: different means by ISO category

ISO_CAT		EFF5	PVA1
No ISO	Mean	3.94	3.31
	N	246	246
ISO	Mean	3.71	3.55
	N	133	133

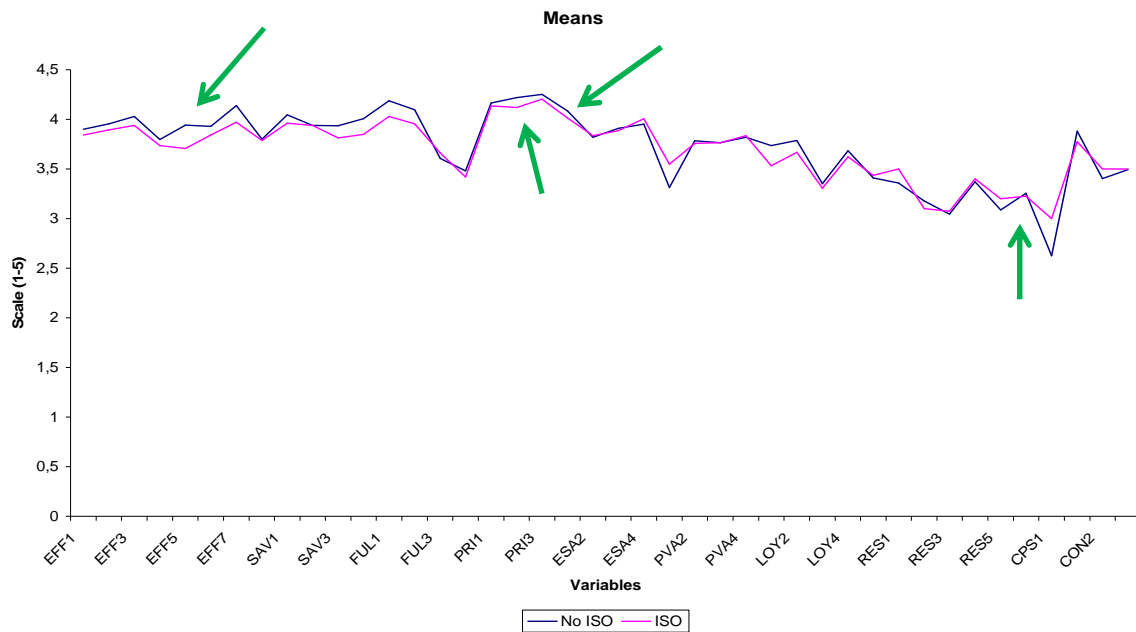
Total	Mean	3.86	3.40
	N	379	379

This study performed Eta-square correlation, which is an upwardly biased estimate of population strength of association between an independent variable and dependent variable, and it ranges in value from 0 to 1, to further explore the differences between the two groups see table 23. In addition, the mean associated of the two groups was calculated (see table 24). The results indicate that the differences between the two groups were not quite significant as Eta values were very small. Consequently this thesis partially rejected Hypothesis H1 and H5. However customers' from banks that do not implement ISO 9001 were more in favor that their "bank site loads its pages faster" and that "the prices of the services available on their bank site was more economical"

This study carried out the same statistical analysis on the entire demographic variables to have a glimpse of customer perception of online banking in Catalonia. The results show absolutely no discrimination on education and annual income. On the other hand, the result of ANOVA test on gender indicates that: women have different view of EFF7, PRI1, PRI3, ESA1, ESA2, and CPS1 than men. In other words women were generally pleased with their online bank website, as they do not shows their online banking behavior as well as protecting information about their credit cards and debit cards. Moreover they were strictly very sensitive to the compensation issues when the bank websites creates problems.

In addition customers aged 17-24 enjoyed better their online banking website, whereas those aged 35-44 alleged the prices of the services available on their bank site were more economical. Furthermore the ANOVA test was also performed on the last usage of e-banking. Those who did their internet banking less than one week ago highly appraised almost all the dimension of service quality, perceived value, customer satisfaction, customer loyalty and service recovery with the highest Eta-value. Moreover they were very assure with the service recovery, as well as being generally satisfy with the overall service offer. In addition they have an intension of being loyal to their online banking provider. Finally ISO certification was the lowest discrimination factor as the highest Eta value was .120. Whereas the last usage of online banking were enormously sensitive factors in e-service offered by banks with the highest Eta value .238 followed by gender .231

Additionally, the average means of all the variables measured in this study in respect of bank using or not ISO 9001 was plotted in the graph (Fig1). The results also confirm no difference in the levels of perception of e-service quality, perceived value, e-satisfaction, loyalty intension as well as all the variables from service recovery.



7.1.8 Sub-model findings

As we started to live in a virtual world where banks are becoming geographically afar from their customers, it is getting vital for the firms to create better quality of services, high customer perceived value and a better customer satisfaction, with an end to create service differentiation and build long term growth and profitability. One may say the effective provision of services depends on high quality and comprehensive standards. In this study, the main aim was finding out if the usage of ISO 9001:2008 with the scope directly related to customers (offices, claims, etc.) spawns any discrepancies from customers' perspective in e-service setting. The general results reveal that online banking customers in Catalonia were not sensitive to the usage of ISO 9001 directly related to customers. In other words, ISO 9001 does not affect their perception of all constructs of customer loyalty and its antecedents as well as service recovery.

However, customers from banks that do not implement ISO 9001 were more in favor that their "bank site loads its pages faster" and that "the prices of the services available on their bank site was more economical". The logical explanation is that, Implementation of ISO

9001 imposes certain cost to the organization. Thus in one way or other customers are called to share the cost. The page loading is slower due to the excessive documentation needed by the ISO 9001 standard.

The non-detection of any significant differences between banks certified and those not certified, may also be justified by the fact that: Generally customers' expectations are very high. Thus banks are well organized and structured and they offer a very high e-service standard. Furthermore, online banking bid to customers a complete control over their accounts; hence the absence of human interactions and physical premises may also shadow the perception of the benefits of ISO 9001.

7.2 Sub-model 2

The purposes of this sub-model are twofold: (i) to propose and apply a scale to measure service recovery in the electronic banking (e-banking) sector; and (ii) to examine the relationship between service recovery and customer loyalty in the setting of e-banking services. An online questionnaire is used to survey 123 Spanish customers of e-banking services using a modified version of the E-RecS-QUAL scale. The data are analysed by exploratory factor analysis to: (i) test the applicability of the scale to the setting of online bank services; and (ii) generate a model including constructs for e-recovery and e-loyalty. The study reassures online banks that a modified version of the E-RecS-QUAL scale is an appropriate instrument for measuring service recovery. The sub-model also provides empirical evidence that responsiveness to requests and complaints has a positive influence on e-loyalty. This sub-model is the first to provide definitive empirical evidence of the presumed link between the recovery dimensions proposed in the E-RecS-QUAL scale and the construct of e-loyalty.

7.2.1 Some hints that motivated the proposed sub-model

The term 'service recovery' refers to actions taken by a service provider to address a customer complaint regarding a perceived service failure (Grönroos, 1988). Service recovery has received considerable attention in the academic literature (Davidow, 2003; McCullough

et al. 2000; Tax *et al.*, 1998; Parasuraman, 2006) because effective recovery management has been shown to have a significant positive effect on customers who have reacted adversely to a service failure (Berry and Parasuraman, 1991). An understanding of effective recovery management is particularly relevant for service providers because the distinctive characteristics of services (especially the inseparability of production and consumption) make it impossible to ensure 100% error-free service (Fisk *et al.*, 1993).

With regard to services provided on the Internet, effective service recovery is essential because online customers are difficult to attract and retain (Srinivasan *et al.*, 2002), and it is easy for them to switch their online providers (Reichheld & Schefter, 2000; Semeijn *et al.*, 2005). It is therefore extremely important that service providers on the Internet know how to improve loyalty levels and repeat purchasing decisions among their customers (Anderson & Srinivasan, 2003; Doong *et al.*, 2008; Semeijn *et al.*, 2005; Shamdasani *et al.*, 2008; Srinivasan *et al.*, 2002; Wang *et al.*, 2006; Yang & Peterson, 2004). Effective service recovery plays an important role in ensuring such loyalty. Of course, it is preferable that e-providers deliver a service without failures (McCollough *et al.*, 2000)—because, in general, providers fare better in the eyes of consumers by avoiding service failure than by responding to failure with superior recovery. However, when a failure has occurred, effective service recovery is considered essential to business survival in general (Berry & Parasuraman, 1991), and in the context of e-commerce in particular (Reichheld & Schefter, 2000).

To assess the effectiveness of such service recovery, a valid and reliable measurement instrument is required. The most widely used instrument appears to be the E-RecS-QUAL scale (Parasuraman *et al.*, 2005). However, studies suggest that certain modifications of this scale are required for application in various settings, including the e-banking sector (Kim *et al.*, 2006; Fuentes *et al.*, 2008; Yen & Lu, 2008; Akinci *et al.*, 2010).

Against this background, the purposes of this study are twofold. The first is to propose and apply a scale to measure service recovery in the electronic banking (e-banking) sector in Spain. The second is to assess the impact of service recovery on loyalty in this context.

The remainder of this paper has five sections. After this introduction, the second section presents a review of the relevant literature. In the third section the methodology is described.

The results are presented in the fourth section (which discusses validation of the service-recovery scale) and in the fifth section (which examines the impact of service recovery on loyalty). The conclusions and implications are presented in the sixth section.

7.2.2 Previous findings in the field

The first multidimensional scales proposed to measure electronic-service (e-service) quality adapted the five service-quality dimensions of the well-known SERVQUAL instrument (Parasuraman *et al.*, 1988) to the online context. The SERVQUAL scale, which was a pioneering instrument for assessing service quality, has been successfully adapted and utilised in a variety of sectors and cases (Ladhari, 2009a). For example, in the banking industry, which is the field of interest to the present study, Kumar *et al.* (2010) recently, used the SERVQUAL instrument to assess the quality provided by both Islamic and conventional banks in Malaysia.

Attempts to develop specific measuring instruments for service quality in e-commerce initially focused on the technical dimensions of e-service quality—such as website design, navigation, speed, and content (Barnes & Vidgen, 2002). However, Zeithaml *et al.* (2000) suggested that a more integrated vision of e-service quality was required—based on the criteria that are used by online customers to evaluate the holistic service encounter including both the transaction and the post-transaction experience. Parasuraman *et al.* (2005) subsequently published two scales for assessing e-services. The first one of these, which was called ‘E-S-QUAL’, included 22 items arranged in four dimensions (‘efficiency’, ‘fulfilment’, ‘system availability’, and ‘privacy’). The second scale, which was called ‘E-RecS-QUAL’, was designed for application when customers had non-routine encounters with websites, including episodes of attempted service recovery. The latter scale included 11 items arranged in three dimensions: (i) ‘responsiveness’ (effective handling of problems and returns through the website); (ii) ‘compensation’ (the degree to which the website compensates customers for problems); and (iii) ‘contact’ (availability of assistance through telephone or online representatives).

These two scales have subsequently been utilised in several empirical studies in various settings. Boshoff (2007), who examined the relationship between e-quality and e-loyalty,

proposed that the E-S-QUAL scale should have six dimensions rather than the four of the original instrument. Marimon *et al.* (2010), who applied the E-S-QUAL instrument to an analysis of the relationship between loyalty and purchasing in the context of an e-supermarket, expanded Boshoff's (2007) model by adding another new construct. More recently, Meng (2010) applied both the E-S-QUAL scale and E-RecS-QUAL scale in an African American cultural setting and a Chinese cultural setting.

Fuentes-Blasco *et al.* (2010) also made an interesting contribution when they adapted items from these two scales (E-S-QUAL scale and E-RecS-QUAL) to assess service quality in an e-bank. Their study confirmed Parasuraman and Grewal's (2000) theoretical 'consequence chain'—that e-service quality has a positive effect on perceived value, and that perceived value then has a positive effect on e-loyalty. Other studies to have adapted items from the E-S-QUAL scale in various settings include Boshoff (2007) and Marimon *et al.* (2010), and studies that have adapted items from E-RecS-QUAL in various settings have included Kim *et al.* (2006), Fuentes *et al.* (2008), and Yen & Lu (2008).

Akinci *et al.* (2010) also utilised these scales to assess e-service quality of 13 banks in Turkey. Their study proposed a refined version of the E-S-QUAL scale for Internet-based banks, and their use of the E-RecS-QUAL scale demonstrated that the 'responsiveness' and 'compensation' dimensions of scale have a significant and positive effect on customer loyalty (although there was no evidence of a relationship between the 'contact' dimension of this scale and customer loyalty).

Apart from these adaptations of the E-S-QUAL and E-RecS-QUAL scales, some authors have proposed other scales incorporating various dimensions for assessing quality in e-bank services. Zhilin *et al.* (2004) proposed a five-dimensional measurement instrument ('reliability', 'responsiveness', 'competence', 'ease of use', 'product portfolio', and 'security'), whereas Osman *et al.* (2005) proposed a different five-dimensional scale adapted to the Cyprus market ('service environment', 'interaction quality', 'reliability', 'empathy' and 'technology').

7.2.3 Methodology

7.2.3.1 Sample and data collection

From the Spanish banks' derive database, online banking users were randomly invited by mail and directed to a specific website containing the structured questionnaire, which they then self-administered. The questionnaire began with a dichotomous screening question, seeking only respondents who are: (i) consumers of e-banking services; and (ii) having experienced at least one problem with e-banking services.

The field work was completed in May 2010. After refusing some incomplete or invalid questionnaires, 123 valid completed questionnaires remained from Spanish customers of e-bank. The demographic characteristics of the sample are summarised in Table 25. No gender bias was detected. Half of the respondents were aged less than 34 years. The educational level of the sample was high, with two-thirds of the sample having a university degree.

Table 25: Demographic characteristics of the sample

Age category		
	Number	%
Between 17 and 24 years	15	12.2
Between 25 and 34 years	48	39.0
Between 35 and 44 years	40	32.5
Between 45 and 54 years	14	11.4
Between 55 and 64 years	5	4.1
= > 65 years	1	.8
Total	123	100.0
Gender		
	Number	%
Male	61	49.6
Female	62	50.4
Total	123	100.0
Education level		
	Number	%
High School	15	12.2
College	20	16.3
Bachelor's degree	48	39.0
Master's degree	32	26.0
Others	8	6.5
Total	123	100.0

7.2.3.2 Questionnaire

The questionnaire was adapted from the original E-RecS-QUAL scale (Parasuraman *et al.*, 2005) for application in online banking services. In accordance with Akinci *et al.* (2010), some items were removed. The first two items of the original “responsiveness” dimension and the second and third items of the “compensation” dimension were discarded because they were not applicable to this particular sector. Seven items were retained. These were arranged in three dimensions as follows: ‘responsiveness’ (three items), ‘compensation’ (one item), and ‘contact’ (three items). In addition, loyalty intentions were assessed with five items used by Parasuraman *et al.* (2005).

7.2.4 Data analysis and findings

As noted above, the two purposes of the study were: (i) to propose a scale to measure e-service recovery; and (ii) to assess the impact of service recovery on loyalty in this context. The relevant results are presented below.

7.2.4.1 Measurement scale for assessment of e-service recovery

To identify the quality dimensions derived from the present data, an exploratory factor analysis was conducted on the data from the items of the ‘responsiveness’, ‘compensation’, and ‘contact’ dimensions. The Kaiser-Meyer-Olkin (KMO) measure was 0.847. Bartlett’s sphericity test was 347.008, with a significance of 0.000. In accordance with the recommendations of John and Reve (1982) and Hair *et al.* (1998), only two dimensions were apparent. These two factors accounted for 69.6% of the variation in the sample.

The first factor was similar to the ‘responsiveness’ dimension of the original E-RecS-QUAL scale. The three items of “responsiveness” and the single item of “compensation” all loaded clearly in this factor, which retained the label ‘responsiveness’ in the present study. The loads of the four items ranged between 0.742 and 0.858.

The second factor, which was labelled ‘contact’ in the present study, was clearly loaded by all three ‘contact’ items from the original scale. The loads of the three items ranged between 0.741 and 0.857.

The reliability of each of these two recovery factors was then assessed (see Table 26). Acceptable levels were achieved in all criteria (Hair *et al.*, 1998). Cronbach’s alpha coefficient and composite reliability exceeded the threshold value of 0.7 for internal consistency in every instance (Nunnally & Bernstein, 1994). In addition, two exploratory

factor analyses were performed (one for each factor). Both analyses extracted only one factor. These findings confirmed the unidimensionality of each item to its first-order dimension.

Table 26: Reliability of the adapted E-RecS-QUAL subscales

Subscale	Items	Cronbach's alpha	Range for Cronbach's alpha removing one item	Range for correlations of the items and the sum of the subscale
Responsiveness	RES1, RES2, RES3, COM1	.835	.747 - .835	.573 - .763
Contact	CON1, CON2, CON3	.771	.647 - .741	.559 - .643

A first-order confirmatory factor analysis was performed using EQS software. In view of the size of the sample, a robust maximum-likelihood estimation method was chosen. The comparative fit index (CFI) was 0.982 and the root mean-square error of approximation (RMSEA) was 0.053. The fit indices shown in Table 27 were acceptable (Byrne, 1994; Hu & Bentler, 1999). The Satorra-Bentler scaled chi-square was 25.47 on 19 degrees of freedom and its probability value for the chi-square statistic was 0.15. The loadings were all high (at a significance level of 0.05). The model was therefore confirmed as an acceptable fit for the data.

Table 27: Loadings on quality factors and goodness-of-fit statistics for the adapted E-RecS-QUAL scale

Responsiveness	Loadings*	p-value	r ²
RES1	.752	fixed	.566
RES2	.729	8.718	.532
RES3	.901	9.768	.813
COM1	.614	6.769	.377
Contact			
CON1	.593	fixed	.352
CON2	.699	5.350	.489
CON3	.868	5.206	.754

* These are the loads estimated from Confirmatory Factor Analysis.

All parameters significant at $p < 0.05$

Goodness of fit statistics (Robust method)

χ^2	14.23 (p-value = .3577)
df	19
CFI	.996
Bentler-Bonett non-normed fit index	.994
Bollen's (IFI) fit index	.996
RMSEA	.028
90% confidence interval for RMSEA	.000; .096

Content validity of the scale can be assumed on the basis of the close similarity between the present scale and the original E-RecS-QUAL model of Parasuraman *et al.* (2005). Convergent validity was confirmed when the factor loadings of the confirmatory model were found to be statistically significant (level of 0.05) and greater than 0.5 (Sanzo *et al.*, 2003).

In summary, the first objective of the study was realised by establishing that a scale that is very close to the generic E-RecS-QUAL scale is suitable for assessment of service recovery in e-banking services in the Spanish context.

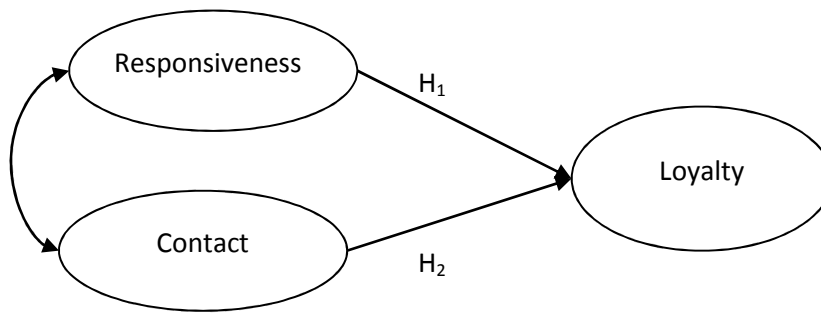
7.2.4.2 Relationship between recovery and loyalty

To analyse the extent to which recovery influences customer loyalty, a construct of 'loyalty' was required. The five 'loyalty' items noted above had a Cronbach's alpha of 0.929, which confirmed the reliability of the construct. An exploratory analysis was conducted with the five items, which revealed only one factor. This had an eigenvalue greater than one, and captured 78.18% of the variance.

Structural equation modelling (SEM) was conducted using ESQ software to assess the impact of the two dimensions of recovery (as identified above) on the construct of loyalty. As shown in Figure 16, two hypotheses were formally proposed:

Hypothesis H1: The dimension of 'responsiveness' has an impact on e-loyalty.

Hypothesis H2: The dimension of 'contact' has an impact on e-loyalty.

Figure 16: Hypothesised relationships between the dimensions of recovery and loyalty

The comparative fit index (CFI) was 0.995 and the root mean-square error of approximation (RMSEA) was 0.026. The Satorra-Bentler scaled chi-square was 14.23 on 13 degrees of freedom and its probability value for the chi-square statistic was 0.36. The loads were all high (at a significance level of 0.05). The model was therefore also an acceptable fit for the data.

The standardised solution was:

$$\text{Loyalty} = 0.838 * \text{Responsiveness} - 0.057 * \text{Contact} + 0.600 * D \text{ in which:}$$

D is the disturbance term; and r^2 is 0.640.

Only the first dimension of recovery ('responsiveness') had a p -value high enough (6.280) to ensure its reliability. The other path (for the dimension of 'contact') was not significant (p -value = 0.580). The covariance of the two independent constructs was 0.390, with a p -value of 4.582. These results confirmed the first hypothesis, but negated the second hypothesis.

The findings were in general accordance with Akinci *et al.* (2010), who reported that both 'responsiveness' and 'compensation' had significant and positive effects on loyalty in their study of e-service quality of banks in Turkey. In the present study, these two dimensions ('responsiveness' and 'compensation') were merged into a single dimension of 'responsiveness'. It would thus seem that responsiveness is a key factor in producing loyalty among customers of e-services. As in conventional services, customers expect prompt feedback regarding requests and complaints.

The present findings were also in accordance with Akinci *et al.* (2010) regarding the lack of impact of the dimension of 'contact' on loyalty. As suggested by Akinci *et al.* (2010), it

would seem that online customers are reluctant to experience direct personal interaction with service personnel, even when a problem occurs.

7.2.5 Sub-model findings and implications

The study has found that a modified version of E-RecS-QUAL scale (Parasuraman *et al.*, 2005) is valid for measuring service recovery in the e-banking context among Spanish customers. The study has also found that service recovery has a significant effect on loyalty among these customers.

Although several previous studies of e-service have established that a link exists from service quality to loyalty, with satisfaction being a mediating construct (Anderson & Srinivasan, 2003; Ribbink *et al.*, 2004; Boshoff, 2007; Cristobal *et al.*, 2007; Marimon *et al.*, 2010; Lin, 2010), fewer studies have analysed the behaviour of online customers who have experienced a problem with the service received. It is true that some studies have examined the concept of e-service recovery in itself (McCollough *et al.*, 2000; Parasuraman *et al.*, 2006; Lin, 2010), but there has been little research into the question of how such e-service recovery influences consumer behaviour. The present study has therefore made a significant contribution by demonstrating that e-service recovery has an important effect on e-loyalty. Moreover, the study has shown that two dimensions of service recovery ('responsiveness' and 'contact') are relevant in the e-banking sector, but that only one of these ('responsiveness') has a significant influence on loyalty.

The findings have implications for managers, who should be aware that the most important dimension of e-service recovery in terms of enhancing customer loyalty is 'responsiveness'. Managers should therefore ensure that all problems and returns are effectively handled through their websites. This is the most critical point in seeking to restore customer confidence after a service failure. Moreover, managers should note that the 'contact' dimension has no effect on loyalty. It would seem that customers of e-banking services prefer to deal with problems through the Internet, rather than by direct personal contact with service personnel (Akinci *et al.*, 2010).

With regard to future research, it would be interesting to establish how e-recovery affects satisfaction. This would require examination of a wider model, in which the relationships among e-quality, e-recovery, and e-satisfaction are all included.

7.3 Sub-model 3

The purposes of this sub-model are twofold: (i) to propose and apply scales to measure service quality and service recovery in the setting of electronic banking (e-banking) services; and (ii) to examine the impact of electronic service quality (e-quality) and service recovery (e-recovery) on loyalty (e-loyalty). The data are analysed by exploratory factor analysis to: (i) test the applicability of the scales to the setting of online banking services; and (ii) generate and test a model of e-quality, e-recovery, and e-loyalty using structural equation modelling (SEM). Three of the four dimensions of the original E-S-QUAL scale and two of the three dimensions of the original E-RecS-QUAL scale are confirmed in the setting of e-banking services. This section of the study confirmed that the modified versions of the E-S-QUAL and E-RecS-QUAL scales are appropriate instruments for measuring e-quality and e-recovery. Moreover, the proposed sub-model also provides empirical evidence that efficiency of a website and responsiveness to complaints have a positive influence on e-loyalty. This sub-model is the first to provide definitive empirical evidence (in the context of e-banking) of the presumed link between: (i) the e-quality and e-recovery dimensions proposed in the E-S-QUAL and E-RecS-QUAL scales; and (ii) the construct of loyalty.

7.3.1 Overview of the sub-model conceptualization

Service quality and service recovery are related to customer loyalty in different ways. Whereas quality is only indirectly related to loyalty via perceived value and satisfaction (Anderson & Srinivasan, 2003; Ribbink *et al.*, 2004; Boshoff, 2007; Cristobal *et al.*, 2007; Marimon *et al.*, 2010; Lin, 2010), recovery has a direct relationship with loyalty (McCullough *et al.*, 2000; Parasuraman, 2006; Lin, 2010). The question that then arises for electronic commerce (e-commerce) is the extent to which loyalty depends on electronic quality (e-quality) and the extent to which it depends on electronic service recovery (e-recovery). In other words, is e-quality or e-recovery the more important when an e-commerce company is designing its loyalty strategy?

To measure service quality and service recovery in the context of e-commerce, Parasuraman *et al.* (2005) have proposed two scales: 'E-S-QUAL' to assess e-quality and 'E-RecS-QUAL'

to assess e-recovery. Although some authors have applied these instruments in a variety of settings (Kim *et al.*, 2006; Boshoff, 2007; Akinci *et al.*, 2010; Fuentes-Blasco *et al.*, 2010; Marimon *et al.*, 2010), these scales have received relatively little research attention compared with that accorded to the well-known ‘SERVQUAL’ instrument (Parasuraman *et al.*, 1988), which, in many ways, can be considered an antecedent of the two more recent e-commerce scales.

Despite their relative lack of research attention, these two e-service scales have enabled researchers to examine the relationships that exist between e-quality and various other constructs—such as perceived value, satisfaction, and loyalty (Srinivasan *et al.*, 2002; Sigala & Sakellariadis, 2004; Huang, 2008; Fuentes-Blasco *et al.*, 2010). These relationships are important in all services, but they are especially significant in the case of e-services because the cost (to the customer) of changing his or her provider is low and the change is as easy as a ‘click’ (Fuentes-Blasco *et al.*, 2010). One can argue that switching online banking provider is not as easier as in e-tailing, given that e-banking may be tight to traditional accounts and switching requires at least setting up a new account, closing the earlier account. It incorporates setting up balances transfer, wage payments and initiating new automatic payments and direct debit to replace those operating at the old bank. However, in the past few years online banks competitors have started to actively promote switching provider as part of their “free” services. They often claimed that switching banks is easier today than it used to be, since they have made the process as simple and as easy as possible. This view is supported from the extant of literature. E.g. Sherry (2002) argued that in the 70’s customers were at the mercy of the bank and that changing banks was effectively impossible due to the penalties that existed; whereas nowadays she argued that it simply takes a phone call to switch. In the same vein, Trout (2006) in his study found that 70% of respondents expected changing banks would be a hassle, but nearly 90% of switchers found it easier than expected. Obviously, competing in such condition is as thorny as in an online shopping setting. As a consequence, several authors have emphasised the importance of enhancing loyalty among internet consumers. Likewise, it is self-evident that an understanding of the antecedents of e-loyalty is likely to enhance business performance (Petnji *et al.*, 2011)

Against this background, the purposes of this study are twofold. The first is to propose scales to measure e-quality and e-recovery in the context of the Spanish e-banking sector. The second is to assess the impact of e-quality and e-recovery on e-loyalty.

The remainder of this paper is structured as follows. After this introduction, the second section presents a review of the relevant literature. In the third section, the methodology of the empirical study is described. The results are presented in the fourth section (validation of the scales to assess e-quality and e-recovery; and analysis of the impacts of e-quality and e-recovery on loyalty). The conclusions and managerial implications are presented in the final section.

7.3.2 Summary of the existing literature and the omitted gap

7.3.2.1 Measuring e-quality

Unlike the service quality literature, the number of studies on electronic service quality is still at its preliminary phase both from theoretical and empirical perspectives (Akinci et al., 2010). Literally electronic service quality is a new concept and the way is conceptualized varies greatly. E.g. Santos (2003) defines service quality in e-commerce as “the consumers’ overall evaluation and judgement of the excellence and quality of service offerings in the virtual market place”. This definition is in a somewhat circular way (Kim et al., 2006) and do not capture all the aspects of the purchasing process (Parasuraman et al., 2005). Nevertheless, this study adopted (Zeithaml et al., 2002) definition as it captures all the aspects of purchasing process (from pre-sale to the post-sale) and is a relevant conceptualisation in our context. Since the meaning of service in the definition is comprehensive and includes prior technical aspects (e.g. secure electronic transaction symbols, search engines and one click order placement) and aspects subsequent to the website service (e.g. delivery period, exchanges, and refund) (Parasuraman et al., 2005; Fuentes-Blasco et al., 2010). According to Zeithaml et al. (2002), e-service quality is defined “as the extent to which a web site facilitates efficient and effective shopping, purchasing and delivery of product and services”

Bearing in mind the natural differentiation between e-banking and e-retailers and drawing on Zeithaml et al. (2002), this study defined e-SQ in an online banking setting as the extent to which a web site facilitates efficient and effective online operation/transaction and delivery of product and services.

Additionally, to deliver superior service quality, managers of companies with web presences must first understand how consumers perceived and evaluate online customer service quality (Parasuraman et al., 2005). Previous study provide important framework and research instruments. A variety of scales utilising various dimensions of quality have been suggested for measuring service quality in the context of electronic commerce. Many of these have focused on the quality of the website itself. For example, Chen and Wells (1999) developed a measure of website quality, which consisted of three dimensions (entertainment, informativeness, and organisation). In a similar vein, Yoo and Donthu (2001) developed an instrument called 'SITEQUAL', which had four dimensions (ease of use, aesthetic design, processing speed, and security). Subsequently, Loiacono et al. (2002) used interviews with consumers and website designers to develop 'WebQual', which consisted of 12 dimensions of online service quality (informational fit-to-task, interactivity, trust, response time, ease of understanding, intuitive operations, visual appeal, innovativeness, flow/emotional appeal, consistent image, online completeness, and better than alternative channels). Coincidentally, Barnes and Vidgen (2002) also developed a scale of website quality with the same name: 'WebQual'.

Apart from these measures of website quality, other authors, such as Zeithaml *et al.* (2000), have proposed a more comprehensive conception of e-service quality in terms of evaluation of the whole service encounter—including both the transaction and the post-transaction process. Some years later, Parasuraman *et al.* (2005) acted on this wider view of e-service quality in publishing the 'E-S-QUAL' instrument for assessing e-services. The E-S-QUAL scale contains 22 items gathered in four dimensions: (i) 'efficiency' (the ease and speed of accessing and using the site); (ii) 'fulfilment' (the extent to which the site's promises about order delivery and item availability are fulfilled); (iii) 'system availability' (the correct technical functioning of the site); and (iv) 'privacy' (the degree to which the site is safe and protects customer information). This scale was, in many ways, an adaptation (for the e-commerce context) of the well-known 'SERVQUAL' scale (Parasuraman *et al.*, 1988), which had been developed two decades previously for measuring general service quality. As a pioneering instrument for measuring service quality, SERVQUAL has been successfully adapted for use in a wide variety of services sectors and contexts (Ladhari, 2009a). For example, in the banking industry, which is the field of interest to the present study, Kumar *et*

al. (2010) recently, used the SERVQUAL instrument to assess the quality of service provided by both Islamic and conventional banks in Malaysia.

The E-S-QUAL scale itself has been adapted to a variety of e-commerce settings. For example, Boshoff (2007), who investigated the relationship between e-quality and loyalty, proposed that the instrument should have six dimensions, rather than the four of the original instrument. Marimon *et al.* (2010), who applied the instrument to an analysis of the relationship between purchasing and loyalty in the context of an e-supermarket, expanded Boshoff's (2007) model by adding a new construct. More recently, Meng (2010) applied the scale in an African American cultural setting and a Chinese cultural setting. Fuentes-Blasco *et al.* (2010) also made an interesting contribution when they adapted items from the E-S-QUAL scale to assess service quality in an e-bank. Their study confirmed Parasuraman and Grewal's (2000) theoretical 'consequence chain'—that e-service quality impacts on perceived value, and that perceived value then has a positive effect on e-loyalty. Akinci *et al.* (2010) also utilised the E-S-QUAL scale in assessing the e-service quality offered by 13 banks in Turkey. Their study provided a refined and more stable version of the scale for use in Internet banks.

Before the publication of the E-S-QUAL scale by Parasuraman *et al.* (2005), other authors had proposed scales designed specifically for assessing quality in the particular setting of e-bank services. For example, Zhilin *et al.* (2004) proposed a five-dimensional measurement instrument (reliability, responsiveness, competence, ease of use, product portfolio, and security), whereas Osman *et al.* (2005) proposed a different five-dimensional scale adapted to the Cyprus e-banking market (service environment, interaction quality, reliability, empathy, and technology).

7.3.2.2 Relationship between e-quality and e-loyalty

Loyalty has been conceptualised and defined in various ways. The extant literature indicates there are two trends of thought dominating the conceptualization of customers' loyalty. One approach regards loyalty in behavioural terms. Drawing on that, Srinivasan *et al.* (2002) defined e-loyalty as a "...customer's favourable attitude toward the e-retailer that results in repeat buying behavior". Whereas, the other approach argues that effective feelings are important to the conceptualization of loyalty concept. According to this view, loyalty

involves attitudes, psychological involvement, notions of favouritism, and a sense of goodwill towards a particular product or service (Kim et al., 2006). Taken together, it would seem that is best understood by considering both behavioural and attitudinal loyalty (Petnji et al., 2011). Subsequently, based on the previous arguments and given the difficulties related to the acquisition of customers in online banking, this study adopts both concepts.

Several studies have confirmed that there is a direct relationship between service quality and loyalty in the context of e-commerce. Sigala and Sakellariadis (2004) concluded that e-quality is a vital antecedent of both online purchases and e-loyalty. Huang (2008), who undertook a literature review of the subject, contended that there is a consensus among scholars that e-quality is a prerequisite of loyalty. More recently, Fuentes-Blasco et al. (2010) also undertook a review of the literature on the relationship between e-quality and e-loyalty. Their conclusion was that superior e-service quality leads to enhanced customer satisfaction and retention.

7.3.2.3 Measuring e-service recovery

The term ‘service recovery’ refers to “.... the actions taken by a service provider to address a customer complaint regarding a perceived service failure” (Grönroos, 1988). These actions are designed to resolve problems, alter negative attitudes of dissatisfied customers and to ultimately retain these customers (Sousa and Voss, 2009). Service recovery in traditional services has received considerable attention in the academic literature (Davidow, 2003; McCollough et al. 2000; Tax et al., 1998; Parasuraman, 2006) because effective recovery management has been shown to have a significant positive effect on customers who have reacted adversely to a service failure (Berry and Parasuraman, 1991). An understanding of effective recovery management is particularly relevant for service providers because the distinctive characteristics of service (especially the inseparability of production and consumption) make it impossible to ensure 100% error-free service (Fisk et al., 1993).

E-service recovery is an important aspect of e-service, since it addresses the web site’s service in response to problems or questions experienced by customers. However, from the extant of literature this topic has received limited attention in the context of online setting. Perhaps because (i) is a new concept, since there is reduced or not at all human interaction it is unclear whether the understanding of the concept from traditional service is transferable to online services and (ii) acquiring data to measure e-service recovery is difficult. Moreover, to

assess the effectiveness of such service recovery in the context of e-commerce, a valid and reliable measurement instrument is required. The most widely used instrument appears to be the E-RecS-QUAL scale (Parasuraman *et al.*, 2005). This scale includes 11 items arranged in three dimensions: (i) ‘responsiveness’ (effective handling of problems and returns through the site); (ii) ‘compensation’ (the degree to which the site compensates customers for problems); and (iii) ‘contact’ (the availability of assistance through telephone or online representatives). Meng (2010) applied the E-RecS-QUAL scale to an African American cultural setting and a Chinese cultural setting. However, studies suggest that certain modifications of this scale are usually required for application in various settings, including the e-banking sector (Kim *et al.*, 2006; Fuentes *et al.*, 2008; Yen & Lu, 2008; Akinci *et al.*, 2010).

7.3.2.4 Relationship between e-service recovery and e-loyalty

The best scenario for service providers is to deliver a service without failures (McCollough *et al.*, 2000). In general, companies fare better in the eyes of consumers by avoiding service failure than by responding to failure with superior recovery. However, when the failure has occurred, effective service recovery is considered essential to business survival in general (Berry & Parasuraman, 1991) and to e-commerce in particular (Reichheld & Schefter, 2000). This is because service recovery has been shown to play a crucial role in maintaining customer loyalty—either directly (Srinivasan *et al.*, 2002; Reichheld & Schefter, 2000; Semeijn *et al.*, 2005) or indirectly through enhanced perceived value (Boshof, 2007; Marimon *et al.*, 2010; Fuentes-Blasco *et al.*, 2010).

Effective service recovery is especially important in services provided on the Internet. This is because online customers are difficult to attract and retain (Srinivasan *et al.*, 2002); moreover, it is very easy for online customers to switch their online providers (Reichheld & Schefter, 2000; Semeijn *et al.*, 2005).

Various studies have utilised the E-RecS-QUAL scale (Parasuraman *et al.*, 2005) to investigate these issues. As noted above, Fuentes-Blasco *et al.* (2010) confirmed Parasuraman and Grewal’s (2000) finding that e-service quality impacts on loyalty via perceived value. To measure the constructs of e-service quality and e-recovery, these authors adapted the items from both the E-S-QUAL and E-RecS-QUAL scales (Parasuraman *et al.*, 2005). In another recent study, Akinci *et al.* (2010) utilised the E-RecS-QUAL scale to assess service recovery

offered by 13 banks in Turkey. This study showed that two of the dimensions of the scale ('responsiveness' and 'compensation') had a significant and positive effect on customer loyalty, whereas the third dimension ('contact') had no effect on customer loyalty (perhaps because online customers are reluctant to experience interpersonal interaction even when a problem occurs).

7.3.3 Methods and methodology used in the sub-model

7.3.3.1 Sample and data collection

The field work was completed in May 2010. After refusing some incomplete or invalid questionnaires, 428 valid questionnaires remained from Spanish customers of e-bank (a list of 20 different e-banks were detected as providers to the respondents); of these, 123 had experienced a problem with the service they had received. The demographic characteristics of the sample are summarised in Table 28. No gender bias was detected. A little more than half (59.8%) of the respondents were aged less than 34 years. The educational level of the sample was high, with two-thirds of the sample having a university degree. The table also shows the demographics of the sub-sample of respondents who had complained about the service received. There was again no gender bias in this sub-sample. Half of the respondents were aged less than 34. The educational level was again high, with two-thirds of the sub-sample having a university degree.

Evidently to congregate external validity conditions, it was necessary to check that the final data collected was undeniably a representation of the online banking population. It was reported that 62.2% of Spanish general populations were internet users in April 2011 (Internet World Stats, April 2011). Besides, The success of online banking in Spain was evidenced by the number of current and potential users of these services, with 14.68 million internet users frequenting banking websites in 2008 (Fundacion Orange, 2008). The percentage difference in four demographic characteristics between online bank population (Instituto Nacional de Estadística's, 2011) and the final data set of this study were analyzed using the Wilcoxon–Mann–Whitney test. Four contrasts were assessed between the two groups assuming a null hypothesis that there was no difference of means between the groups. The results show no statistical differences ($p\text{-value} > 0.05$); hence the sample replicates the general population in term of gender, age, education and annual income.

Moreover, the sample of service recovery was constructed by self-selection of respondents. It was as well necessary to assess representativeness of the final data of service recovery with the aim population sample (428). A comparison of demographic variables between the two samples (respondents who had not reported any problems and those who had reported a problem) was conducted using the Wilcoxon–Mann–Whitney test. The findings indicated that no differences were detected in “gender” and “educational” level. However, the characteristics of “age” and “annual income” $p\text{-value} \leq 0.05$, indicates that there was some differences. A thorough data analysis shows there was a slight disparity (10%). Respondents aged 17-23 and annual income <12,000 failed to report non-routine encounters. It appears not to be a surprise as the data profile of this particular group indicates that they were likely to be students. Students are emblematic and very knowledgeable representation of the sizeable body of web users. They might not have reported service failure, since they can solve some non-routine encounters by seeking advices from their friends and family through social network media. To sum-up, the lack of any significant difference indicates that the collected information of service recovery has certain reference value and indeed is a representation of the population.

Table 28: Demographic characteristics of sample

	Complete sample		Subsample of respondents who have reported a problem	
	Number	%	Number	%
Age				
Between 17 and 24 years	106	24.8	15	12.2
Between 25 and 34 years	150	35.0	48	39.0
Between 35 and 44 years	102	23.8	40	32.5
Between 45 and 54 years	47	11.0	14	11.4
Between 55 and 64 years	16	3.7	5	4.1
>65 years	7	1.6	1	.8
Total	428	100.0	123	100.0
Gender				
Male	203	47.4	61	49.6
Female	225	52.6	62	50.4
Total	428	100.0	123	100.0
Educational level				
High School	39	9.1	15	12.2
College	63	14.7	20	16.3
Bachelor’s degree	196	45.8	48	39.0
Master’s degree	91	21.3	32	26.0
Others	39	9.1	8	6.5

Total	428	100.0	123	100.0
Annual income (euros)				
<12,000	134	31.3	27	22.0
Between 12,000 and 24,000	148	34.6	44	35.8
Between 24,000 and 35,000	79	18.5	32	26.0
Between 35,000 and 50,000	49	11.4	15	12.2
>50,000	18	4.2	5	4.1
Total	428	100.0	123	100

7.3.3.2 3.2 Questionnaire

As noted above, the two objectives of the study were: (i) to propose scales to measure e-quality and e-recovery in the context of the Spanish e-banking sector; and (ii) to assess the impact of e-quality and e-recovery on e-loyalty. To gather data for these purposes, the questionnaire included items for:

- * e-service quality and e-recovery (for the first objective); and
- * Perceived value and loyalty intentions (for the second objective).

The rationale for collecting data on ‘perceived value’ will become apparent when the proposed model for the second objective is presented in detail below (see Section 4.2).

7.3.4 Data analysis and findings

7.3.4.1 Scales to assess e-quality and e-recovery

A preliminary survey of scale dimensionality was undertaken by exploratory factor analyses with varimax rotation (Hair *et al.*, 1998) using the Kaiser criteria of eigenvalues greater than 1.

The *first* of those exploratory factor analyses involved the items for e-quality (as listed above). The Kaiser-Meyer-Olkin (KMO) measure was 0.935. Bartlett’s sphericity test was 5,125.3 (df = 171) with a significance of 0.000. Three dimensions, which accounted for 64.11% of the variability of the sample, were identified.

The *first factor* (labelled ‘efficiency’) gathered seven of the eight efficiency items noted above. Only item EFF5 (‘the website loads its pages quickly’) migrated from this factor to the second factor.

The *second factor* was labelled ‘system availability’. In all, seven items loaded on this ‘new’ factor of system availability: (i) the original four items of ‘system availability’ noted above; (ii) the first two items of ‘fulfilment’; and (iii) the item EFF5 (previously noted).

The *third factor* neatly included all three items of ‘privacy’ noted above.

As a result of this analysis, two of the original ‘fulfilment’ items were included in ‘system availability’, and the other two were discarded because they loaded equally on ‘efficiency’ and ‘privacy’. As a consequence, the original ‘fulfilment’ dimension was removed. This finding is consistent with previous studies (Fuentes-Blasco *et al.*, 2010; Marimon *et al.*, 2010; Boshoff, 2007). The overall result is also consistent with the literature (Meuter *et al.*, 2000; Zeithaml *et al.*, 2002; Boshoff, 2007; Fuentes-Blasco *et al.*, 2010; Marimon *et al.*, 2010) in demonstrating that e-quality is a multidimensional (rather than uni-dimensional) construct.

The *second* exploratory factor analysis involved the items for e-recovery (noted above). The KMO index was 0.847, and the Bartlett test was 347 (df = 21) with a significance of 0.000. Only two factors with eigenvalues greater than 1 appeared. These explained 69.6% of the variance. The first, which was labelled ‘responsiveness’, gathered: (i) the three factors of the original dimension of ‘responsiveness’ noted above; and (ii) the only item of ‘compensation’. The second factor, which was labelled ‘contact’, included the original three items of ‘contact’.

The two analyses thus revealed five dimensions across the two constructs: (i) ‘efficiency’, ‘system availability’, and ‘privacy’ for *e-quality*; and (ii) ‘responsiveness’ and ‘contact’ for *e-recovery*. The next step was to assess the reliability of each these five factors (see Table 29). Cronbach’s alpha and composite reliability exceeded the threshold value of 0.7 for internal consistency in every instance (Nunnally & Bernstein, 1994).

Table 29: Reliability analysis of adapted E-S-Qual and E-RecS-Qual scales

Factor	Items	Cronbach's alpha	Range for Cronbach's alpha removing one item	Range for correlations of the items and the sum of the subscale
Efficiency	EFF1, EFF2, EFF3, EFF4, EFF6, EFF7, EFF8	.906	.884 - .904	.624 - .801
System availability	SYA1, SYA2, SYA3, SYA4, FUL1, FUL2, EFF5	.887	.857 - .884	.574 - .794
Privacy	PRI1, PRI2, PRI3	.890	.819 - .871	.752 - .813
Responsiveness	RES1, RES2, RES3, COM1	.835	.747 - .835	.573 - .763
Contact	CON1, CON2, CON3	.771	.647 - .741	.559 - .643

Two first-order confirmatory factorial analyses utilising robust maximum-likelihood estimation were performed using EQS software: (i) involving the retained items in the amended E-S-QUAL scale to assess e-quality; and (ii) involving the retained items in the amended E-RecS-QUAL scale to assess e-recovery.

In the first of these analyses (for the amended E-S-QUAL), the comparative fit index (CFI) was 0.933 and the root mean-square error of approximation (RMSEA) was 0.065. The Bentler-Bonett non-normed fit index (NNFI) was 0.921. The Satorra-Bentler scaled chi-square was 323.63 on 116 degrees of freedom, and its probability value for the chi-square statistic was 0.000. These results indicate that global fit was acceptable (Byrne, 1994; Hu & Bentler, 1999). The loads were all high (at a significance level of 0.05). The amended model was therefore shown to be an acceptable fit for the data.

In the second confirmatory analysis (for the amended E-RecS-QUAL scale), the Satorra-Bentler scaled chi-square was 10.41 on 13 degrees of freedom and its probability value for the chi-square statistic was 0.660. The CFI was 0.996 and the RMSA 0.028. This model was thus also confirmed.

The ontological validity of both multidimensional scales can be assumed on the basis of the close similarity between the modified scales and the original E-S-QUAL and E-RecS-QUAL models of Parasuraman *et al.* (2005). Convergent validity was confirmed when the factor loadings of the confirmatory model were found to be statistically significant (level of 0.05) and greater than 0.5 (Sanzo *et al.*, 2003).

In summary, the first objective of this sub-model was realised by establishing that two modified scales derived from the generic E-S-QUAL and E-RecS-QUAL scales are suitable for assessment of quality and recovery in e-banking services in the Spanish context.

7.3.4.2 4.2 Impacts of e-quality and e-recovery on e-loyalty

7.3.4.2.1 4.2.1 Structural equation modeling (SEM)

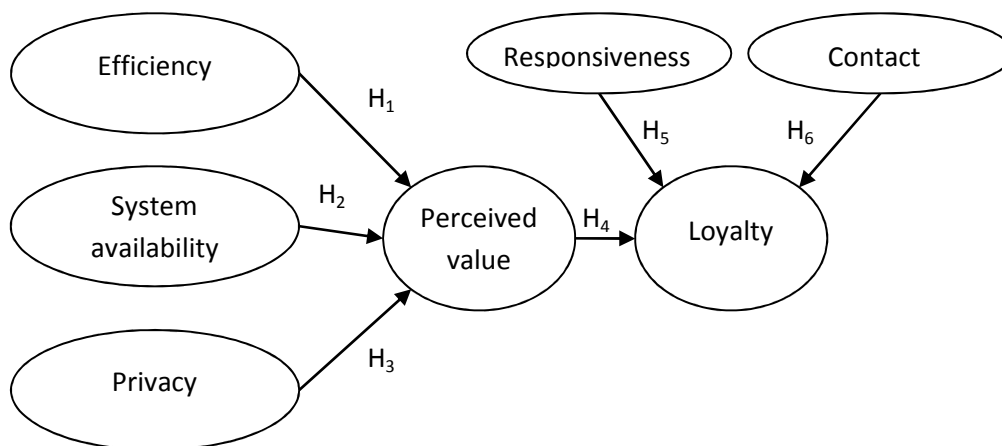
To analyse the extent to which quality and recovery impact upon customer loyalty in this context, structural equation modelling (SEM) was conducted using a partial least squares (PLS) procedure run in the Smart-PLS software package, which allows path modelling with

latent variables (Ringle *et al.*, 2005). The PLS procedure is able to model latent constructs under conditions of non-normality and small-to-medium sample size (Compeau & Higgins, 1995). Rather than assuming equal weights for all indicators of a scale, PLS allows each indicator to vary with regard to how much it contributes to the composite score of the latent variable. Indicators with weaker relationships to related indicators and the latent construct are thus given lower weightings

7.3.4.2.2 Proposed model

To investigate how e-quality and e-recovery affect e-loyalty, the model shown in Figure 17 is proposed. The model shows the three dimensions of e-quality ('efficiency', 'system availability', and 'privacy') and the two dimensions of e-recovery ('responsiveness' and 'contact') that were derived from the exploratory factor analyses described above (Section 4.1).

Figure 17: Hypothesised relationships among the constructs of the model



Drawing on the literature review (Section 2), this model contains six hypothesised relationships among the various constructs:

- * *Hypothesis H1*: The efficiency of a website is positively related to customer perceived value.
- * *Hypothesis H2*: The system availability of a website is positively related to customer perceived value.
- * *Hypothesis H3*: The privacy of a website is positively related to customer perceived value.

- * *Hypothesis H4*: Customer perceived value in a website is positively related to loyalty to that website.
- * *Hypothesis H5*: The responsiveness of a website is positively related to loyalty to that website.
- * *Hypothesis H6*: The contact offered by a website is positively related to loyalty to that website.

7.3.4.2.3 Scales for 'perceived value' and 'loyalty'

To test these hypotheses, the scales for the constructs of 'perceived value' and 'loyalty' had to be validated for reliability. Both scales proved to be uni-dimensional, and exploratory factor analyses of the scales extracted only one factor in each case. Cronbach's alphas confirmed the reliability of the constructs (see Table 30).

Table 30: Reliability analysis of constructs of 'perceived value' and 'loyalty'

Factor	Items	Cronbach's alpha	Range for Cronbach's alpha removing one item	Range for correlations of the items and the sum of the subscale
Perceived value	PEV1, PEV2, PEV3, PEV4	.821	.736 -.815	.552 -.744
Loyalty	LOY1, LOY2, LOY3, LOY4, LOY5	.896	.861 - 895	.652 - .809

7.3.4.2.4 Evaluation of measurement model

Evaluation of the measurement model involved assessment of: (i) the validity of individual items; (ii) the reliability of subscales (internal consistency); (iii) convergent validity; and (iv) discriminant validity of the constructs.

The *validity of individual items* within the constructs was confirmed by load values greater than 0.707 (Carmines & Zeller, 1979). Table 31 shows that only item 'EFF 5' did not satisfy this criterion, but because it was so close to the threshold it was decided that it could be retained, in accordance with the relaxed criterion suggested by Barclay *et al.* (1995). The robustness of these loads was analyzed by a 'bootstrapping' process; that is, taking 1000 subsamples of a hundred cases of each. All the *p*-values were found to be greater than the 1.96 threshold.

The *internal consistency* (reliability) of the subscales had been previously demonstrated (see Tables 30 and 31). In addition, assessment of the reliability of the reflective constructs was checked by composite reliability. As shown in Table 33, all values exceeded the recommended value of 0.8 (Nunnally & Bernstein, 1994).

With regard to *convergent validity*, the average variance extracted (AVE) for all scales was greater than Fornell and Larcker's (1981) recommended value of 0.5 (see Table 33).

To assess *discriminant validity*, the criterion of Fornell and Larcker (1981) was adopted—that the square root of the AVE should be greater than the correlations presented by each construct with other constructs. Table 32 shows that this was so.

Table 32: Discriminant validity

	Efficiency	System availability	Privacy	Responsiveness	Contact	Perceived Value	Loyalty
Efficiency	<i>0.82024</i>						
System availability	0.685571	<i>0.77666</i>					
Privacy	0.483266	0.532644	<i>.90559</i>				
Responsiveness	0.323561	0.282561	0.221888	<i>0.82041</i>			
Contact	0.223523	0.162847	0.212933	0.542431	<i>0.82216</i>		
Perceived Value	0.642428	0.614633	0.561749	0.374284	0.294245	<i>0.81747</i>	
Loyalty	0.604303	0.548655	0.497310	0.443064	0.276656	0.710634	<i>0.84343</i>

Note: Correlations between latent variables under the main diagonal. On the diagonal the square roots of AVE in italics.

7.3.4.2.5 Evaluation of structural model

The goodness-of-fit index proposed by Tenenhaus *et al.* (2004), which takes into account both the explained variances for the latent dependent variables and their commonalities, was 0.3235 (see Table 33). The model explained more than half of the variance of each independent variable.

Table 33: Model fitness

	AVE	Composite Reliability	R Square	Cronbachs Alpha	Commuality	Redundancy
Efficiency	0.643857	0.926555		0.907080	0.643857	
System availability	0.603206	0.913689		0.889404	0.603206	
Privacy	0.820103	0.931849		0.890220	0.820103	
Responsiveness	0.673080	0.891143		0.837356	0.673080	
Contact	0.675946	0.861066		0.770603	0.675946	
Perceived Value	0.668260	0.888965	0.519635	0.832446	0.668260	0.220516
Loyalty	0.711377	0.924723	0.542131	0.897872	0.711377	0.352135

All the paths, with the exception of that between ‘contact’ and ‘loyalty’ (Hypothesis H6), were significant ($p < 0.01$) (see Table 34). In other words, five of the six hypotheses were confirmed. The lack of evidence for the direct influence of ‘contact’ on loyalty (Hypothesis H6) in the present study is in accordance with Akinci *et al.* (2010), who suggested that online service customers might be reluctant to experience direct interpersonal interaction, even when a problem occurs.

It should also be noted that the strong relationship between ‘perceived value’ and ‘loyalty’ in the present study is consistent with several previous studies (Anderson & Srinivasan, 2003; Ribbink *et al.*, 2004; Boshoff, 2007; Cristobal *et al.*, 2007; Marimon *et al.*, 2010; Lin, 2010).

Table 34: Path coefficients and t-statistics

Hypothesis	Path coefficient (t-statistic) (*)	Hypothesis testing
H1: Efficiency→ Perceived value	0.357304 (3.346563) (*)	Accepted
H2: System availability→ Perceived value	0.226775 (2.192262) (*)	Accepted
H3: Privacy→ Perceived value	0.268287 (3.026427) (*)	Accepted
H4: Perceived Value→ Loyalty	0.636828 (9.646206) (*)	Accepted
H5: Responsiveness→ Loyalty	0.221439 (2.251563) (*)	Accepted
H6: Contact→ Loyalty	-0.030843 (0.310610)	Refused

(*) t-statistics are significant (p -value > 1.96)

In terms of the antecedents of ‘perceived value’, the e-quality dimension of ‘efficiency’ was the most significant; in contrast, the coefficients of ‘system availability’ and ‘privacy’ were significantly lower. It would seem that the ease and speed of accessing the website is the

most important factor in determining ‘perceived value’, whereas the technical function of the site and the protection of customer information are less important.

Table 35 shows the effect on ‘loyalty’ of the total effect of the three dimensions extracted from the E-S-QUAL scale and the two constructs extracted from the E-RecS-QUAL scale.

Table 35: Total effects of the constructs on loyalty

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (O/STERR)
Efficiency → Loyalty	0.227541	0.238881	0.074162	0.074162	3.068182
System availability → Loyalty	0.144417	0.146547	0.068715	0.068715	2.101684
Privacy → Loyalty	0.170852	0.166722	0.061565	0.061565	2.775152
Responsiveness → Loyalty	0.221439	0.222499	0.098349	0.098349	2.251563
Contact → Loyalty	-0.030843	-0.021293	0.099297	0.099297	0.310610

The results show that ‘efficiency’ and ‘responsiveness’ had equivalent effects on loyalty. This indicates that the ease and speed of accessing and using the site (efficiency) was as important as the effective handling of problems (recovery). It should also be noted that ‘system availability’ and ‘privacy’ had similar total effects.

7.3.5 Sub-model findings and Limitations

This study first seeks to develop a multi items scale that could be used to measure the service quality of online banking and to comprehend the fundamental service quality dimensions. The study showed that an amended version of the E-S-QUAL scale (Parasuraman *et al.*, 2005) is a valid instrument for measuring e-service quality in the context of Spanish e-banking services. The modified version of the scale moved two items of the original ‘fulfilment’ dimension into the ‘system availability’ dimension. The remainder of the original ‘fulfilment’ dimension was then discarded. The amended version of the scale thus has three dimensions (‘efficiency’, ‘system availability’ and ‘privacy’), rather than the original four. This modification is in some extent accordance with Boshoff (2007), who also removed the ‘fulfilment’ dimension in his model. The modification is also supported to some degree by Fuentes-Blasco *et al.* (2010), who found out that this dimension had a lower coefficient path to e-quality in their model.

Of the three remaining dimensions, the present study finds that ‘efficiency’ is the most important in engendering customer loyalty, with the other two (‘system availability’ and ‘privacy’) being equally (but less) important. All three dimensions have been shown to influence loyalty through ‘perceived value’.

The study has also found that an adaptation of E-RecS-QUAL scale (Parasuraman *et al.*, 2005) is valid for assessing service recovery in the context of Spanish e-banking services. The modified scale merged the dimensions of ‘responsiveness’ and ‘compensation’ into one factor (labelled ‘responsiveness’). The third dimension of the original scale (‘contact’) was retained.

This study has also shown that e-service recovery has a significant direct impact on e-loyalty; indeed, this effect is equivalent in magnitude to the effect of ‘efficiency’ (a dimension of e-service) on loyalty. These results are consistent with Akinci *et al.* (2010), who reported that ‘responsiveness’ and ‘compensation’ (dimensions of e-service recovery) have a significant and positive effect on loyalty. The present study also agrees with Akinci *et al.* (2010) in not finding any solid evidence of a relationship between ‘contact’ (a dimension of recovery) and e-loyalty.

These findings have important implications for e-service managers in developing their recovery strategies. First, it would seem that not all recovery actions are equally important. The recovery dimension that really explains loyalty is ‘responsiveness’ (effective handling of problems and returns through the site). This is the best way to restore customer confidence after a bad service experience. In contrast, availability of a real person (‘contact’) is not significant in producing loyalty. Managers should bear this in mind in allocating resources with a view to enhancing customer loyalty.

Managers should also note that ‘efficiency’ is the most important dimension of e-service quality in its effect on loyalty; indeed, it is slightly more important than service recovery. The implication is that providing a service free of failures is the best way to enhance customer loyalty (McCollough *et al.*, 2000). In other words, avoiding service failure is better than responding to failure; nevertheless, when service failure does occur, the ‘responsiveness’

dimension of e-service recovery has a significant effect on loyalty in e-services, as it does in all service settings (Berry & Parasuraman, 1991; Fisk *et al.*, 1993; Reichheld & Schefer, 2000).

Given the phenomenal growth of e-services, previous studies provide important theoretical framework and research instruments for scales evaluation of e-services quality e.g. E-S-QUAL and E-RecS-QUAL (Parasuraman *et al.* 2005). Other studies adopted formal procedures for empirically validating e-SQ measurement scales in online shopping (Boshoff, 2007; Fuentes-Blasco *et al.*, 2010). However, very few succeeded in an attempt to propose scales to measure e-SQ in pure service oriented setting. E.g. in an endeavour to propose a more stable version of the E-S-QUAL to evaluate e-service quality in online banking in Turkey, Akinci *et al.* (2009) reported some problems with the discriminant validity of their study. Furthermore, in an attempt to reassess the scales in South Africa, Boshoff (2007) admitted they kept items with poor loadings (lower than 0.36) in the confirmatory factor analysis of their study. This paper goes one step further by proposing e-SQ scales from a culturally different country and different industry (e-banking). In contrast to previous study, there are some new contributions to be drawn from this research. This study is the first attempt to proposed a more stable and reliable version of the amended E-S-QUAL to evaluate electronic service quality in a pure service setting. Moreover, it proposed and test a model that have never been presented before and that explain better the direct relationship between service recovery and loyalty and the mediating role of value between the relationship of service quality and loyalty.

This study has several acknowledge limitations which should be address in the future. The empirical data for this study was confined to one online service industry in one country. In the future, researchers may replicate the study in other settings and to a culturally different country to enhance the scales external validity and reliability. To measure e-service recovery a filtering process with a dichotomous question was applied. Given that this study was exploratory it was necessary to lower variability in order to verify the feasibility and reliability of our model. Further research may categorize non-routine encounters from a single/simple defect (e.g. safety concern) to the most important (e.g. transaction/operation failure) before scale evaluation. Besides, this study investigates loyalty and its antecedents for a specific period in time. Since loyalty is a non-spatial notion, it would be interesting for

further research to extend the present Loyalty model to different sectors and with a longitudinal data (time based) that can assist in scrupulously understand customers' behaviour and attitude alteration with time.

7.4 Sub-model 4

This part of the thesis developed and empirically tested a sub-model that considers perceived online service quality and online service recovery as antecedents to online satisfaction for the purposes of investigating which factor has the most significant impact on online customer satisfaction and loyalty. Exploratory Factor Analyses (EFA) was used to examine scales validity. Thereafter, structural equation modeling based on partial least square (PLS) techniques were used to evaluate the causal model. This part of the study showed electronic service quality dimensions (e-SQ) appear to be different from other previously researched retail settings. Perceived online service quality and service recovery have direct/indirect effects on customer loyalty through customer satisfaction. In addition the mediating role of satisfaction was confirmed. However, rather than service recovery, e-quality is the most important predictor of customer satisfaction and loyalty. The implication for electronic service managers is that it is more important to increase customer satisfaction, which requires placing an external focus on developing in the first place online perceived service quality, instead of preventing dissatisfaction through recovery.

7.4.1 Foreknowledge of all the factors and the motivation for the proposed sub-model

The Web has become ubiquitous and the internet retail market is growing at an exponential rate. In addition, search engines and comparison websites are commonly used for product evaluation and selection, and customers are increasingly eager to share experiences through social media. Thus online service providers have to deal with more and more clued-up customers. Acquiring online consumers is difficult and costly, since the high overheads of securing new online customers can cause loss-making customer relationships for up to three years (Reichheld and Schefter, 2000). Furthermore, it costs up to five times more to recruit new consumers than it takes to increase loyalty and retain current customers (Hart et al.,

1990). In such a competitive environment, creating a base of loyal customers is of paramount importance.

Although it was evidence that repeat purchases is a major predictor of customer loyalty and eventually profitability (Marimon et al., 2010), few companies appear to thrive in building loyalty, and the strategy in engendering customer loyalty in e-service is fuzzy (Ribbink et al., 2004). Given that the relationship between service quality and loyalty and the moderating role of perceived value and satisfaction have been firmly advocated (Harris and Harrington, 2000, Anderson & Srinivasan, 2003; Parasuraman et al., 2005; Boshoff, 2007; Cristobal et al., 2007; Meng, 2010; Fuentes-Blasco et al., 2010; Petnji et al., 2011; Marimon, et al., 2012). However, the universality of this relationship remains questionable (Ribbink et al., 2004), since earlier studies in online contexts are not consistent. For example, the well-established quality-satisfaction-loyalty chain was not supported in one of the online services studied by Harris and Goode, (2004).

Likewise, a growing body of extant literature has shown service quality and service recovery to be related to customer loyalty in different ways. It was shown quality is only indirectly related to loyalty via perceived value and satisfaction (Ribbink et al., 2004; Cristobal et al., 2007; Fuentes-Blasco et al., 2010; Marimon et al., 2012), and recovery directly predicted loyalty (Parasuraman et al., 2005; Meng, 2010). The question that then arises for e-commerce is the extent to which loyalty depends on online service quality or the extent to which it depends on online service recovery, particularly while considering the mediating effect of online satisfaction.

Furthermore, it has been argued that service recovery plays a key role in any service management tactic (Boshoff, 2005). As it was reported that customers who experience service failure typically discuss the incident with 10 other persons, while those not experiencing failure only tell 5 other persons about their positive experience (Oliver, 2010). Few attempts have been made to scrutinize empirically the role of service recovery in customer satisfaction and loyalty. This is perhaps because it is a very new concept, or may be because it is difficult to investigate due to the fact that samples of customers who have used the system and encountered service problems are of limited size (Parasuraman et al., 2005; Ladarhi, 2010). For whichever reason, little is known about customer behavior with regard to

service recovery. The main objective of this study is therefore to try to take a further step in understanding the antecedents of customer loyalty, by:

- (1) proposing and testing an integrated model that may shed some light on the strength of the impact of e-quality and e-recovery on online satisfaction;
- (2) assessing the direct and indirect effects of e-quality and e-recovery on loyalty with satisfaction as a mediator, in addition to the direct effect of satisfaction on loyalty; assessing whether it is more important for e-satisfaction and e-loyalty to get things right the first time (e-quality), or to succeed in solving the problems subsequently (e-recovery).

The remainder of this paper is organized as follows. Extant literatures on the topic are briefly described, and hypotheses are developed with regard to the relationships that incorporate online service quality, online service recovery, satisfaction, and loyalty. Thereafter, we describe a conceptual framework summarizing the hypotheses. Then, we describe the methodology used and presented our results. Finally, we closed with major conclusions and management implications.

7.4.2 Sub-model development

During the last 20 years, the role of service quality has been emphasized and scrupulously studied in service literature. The most prominent and most commonly used service quality measurement has been largely based on SERVQUAL (Parasuraman et al., 1988), and has been successfully adapted for use in a wide variety of service industries and contexts (Ladhari, 2009a).

The boom in e-commerce and e-services in the last decade has had a significant impact on the services industry, mainly due to the absence of human interactions and the critical challenges to offering a high quality of service. In these circumstances a new current of research into the conceptualization and measurement of electronic service quality (e-SQ) has emerged (Yoo and Donthu, 2001; Zeithaml et al., 2002; Cristobal et al., 2007). According to Zeithaml et al., (2002), electronic service quality can be defined as “the extent to which a web site facilitates efficient and effective shopping, purchasing, and delivery of products or services”.

Nonetheless, the absence of a valid and reliable scale to measure e-service quality forced early researchers to make use of some fairly unsatisfactory alternatives (Petnji et al., 2012). Even so, based on the explorative study by Zeithaml et al. (2002), Parasuraman et al., (2005) improve on these previous studies by proposing two different scales to measure e-SQ: (i) The “E-S-QUAL” scale, which addresses core aspects of service quality; and (ii) “E-RecS-QUAL”, to be used when customers had non-routine encounters as a means of measuring the effectiveness of the handling of problems and their follow-up, of the compensation offered for the problems arising, and of the ready availability of assistance. Although some authors have applied this instrument in a variety of settings (Boshoff, 2007; Akinci et al., 2010; Fuentes-Blasco et al., 2010; Marimon et al., 2012), these scales have received relatively little attention in comparison with the better-known SERVQUAL. Moreover, few scholarly studies have addressed directly the question of how customers assessed e-service quality and its significances in online banking. Furthermore, a literature review of scales development shows that the dimensionality of e-SQ construct is not stable in all studies (Ladhari, 2010, Petnji et al., 2012). Moreover, recent research indicates that perceived e-service quality cannot be reflected in a uni-dimensional or simplistic customer evaluation (Fuentes-Blasco et al., 2010). Besides, a literature review of scales development shows that the dimensionality of e-SQ construct is not stable in all studies (Ladhari, 2010). This leads to confusion when managers are trying to improve electronic service, since service components must be fully understood from the customer’s perspective in order to improve perception (Zeithaml et al., 2002). In this sense, not enough is known regarding the nature of the antecedents of loyalty. Thus, thorough understanding of factors that may influence customer loyalty is of paramount importance, as it may help e-service provider to boost business performance by applying precise tactics to upsurge loyalty

7.4.2.1 The relationship between perceived online service quality and customer satisfaction

According to Parasuraman et al., (1988), perceived service quality can be defined as the outcome measure of the gap between customers expected performance of service offered and its perceptions of the level of service received, whereas customer satisfaction can be described as customers’ evaluations of a product or service with regard to their needs and expectations (Oliver, 1993). Unequivocally ambiguous opinions have however been expressed in the existing literature regarding the conceptual association between service

quality and customer satisfaction (Cronin and Taylor, 1992). Despite the fact that there is no clear consensus on the causal order in the link between perceived service quality and satisfaction, both concepts have generally been perceived as distinct constructs. For example according to the study conducted by Parasuraman et al. (1988), customers perceived service quality as a long-term overall judgment of service delivery, and customer satisfaction as a transaction-specific judgment. This distinction is important to both managers and researchers, since service providers need to know whether their objective should be to have consumers who are satisfied with their performance or to deliver the maximum level of perceived service quality (Sprenc and Mackoy, 1996).

Conversely, the causal link from perceived service quality to customer satisfaction model appears to be commonly accepted. Zeithaml and Bitner (2000), for example, argued that service quality evaluation mainly emphasizes on dimensions of service, and that perceived quality is not only a constituent of customer satisfaction but is also inclined by other factors such as product quality, price and other customer features. Besides, satisfaction appears to be a broader, more inclusive concept that is based upon perceived service quality and other factors (Oliver, 1993). Given that customers do not principally purchase the superior quality service, but may also take into account situational factors such as price, convenience, and availability that may directly impact on satisfaction while not having an influence on customers perceived service quality (Cronin and Taylor, 1992). Therefore service quality seems to be mainly cognitive (Parasuraman et al., 1988), whereas customer satisfaction appears to be a combination of cognitive and affective elements (Dabholkar, 1995). It can logically be concluded that, when feeling satisfied, the affective components may be more important for customers than cognitive aspects. Since customer satisfaction exerts a stronger influence on future purchase intentions than perceived service quality does (Lee et al., 2000). Furthermore, Oliver (1993), Sprenc and Mackoy (1996) and Petnji et al., (2011), advocated that perceived service quality should be treated as an antecedent of satisfaction. It was therefore anticipated that:

H1: online perceived service quality directly and positively affects online satisfaction (where perceived service quality consist of (a) Efficiency, (b) System Availability and (c) Privacy)

7.4.2.2 The relationship between online service recovery and customer satisfaction

Similarly, research has repeatedly shown that recovery efforts are crucial for building and maintaining lifelong relationships with customers. There is a growing body of empirical evidence that upholds that satisfactory service recovery is linked to customer loyalty, commitment, trust, and other beneficial outcomes, such as retention, value, positive word-of-mouth, enhanced perceptions of the firm's competence, and favorable image in terms of perceived service quality (Tax, Brown & Chandrashekaren, 1998; Boshoff, 2005; Parasuraman et al., 2005).

While online retail continues to thrive and the volume of online service encounters continues to increase rapidly, failures are nevertheless still a common occurrence in online service offer (Marimon et al., 2011). Hitherto, few online service providers have determined the precise degree of satisfaction of complaining customers after service recovery efforts have been completed. Thus online service providers are oblivious to the damage caused by poor recovery, simply because there is no assessment of customer satisfaction with service recovery (Boshoff, 2005). Research into this issue has not gone far enough to determine the negative effects of recovery on satisfaction and how they can be dealt with. This is particularly alarming if one considers that online service firms' responses can be highly variable and that only about half the total number of service failure complaints are satisfactorily addressed (Estelami, 2000).

It is clear that a failure to ensure customer satisfaction through service recovery could lead to a decline in customer confidence, lost customers, negative word-of-mouth, possible negative publicity, and the direct cost of re-performing the service (Berry and Parasuraman, 1991). Moreover, a failure to ensure that complaining customers are satisfied with the online firm's service recovery efforts can only lead to serious problems, since the online service firm will be running the risk of letting the customer down for a second time (Boshoff, 2005). Online service failures may attach negative attributions to the product or service offer, but a proportionate response in terms of good service recovery can reduce these negative attributions and produce a positive upshot of a kind that may lead to a higher level of satisfaction. Consequently online service providers have a large ante in understanding how to provide an effective recovery, so that they can curtail customers' dissatisfaction. It was therefore anticipated that:

H2: online service recovery directly and positively affects online satisfaction (where service recovery consist of (d) Responsiveness and (e) Contact)

7.4.2.3 The impact on customer loyalty

Some authors have emphasized the need to examine how to improve loyalty levels and the Internet consumer acquisition decision (Parasuraman et al., 2005; Boshoff, 2007; Fuentes-Blasco et al., 2010; Marimon et al., 2010; Meng, 2010). Obviously, understanding these antecedents can help e-retailers to gain a competitive advantage by implementing specific strategies to increase e-loyalty, which in turn will enhance business performance.

Indeed, various studies appear to show an emerging consensus that customer satisfaction is a key determinant of customer loyalty (Fornell, 1992; Anderson and Sullivan 1993; Bloemer et al., 1999; Cristobal et al., 2007). According to Bloemer et al. (1999), the precise nature of the interaction between customer satisfaction and loyalty is notoriously elusive, but that satisfaction would appear to have a positive effect on service loyalty. Fornell (1992) found that high satisfaction results in customers with increased loyalty and less prone to be receptive to approaches from the competition. Anderson and Sullivan (1993) established that satisfied customers have a greater propensity to be retained and to resist alternative options. Cristobal et al. (2007) state that perceived e-service quality positively affects customer satisfaction and loyalty. It emerges from a review of past research not only that the idea of satisfying customers has a clear common-sense appeal, but that it is also generally believed that customer satisfaction leads to loyalty and translates into higher future profits (Dahlsten, 2003). Therefore it was hypothesized that:

H3: customer satisfaction directly and positively affects customer loyalty

In the same vein, most studies indicated that perceived online service quality has direct/indirect positive effects on loyalty in the context of e-commerce (Boshoff, 2007; Akinci et al., 2010; Meng, 2010). Service quality has become a great differentiator and the most prevailing competitive weapon which many leading service organizations possess (Zeithaml et al., 2002). Prior research has examined the effectiveness of online service

quality in influencing customer loyalty. The extant literature strongly supports the hypothesis that there is a positive relationship between service quality and recommendation, and resistance to better alternatives, jointly identified as an emotionally-motivated pattern of behavior in a context of intentional customer loyalty. Additionally, Marimon et al. (2010) argued that there is a positive relationship between perceived service quality and repurchase intention, thus capturing the attitudinal part of loyalty. Therefore in a competitive e-commerce environment, an offensive marketing strategy is essentially determined by the online provider's ability to expand and maintain a large and loyal customer base. Hence, delivering superior service quality to customers is a key determinant in the formation of customer loyalty (Parasuraman et al., 1988). Therefore it was hypothesized that:

H4: online perceived service quality directly and positively affects customer loyalty

Furthermore, effective service recovery is essential because online customers are difficult to attract and retain, and it is easy for them to switch to other online providers (Reichheld & Schefter, 2000). It is therefore extremely important that service providers on the Internet know how to improve loyalty levels and to encourage repeat purchasing decisions among their customers (Tax, Brown & Chandrashekaren, 1998; Estelami, 2000; Boshoff, 2005; Parasuraman et al., 1991, 1998, 2005; Marimon, Petnji and Casadesus, 2011). Effective service recovery plays an important role in ensuring such loyalty. Of course, it is preferable that e-providers deliver a service without failures because, in general, providers fare better in the eyes of consumers by avoiding service failure than by responding to failure with superior recovery (McCollough et al., 2000; Marimon et al., 2012). However, when a failure has occurred, effective service recovery is considered essential to business survival in general (Berry & Parasuraman, 1991), and in the context of e-commerce in particular (Reichheld & Schefter, 2000). Therefore we hypothesized that:

H5: online service recovery directly and positively affects customer loyalty

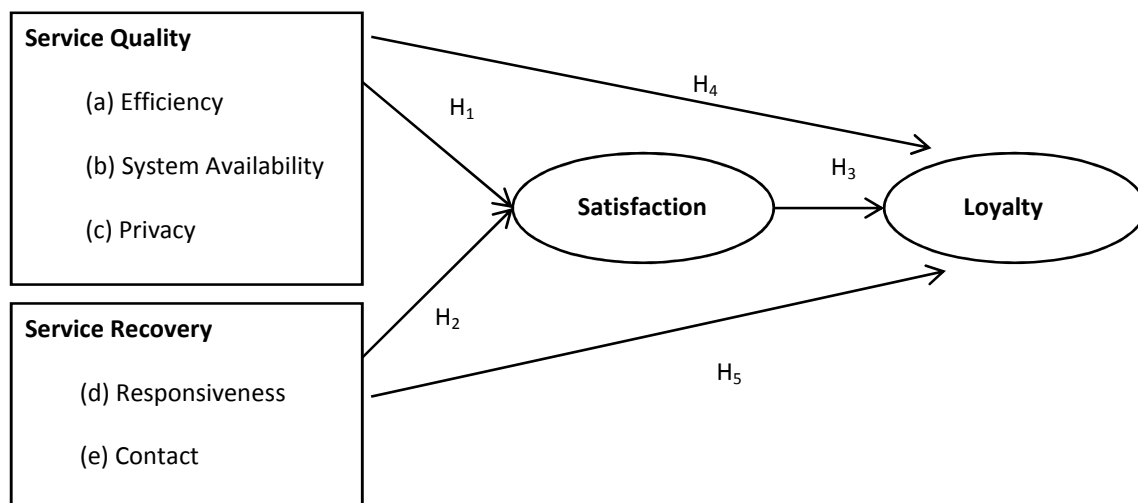
There is a widespread acceptance that customer-perceived online service quality is an antecedent of customer satisfaction, which in turn is a key determinant of customer loyalty (Petnji et al., 2011). Yet, although the relationship between satisfaction and loyalty seems almost intuitive, it has been found to vary significantly in different conditions (Anderson &

Srinivasan, 2003). For example, in the traditional services, it has been argued that customer satisfaction performs a mediating role in the link between service quality and customer loyalty, and that 53 percent of customer satisfaction variance is explained by service quality (Caruana, 2002). Consequently, customer satisfaction may be important, but it cannot explain all the variance of customer loyalty (Chiou, 2003). Conversely, the well-established quality-satisfaction-loyalty chain was not supported in one of the online services studied (Harris and Goode, 2004).

Moreover, extant research has investigated the direct/indirect effects of service recovery in relation to loyalty models with value as a mediator (Parasuraman et al., 2005; Akinci et al., 2010; Meng, 2010; Marimon et al., 2011). Nonetheless, few attempts have been made to examine empirically the mediating role of satisfaction in the link between service recovery and loyalty, prompting calls for broader frameworks that involve the simultaneous effects of online service quality, online service recovery and customer satisfaction on loyalty. To this end, this study also intends to examine the mediating role of customer satisfaction on the direct links between customer-perceived online service quality, online service recovery and customer loyalty.

In order to further the preceding review and discussion, a figure identifying the key constructs included in the study is provided in Figure 18. Our framework presents loyalty as a consequence of direct and indirect relationships with satisfaction, online service quality and online service recovery.

Figure 18: Research Model



7.4.3 Research methodology

7.4.3.1 Questionnaire and measures

To test the above hypotheses, an empirical study was conducted with a sample of Spanish customers of online banks. This study thus attempts to reassess the applicability of the e-SQ scales as proposed by Parasuraman et al. (2005) in a non-retail context such as financial services, which have fewer tangible elements representing the main difference between products and services in a tangible spectrum (Ladarhi, 2010). A structured questionnaire was designed specifically for the study. The construct of ‘e-service quality’, ‘e-service recovery’ was measured using an adapted version of the original E-S-QUAL and E-RecS-Qual scale (Parasuraman et al., 2005). The construct of ‘loyalty’ was also adopted from Parasuraman et al. (2005) and the construct of ‘e-satisfaction’ was evaluated using four items adopted from Ribbink et al. (2004) with minor alterations (see Appendix 2).

7.4.3.2 Sampling and data collection

To examine the associations between the constructs and to test the hypotheses mentioned above, an online questionnaire was established. The sample was derived from a database maintained by Spanish banks. Online banking users were selected by choosing a random starting point and choosing every fiftieth individual customer in succession thereafter. This technique yielded 1,600 potential respondents, who were invited by email to participate in the survey and were directed to a specific website containing the structured questionnaire, which they then self-administered. The questionnaire began with a dichotomous screening question, seeking only respondents who were consumers of e-banking services.

The survey was made available in three languages (Catalan, Spanish, and English), with respondents being invited to complete the survey in the language of their choice.

Data collection was completed in May 2010. After rejecting some incomplete or invalid questionnaires, 428 valid completed questionnaires from Spanish customers of e-banking were retained; this latter figure represented a response rate of 26.75%.

7.4.4 Data analysis and findings

7.4.4.1 Sample profile

A summary of the demographic characteristics of the respondents in the study shows that no gender bias was detected. Two-thirds of the respondents were aged less than 34 years. The educational level of the sample was high, with more than two-thirds of the sample having a university degree. A large majority (65.9%) of the respondents earned an annual income of less than €24,000. Encouragingly, two-thirds of the respondent had used e-banking in the preceding week. Recent events and evaluations are especially powerful because they are more accessible and more “silent”, and thus easier to retrieve from memory (Oliver, 2010)

The demographic characteristics of the sub-sample of the individuals who complained or experienced problems in the service received indicate no gender bias, half of the respondents were aged less than 34 and the educational level was high, with two thirds of the sub sample having a bachelor’s or a master’s degree.

A comparison of means among the two independent samples (those individuals who did not report any problems and those who encountered a problem) was conducted using the Wilcoxon–Mann–Whitney test. Four contrasts were assessed between the two groups, assuming a null hypothesis that there was no difference of means between the groups. The results show no differences detected in terms of either gender or educational level. However, significant differences were detected regarding age and annual income. It was thus apparent that those who experienced problems are in the higher age categories and also have higher annual incomes. The profile of the sample was comparable to the total population of bank customers in Spain.

7.4.5 Sub-model Results

Since outliers often have a dramatic effect on the fitted model, the univariate skewness and kurtosis were computed to test the normality of each variable used in the model. The results (see Table 36 for the items which are referred to here only by their code), ranging from -1.264 (PRI2) to 0.001(CPS1) for skewness and from -0.954 (CPS1) to 1.638 (PRI2) for kurtosis, were within the maximum limits of an absolute value of two for skewness and seven

for kurtosis, as recommended by West et al. (1995). It was also clear that most variables were slightly off-center. Exploratory factor analysis was conducted on the items in the amended E-S-QUAL and E-RecS-QUAL scale using normalized varimax as the rotation method (Hair et al., 1998). The Kaiser-Meyer-Olkin (KMO) measures were 0.935 and 0.847. Bartlett's sphericity tests were 5,125.3 (df = 171) and 347 (df= 21) with a significance of 0.000. In addition 64.11% and 69.6% of variance accounted for the modified E-S-QUAL and E-RecS-QUAL respectively

Consequently all variables were kept in the model and both the measurement scales and the proposed structural model were estimated by means of Partial Least Squares (PLS version 2.0). PLS makes no assumptions regarding the distribution of the variables and ensures optimal prediction accuracy (Fornell and Cha., 1994). It has special capabilities that make it more appropriate than other techniques when analyzing small sample sizes and it is shown to be very robust against multicollinearity (Cassel et al., 2000).

7.4.5.1 Evaluation of measurement scales

Given that global measurement of website service quality is difficult to develop and is likely to be subject to the same criticisms confronting the SERVQUAL scale (for the global measurement of service quality), i.e., that of being dependent on a specific industry or context (Yang et al., 2004). Therefore, even though the items used to measure the constructs in this study were based on items from the extant literature, it was necessary to check their validity in the current context by conducting tests to evaluate the reliability of individual items, internal consistency, convergent validity, and discriminant validity.

The satisfactoriness of the measurement scales was first assessed by evaluating the reliability of the individual items. As shown in Table 36, the loadings of items on their respective constructs revealed a high degree of individual item reliability, as all items have loadings of greater than 0.5 in their respective constructs (Sanzo et al., 2003). The validity of individual items in relation to the relevant factors was confirmed by load values greater than 0.707 (Carmines & Zeller, 1979), with the exception of item 'EFF 5', which was slightly lower. However, because it was so close to the threshold, it was decided to retain this item, in accordance with the relaxed criterion suggested by Barclay et al. (1995).

In addition, the scales dimensionality of the modified E-S-QUAL and E-RecS-Qual confirmed the validity of three factors for the evaluation of Service Quality and two factors for the evaluation of Service Recovery. The factors concerned were as follows: (i) the first factor (labeled 'Efficiency') covered seven of the eight efficiency items. Only item EFF5 ('the website loads its pages quickly') migrated from this factor to the second factor. (ii) The second factor (labeled 'system availability') was a 'new' factor. The following seven items were loaded onto this factor: (a) the original four items comprising 'system availability' (SAV1–4); (b) two items of 'fulfillment' (FUL1 and FUL2); and (c) one item relating to 'efficiency' (EFF5). (iii) The third factor (labeled 'Privacy') neatly included all three items concerning privacy. (iv) The first factor of service recovery which was labeled 'responsiveness', covered the three factors of the original dimension of 'responsiveness' and an item relating to 'compensation'. (v) The second factor, which was labeled 'contact', included the original three items of 'contact'. The scales for the constructs of 'satisfaction' and 'loyalty' were both found to be uni-dimensional.

It should be noted that two of the original 'fulfillment' items were discarded because they were loaded equally to 'efficiency' and 'privacy', while the remaining two items migrated to the new factor of 'system availability', with the result that the 'fulfillment' dimension was thus removed. This finding is consistent with previous studies (Fuentes-Blasco et al., 2010; Marimon et al., 2010; Boshoff, 2007). The overall result is also consistent with the empirical evidence in the literature, which shows that e-service quality cannot be reflected in a uni-dimensional or simple customer evaluation; rather, it has multiple perspectives or dimensions (Meuter et al., 2000; Zeithaml et al., 2002; Boshoff, 2007; Fuentes-Blasco et al., 2010; Marimon et al., 2010).

A considerable degree of internal consistency and reliability in all dimensions is evidenced since the Cronbach's alpha for the constructs ranged from 0.770 ('Contact') to 0.917 ('Satisfaction') (see Table 37), which exceeded the generally accepted minimum level of 0.7 (Nunnally & Bernstein, 1994). The average variance extracted (AVE) for every scale (see Table 37) was greater than the recommended value of 0.5 (Fornell and Larcker, 1981), and each individual item's coefficient was more than double the value of its standard error, reflecting that the items represent their underlying construct (see Table 37). Altogether, this provides evidence of a high degree of convergent validity.

Table 37: Loads on the Exterior model

Factors	Loadings	t value	Mean
Efficiency ($\alpha = 0.907$, AVE: 0.643)			
EFF1: It is easy to find what I need on my bank X website	.808	18.20	3.92
EFF2: It is easy to access anywhere on my bank X site	.803	18.77	3.95
EFF3: My bank X enables me to complete a transaction quickly	.720	11.30	4.01
EFF4: Information at this site is well organized	.832	24.10	3.81
EFF6: This site is simple to use.	.810	16.52	3.92
EFF7: This site enables me to get on to it quickly.	.760	14.80	4.08
EFF8: This site is well organized.	.869	34.00	3.83
System Availability ($\alpha = 0.889$, AVE: 0.603)			
SAV1: This site is always available for business.	.731	11.38	4.01
SAV2: This site launches and runs right away	.857	24.34	3.96
SAV3: This site does not crash.	.785	14.75	3.89
SAV4: Pages at my bank X site do not freeze after I enter my order information	.778	14.36	3.96
FUL1: It carries out orders when they have been validated	.764	15.74	4.15
FUL2: It quickly delivers what I order.	.828	23.60	4.07
EFF5: My bank X site loads its pages faster	.677	7.57	3.88
Privacy ($\alpha = 0.890$, AVE: 0.819)			
PR11: My bank X website protects information about my online banking behavior	.892	27.26	4.17
PR12: It does not share my personal information with other sites.	.901	24.86	4.21
PR13: My bank X site protects information about my credit and debit cards	.921	45.47	4.26
Responsiveness ($\alpha = 0.837$, AVE: 0.671)			
RES1: This site offers a meaningful guarantee.	.844	7.62	3.41
RES2: It tells me what to do if my transaction is not processed.	.803	5.97	3.14
RES3: It takes care of problems promptly.	.895	12.71	3.10
CPS1: This site compensates me for any problems it creates.	.725	4.95	2.75
Contact ($\alpha = 0.770$, AVE: 0.678)			
CON1: This site provides a telephone number to reach the company.	.741	2.85	3.90
CON2: This site has a customer service representatives available online	.811	3.92	3.52
CON3: It offers the ability to speak to a live person if there is a problem.	.908	7.97	3.59
Loyalty ($\alpha = 0.897$, AVE: 0.711)			
LOY1: Say positive things about this online banking site to other people.	.872	28.36	3.69
LOY2: Recommend this online banking site to someone who seeks your advice.	.896	36.57	3.76
LOY3: Encourage friends and others to do business with this site.	.860	21.84	3.36
LOY4: Consider this online banking site to be your first choice for future transactions.	.827	20.44	3.67
LOY5: Do more business with this site in the coming months.	.752	12.07	3.43
Satisfaction ($\alpha = 0.917$, AVE: 0.802)			
ESA1: I am generally pleased with Bank X's online services.	.894	34.41	4.08
ESA2: The website of this online bank X is enjoyable to use.	.837	19.07	3.85
ESA3: I am very satisfied with this bank X's online services.	.924	49.71	3.92
ESA4: I am happy with this online bank X.	.924	49.70	3.99

Additionally, each possible correlation between pair constructs was assessed. The square root of the AVE was greater than the correlations presented by each construct with other constructs (Fornell and Larcker, 1981). Besides, correlation coefficients were less than 1 by an amount more than double its respective standard error (Ribbink et al., 2004) (see Table 38). Taken as a whole, this evidence supported the discriminant validity of the items as measures of their respective underlying constructs.

Table 38: Descriptive and bivariate correlations between main constructs, and the square root of Average Variance Extracted

	Mean	SD	1	2	3	4	5	6	7
1. Efficiency	3.93	.700	.802						
2. System availability	3.99	.672	.685	.776					
3. Privacy	4.21	.804	.485	.533	.905				
4. Responsiveness	3.09	.954	.324	.283	.225	.819			
5. Contact	3.67	.988	.219	.167	.2131	.541	.823		
6. Satisfaction	3.95	.761	.625	.695	.660	.368	.264	.896	
7. Loyalty	3.58	.899	.605	.550	.499	.443	.273	.685	.843

Notes: The square roots of AVE are in **bold italic font style** on the main diagonal and the correlations between latent variables follow below; All correlations were significant at the 0.01 level (two-tailed)

7.4.5.2 Evaluation of the conceptual model

A structural path representing relationships between different constructs was examined. The index of variance for endogenous variables explained by the path was more than 0.015. The fit indices of individual R^2 was more than 0.50 and the model explained was more than half of the variance of each independent variable (see Table 39). Furthermore the goodness-of-fit index, which takes into account both the explained variances for latent dependent variables and their communality, was significant (GoF = 0.678) as proposed by Tenenhaus et al. (2004). A plinth in the statistical performance model, it can be concluded that the proposed model exhibited a good fit to the data, and the hypothesized relationships were tested.

Table 39: Model fitness

	Composite Reliability	R Square	Communality	Redundancy
Efficiency	.926		.643	
System availability	.913		.603	
Privacy	.931		.819	
Responsiveness	.890		.671	
Contact	.862		.678	
Satisfaction	.942	.689	.802	.318
Loyalty	.924	.526	.711	.369

The significance of the paths of the inner model was calculated by using bootstrapping based on 1,000 resamples to ascertain the stability and the statistical significance of the parameter estimates. Table 40 summarizes the results of the hypothesis testing. Overall results show all the hypotheses were supported except the “contact” dimension, which had no direct effects on loyalty and satisfaction. As expected, hypothesis H3, predicting the positive impact of satisfaction on loyalty, is significantly supported. Furthermore hypotheses H1 and H4, predicting a positive influence of perceived online service quality on satisfaction and loyalty, were specifically supported, since all three online service quality dimensions are significantly related to customer loyalty and satisfaction. Conversely, H2 and H5 were partially supported as the double interaction between “responsiveness”, while “contact” on “satisfaction” and “loyalty” produced surprising results in the form of an insignificant positive effect of “contact” on “loyalty” and “satisfaction”. Instead, this study found that service recovery directly influence customer loyalty and satisfaction quite independently, through responsiveness as the focal predictor.

In addition the squared multiple coefficient for online satisfaction is 68.9% ($p < .000$), showing that a large segment of variation in online satisfaction is accounted for by online service quality and online service recovery. As we had suggested, then, this study tested the indirect effects of service quality and recovery on loyalty through online satisfaction. The mediation effects were assessed using the bootstrapping method, thus providing a way to overcome the limitations of statistical methods that make assumptions about the shape of sampling distributions, viewed in terms of concepts such as normality. Moreover, the measures and tests of the direct effects can address mediation more directly than a series of separate significance tests not directly involving the indirect effect found in the mediation model (Preacher and Hayes, 2004). The results indicated that online satisfaction strongly depended on the effects of “system availability”, “privacy” and “contact”, while the indirect effects of efficiency and responsiveness on loyalty were also significant. Meanwhile their direct effects remained significant, demonstrating that customer satisfaction partially exerted its influence on customer loyal. Overall the mediating roles were supported, i.e., customer satisfaction will depend on the effects of perceived online service quality, and online service recovery will depend on customer Loyalty.

Table 40: Hypothesis results for the Structural Model

Hypothesis		Path coefficient	t-value (*)	Conclusion
H1a	Efficiency→ Satisfaction	.366	9.365	Accepted
H1b	System availability→ Satisfaction	.237	6.337	Accepted
H1c	Privacy→ Satisfaction	.329	9.753	Accepted
H2d	Responsiveness→ Satisfaction	.096	3.928	Accepted
H2e	Contact→ Satisfaction	.021	.647	Rejected
H3	Satisfaction → Loyalty	.725	33.665	Accepted
H4a	Efficiency→ Loyalty	.526	6.724	Accepted
H4b	System availability→ Loyalty	.224	3.486	Accepted
H4c	Privacy→ Loyalty	.162	5.359	Accepted
H5d	Responsiveness→ Loyalty	.335	2.962	Accepted
H5e	Contact→ Loyalty	-.000	.0109	Rejected

(*) t-statistics are significant (p-value <0.01)

7.4.6 Discussion

There is a wide consensus in the literature that the dimensionality of both traditional service quality and e-SQ largely depends on the particular service industry being examined (Ladhari, 2009a and 2010). To this end, before discussing the key contribution of the study, this section will first assess the credentials of the key dimensions for evaluating e-SQ as perceived by customers in the context of electronic banking. The study used exploratory factor analysis and confirmatory factor analysis to ascertain whether the scales have a factor structure that reflects the theoretical dimensionality of their setting.

The psychometric assessment results of the properties of the adapted E-S-QUAL involved the movement of two items from the original “fulfillment” dimension and one item from the original “efficiency” dimension into a new dimension of “system availability”. The original dimension of “fulfillment” was discarded because the remaining items failed the exploratory factor analysis test. Thus this study emphasizes three sets of determining dimensional factors for the overall measurement of quality, rather than the original four, all of which demonstrate good psychometric properties: (i) “efficiency”, or consumer perception of their ability to obtain information about the desired product or service with minimum effort; (ii) “system availability”, here described as a combination of the correct functioning of the website and

the ability to swiftly provide the promised service reliably and correctly; and (iii) “privacy”, the degree to which the site is safe and protects customer information, consistent with Petnji et al. (2011). The modified scale is in general accordance with Boshoff (2007), who also removed the “fulfillment” dimension from his model. The modification is also supported, to some extent, by Fuentes-Blasco et al. (2010), who found that this dimension had a lower coefficient path to e-loyalty in their model.

Furthermore, this study assessed the quality of websites in relation to problems and complaints directed at the electronic recovery service quality scale. Our analyses have shown fairly conclusively that the three-dimensional configuration of electronic service recovery E-RecS-QUAL, as proposed by Parasuraman et al. (2005), does not fit the data set. The dimension of “compensation” was discarded since one item moved to the “responsiveness” dimension and the remaining items were loading poorly. Hence, only the dimensions of “responsiveness” and “contact” were retained. This finding is not surprising, given that high-involvement service sectors such as banking or education have different online service quality definitions from low-involvement electronic services such as retailing (Akinçi et al., 2010). In summary, this study established that a scale that is very close to the generic and parsimonious E-S-QUAL and E-RecS-QUAL scales is suitable for the assessment of perceived electronic service quality and service recovery in an electronic banking context.

Moreover, this study dissected in detail the direct/indirect causes of e-loyalty by building a structural equation model, analyzing the causal inter-relationships between perceived online service quality, online service recovery, customer satisfaction and customer loyalty.

The results showed that online service quality is a major predictor of both customer satisfaction and loyalty. These findings largely agree with relevant previous studies of these relationships (Harris and Harrington 2000; Parasuraman et al., 2005; Fuentes-Blasco et al., 2010; Petnji et al., 2011). Even in the absence of face-to-face interactions, all three dimensions of perceived online service quality have direct and positive effects on the two constructs. The findings also indicate that the pattern of effects is not consistent across dependent variables, and suggests that the effects of each dimension are not proportionally equal. More specifically, privacy was the factor that had the strongest impact on satisfaction, followed by efficiency and system availability. This contention is strongly supported by Ribbink et al. (2004), who also found that satisfaction is largely explained by the variance of

electronic service quality, and that the dimension of “privacy” plays a different and more important role than previous studies had allowed for in similar constructs.

Conversely, the efficiency dimension shows stronger direct effects on the construct of customer loyalty, followed by privacy and system availability. These findings are consistent with those of Parasuraman et al., (2005); Akinci et al., (2010); Fuentes-Blasco et al., (2010); and Marimon et al., (2010). For online service providers, this knowledge encourages a firm’s managers to prioritize their firm’s resources so as to improve its electronic service quality.

The results of this study also indicate that the recovery dimension of responsiveness has significant and direct positive effects on consumer loyalty. The findings were in general accordance with Akinci et al., (2010), who reported that both ‘responsiveness’ and ‘compensation’ had significant and positive effects on loyalty in their study of e-service quality. In the present study, these two dimensions (“responsiveness” and “compensation”) were merged into a single dimension of “responsiveness”. It would thus seem that responsiveness is a key factor in producing loyalty among customers of e-services. As in conventional services, customers expect prompt feedback regarding requests and complaints (Marimon et al., 2011). However there was no evidence of the relationship between contact and customer loyalty. As suggested by Akinci et al., (2010), it would seem that online customers are reluctant to experience direct personal interaction with service personnel, even when a problem occurs.

Additionally, the pattern of the effects of service recovery on satisfaction was analogous to the pattern of the effects of loyalty. In contrast to Harris and Goode (2004), who found in their study that the quality-satisfaction-loyalty chain was not supported in one of the online services they studied, this study agree with Boshoff (2005), who argued that online service recovery is a strong predictor of customer satisfaction.

Furthermore the measures and tests of indirect effects were modeled to address the direct effect of satisfaction on online service quality and of online service recovery on customer loyalty. As expected, the analysis of the research showed that customer satisfaction has a strong and direct positive effect on customer loyalty. Besides, this study indicated that online satisfaction strongly depended on the effects of “system availability”, “privacy” and “contact”, and that the indirect effects of “efficiency” and “responsiveness” on loyalty were

significant. Meanwhile their direct effects also remained significant, demonstrating that customer satisfaction partially accounts for their effects on customer loyalty. These results largely agree with relevant previous studies of these relationships (Harris and Harrington 2000; Caruana, 2002; Ribbink et al., 2004; Petnji et al., 2011).

Finally, this study investigated which aspect should be considered as the most important factor when considering online satisfaction and loyalty. When inspecting the loadings of the dimensions of perceived online service quality and service recovery on their corresponding constructs, study found that all loadings are significant, indicating that all dimensions of the two constructs are important factors in influencing online satisfaction and loyalty. However, overall, the findings indicated that the direct and indirect effects of perceived service quality dimensions on loyalty and satisfaction are much stronger than the corresponding effects of service recovery. . Thus, even in the absence of face-to-face interactions, service recovery appears not to be as important a contributor to customer satisfaction and customer loyalty as had been anticipated.

7.4.7 Sub-model findings and implications

In practical terms, the findings of this study contain a number of implications for e-business managers. In the first instance, given the fact that “efficiency” and “privacy” are identified as the important key dimensions in e-SQ for predicting both customer satisfaction and customer loyalty, online retailers and the management of electronic service providers must ensure that adequate information about the desired product and services (such as price, warranty conditions, return policy, etc.) should be easy to find and understand. This study also recommends that they ensure that their website has an uncluttered look and provides the service they promise accurately and on time.

The security and protection of customers’ personal information (e.g., credit card details) has become a factor of paramount importance for the e-business customer. Managers should provide explicit and reassuring guarantees that transactions on their websites are processed through the Network Solutions Site Safe Program, i.e., a meaningful guarantee ensuring that all personal and transactional information is transmitted over a secure encrypted server which protects personal information at all times. Furthermore, customer awareness of what

information the website collects, how it is used and under what circumstances, if any, personal information is disclosed may enhance customer perception of the privacy dimension, with the resulting improvement in customer satisfaction and customer loyalty.

Moreover, system availability was placed in the middle level of customers' appreciation of factors that may directly/indirectly influence customer satisfaction and customer loyalty, while responsiveness was perceived as the least important. Hence, managers must take a close look at the correct functioning of the website and its ability to swiftly provide the promised service reliably and correctly. Besides, managers should deal with problems effectively and review the website, responding promptly and accurately to all enquiries from their customer encounters and ensuring that their e-mail system performs well at all times. Overall, managers should ensure that their level of service delivery on their website meets or exceeds the level of service expected by their customers.

Finally, this study emphasize that what is really important is providing quality rather than recovering the service when a failure has occurred. The findings of the paper point practitioners in certain directions when it comes to choosing the projects in which they should invest. Improving e-quality yields a bigger impact on loyalty than e-recovery. Nevertheless, this analysis should factor in the size of the initial investment in order to obtain a ratio showing the impact on loyalty per each euro invested.

This study contributes to and extends a growing research stream documenting the scale evaluation of e-SQ. The results provide acceptable psychometric measures for reliability and validity tests of the amended E-S-QUAL and E-RecS-QUAL scales. Accordingly, efficiency, system availability and privacy can be taken as the underlying dimensions of perceived online service quality; and responsiveness and contact as the underlying dimensions of electronic service recovery in a non-retail context such as online financial services, education, tourism, employment agencies, etc.

Previous researchers have documented the vital role of customer satisfaction in a variety of customer behavior models. However, in terms of electronic service providers, little research has been conducted into the simultaneous role of both online service quality and service recovery and into which is the more important role between the two, together with the contributory role of customer satisfaction in relation to online loyalty.

With empirical data and thorough statistical testing, this study found that antecedents such as perceived online service quality, service recovery and satisfaction can be used to promote customer loyalty. The dimensions of “efficiency”, “privacy”, “system availability” and “responsiveness” have direct/indirect significant and positive effects on customer satisfaction and loyalty, with “efficiency” and “privacy” being the most important predictors.

However it is more important to increase customer satisfaction, which requires an external focus on developing what will “go right” in the first place by enhancing perceived online service quality, instead of preventing dissatisfaction through recovery, which is an internal focus on fixing what has “gone wrong” (Dahlsten, 2003)

From a management perspective, a clear understanding of the sequences in the relationships between service quality, service recovery, customer satisfaction and, ultimately, customer loyalty can help identify segments that have the highest potential for defection and which can best ensure better monitoring of customer loyalty, which could in turn have considerable marketing implications. Additionally, the main focus of management attention should be on improving customer satisfaction, which will in turn enhance loyalty. Clear evidence was thus provided indicating that service quality and service recovery robustly affects customer satisfaction more than loyalty. Yet, it is the contention of the present study that managers must ensure they offer superior service quality at the outset, instead of merely preventing dissatisfaction through service recovery.

7.5 Sub-model 5

This last sub-model investigates whether ISO 9001 certification by banks affects customers’ perceptions of e-service quality (and hence customer satisfaction and loyalty) in online banking services. In pursuit of this objective, the study also investigates: (i) the validity of a modified scale for measuring e-service quality in online banking services; and (ii) the factors that might influence customer satisfaction and loyalty in the context of online banking services (and the possible mediating/moderating effects of customer satisfaction on the relationship between service quality and customer loyalty). Exploratory

factor analyses, multi-regression analyses, and Mann-Whitney U tests are utilised to assess (i) the proposed modification of the E-S-QUAL scale (Parasuraman *et al.*, 2005); (ii) the relationships among the constructs of service quality, satisfaction, and loyalty; and (iii) whether ISO 9001 certification affects customers' perceptions of e-service quality (and hence satisfaction and loyalty). Three of the four dimensions of the modified E-S-QUAL scale are confirmed, and all have a positive impact on customer satisfaction, which, in turn, significantly influences e-loyalty. The mediating/moderating role of satisfaction on the relationship between service quality and loyalty is confirmed. Contrary to the research hypothesis, ISO 9001 certification does not seem to influence customers' perceptions of e-service quality. However, in practice managers should consider ISO 9001 certification, even if only for the internal benefits that it promises to provide. Managers must ensure superior e-service quality (especially with regard to 'efficiency') if they wish to promote customer satisfaction and loyalty. This thesis is one of the first to investigate the impact of ISO 9001 certification on customers' perceptions of e-service quality. However, the study is limited to a particular sector in a particular country.

7.5.1 Rough guide through the model conceptualization

Online customers are expensive to attract and difficult to retain because it is relatively easy for customers to switch their online providers (Srinivasan *et al.*, 2002; Reichheld & Scheffer, 2000). This is a significant problem for online providers because loyal customers are known to buy more, spend more, and act as enthusiastic advocates for their chosen providers (Harris and Goode 2004). In the increasingly competitive world of e-commerce, it is therefore extremely important that providers know how to improve loyalty and repeat purchasing among their customers (Buttle and Burton, 2002; Srinivasan *et al.*, 2002; Parasuraman *et al.*, 2005; Kim *et al.*, 2006).

In this regard, many providers are aware of the links between perceived service quality and customer satisfaction, which, in turn, is generally accepted as a key determinant of customer loyalty (Parasuraman *et al.*, 1988, 2005; Cristobal *et al.*, 2007; Fuentes-Blasco *et al.*, 2010; Harris and Harrington, 2000; Boshoff, 2007; Marimon *et al.*, 2010). However, these links might not be quite as straightforward as they seem. Although the relationship between satisfaction and loyalty seems almost intuitive, research has shown that the relationship varies

significantly under different conditions (Anderson & Srinivasan, 2003). Moreover, the so-called ‘chain models’—which link service quality to loyalty (with perceived value and satisfaction as mediators/moderators)—have not been confirmed in all online services (Harris and Goode 2004). Finally, recent research indicates that perceived service quality in the context of online services is a more complex construct than was previously believed to be the case (Fuentes-Blasco *et al.*, 2010). For these reasons, there is some uncertainty regarding the exact nature of the drivers of online loyalty (e-loyalty).

Faced with this situation, some e-retailers have considered whether adoption of quality standards, such as ISO 9001, would be beneficial in terms of improving service quality (and hence customer satisfaction and loyalty). The literature on traditional (non-online) service providers generally supports the notion that the implementation of such standardised quality assurance systems is beneficial for organisational management (Lima *et al.*, 2000; Ruzevicius *et al.*, 2004; Boiral and Roy, 2007), but some studies have claimed that the benefits are confined to marketing, rather than producing real organisational improvements (Casadesus *et al.* 2001 and Karapetrovic *et al.* 2010). Moreover, virtually all of the studies on the impact of ISO 9001 have adopted the perspective of the organisation (rather than that of the customer), and none appear to have investigated the impact of the ISO 9001 standard in the context of e-commerce.

Against this background, the present study examines e-loyalty and its antecedents with the following objectives:

- * to investigate the validity of a modified scale for measuring e-service quality in online banking services;
- * to investigate the factors that influence customer satisfaction and loyalty in the context of online banking services, and the possible mediating/moderating effects of customer satisfaction on the relationship between service quality and customer loyalty; and
- * to examine whether the implementation of ISO 9001 (with a specific focus on customers) influences customers’ perceptions of e-service quality (and hence customer satisfaction and customer loyalty) in online banking services.

The remainder of this paper is structured as follows. After this introduction, the second section presents a review of the relevant literature, the conceptual framework, and the

research hypotheses. In the third section, the methodology of the empirical study is described. The results are presented in the fourth section. The paper ends with a summary of the major conclusions and implications.

7.5.2 Conceptual framework and sub-model hypotheses

7.5.2.1 Customer loyalty

Loyalty has been conceptualised and defined in various ways. One approach has been to conceptualise loyalty in behavioural terms. Adopting this approach, Buttle and Burton (2002) defined a loyal customer as, simply, "... a customer who continues to buy". In a similar vein, Oliver (1999) defined customer loyalty as:

... a deeply held commitment to re-buy or re-patronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behaviour.

A somewhat different approach to customer loyalty contends that affective feelings are important to any understanding of the concept. According to this view, loyalty involves attitudes, psychological involvement, notions of favouritism, and a sense of goodwill towards a particular product or service (Kim *et al.*, 2006). Taken together, it would seem that loyalty is best understood by considering both behavioural loyalty and attitudinal loyalty. Loyal customers are less likely to be price-sensitive and they also tend to recommend the business to others (Reichheld and Schefter, 2000). Moreover, loyal customers make further purchases and generate positive word-of-mouth, which has been shown to be a powerful influence on the behaviour of others.

As a consequence, several authors have emphasised the importance of enhancing loyalty among Internet consumers (Parasuraman *et al.*, 2005; Boshoff, 2007; Fuentes-Blasco *et al.*, 2010; Marimon *et al.*, 2010; Meng, 2010). It is self-evident that an understanding of the antecedents of e-loyalty is likely to enhance business performance. These antecedents are discussed below.

7.5.2.2 Customer satisfaction

Customer satisfaction (or dissatisfaction) has been described by Kotler (2003) as a person's feeling of pleasure (or disappointment) as a result of comparing a product's perceived performance with his or her prior expectations of its performance. Customer satisfaction is therefore more likely to be achieved if providers understand their customers' needs and make every effort to meet those needs (Harris and Harrington, 2000).

Customer satisfaction plays a vital role in marketing because it encourages repeat sales, stimulates positive word-of-mouth recommendations, and builds brand loyalty (Goode *et al.*, 1996). Higher levels of customer satisfaction have been shown to reduce customers' perceptions of the potential benefits of alternative suppliers, and thus enhance repurchase intentions with the present supplier (Anderson and Sullivan, 1993). Moreover, customer satisfaction leads to greater trust which, in turn, enhances customer loyalty, willingness to pay more, and cross-buying.

In the online environment, it has been reported that perceived e-service quality is positively associated with customer satisfaction, trust, and loyalty (Ribbink *et al.*, 2004). In a similar vein, (Cristobal *et al.*, 2007) found that satisfaction with electronic environments (in general) drives traffic to websites and encourages repeated use of such sites.

Although the precise nature of the interaction between customer satisfaction and loyalty is notoriously elusive, several studies indicate that a consensus is emerging that customer satisfaction is a key determinant of customer loyalty (Bloemer *et al.*, 1999; Al-Hawari & Ward 2006). This has been confirmed in the online environment, where Cristobal *et al.* (2007) confirmed a direct link between satisfaction and loyalty in several kinds of e-services.

7.5.2.3 Measuring service quality

Various instruments have been developed to measure service quality in different service industries. Most of these instruments have been based on the well-known SERVQUAL instrument (Parasuraman *et al.*, 1998) which, despite some criticisms, has been shown to be a very useful benchmarking, diagnostic, and prescriptive tool (Cristobal *et al.*, 2007; Ladhari, 2010). However, with the development of e-commerce, SERVQUAL has been subjected to more stringent critiques regarding its applicability for evaluating e-service quality.

According to Parasuraman *et al.* (2005), e-service quality can be defined as the extent to which the delivered service matches the customer's prior expectations. Alternatively, Santos (2003) suggested that e-service quality can be understood as the customer's overall assessment of service delivery in the virtual marketplace. To measure this construct, a specific measuring instrument known as 'E-S-QUAL' was developed by Parasuraman *et al.* (2005). Since its publication, this instrument has received considerable attention in the research literature and has been shown to demonstrate good psychometric properties as a means of evaluating e-service quality (Boshoff, 2007; Fuentes-Blasco *et al.*, 2010; Marimon *et al.*, 2010; Meng, 2010).

In subsequent developments, Boshoff (2007) extended the original E-S-QUAL instrument to six dimensions (rather than the original four), and demonstrated important relationships between the dimensions of e-service quality and the constructs of perceived value and loyalty. Marimon *et al.* (2010) expanded Boshoff's (2007) model by adding a new dimension in to measure e-service quality in an online supermarket in Spain; these authors also analysed the relationship between loyalty and purchasing. Meng (2010) applied the scale in the African American and Chinese cultural settings, thus demonstrating that the instrument can be generalised to different cultures. More recently, Fuentes-Blasco *et al.* (2010) used adapted items from the E-S-QUAL scale to measure e-service quality and to confirm the chain of links from e-service quality to perceived value to e-loyalty.

Because the E-S-QUAL instrument is fairly recent, debate about its usefulness can be expected among academics and practitioners. However, several authors (Parasuraman *et al.*, 2005; Boshoff, 2007; Akinci *et al.*, 2010; Fuentes-Blasco *et al.*, 2010; Marimon *et al.*, 2010) have confirmed that, in general, E-S-QUAL is a useful instrument for evaluating e-service quality in a variety of situations.

Another stream of scholars have scrutinised e-service quality in the specific context of e-banking. Indeed, Kim *et al.* (2006) developed an index to measure online customer satisfaction to help banks to assess their e-service quality. Akinci *et al.* (2010) assessed the e-service quality offered by 13 banks in Turkey, thereby providing a refined and more stable version of the E-S-QUAL scale for use by Internet banks; these authors also found that e-service quality has a strong direct relationship with overall perceived value.

7.5.2.4 ISO 9001

ISO 9001 is a quality-management system that belongs to the ISO 9000 family of standards. As a generic management system, ISO 9001 can be applied to any organisation that wishes to implement a quality management system with the goal of enhancing quality assurance. The objectives of ISO 9001 as quoted in the present release (2008) are:

... This International Standard specifies requirements for a quality management system where an organization:

- a) needs to demonstrate its ability to consistently provide product that meets customer and applicable regulatory requirements, and
- b) aims to enhance customer satisfaction through the effective application of the system, including processes for continual improvement (ISO, 2008).

ISO 9001 has proved to be very popular, with more than a million certifications in 178 countries worldwide (ISO survey 2009). However, the popularity of ISO 9001 has meant that the standard no longer appears to provide the external benefit of a competitive advantage—because so many of the competitors in any given industry are already ISO-registered. As a consequence, many companies are now looking for tangible *internal* benefits from the ISO 9001 standards (Casadesus and Karapetrovic, 2003; Karapetrovic *et al.*, 2010).

In this regard, it is interesting to note that Vloegeberghs and Bellen (1996) have claimed that the most important benefits of ISO 9001 certification are internal. These include: (i) improved awareness of the importance of quality; (ii) identification of the problems of the company; and (iii) improvement in product quality. In contrast, Quazi and Padibjo (1998) insisted that the most important benefits are external: (i) increased satisfaction of customers' requirements; and (ii) improvement in product quality and market competitiveness.

This difference in opinion arises because the benefits of ISO 9001 certification are, in general, difficult to measure (Karapetrovic *et al.*, 2010). It is not easy to ascertain whether ISO 9001 has been directly responsible for a rise in productivity or an increase market share (Jones *et al.*, 1997). Indeed, following a review of the literature on this issue, Rusjan and Alic (2010) stated that some studies have concluded that there is definitely a significant relationship between the implementation of a quality management system and a company's

performance, whereas other researchers concluded that this relationship is either weak or even non-existent. Nevertheless, several studies have suggested that the relationship between quality management and business performance is different for manufacturing organisations and service organisations (Anderson *et al.*, 1997; Johnson and Nilsson, 2003; Rönnbäck and Witell, 2008). This is because the notion of ‘quality management’ has different connotations in manufacturing and services. However, no references have been found on the literature related specifically to e-services, objective of this paper.

Focusing on the benefits, growing body of literature ascertained that there is positive relation between ISO 9001 standard implementation and loyalty (see for example: Vloeberghs and Bellens (1996); Leung *et al.* (1999); Mathews (2005); Van der Wiele *et al.* (2005) or Kumar and Antony, 2008), as well as specific service quality and loyalty (see for example Saura *et al.*, 2008 or Tai, 2011). Conclusions of these studies confirm, in general, the existence of an important relation between both aspects on the traditional business; although if anything indicates that e-services can be different there are no evidences of it.

Additionally, the literature focused on e-services includes many references to the relationship between e-quality and e-loyalty (see for instance Boyer and Hult, 2005, Yen and Lu, 2008 or Fuentes-Blasco *et al.*, 2010), concluding in general that the relation is clearly positive; although there are no evidences of the impact of quality management standards (for example ISO 9001, ISO 9004, ISO 10002, ...) on e-quality.

However, no further analysis dealing with the impact of ISO 9001 standard on e-business has been found. In fact, the question of whether ISO-9001 certification assists business performance in the e-service context is still incipient. Indeed, it would seem that there have been no studies of the possible relationship between ISO 9001 certification and either e-quality or e-loyalty in any online service industry.

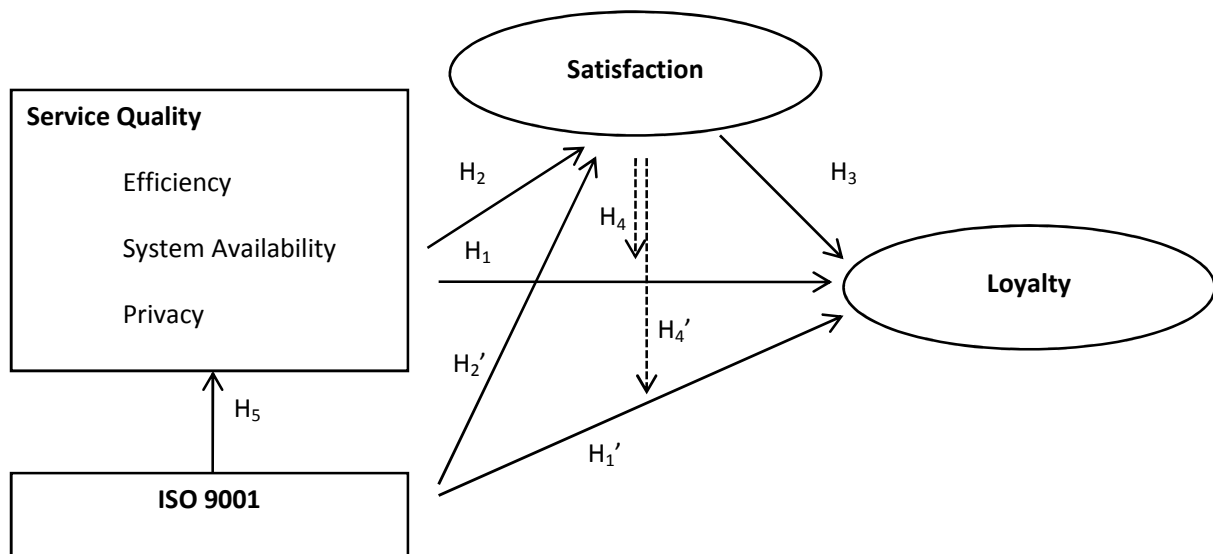
Despite the acknowledged lack of any empirical evidence in this area, it is intuitively reasonable to suppose that ISO 9001 certification would enhance e-service quality (as perceived by customers), and that this would lead to greater customer satisfaction and loyalty intention. A research hypothesis to this effect is formally proposed (below).

7.5.2.5 Hypotheses and research model

The conceptualization framework of the research model is portrayed in figure 19. On the basis of the above discussions, the following five hypotheses are proposed for the present study:

- * **Hypothesis H1:** Online service quality has a direct positive relationship with online loyalty.
- * **Hypothesis H1':** ISO 9001 has a direct positive relationship with online loyalty.
- * **Hypothesis H2:** Online service quality has a direct positive relationship with online satisfaction.
- * **Hypothesis H2':** ISO 9001 has a direct positive relationship with online satisfaction.
- * **Hypothesis H3:** Online satisfaction has a direct positive relationship with online loyalty.
- * **Hypothesis H4:** Online satisfaction moderates/mediates the effects of online service quality on online loyalty.
- * **Hypothesis H4':** Online satisfaction moderates/mediates the effects of ISO 9001 on online loyalty.
- * **Hypothesis H5:** ISO 9001 has a direct positive relationship with online service quality.

Figure 19 summarizes the hypotheses in a conceptual model.

Figure 19: research model

7.5.3 Research methodology

7.5.3.1 Questionnaire and measures

To test the above hypotheses, an empirical study was conducted with a sample of Spanish customers of online banks. A structured questionnaire was designed specifically for the study. The questionnaire was divided into three sections. The first section contained ‘filter’ questions to ensure that all respondents used Internet banking and to ascertain (from a list of banks that was made available) which bank they used; if respondents had more than one online bank, they were asked to report the one they used most frequently. Section 2 contained the items for measuring the constructs of e-service quality, e-satisfaction, and e-loyalty (as detailed above and in the Appendix 2). The final section sought demographic data on respondents (gender, age, education level, annual income).

To measure ISO 9001 variables, a formal letter was sent to banks managers with a short questionnaire to collect a wide range of information, including the scope of ISO 9001 certification, the implementation process or any other related quality management standards (see summary in appendix 2).

7.5.3.2 Sampling and data collection

The sample was derived from a database maintained by Spanish banks. Online banking users were selected by choosing a random starting point and choosing every fiftieth individual customer in succession thereafter. This technique yielded 1,600 potential respondents, who were invited by email to participate in the survey and were directed to a specific website containing the structured questionnaire, which they then self-administered. The questionnaire began with a dichotomous screening question, seeking only respondents who were consumers of e-banking services.

Data collection was completed in May 2010. After rejecting some incomplete or invalid questionnaires, 16 banks were retained and 428 valid completed questionnaires from Spanish customers of e-banking were retained; this latter figure represented a response rate of 26.75%.

7.5.4 Data analysis and findings

7.5.4.1 Sample profile

A summary of the demographic characteristics of the respondents in the study shows no gender bias was detected. Two-thirds of the respondents were aged less than 34 years. The educational level of the sample was high, with more than two-thirds of the sample having a university degree. A large majority (65.9%) of the respondents earned an annual income of less than €24,000. Two-thirds had used e-banking in the preceding week.

The sample was skewed towards banks without ISO 9001 certification (57.5%) and 16% of the sample were 'others' referring to banks for which it was impossible to identify the exact nature of any quality standard that had been implemented. The profile of the sample was comparable to the total population of bank customers in Spain. The sample was not biased towards any bank in particular.

7.5.4.2 4.2 Assessment of e-service quality scale

7.5.4.2.1 Exploratory factor analysis

Exploratory factor analysis (EFA) was conducted on the items in the amended E-S-QUAL scale using normalised varimax as the rotation method (Hair *et al.*, 1998). The Kaiser criteria of eigenvalues greater than 1 was utilised to determine the initial number of factors to retain. The Kaiser-Meyer-Olkin (KMO) measure was 0.935. Bartlett's sphericity test was 5,125.3 (df = 171) with a significance of 0.000. Only three dimensions, which accounted for 64.11% of the variability of the sample, were identified. These three factors were labelled 'efficiency', 'system availability', and 'privacy' as follows:

- * The first factor ('efficiency') gathered seven of the eight efficiency items. Only item EFF5 ('the website loads its pages quickly') migrated from this factor to the second factor.
- * The second factor ('system availability') was a 'new' factor. Seven items loaded on this factor as follows: (i) the original four items of 'system availability' (SAV1–4); (ii) two items of 'fulfilment' (FUL1 and FUL2); and (iii) one item from 'efficiency' (EFF5).
- * The third factor ('privacy') included all three items of 'privacy' (PRI1–3).

It should be noted that two of the original 'fulfilment' items were discarded because they loaded equally on 'efficiency' and 'privacy'. Therefore, with two of the 'fulfilment' items having migrated to the new factor of 'system availability' (see above) and another two having been discarded, the original 'fulfilment' dimension was removed. This finding is consistent with previous studies (Fuentes-Blasco *et al.*, 2010; Marimon *et al.*, 2010; Boshoff, 2007). The overall result is also consistent with the empirical evidence in the literature, which shows that e-service quality cannot be reflected in a uni-dimensional or simple customer evaluation; rather, it has multiple perspectives or dimensions (Meuter *et al.*, 2000; Zeithaml *et al.*, 2002; Boshoff, 2007; Fuentes-Blasco *et al.*, 2010; Marimon *et al.*, 2010).

7.5.4.2.2 Reliability and validity of the adapted E-S-QUAL scale

Confirmatory factor analysis (CFA) was conducted to assess the factor structure of the modified E-S-QUAL scale (see Table 41). Cronbach's alpha for the constructs ranged from 0.887 ('system availability') to 0.906 ('efficiency'), which exceeded the generally accepted

minimum level of 0.7 (Nunnally & Bernstein, 1994), thus demonstrating high internal consistency and reliability in all dimensions.

First-order confirmatory factorial analyses utilising robust maximum-likelihood estimation were performed using EQS software to examine the retained items in the amended E-S-QUAL scale. Comparative fit index (CFI) was 0.933 and the Bentler-Bonett non-normed fit index (BBNFI) was 0.921; root mean-square error of approximation (RMSEA) was 0.065. The Satorra-Bentler scaled chi-square (χ^2) was 323.63 on 116 degrees of freedom. The ratio χ^2/df was 2,789, and all standardised factor loadings were statistically significant (at $p < 0.000$). These results indicate that global fit was acceptable (Hu & Bentler, 1999). The loads were all high (at a significance level of 0.05). The amended model was therefore shown to be an acceptable fit for the data.

The validity of individual items on their corresponding factors was confirmed by load values greater than 0.707 (Carmines & Zeller, 1979), with the exception of item 'EFF 5', which was slightly lower. However, because it was so close to the threshold, it was decided to retain this item, in accordance with the relaxed criterion suggested by Barclay *et al.* (1995). Content validity of multidimensional scales can be assumed on the basis of the close similarity between the modified scales and the original E-S-QUAL models of Parasuraman *et al.* (2005). Factor loadings of the confirmatory model were found to be statistically significant (level of 0.05) and greater than 0.5 (Sanzo *et al.*, 2003).

The evidence of the EFA and CFA, taken together, supported the convergent validity of the component dimensions of the amended scale. In summary, the first objective of this study was realised by establishing that the modified scale derived from the generic E-S-QUAL scale was suitable for assessing e-quality in Spanish e-banking services.

Table 41: Measurement Items for the modified E-S-QUAL constructs.

Factors	CFA (Confirmatory Factory Analysis) Loadings		EFA (Exploratory Factor Analysis) ^(a) Loadings		
	Loadings	t-value ^(b)	Efficiency	System availability	Privacy
Efficiency (Alpha = .906)					
EFF1	.815	21.820	.783		
EFF2	.812	22.656	.773		
EFF3	.715	22.472	.603		

EFF4	.830	18.089	.778
EFF6	.813	22.686	.749
EFF7	.757	27.057	.610
EFF8	.866	19.930	.809
System Availability (Alpha = .887)			
SAV1	.739	22.240	.749
SAV2	.861	22.415	.788
SAV3	.804	18.798	.823
SAV4	.779	21.093	.644
FUL1	.745	29.497	.558
FUL2	.816	27.710	.645
EFF5	.681	19.204	.555
Privacy (Alpha = .890)			
PRI1	.887	27.331	.834
PRI2	.909	27.228	.857
PRI3	.920	30.147	.845
Goodness of fit statistics			
χ^2	323.63		
df	116		
CFI	.933		
BBNFI	.921		
RMSEA	.065		

Note: CFA=Confirmatory Factor Analysis; EFA= Exploratory Factor Analysis; CFI= Comparative Fit Index; BBNFI= Bentley-Bonnet Non-normed Fit Index; RMSEA= Root Mean Square Error of Approximation
a: Total variance extracted by the three factors equal 64.11%; Rotation: Varimax normalized; The Kaiser-Meyer-Olkin (KMO) measure = 0.935; Bartlett's sphericity test = 5,125.3; df = 171 with a significance of $p < 0.001$

b : all t-value are significant at $P < 0.001$

7.5.4.3 4.3 Factors influencing e-loyalty

7.5.4.3.1 Evaluation of measurement model

Although the items used to measure the constructs in this study were based on items from the extant literature, it was necessary to check their validity in the current context by performing tests of internal consistency, convergent validity, and discriminant validity. The scales for the constructs of 'satisfaction' and 'loyalty' were both found to be uni-dimensional. In each case, EFA of the scales extracted only one factor. From the CFA, Cronbach's alpha for both 'satisfaction' (0.916) and 'loyalty' (0.816) exceeded the recommended value of 0.7 (Nunnally & Bernstein, 1994), thus demonstrating high internal consistency.

The validity of individual items within the constructs of 'satisfaction' (0.842 to 0.926) and 'loyalty' (0.765 to 0.890) were also confirmed. These findings, together with the Cronbach's

alpha values of the amended E-S-QUAL dimensions (Table 41), thus provided evidence of acceptable internal consistency for all three constructs (e-satisfaction, e-loyalty, and e-service quality).

The average variance extracted (AVE) for every scale was greater than the recommended value of 0.5 (Fornell and Larcker, 1981), thus authenticating the convergent validity of the scales. In addition, the modified E-S-QUAL dimensions had consistently strong positive correlations with satisfaction (0.657 to 0.723) and loyalty (0.493 to 0.601). The square root of the AVE was greater than the correlations presented by each construct with other constructs (Fornell and Larcker, 1981). Taken together, all of this evidence supported the discriminant validity of the items as measures of their respective underlying constructs.

7.5.4.3.2 Testing of Hypotheses H1–H4

Multi-regression analyses were performed to examine the associations among the constructs. The results are reported in Table 42. Four control variables were included in the analysis: gender, age, education and annual income.

Table 42: regression analysis of service quality and satisfaction on loyalty

	H1&1': Quality & ISO 9001 → Loyalty	H2&2': Quality & ISO 9001 → satisfaction	H3 and H4&4': Satisfaction moderating and mediating Quality & ISO 9001 & Satisfaction → Loyalty
	Standard beta	Standard beta	Standard beta
<i>Control variables</i>			
Gender	-.002	-.015	.006
Age	-.105	-.051	-.076
Education	-.047	-.038	-.025
Annual income (€)	.138**	.019	.128**
<i>Independent variables</i>			
Efficiency	.397***	.396***	.172**
System availability	.136*	.241***	.000
Privacy	.223***	.335***	.034
ISO 9001	-.016	.047	-.043
Satisfaction	-	-	.566***
Adjusted R ²	.431	.674	.535

NOTE: Significant at * P < 0.05; ** P < 0.01; ***P < 0.001

Hypothesis H1 (see Figure 19) had proposed that e-service quality has a direct positive effect on e-loyalty (independent of e-satisfaction). As shown in Table 42, a large proportion of the variation in e-loyalty (43%) was accounted for by service quality, which indicates that e-service quality was significantly related to e-loyalty. All three dimensions of e-service quality had positive and statistically significant direct effects on loyalty. The dimension of 'efficiency' had the strongest effect (standard beta = 0.397, $p < 0.001$), followed by 'privacy' (standard beta = 0.223, $p < 0.001$), and 'system availability' (standard beta = 0.136, $p < 0.05$).

Hypothesis H2 (see Figure 19) proposed that e-service quality had a direct effect on e-satisfaction. As shown in Table 42, all three dimensions of e-service quality were positively and significantly related to e-satisfaction, with 67.4% of total variance explained. The dimension of 'efficiency' again had the greatest effect (standard beta = 0.396, $p < 0.001$), followed by 'privacy' (standard beta = 0.335, $p < 0.001$) and 'system availability' (standard beta = 0.241, $p < 0.001$).

Hypothesis H3 had proposed that e-satisfaction has a direct positive effect on e-loyalty and Hypothesis H4 had proposed that e-satisfaction has a moderating and mediating effects on the relationship between e-service quality and e-loyalty (see Figure 19). In accordance with the procedure of Baron and Kenny (1986), both e-service quality and e-satisfaction were regressed on e-loyalty. The results showed that the adjusted R-square in model H4 increased by 10.4% compared with that in model H1. It is thus apparent e-satisfaction had a strong and direct effect on e-loyalty (standard beta = 0.566, $p < 0.001$), thus confirming Hypothesis H3 (Figure 19). Furthermore, the standard beta coefficients of the dimensions of e-service quality in model H1 were significantly greater than those in model H4. Only the dimension of 'efficiency' had a significant effect on e-loyalty (standard beta = 0.172, $p < 0.01$); the remaining dimensions of e-service quality ('system availability' and 'privacy') were not significant. It is thus apparent that the effect of e-service quality on e-loyalty was weakened by the moderating effect of e-satisfaction. In summary, Hypotheses H1, H2, H3, and H4 were all supported.

7.5.4.3.3 Testing of Hypotheses H1', H2' and H4'

As shown in Table 42, the coefficients in the three regressions incorporating the new variable ISO 9001 were not significant. ISO 9001 certification thus had no effect on either e-loyalty or e-satisfaction and e-satisfaction did not mediate/moderate the effects of ISO 9001 on loyalty. Hypothesis H1', H2' and H4' were thus rejected

7.5.4.3.4 Testing of Hypothesis H5

Another set of regression analyses were conducted to assess whether the implementation of ISO 9001 in e-services (with a focus on the customer) had any effect on e-service quality from the customer's perspective. The results exemplified that the coefficients in the three regressions were not significant on any of the service quality dimensions (see table 43). Therefore H5 was rejected.

Table 43: regression analysis of ISO 9001 on quality

<i>Dependent variables</i>	H5 ISO 9001 → Quality Standard beta		
	Efficiency	System availability	Privacy
<i>Control variables</i>			
Gender	-.085	-.046	-.144**
Age	.003	-.129*	-.104
Education	-.073	-.005	.007
Annual income (€)	.047	.152*	.074
<i>Independent variables</i>			
ISO 9001	-.043	-.083	-.022
Adjusted R ²	.001	.013	.017

NOTE: Significant at * P < 0.05; ** P < 0.01; ***P < 0.001

In addition, further analyses were conducted to substantiate that there was no difference in behaviour between the performance of banks with ISO 9001 certification and those without. Two more non-parametric tests were used. First, a Kruskal-Wallis test failed to detect any differences among the 16 banks on all five constructs of interest ($p < 0.05$). Secondly, a Mann-Whitney U-test failed to detect any statistically significant differences ($p < 0.05$) between the

two groups in terms of service quality, satisfaction, and loyalty (see Table 44). Therefore the rejection of the Hypothesis H1', H2', H4' and H5 were supported.

Table 44 Mann-Whitney U test for ISO 9001 certified and non-certified organizations

Factors	ISO 9001 Certified N= 133		No ISO 9001 certified N= 246		Sig.
	Mean	S.D	Mean	S.D	
Efficiency	3.85	.689	3.93	.725	.256
System availability	3.91	.657	3.99	.679	.086
Privacy	4.15	.777	4.21	.804	.357
Satisfaction	3.93	.724	3.94	.785	.807
Loyalty	3.51	.908	3.59	.884	.167

7.5.5 Sub-model results and implications

7.5.5.1 Sub-model results

The amended version of the E-S-QUAL scale (Parasuraman *et al.*, 2005) that has been developed and used in the present study has been shown to be a valid instrument for the measurement of e-service quality within the context of e-banking in Spain. The modified version of the scale involved the movement of two items from the original 'fulfilment' dimension and one item from the original 'efficiency' dimension into a new dimension of 'system availability'. The original dimension of 'fulfilment' was discarded because the remaining items failed the EFA test. The amended scale, which has three dimensions ('efficiency', 'system availability' and 'privacy') rather than the original four, demonstrated good psychometric properties. The modified scale is in general accordance with Boshoff (2007), who also removed the 'fulfilment' dimension from his model. The modification is also supported, to some extent, by Fuentes-Blasco *et al.* (2010), who found that this dimension had a lower coefficient path to e-quality in their model.

With regard to the relationships among e-service quality, e-satisfaction, and e-loyalty, the results showed that e-service quality is a major predictor of both online customer satisfaction and loyalty. All three service-quality dimensions ('efficiency', 'system availability', and 'privacy') had direct positive effects on both loyalty (Hypothesis H1) and satisfaction (Hypothesis H2). The dimension of 'efficiency' was shown to have the strongest effect on e-loyalty, followed by 'privacy' and 'system availability'.

The study also found that e-satisfaction has a direct positive effect on e-loyalty, in addition to moderating the effect of e-service quality on e-loyalty. The effects of the e-service quality dimensions of 'privacy' and 'system availability' on e-satisfaction were definitely moderated by e-satisfaction, and the effect of the dimension of 'efficiency' on e-loyalty was partially moderated by e-satisfaction. These results largely agree with relevant previous studies of these relationships (Harris and Harrington 2000; Parasuraman *et al.*, 2005; Fuentes-Blasco *et al.*, 2010; Marimon *et al.*, 2010).

Finally, the study examined whether ISO 9001 certification in e-services (with a focus directly related to the customer) has any influence on the relationships among e-service quality, e-satisfaction, and e-loyalty from the customer's viewpoint. Contrary to the proposed hypothesis, no differences were detected between certified and non-certified organisations in terms of e-service quality, e-satisfaction, and e-loyalty. There are several possible explanations for this finding. First, online banking customers have almost complete control over their accounts; as a consequence, the absence of human interactions and physical premises might diminish the proven external benefits of ISO 9001 in traditional (interpersonal) service settings. Secondly, because most banks are already well organised to offer a high standard of e-services, it is possible that ISO 9001 certification makes no discernible difference to their performance in e-banking services. This explanation would be consistent with the view that quality-management standards no longer provide discernible external benefits and competitive advantages (Casadesus and Karapetrovic, 2003). Indeed, because consumers of both certified and uncertified banks have a positive attitude towards online service, the majority of banks in the present study did not bother to advertise their ISO 9001 certification on their main websites.

The respondents in the present study thus failed to perceive any differences in e-services as a consequence of ISO 9001 certification. However, this does not necessarily mean that the implementation of a quality-assurance standard has no benefits for the provider. As many authors have attested (Vloegeberghs and Bellens, 1996; Lima *et al.*, 2000; Casadesús and Karapetrovic, 2003; Ruzevicius *et al.*, 2004; Boiral and Roy, 2007; Karapetrovic *et al.*, 2010), other potential benefits include improved efficiency, reduced costs, motivated employees, and so on. None of these potential benefits was included in the present analysis, which focused solely on the perspective of the external customer.

Considering the main objectives of ISO 9001 (ISO, 2008) previously described, loyalty appear not to be incorporated. However in the traditional business it is clearly one of the core benefits of the standard implementation (see for example Vloeberghs and Bellens (1996); Leung et al. (1999); Mathews (2005); Van der Wiele et al. (2005) or Kumar and Antony, 2008). It is interesting to see, how this concept has been introduced in the new quality management standards from the ISO family, such as ISO 10002 which provides a documented guide to the design and implementation of an effective complaints handling process:

...The handling of complaints through a process as described in this International Standard can enhance customer satisfaction. Encouraging customer feedback, including complaints if customers are not satisfied, can offer opportunities to maintain or enhance customer loyalty and approval, and improve domestic and international competitiveness (ISO, 2004)

Therefore, although the study has established that there is no difference between the customer-perceived quality of ISO 9001-certified e-banks and those without such certification (and consequently no effect on e-loyalty), the study is unable to say whether ISO certification provides internal benefits for e-banks (in terms of costs and efficiency for example). However, it is intuitively likely that this is so. Further research is required in this area.

7.5.5.2 Managerial implications

The findings of the study have several practical implications for managers of e-services. It is apparent that e-service quality and e-satisfaction are of the greatest importance in generating online loyalty. This shows that managers must ensure that they deliver superior e-service quality at all times if they wish to enhance customer satisfaction and loyalty intentions. In particular, the study has revealed that 'efficiency' is the most critical predictor of both satisfaction and loyalty intentions. Managers should therefore place greater emphasis on online service attributes associated with the ease of access and speed of using the site.

Secondly, although previous research has suggested that privacy (protection and safeguarding of customers' private information) is the least important dimension for predicting online

loyalty (Parasuraman *et al.*, 2005), the present study found that ‘privacy’ was the second-most important factor in fostering customer loyalty. This suggests that managers of online banking services should ensure that their site is free from a torrent of spam and that customers’ personal information (especially credit card details) are not exposed to possible fraudulent use.

Thirdly, because online satisfaction significantly mediates and moderates the effect of e-service quality on e-loyalty, managers must adopt strategies to enhance customer satisfaction, especially with regard to optimising perceived e-service quality. In addition, feedback and complaint resolution should be monitored carefully and acted upon efficiently.

Finally, notwithstanding the finding that ISO 9001 certification had no demonstrable effect on perceptions of e-service quality (and hence satisfaction and loyalty), managers whose businesses are not ISO 9001 certified should give careful consideration to doing so. Even if the benefits are mainly internal (and not immediately discernible to customers); ISO certification promises significant benefits to e-service providers in terms of internal cost reductions and efficiencies (among other potential benefits).

7.6 Thesis overall results

The overall results of the conceptual framework of this thesis are summarized below (see Figure 20 and table 45)

Figure 20: Thesis main framework summary of the hypotheses testing.

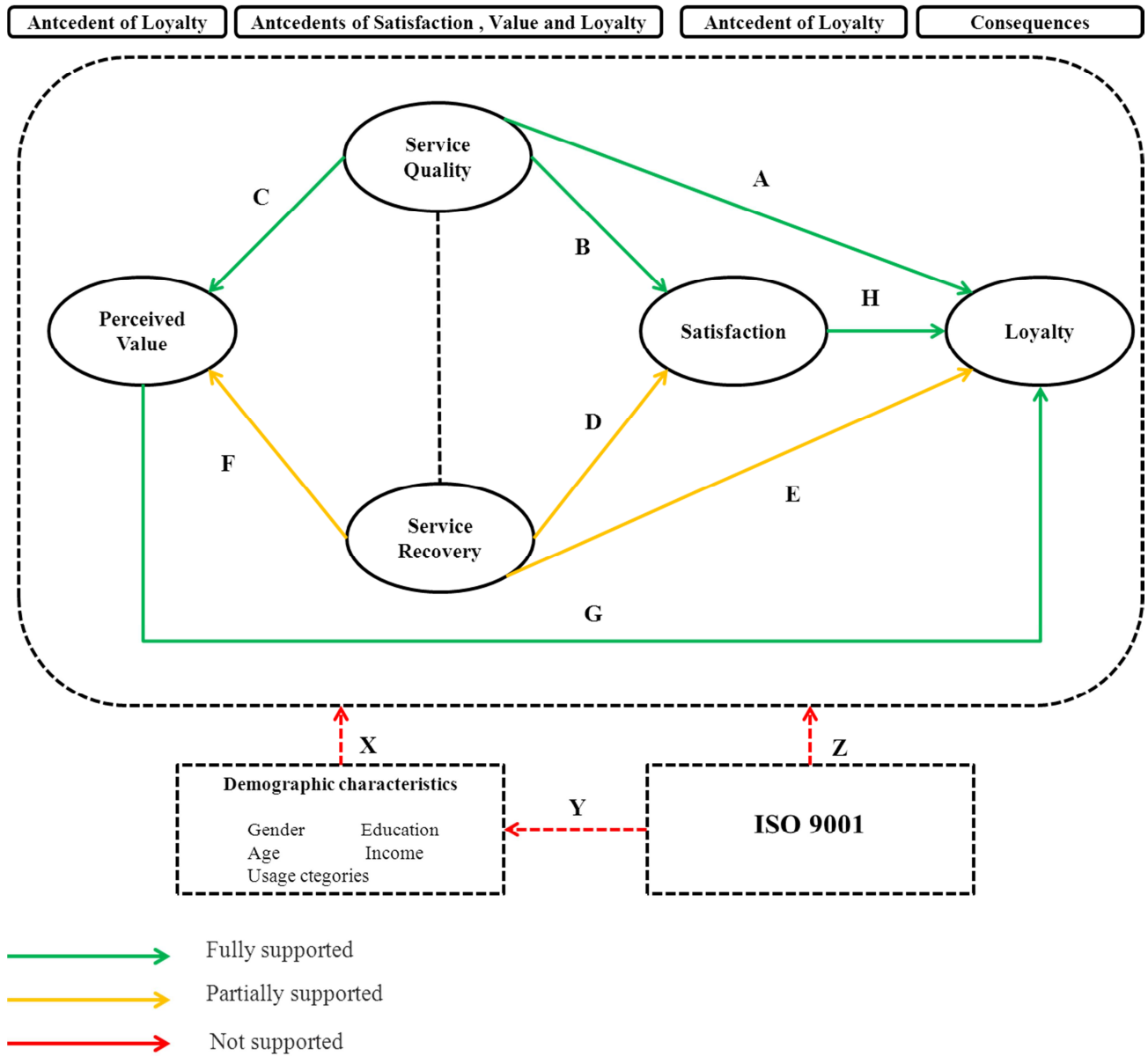


Table 45: Summary of the Hypothesis Testing of the thesis conceptual main framework

Hypothesis and description	Results
A: Service quality directly and positively affects customer loyalty	Fully supported
B: Service quality directly and positively affects customer satisfaction	Fully supported
C: Service quality directly and positively affects customer value	Fully supported
D: Service recovery directly and positively affects customer satisfaction	Partially supported
E: Service recovery directly and positively affects customer loyalty	Partially supported
F: Service recovery directly and positively affects customer perceived value	Partially supported
G: Perceived value directly and positively affects loyalty	Fully supported
H: Customer satisfaction directly and positively affects loyalty	Fully supported
I: Online satisfaction will mediate the effect of e-service quality on loyalty	Partially supported
J: Online value will mediate the effect of e-service quality on e-loyalty	Partially supported
K: Online satisfaction will mediate the effect of ISO 9001 on loyalty	Fully supported
X1: Demographic characteristics are positively related to Service quality	Not supported
X2: Demographic characteristics are positively related to service recovery	Not supported
X3: Demographic characteristics are positively related to satisfaction	Not supported
X4: Demographic characteristics are positively related to value	Not supported
X5: Demographic characteristics are positively related to loyalty	Not supported
Y: ISO 9001 is positively related to the demographic characteristics	Not supported
Z1: ISO 9001 is positively related to customer perceived service quality	Not supported
Z2: ISO 9001 is positively related to customer service recovery	Not supported
Z3: ISO 9001 is positively related to customer Satisfaction	Not supported
Z4: ISO 9001 is positively related to customer perceived value	Not supported
Z5: ISO 9001 is positively related to loyalty intention	Not supported

8 CHAPTER 8: CONCLUSIONS AND PRACTICAL IMPLICATIONS

8.1 Overall findings

The literature review (Chapter 3) on E-S-QUAL shows that the scale is effective in capturing core e-service quality. The dimensions of efficiency, system availability and privacy are represented consistently in the various models, regardless of the type of e-service. In contrast, the dimension of fulfillment appears not to be generic but specific to particular e-service contexts such as websites selling physical goods.

Besides, due to the importance of service quality in the success of e-retailers, external validation of e-service quality measures through replication is extremely important, particularly in cases where measures developed in one country are intended for use in other countries. However, the knowledge of consumers' evaluation of electronic service quality in terms of E-S-QUAL dimensions equips the online service providers with the advantage of differentiation and sustainable competitive advantage. Still, some critics argued that the leading academic measure of e-retailing service quality E-S-QUAL (and E-RecS-QUAL) multiple-item scale by Parasuraman et al., (2005) is shown to be based on an inadequate conceptual definition. E.g. their definition of the e-retailing object of the construct identifies only two stages of e-retailing instead of six stages in the overall e-retailing process. Additionally, nor does E-S-QUAL distinguish e-retailers who sell products from those who sell services Rossiter (2009).

Above all, contrary to Rossiter (2009) dispute, the review of literature discussed in Chapter 3 of this thesis demonstrated that among several instruments that have been proposed for assessing electronic service quality, the E-S-QUAL (Parasuraman et al., 2005) has received the most recognition. Since, the scale has been to a certain extent successfully replicated and applied in 11 countries and a variety of e-service settings. Conversely, even though this study did not agree with Rossiter (2009) it is worth to draw attention that collectively the findings of the studies reviewed reveal important differences in a number of final painstaking dimensions of E-S-QUAL and the number of items used in the scale across industry. In addition, this study raised concern about several theoretical and empirical problems associated with the reassessment of the E-S-QUAL such as: the use of different scores, the

scale reliability, the convergent validity, the discriminant validity, the predictive/nomological validity and the applicability of the scale to different cultural contexts.

Moreover, the findings of the review of literature of this thesis are in accordance with previous research. For example, according to Rowley (2006) online service delivery is very different from traditional service delivery. In the logic that information provided or collected from customers can be gathered and analyzed by the e-service provider and used as the basis for the customization of the service that the organization offers to customers. Besides, Ladhari, (2009a and 2010) concluded that there is a wide consensus in the literature that the dimensionality of both traditional service quality and e-service quality largely depends on the particular service industry being examined. To this end, before discussing the key contribution of this thesis, this study first assess the credentials of the key dimensions for evaluating e-service quality as perceived by customers in the context of electronic banking. Based on a survey of 428 customers of online banking (123 of whom reported a service failure), this study used exploratory factor analysis and confirmatory factor analysis to ascertain whether the scales have a factor structure that reflects the theoretical dimensionality of their setting.

As shown in sub-model 3, 4 and 5, the psychometric assessment results of the properties of the modified E-S-QUAL involved the movement of two items from the original “fulfillment” dimension and one item from the original “efficiency” dimension into a new dimension of “system availability”. The original dimension of “fulfillment” was discarded because the remaining items failed the exploratory factor analysis test. Thus this study emphasizes three sets of determining dimensional factors for the overall measurement of quality, rather than the original four, all of which demonstrate good psychometric properties: (i) “efficiency”, or consumer perception of their ability to obtain information about the desired product or service with minimum effort; (ii) “system availability”, here described as a combination of the correct functioning of the website and the ability to swiftly provide the promised service reliably and correctly; and (iii) “privacy”, the degree to which the site is safe and protects customer information, consistent with Petnji et al. (2011). The modified scale is in general accordance with Boshoff (2007), who also removed the “fulfillment” dimension from his model. The modification is also supported, to some extent, by Fuentes-Blasco et al. (2010), who found that this dimension had a lower coefficient path to e-loyalty in their model.

Furthermore, this thesis assessed the quality of websites in relation to problems and complaints directed at the electronic recovery service quality scale in sub-model 2, 3, 4 and 5. Our analyses have shown fairly conclusively that the three-dimensional configuration of electronic service recovery E-RecS-QUAL, as proposed by Parasuraman et al. (2005), does not fit the data set. The dimension of “compensation” was discarded since one item moved to the “responsiveness” dimension and the remaining items were loading poorly. Hence, only the dimensions of “responsiveness” and “contact” were retained. This finding is not surprising, given that high-involvement service sectors such as banking or education have different online service quality definitions from low-involvement electronic services such as retailing (Akinici et al., 2010). In summary, this study established that a scale that is very close to the generic and parsimonious E-S-QUAL and E-RecS-QUAL scales is suitable for the assessment of perceived electronic service quality and service recovery in an electronic banking context.

This thesis also confirmed in sub-model 2, 3, 4 and 5 that the dimensions of customer perceived value, customer satisfaction and loyalty by means of arrays of exploratory and confirmatory factor analysis. Thereafter, it was dissected in detail in descriptive analysis, sub-model 1 and 5 that the direct effects of demographic characteristics profiles on customer perceived service quality, recovery, value satisfaction and loyalty intention. Subsequently, in sub-model 2, 3, 4 and 5 that the direct/indirect causes of e-loyalty was assessed by building a structural equation model, analyzing the causal inter-relationships between perceived online service quality, online service recovery, customer satisfaction, value and customer loyalty. Finally and most importantly the thesis assessed if ISO 9001 with the scope directly related to customers (offices, claims, etc.), spawn any discrepancies on service quality, customer perceived value, customer satisfaction, customer loyalty, customer service recovery and demographic characteristics profiles. The overall results are summarized in table 45 above.

The T-student and ANOVA tests were used to assess hypothesis X: the effects of demographic characteristics on different variables. In addition the mean of each item was used to give an indication of the average response for each item under each dimension and the standard deviation was made available to show the level of spread of the data. The overall results show respondents’ gender, age, education and income are not factors that can influence customers’ perception of service quality in Spanish online banking setting. Thus hypothesis X was not supported. However, 12% of female have different view on EFF7 and

PRI1 variables, and 16 % have different view on PRI3 variable than men. More explicitly, those female were generally pleased with their online bank website as they do not shows their online banking behavior as well as protecting information about their credit cards and debit cards. These findings are consistent with the study of Bigne et al. (2005) who found that men and women did not show significantly different behaviors in shopping through the mobile technology for users in Spain with 86% of penetration rate. Moreover, according to the review of literature in online shopping acceptance model, Zhou et al., (2007) also concluded that the effect of age on consumers' intention to purchase online remains unclear. Likewise, Ganesan-Lim et al., (2008) found no differences in the perception of service quality based on gender. Moreover, Straughan & Albers-Miller (2001) found no relationship between age and domestic retail store loyalty in traditional service.

Contrary to this study, Donthu and Garcia (1999) found that men appeared to make more purchases and spend more money online than women. Besides, (Eagle, 2009) gender is important in the Arab world, for instance females prefer to go to banks that have dedicated female branches because they are in line with social and religious values. Also in contrast to this study, Meng et al., (2009) found Chinese consumers shop at different stores based on their income level implicating that income level might be a source of discrepancies in the perception of service quality in China. Likewise Homburg and Giering (2001) intimated that there is a relationship between age and service quality dimensions. Moreover Chau & Lai (2003) identified that several individual differences including level of education and extent of prior experience have significant effects on ATM's beliefs.

The overall results of this thesis also showed that hypotheses A and B are fully supported. In other words, online service quality is a major predictor of both customer satisfaction and loyalty. These findings largely agree with relevant previous studies of these relationships (Harris and Harrington 2000; Parasuraman et al., 2005; Fuentes-Blasco et al., 2010; Petnji et al., 2011). Even in the absence of face-to-face interactions, all three dimensions of perceived online service quality have direct and positive effects on the two constructs. The findings also indicate that the pattern of effects is not consistent across dependent variables, and suggests that the effects of each dimension are not proportionally equal. More specifically, privacy was the factor that had the strongest impact on satisfaction, followed by efficiency and system availability. This contention is strongly supported by Ribbink et al. (2004), who also found that satisfaction is largely explained by the variance of electronic service quality,

and that the dimension of “privacy” plays a different and more important role than previous studies had allowed for in similar constructs.

Conversely, the efficiency dimension shows stronger direct effects on the construct of customer loyalty, followed by privacy and system availability. These findings are consistent with those of Parasuraman et al. (2005); Akinci et al. (2010); Fuentes-Blasco et al. (2010); and Marimon et al. (2010). For online service providers, this knowledge encourages a firm’s managers to prioritize their firm’s resources so as to improve its electronic service quality.

The results of this study also indicate that hypothesis E was partially supported, since only the recovery dimension of responsiveness has significant and direct positive effects on consumer loyalty. The findings were in general accordance with Akinci et al. (2010), who reported that both ‘responsiveness’ and ‘compensation’ had significant and positive effects on loyalty in their study of e-service quality. In the present study, these two dimensions (“responsiveness” and “compensation”) were merged into a single dimension of “responsiveness”. It would thus seem that responsiveness is a key factor in producing loyalty among customers of e-services. As in conventional services, customers expect prompt feedback regarding requests and complaints (Marimon et al., 2011). However there was no evidence of the relationship between contact and customer loyalty. As suggested by Akinci et al. (2010), it would seem that online customers are reluctant to experience direct personal interaction with service personnel, even when a problem occurs.

Additionally, the pattern of the effects of service recovery on satisfaction was analogous to the pattern of the effects of loyalty. Hence, Hypothesis D was also partially supported. In contrast to Harris and Goode (2004), who found in their study that the quality-satisfaction-loyalty chain was not supported in one of the online services they studied. This thesis finding also agreed with Boshoff (2005), who argued that online service recovery is a strong predictor of customer satisfaction.

Moreover hypothesis C was fully supported. Given that in terms of the antecedents of “perceived value”, the e-quality dimension of “efficiency” was the most significant; in contrast, the coefficients of “system availability” and “privacy” were significantly lower. The findings were in general accordance with Parasuraman et al. (2005); Akinci et al. (2010); Fuentes-Blasco et al. (2010); and Marimon et al. (2010). It would seem that the ease and

speed of accessing the website is the most important factor in determining “perceived value”, whereas the technical function of the site and the protection of customer information are less important. However, hypothesis F was partially supported, since only the dimension of “responsiveness” was positively related to value. This finding is also in accordance with Akinci et al. (2010), who reported that “responsiveness” and “compensation” (dimensions of e-service recovery) have a significant and positive effect on Value. The present study also agrees with Akinci et al. (2010) in not finding any solid evidence of a relationship between ‘contact’ and Value.

Furthermore Hypotheses I, J and K was assessed. The indirect effects were modeled to address the direct effect of satisfaction and value on online service quality, of online service recovery and ISO 9001 on customer loyalty. As expected, the analysis of the research showed that customer satisfaction and value have a strong and direct positive effect on customer loyalty, thus supporting hypotheses G and H. Besides, hypotheses I, J and k was fully supported. Because, this study indicated that online satisfaction and value strongly depended on the effects of “system availability”, “privacy” and “contact”, and that the indirect effects of “efficiency” and “responsiveness” on loyalty were significant. Meanwhile their direct effects also remained significant, demonstrating that customer satisfaction and value partially accounts for their effects on customer loyalty. These results largely agree with relevant previous studies of these relationships (Harris and Harrington 2000; Caruana, 2002; Ribbink et al., 2004; Petnji et al., 2011).

Contrary to the proposed hypothesis Y and Z, no differences were detected between certified and non-certified organizations. Given that the general results revealed online banking customers were not sensitive to the usage of ISO 9001 directly related to customers. In other words, ISO 9001 did not spawn any discrepancies on service quality, customer perceived value, customer satisfaction, customer loyalty, customer service recovery (hypothesis Z) and demographic characteristics profiles (hypothesis Y). This finding is consistent with the view that quality-management standards no longer provide discernible external benefits and competitive advantages (Casadesus and Karapetrovic, 2003). Moreover, following a review of the literature on the benefit of ISO 9001, Rusjan and Alic (2010) stated that some studies have concluded that there is definitely a significant relationship between the implementation of a quality management system and a company’s performance, whereas other researchers concluded that this relationship is either weak or even non-existent. Moreover, focusing on

the benefits, growing body of literature ascertained that there is positive relation between ISO 9001 standard implementation and loyalty (see for example: Vloeberghs and Bellens (1996); Leung et al. (1999); Mathews (2005); Van der Wiele et al. (2005) or Kumar and Antony, 2008), as well as specific service quality and loyalty (see for example Saura et al, 2008 or Tai, 2011).

In addition, Casadesus et al., (2002) used SERVQUAL to assess the quality of the service offered by companies that had used consultants when introducing their quality system in keeping with the ISO 9000 standards. The results show three factors (Customer service, assurance and empathy; Scheduling; and Tangibles) out of five define the perceived quality of ISO 9000 consultancy. Besides, according to (Tsuang Kuo., et al., 2009) ISO certification significantly improve the effectiveness of quality management practices and that service experienced better improvement than manufacturing in five out of six areas investigated after recovery. More recently Simon and Petnji, (2012) surveyed Spanish organizations registered to at least both ISO 9001:2008 and ISO 14001:2004 to investigate the impact of Management System Integration on organization innovation and customer satisfaction. The results of the study showed that all the integration characteristics were positively related to innovation and satisfaction and that innovation was only partially linked to satisfaction. However, conclusions of these studies confirm, in general, the existence of an important relation between both aspects of ISO 9001 and loyalty intention on the traditional business; although if anything indicates that e-services can be different there are no evidences of it

Finally, this study investigated which aspect should be considered as the most important factor when considering online satisfaction and loyalty. When inspecting the loadings of the dimensions of perceived online service quality and service recovery on their corresponding constructs, This study found that all loadings are significant, indicating that all dimensions of the two constructs are important factors in influencing online satisfaction and loyalty. However, overall, the findings indicated that the direct and indirect effects of perceived service quality dimensions on loyalty and satisfaction are much stronger than the corresponding effects of service recovery. Thus, even in the absence of face-to-face interactions, service recovery appears not to be as important a contributor to customer satisfaction and customer loyalty as had been anticipated.

8.2 General conclusions

In general, the internet has played a pivotal role in transforming most the traditional service into e-services and in particular banking services. The use of electronic services in the banking sector has become taken for granted, as it was transformed into an important component of the overall service offerings provided by banks. Besides, there is a great enthusiasm and commitment from bank institutions to adopt innovative approaches or to engage more actively with their customers online. Without a doubt, e-banking is a fast-growing sector and banks can exploit it as an opportunity to increase competitive advantage and bank institutions cannot afford to be self-satisfied especially with the latest financial crisis. Moreover, this thesis observed that online customers are becoming more and more knowledgeable. Because there are not only increasingly eager to use search engines and comparison websites in product evaluation and selection, they are also keen to share their experiences through social media. Besides, it was reported that more and more sophisticated online customers would rather pay a high price to e-tailers who provide a high service quality. More recently, online service providers in general and in particular online banks competitors have started to actively promote switching provider as part of their “free” services. For example, most of the banks often claimed that switching banks is easier today than it used to be, since they have made the process as simple and as easy as possible. Evidently, competing in such a complex and dynamic business environment is difficult and complicated. As a consequence, several authors along with bank managers have emphasized the importance of enhancing loyalty among internet consumers. Likewise, it is self-evident that an understanding of the antecedents of e-loyalty is likely to enhance business performance.

While several studies have examined the effective measurement of e-services quality in general and in particular the e-banking service quality, this thesis observe that their lack of a holistic view has delayed the accumulation of past knowledge. However, to address this issue, this thesis first reviews and summarizes the methodology, service quality dimensions, suggestions and limitations of previous service quality studies conducted. It was then evidence that the absence of a valid and reliable instrument to measure e- service quality has hard-pressed early researchers to make use of some fairly inadequate alternatives, such as using subjective quality attributes or selected generalizable items from the SERVQUAL. Hence, confused the endeavors of both scholars and practitioners to effectively measure and

consequently manage e-service quality strategies. Nonetheless, to improve these previous studies, Parasuraman et al. (2005) developed and operationalized E-S-QUAL, a multi-item scale for examining website service quality. Therefore, this thesis reviews the literature on E-S-QUAL focusing particularly on the methodology used, new suggestions to be made, and limitations associated with the adoption of the scale. On the whole, this study has brought to light the results reached by several authors who duplicated the E-S-QUAL scale. The results revealed that the scale is effective in capturing the core of electronic service quality. Then again, both scholars and practitioners must assess the underlying factor structure of their data before drawing any conclusions from their study. Given that, the dimensional structure of E-S-QUAL appears to be very unstable, even within a given sector. Nevertheless, the dimensions of Efficiency, System Availability and Privacy appear consistently in the various models, indicating that there are some common dimensions of E-S-QUAL used by customers in evaluating e-SQ regardless of the type of e-service delivered. On the other hand, the dimension of Fulfillment appears not to be generic but specific to particular e-service context such as web site selling physical goods.

Drawing on the findings mentioned above, this thesis then set as one of its main objective to enhance some of the shortcomings from previous studies by proposing and originate one of the first robust, stable and comprehensive scales for assessing e-banking service quality. Therefore, the study developed and empirically tested a multi-item scale for measuring electronic service quality and service recovery of e-banking services based on the amended E-S-QUAL and E-RecS-QUAL scales. The amended version of the E-S-QUAL scale (Parasuraman et al., 2005) that has been developed and used in the present study has been shown to be a valid instrument for the measurement of e-service quality within the context of e-banking in Spain. The modified version of the scale involved the movement of two items from the original “fulfillment” dimension and one item from the original “efficiency” dimension into a new dimension of “system availability”. The original dimension of “fulfillment” was discarded because the remaining items failed the EFA test. The amended scale, which has three dimensions (“efficiency”, “system availability” and “privacy”) rather than the original four, demonstrated good psychometric properties. The modified scale is in general accordance with Boshoff (2007), who also removed the “fulfillment” dimension from his model. The modification is also supported, to some extent, by Fuentes-Blasco et al. (2010), who found that this dimension had a lower coefficient path to e-quality in their model.

Moreover, this study also confirmed the validity of the proposed scale to assess service recovery in the context of e-banking services. The modified scale merged the dimensions of “responsiveness” and “compensation” into one factor (labeled “responsiveness”). The third dimension of the original scale “contact” was retained given that it loaded cleanly.

Furthermore, to improve our understanding of customer loyalty intention in online banking this thesis proposed a conceptual model that identified specific dimensions of service quality and service recovery that influences customer value, satisfaction and loyalty and then provided rich details that could be useful in new insights as competitive advantage. As expected, the results showed that e-service quality and e-service recovery are both major predictor of online customer satisfaction, value and loyalty. All three service-quality dimensions “efficiency”, “system availability”, and “privacy” and the service recovery dimension of responsiveness had direct positive effects on value, satisfaction and loyalty. The dimension of “efficiency” was shown to have the strongest effect the three constructs, followed by “privacy” and “system availability”. Besides, this study has also shown that e-service recovery has a significant direct impact on value, satisfaction and loyalty. Indeed, this effect is equivalent in magnitude to the effect of “efficiency” (a dimension of e-service) on all the three constructs. These results are consistent with Akinçi et al. (2010), who reported that “responsiveness” and “compensation” (dimensions of e-service recovery) have a significant and positive effect on loyalty. The present study also agrees with Akinçi et al. (2010) in not finding any solid evidence of a relationship between “contact” (a dimension of recovery) and e-loyalty.

The study also found that satisfaction and value both have a direct positive effect on loyalty. As it was expected contrary to Harris and Goode, (2004) who found the well-established quality-satisfaction-loyalty chain was not supported in one of the online services they studied, this study confirmed the mediating/ moderating role of value and/or satisfaction in the relationship between e-service quality, service recovery and loyalty. The effects of the e-service quality dimensions of “privacy” and “system availability” on loyalty were definitely moderated /mediated by satisfaction and/or value, and the effect of the dimension of “efficiency” on e-loyalty was partially moderated /mediated by satisfaction and/or value. These results largely agree with relevant previous studies of these relationships (Harris and

Harrington 2000; Parasuraman et al., 2005; Fuentes-Blasco et al., 2010; Marimon et al., 2010).

Contrary to this thesis expectation, the general results reveal that online banking customers in were not sensitive to the usage of ISO 9001 directly related to customers. In other words, ISO 9001 does not affect their perception of all constructs of perceived service quality, service recovery, customer satisfaction, perceived value and customer loyalty. The non-detection of any significant differences between banks certified and those not certified, may be justified by the fact that generally banks customers' expectations are very high. Thus banks are well organized and structured and they offer a very high service standard. Furthermore, online banking bid to customers a complete control over their accounts; hence the absence of human interactions and physical premises may also shadow the perception of the benefits of ISO 9001. Likewise, the general findings suggested that the respondents' demographic characteristics profiles had no impact on customer perceived service quality, service recovery, value, customer satisfaction and loyalty.

8.3 Managerial implications

In practical terms, the findings of this study contain a number of implications for e-business managers. In the first instance, given the fact that "efficiency" and "privacy" are identified as the important key dimensions in e-SQ for predicting both customer satisfaction and customer loyalty, online retailers and the management of electronic service providers must ensure that adequate information about the desired product and services (such as price, warranty conditions, return policy, etc.) should be easy to find and understand. This study also recommends that they ensure that their website has an uncluttered look and provides the service they promise accurately and on time.

The security and protection of customers' personal information (e.g., credit card details) has become a factor of paramount importance for the e-business customer. Managers should provide explicit and reassuring guarantees that transactions on their websites are processed through the Network Solutions Site Safe Program, i.e., a meaningful guarantee ensuring that all personal and transactional information is transmitted over a secure encrypted server which protects personal information at all times. Furthermore, customer awareness of what

information the website collects, how it is used and under what circumstances, if any, personal information is disclosed may enhance customer perception of the privacy dimension, with the resulting improvement in customer satisfaction and customer loyalty.

Moreover, system availability was placed in the middle level of customers' appreciation of factors that may directly/indirectly influence customer satisfaction and customer loyalty, while responsiveness was perceived as the least important. Hence, managers must take a close look at the correct functioning of the website and its ability to swiftly provide the promised service reliably and correctly. Besides, managers should deal with problems effectively and review the website, responding promptly and accurately to all enquiries from their customer encounters and ensuring that their e-mail system performs well at all times. Overall, managers should ensure that their level of service delivery on their website meets or exceeds the level of service expected by their customers.

Finally, this study emphasizes that what is really important is providing quality rather than recovering the service when a failure has occurred. The findings of the paper point practitioners in certain directions when it comes to choosing the projects in which they should invest. Improving e-quality yields a bigger impact on loyalty than e-recovery. Nevertheless, this analysis should factor in the size of the initial investment in order to obtain a ratio showing the impact on loyalty per each euro invested.

This study contributes to and extends a growing research stream documenting the scale evaluation of e-SQ. The results provide acceptable psychometric measures for reliability and validity tests of the amended E-S-QUAL and E-RecS-QUAL scales. Accordingly, efficiency, system availability and privacy can be taken as the underlying dimensions of perceived online service quality; and responsiveness and contact as the underlying dimensions of electronic service recovery in a non-retail context such as online financial services, education, tourism, employment agencies, etc.

Previous researchers have documented the vital role of customer satisfaction in a variety of customer behavior models. However, in terms of electronic service providers, little research has been conducted into the simultaneous role of both online service quality and service recovery and into which is the more important role between the two, together with the contributory role of customer satisfaction in relation to online loyalty.

With empirical data and thorough statistical testing, this study found that antecedents such as perceived online service quality, service recovery and satisfaction can be used to promote customer loyalty. The dimensions of “efficiency”, “privacy”, “system availability” and “responsiveness” have direct/indirect significant and positive effects on customer satisfaction and loyalty, with “efficiency” and “privacy” being the most important predictors.

However it is more important to increase customer satisfaction, which requires an external focus on developing what will “go right” in the first place by enhancing perceived online service quality, instead of preventing dissatisfaction through recovery, which is an internal focus on fixing what has “gone wrong”

From a management perspective, a clear understanding of the sequences in the relationships between service quality, service recovery, customer satisfaction and, ultimately, customer loyalty can help identify segments that have the highest potential for defection and which can best ensure better monitoring of customer loyalty, which could in turn have considerable marketing implications. Additionally, the main focus of management attention should be on improving customer satisfaction, which will in turn enhance loyalty. Clear evidence was thus provided indicating that service quality and service recovery robustly affects customer satisfaction more than loyalty. Yet, it is the contention of the present study that managers must ensure they offer superior service quality at the outset, instead of merely preventing dissatisfaction through service recovery.

Moreover, respondents in the present study failed to perceive any differences in term of e-services, service recovery, customer satisfaction, perceived value and loyalty intention as a consequence of ISO 9001 certification. However, this does not necessarily mean that the implementation of a quality-assurance standard has no benefits for the provider. As many authors have attested (Vloegeberghs and Bellens, 1996; Lima et al., 2000; Casadesús and Karapetrovic, 2003; Ruzevicius et al., 2004; Boiral and Roy, 2007; Karapetrovic et al., 2010), other potential benefits include improved efficiency, reduced costs, motivated employees, and so on. None of these potential benefits was included in the present analysis, which focused solely on the perspective of the external customer.

Considering the main objectives of ISO 9001 (ISO, 2008) previously described, loyalty appear not to be incorporated. However in the traditional business it is clearly one of the core benefits of the standard implementation (see for example Vloeberghs and Bellens (1996); Leung et al. (1999); Mathews (2005); Van der Wiele et al. (2005) or Kumar and Antony, 2008). It is interesting to see, how this concept has been introduced in the new quality management standards from the ISO family, such as ISO 10002 which provides a documented guide to the design and implementation of an effective complaints handling process:

...The handling of complaints through a process as described in this International Standard can enhance customer satisfaction. Encouraging customer feedback, including complaints if customers are not satisfied, can offer opportunities to maintain or enhance customer loyalty and approval, and improve domestic and international competitiveness (ISO, 2004)

Therefore, although the study has established that there is no difference between the customer-perceived quality of ISO 9001-certified e-banks and those without such certification (and consequently no effect on e-loyalty), the study is unable to say whether ISO certification provides internal benefits for e-banks (in terms of costs and efficiency for example). However, it is intuitively likely that this is so. Further research is required in this area.

8.4 Limitations

This study has several acknowledge limitations which should be address in the future. For example: Although the findings from the review of literature on E-S-QUAL provide meaningful implications for electronic service providers, there are several acknowledged limitations which should be address in the future. This study was confined only on the scale that evaluates core online service quality. A possible avenue of future research may consider reviewing studies on the second part of the scale, titled E-RecS-QUAL that is germane when customers had nonroutine encounters. Besides, the scopes of the studies reviewed are diverse and different methodological approaches where adopted during the scale reassessment, perhaps justifying why the dimensionality of the scale is unstable across studies. Hence, future research may seek to review and compare the scale for different functional types or specific industry of e-business.

Furthermore, most banking services today are offered through a range of channels such as physical branches, the Internet, landline telephones, ATMs, etc. From the feedback it was observed that customer decision on online banking is very much related to “brick-and-mortar banking”. For example according to Dr. Pilar Marques, it is difficult to separate her perceptions (or decisions) of on-line banking from other components of the service such as traditional banking. Given that online bank customers in such position might miss some reference at least to the degree of importance of on-line service and satisfaction in comparison to the other dimensions of banking services. However, this thesis will agree with Dr. Pilar Marques up to a certain point. For example if my online account is a derivative of a physical bank then she is right. However, if I am just an online banking user then my decision on online banking shouldn't be related to physical or traditional banking. Moreover, the degree of importance of on-line service in this case is measure by the dimension “perceived value” that include some variables like: “the extent to which the site gives you a feeling of being in control” or “the overall value you get from this site for your money and effort”, this give us the degree of importance on online service. Obviously, it is understandable that is difficult for some customer to separate their perceptions or decisions of online banking and other components of the service. Since the quality of the e-service may be enhanced by the quality of the traditional bank associated. Hence, it will be very interesting to re-assess the proposed scales and examined if there is any differences from banks offering only online banking and banks offering both.

The empirical data for this study was confined to one online service industry in one country. In the future, researchers may replicate the study in other settings and to a culturally different country to enhance the scales external validity and reliability. To measure e-service recovery a filtering process with a dichotomous question was applied. Given that this study was exploratory it was necessary to lower variability in order to verify the feasibility and reliability of our model. Further research may categorize non-routine encounters from a single/simple defect (e.g. safety concern) to the most important (e.g. transaction/operation failure) before scale evaluation. Besides, this study investigates loyalty and its antecedents for a specific period in time. Since loyalty is a non-spatial notion, it would be interesting for further research to extend the present Loyalty model to different sectors and with a longitudinal data (time based) that can assist in scrupulously understand customers' behavior and attitude alteration with time.

Moreover, the empirical data for this study was confined to one online service industry in one country. In the future, researchers may replicate the study in other contexts to enhance their external validity and reliability. In addition, perceived value, trust, inertia and attractiveness, etc. have been considered as important mediators in a loyalty model not included in this study (Harris and Goode, 2004; Marimon et al., 2010). A possible avenue of future research may consider an integrated customer loyalty model with multiple antecedents of online satisfaction, such as information quality and system quality, in addition to service quality and multiple mediators to further assess customers' behavior in an electronic commerce context. Moreover, investigating the mediation role of switching costs on the link between customer satisfaction and loyalty could enhance the research model.

The respondent sample showed there was slightly more respondents from the Caixa bank. Obviously, this entity may have different characteristics from other banks analyzed. Furthermore, respondents were a combination of bank customers of small, medium and large size. Evidently, such amalgamation can have a strong influence on the final results of this study. Given that the service offered by a small savings bank may be very different from those of a larger size. Therefore, a possible avenue of future research may replicate this study by considering only one bank for the service quality scale assessment or two banks of the same size for the impact of ISO 9001. Additionally, future research may consider using multi-groups analysis while doing EFA and CFA during the service quality scales assessment. In addition future research may also use multi-groups analysis to test the proposed model and the various sub-models in order to identified different groups of interest.

Furthermore, although there was no bias in the sample towards any given bank in respect to the Spanish bank population, almost twice as many respondents banked with organizations that were not ISO-9001 certified (compared with respondents associated with certified banks). This might explain the non-significant results found in the Mann-Whitney tests. Another limitation was that the study was confined to one online service industry in one country; a replication of the study in other settings would therefore be desirable. Finally, additional research is required to explore reasons for the lack of perceived differences between the ISO-certified service providers and those that were not certified. Research is also required to ascertain whether there are real internal benefits from ISO9001 certification for e-service providers.

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10 APPENDICES

10.1 Appendix 1: Survey Instrument in English, Spanish and Catalan

Survey, online banking in Spain

We are from the University of Gerona, carrying out a research project concerning online Banking or e-Banking. Your opinion will be very important and helpful to us, in the sense that it would help to enhance the validity and reliability of the research. Please be assuring that the survey data are only for academic research and will not be used for any other purpose. Thank you very much for your kindly cooperation.

This survey will take only few minutes

SECTION 1

Please read the subsequent questions and carefully tick the options that you deem correct and right.

Do you live in Spain?

Yes

No

If you choose "No", please go to page footer on page 6 (ZZZ...)

If "Yes", please do you have a Bank account in Spain?

Yes

No

If you choose "No", please go to page footer on page 6 (ZZZ...)

If "Yes", please do you use the internet to do your banking?

Yes

No

If you choose "No", please go to page footer on page 6 (ZZZ...)

If "Yes", please select from the list only one option.

The Bank you used on a regular basis to do your internet banking.

Banco Santander

BBVA

Banco Sabadell

Banesto

La Caixa

Caixa Catalunya

Ing Direct

Caixa Girona

Caixa Manlleu

Caixa Penedès

Caixa Sabadell

Caixa Terrassa

Caixa Tarragona

Uno-e

Caixa Laietana

Caixa Manresa

Bancaja

Bankpyme

Open Bank

Other

From today when was the last time you did internet banking?

Please select from the list only one option.

Less than 1 week over 3-6 months

over 1 week-1month over 6-12 months

over1-3months 12 months & over

GenderMale Female **How old are you?****Please select your age group**

under 16 45-54
 17-24 55-64
 25-34 65 and above
 35-44

Top education level**Please select from the list only one option.**

High school and below Master Degree and above
 College or institute diploma Other
 University degree

Please what is your annual income?**Please select from the list only one option.**

Less than 12000 35001-50000
 12001-24000 50001 and above
 24001-35000

SECTION 2

The following set of statements relate to what you had experienced with your Bank web site's performance during your online banking or e-banking. For each statement please show the degree in which you believed your Bank has the feature describe on a scale from 1 to 5. (1= you strongly disagree and 5 = you strongly agree. You may possibly select any numbers between, which best describe what you have experienced. The higher is the number the more you agree)

EFFICIENCY**It is easy to find what I need on my bank X web site.**

1 2 3 4 5
 Strongly disagree Strongly agree

It is easy to get anywhere on my bank X site.

1 2 3 4 5
 Strongly disagree Strongly agree

My bank X enables me to complete a transaction quickly.

1 2 3 4 5
 Strongly disagree Strongly agree

Information at this site is well organized.

1 2 3 4 5

Strongly disagree Strongly agree

My bank X site loads its pages faster.

1 2 3 4 5

Strongly disagree Strongly agree

This site is simple to use.

1 2 3 4 5

Strongly disagree Strongly agree

This site enables me to get on to it quickly.

1 2 3 4 5

Strongly disagree Strongly agree

This site is well organized.

1 2 3 4 5

Strongly disagree Strongly agree

SYSTEM AVAILABILITY

This site is always available for business.

1 2 3 4 5

Strongly disagree Strongly agree

This site launches and runs right away.

1 2 3 4 5

Strongly disagree Strongly agree

This site does not crash.

1 2 3 4 5

Strongly disagree Strongly agree

Pages at my bank X site does not freeze after I enter my order information.

1 2 3 4 5

Strongly disagree Strongly agree

FULFILMENT

It performs orders when promised.

1 2 3 4 5

Strongly disagree Strongly agree

It quickly delivers what I order.

1 2 3 4 5

Strongly disagree Strongly agree

It is truthful about its offerings.

1 2 3 4 5

Strongly disagree Strongly agree

It makes accurate promises about performance of online banking.

1 2 3 4 5

Strongly disagree Strongly agree

PRIVACY

My bank web site protect information about my online banking behaviour.

1 2 3 4 5

Strongly disagree Strongly agree

It does not share my personal information with other sites.

1 2 3 4 5

Strongly disagree Strongly agree

My bank X protects information about my credit and debit cards.

1 2 3 4 5

Strongly disagree Strongly agree

E-SATISFACTION

I am generally pleased with Bank X's online services.

1 2 3 4 5

Strongly disagree Strongly agree

The web site of this online bank X is enjoyable.

1 2 3 4 5

Strongly disagree Strongly agree

I am very satisfied with this bank X's online services.

1 2 3 4 5

Strongly disagree Strongly agree

I am happy with this online bank X.

1 2 3 4 5

Strongly disagree Strongly agree

PERCEIVED VALUE

The prices of the services available at this site (how economical the site is).

1 2 3 4 5

Strongly disagree Strongly agree

The overall convenience of using this site.

1 2 3 4 5

Strongly disagree Strongly agree

The extent to which the site gives you a feeling of being in control.

1 2 3 4 5

Strongly disagree Strongly agree

The overall value you get from this site for your money and effort.

1 2 3 4 5

Strongly disagree Strongly agree

LOYALTY INTENSIONS

How likely are you to

Say positive things about this online banking site to other people?

1 2 3 4 5

Strongly disagree Strongly agree

Recommend this online banking site to someone who seeks your advice?

1 2 3 4 5

Strongly disagree Strongly agree

Encourage friends and others to do business with this site?

1 2 3 4 5

Strongly disagree Strongly agree

Consider this online banking site to be your first choice for future transactions?

1 2 3 4 5

Strongly disagree Strongly agree

Do more business with this site in the coming months?

1 2 3 4 5

Strongly disagree Strongly agree

SECTION 3

Did you ever experienced any problem or needed help on your Bank X side while doing your online banking?

Yes

No

If you choose "No", please go to page footer on page 6 (ZZZ...)

Please only fill the following if you ticked "Yes" on the previous question.

RESPONSIVENESS

This site offers a meaningful guarantee.

1 2 3 4 5

Strongly disagree Strongly agree

It tells me what to do if my transaction is not processed.

1 2 3 4 5

Strongly disagree Strongly agree

It takes care of problems promptly.

1 2 3 4 5

Strongly disagree Strongly agree

It is easy to get in contact with this online company.

1 2 3 4 5

Strongly disagree Strongly agree

This online company is interested in feedback.

1 2 3 4 5

Strongly disagree Strongly agree

The online company quickly replies to requests.

1 2 3 4 5

Strongly disagree Strongly agree

COMPENSATION

This site compensates me for problems it creates.

1 2 3 4 5

Strongly disagree Strongly agree

CONTACT

This site provides a telephone number to reach the company.

1 2 3 4 5

Strongly disagree Strongly agree

This site has customer service representatives available online.

1 2 3 4 5

Strongly disagree Strongly agree

It offers the ability to speak to a live person if there is a problem.

1 2 3 4 5

Strongly disagree Strongly agree

(ZZZ...) YOU JUST COMPLETED THE SURVEY AND THANK YOU VERY MUCH FOR YOUR KINDLY COOPERATION.

Enquesta, la banca en línia a Catalunya

Som un grup de professors de la Universitat de Girona que estem portant a terme un projecte d'investigació per tal d'analitzar el servei ofert per la banca **Internet o online**. En aquest marc, ens dirigim a vostè per a recaptar la seva opinió sobre la qualitat del servei rebut. Les dades de l'enquesta s'utilitzaran exclusivament per a aquesta investigació acadèmica i no seran utilitzades per a cap altre propòsit. Li agraïm sincerament la seva amable cooperació.

Emplenar l'enquesta li costarà només uns minuts.

SECCIÓ 1

Per favor, llegeixi les preguntes següents i marqui l'opció que consideri correcta i adequada.

Vostè viu a Catalunya?

Sí

No

Si escolliu "No", vagi al peu de pàgina de la pàgina 6 (ZZZ...)

Té vostè un compte bancari a Catalunya?

Sí

No

Si escolliu "No", vagi al peu de pàgina de la pàgina 6 (ZZZ...)

En cas afirmatiu, utilitza Internet per a realitzar les seves operacions bancàries?

Sí

No

Si escolliu "No", vagi al peu de pàgina de la pàgina 6 (ZZZ...)

En cas afirmatiu, podria indicar-nos el banc que utilitza de manera regular per les seves operacions bancàries a través d'Internet (per favor seleccioni només una de les opcions de la llista que li oferim a continuació)

Banco Santander
 BBVA
 Banco Sabadell
 Banesto
 La Caixa
 Caixa Catalunya
 Ing Direct

Caixa Girona
 Caixa Manlleu
 Caixa Penedès
 Caixa Sabadell
 Caixa Terrassa
 Caixa Tarragona
 Uno-e

Caixa Laietana
 Caixa Manresa
 Bancaja
 Bankpyme
 Open Bank
 Altres

Quan va ser l'última vegada que va utilitzar un servei de banca per Internet?

Per favor, seleccioni només una opció de la llista

menys d'1 setmana entre 3-6 mesos
 entre 1 setmana -1 mes entre 6-12 mesos
 entre 1 mes -3 mesos més de 12 mesos

Gènere

Home Dona

Ens pot indicar quina és la seva edat?

Per favor, seleccioni el seu grup d'edat

- menor de 16 45-54
 17-24 55-64
 25-34 65 o més
 35-44

Formació acadèmica.

Per favor, seleccioni una opció de la llista

- Estudi elementals Màster i superior
 Cicles Formatius Altres
 Llicenciatura

Quin és el seu ingrés brut anual en euros (€)?

Per favor, seleccioni una opció de la llista

- inferior a 12.000 35.001-50.000
 12.001-24.000 més de 50.001
 24.001-35.000

SECCIÓ 2

El següent grup de preguntes avalua la seva experiència en l'ús i el correcte funcionament de la pàgina web del seu Banc durant les seves operacions bancàries en línia. Per a cada enunciat, indiqui en una escala d'1 a 5 el nivell d'acord amb la proposició. (1 = està fortament en desacord i 5 = està molt d'acord. Triï el número que millor descriu el que ha experimentat)

EFICIÈNCIA

És fàcil trobar el que necessito en la pàgina web del Banc X.

1 2 3 4 5
 fortament en desacord molt d'acord

És fàcil accedir a qualsevol secció de la pàgina web del Banc X.

1 2 3 4 5
 fortament en desacord molt d'acord

La web del banc X em permet completar una transacció amb rapidesa.

1 2 3 4 5
 fortament en desacord molt d'acord

La informació en aquesta pàgina web està ben organitzada.

1 2 3 4 5
 fortament en desacord molt d'acord

Es descarreguen les pàgines ràpidament.

1 2 3 4 5

fortament en desacord molt d' acord

Aquesta pàgina web és senzilla d'usar.

1 2 3 4 5

fortament en desacord molt d' acord

Aquesta pàgina web em permet arribar a ella ràpidament.

1 2 3 4 5

fortament en desacord molt d' acord

Aquesta pàgina web està ben organitzada.

1 2 3 4 5

fortament en desacord molt d' acord

DISPONIBILITAT DEL SISTEMA

Aquesta pàgina web està sempre disponible per a realitzar operacions.

1 2 3 4 5

fortament en desacord molt d' acord

Aquesta pàgina web s'executa immediatament.

1 2 3 4 5

fortament en desacord molt d' acord

Aquest pàgina web no es penja.

1 2 3 4 5

fortament en desacord molt d' acord

Les pàgines no es bloquegen /congelen després d'entrar la meva sol·licitud.

1 2 3 4 5

fortament en desacord molt d' acord

FIABILITAT

Realitza les operacions en el termini promès.

1 2 3 4 5

fortament en desacord molt d' acord

Realitza el que demano ràpidament.

1 2 3 4 5

fortament en desacord molt d' acord

És veraç en les seves ofertes.

1 2 3 4 5

fortament en desacord molt d' acord

Fa promeses acurades sobre els serveis oferts.

1 2 3 4 5

fortament en desacord molt d' acord

PRIVACITAT

La pàgina web del Banc protegeix la informació sobre el meu comportament com usuari de banca en línia.

1 2 3 4 5

fortament en desacord molt d' acord

No comparteix la meva informació personal amb d'altres pàgines web.

1 2 3 4 5

fortament en desacord molt d' acord

El Banc X protegeix la informació del meu crèdit i dèbit.

1 2 3 4 5

fortament en desacord molt d' acord

E-SATISFACCIÓ

En general estic satisfet amb els serveis en línia del Banc X.

1 2 3 4 5

fortament en desacord molt d' acord

La pàgina web del meu banc X en línia és agradable.

1 2 3 4 5

fortament en desacord molt d' acord

Estic molt satisfet amb els serveis en línia d'aquest banc X

1 2 3 4 5

fortament en desacord molt d' acord

Estic content amb aquest banc X en línia.

1 2 3 4 5

fortament en desacord molt d' acord

VALOR PERCEBUT

Els preus dels serveis disponibles en aquest lloc (l'aspecte econòmic d'aquesta pàgina web).

1 2 3 4 5

fortament en desacord molt d' acord

La conveniència general d'ús d'aquest lloc.

1 2 3 4 5

fortament en desacord molt d' acord

Fins a quin punt el lloc web li dóna una sensació de tenir-ho tot sota control.

1 2 3 4 5

fortament en desacord molt d' acord

Valoració global de l'ús de la pàgina web pel preu i esforç dedicats.

1 2 3 4 5

fortament en desacord molt d' acord

LES INTENCIONS DE FIDELITAT

Quines possibilitats hi ha de que vostè . . .

Parli positivament sobre aquesta pàgina web de banca en línia a altres persones?

1 2 3 4 5

fortament en desacord molt d' acord

Recomani aquest lloc de banca en línia a algú que li demana el seu consell?

1 2 3 4 5

fortament en desacord molt d' acord

Encoratgi als seus amics a fer negocis en aquesta pàgina web?

1 2 3 4 5

fortament en desacord molt d' acord

Consideri aquest lloc de banca en línia perquè segueixi essent la seva primera elecció per a les transaccions de futur?

1 2 3 4 5

fortament en desacord molt d' acord

Incrementar l'activitat amb aquest lloc de banca en línia en els pròxims mesos?

1 2 3 4 5

fortament en desacord molt d' acord

SECCIÓ 3

Ha experimentat alguna vegada algun problema o necessita ajuda en realitzar les seves operacions bancàries en línia per part del seu Banc X?

Sí

No

Si escolliu "No", vagi al peu de pàgina de la pàgina 6 (ZZZ...)

Per favor, contesti la resta del qüestionari només si ha contestat "Sí" en la pregunta anterior

CAPACITAT DE RESPOSTA

En cas de problemes, aquesta pàgina web ofereix garanties significatives.

1 2 3 4 5

fortament en desacord molt d' acord

Aquesta pàgina web em diu què he de fer si la meva transacció no és processada.

1 2 3 4 5

fortament en desacord molt d' acord

Aquesta pàgina web s'ocupa dels problemes amb rapidesa.

1 2 3 4 5

fortament en desacord molt d' acord

És fàcil posar-se en contacte amb aquesta empresa en línia

1 2 3 4 5

fortament en desacord molt d' acord

Aquesta empresa està interessada en obtenir feedbacks

1 2 3 4 5

fortament en desacord molt d' acord

L'empresa dóna respostes ràpidament a les sol·licituds

1 2 3 4 5

fortament en desacord molt d' acord

COMPENSACIÓ

Aquest lloc em dóna compensacions pels problemes que em crea.

1 2 3 4 5

fortament en desacord molt d' acord

CONTACTE

Aquesta pàgina web proporciona un número de telèfon de contacte de l'empresa.

1 2 3 4 5

fortament en desacord molt d' acord

Aquesta pàgina web té persones responsables d'atenció al client disponibles online.

1 2 3 4 5

fortament en desacord molt d' acord

Aquesta pàgina web permet parlar amb una persona si hi ha qualsevol problema.

1 2 3 4 5

fortament en desacord molt d' acord

(ZZZ...) JA HA ACABAT L'ENQUESTA LI AGRAÏM SINCERAMENT LA SEVA AMABLE COOPERACIÓ.

Encuesta, la banca en línea en Cataluña

Somos un grupo de profesores de la Universidad de Girona que estamos llevando a cabo un proyecto de investigación para analizar el servicio ofrecido por la banca Internet o online. En este marco, nos dirigimos a usted para recabar su opinión sobre la calidad del servicio recibido. Los datos de la encuesta se utilizarán exclusivamente para dicha investigación académica y no serán utilizados para ningún otro propósito. Le agradecemos sinceramente su amable cooperación.

Rellenar la encuesta le llevará solo unos minutos.

SECCIÓN 1

Por favor, lea las preguntas siguientes y marque la opción que considere correcta y adecuada.

¿Usted vive en Cataluña?

Sí

No

Si usted elige "No",
vaya al pie de página
de la página 6 (ZZZ...)

¿Tiene usted una cuenta bancaria en el Cataluña?

Sí

No

Si usted elige "No",
vaya al pie de página de
la página 6 (ZZZ...)

En caso afirmativo, ¿utiliza Internet para realizar sus operaciones bancarias?

Sí

No

Si usted elige "No",
vaya al pie de página de
la página 6 (ZZZ...)

En caso afirmativo, ¿podría indicarnos el Banco que utiliza de manera regular para sus operaciones bancarias por Internet? (Por favor, seleccione solo una de las opciones de la lista que le ofrecemos a continuación.)

Banco Santander

BBVA

Banco Sabadell

Banesto

La Caixa

Caixa Catalunya

Ing Direct

Caixa Girona

Caixa Manlleu

Caixa Penedès

Caixa Sabadell

Caixa Terrassa

Caixa Tarragona

Uno-e

Caixa Laietana

Caixa Manresa

Bancaja

Bankpyme

Open Bank

Otros

¿Cuándo fue la última vez que utilizó un servicio de banca por Internet? (seleccione solo una de las opciones)

- | | |
|--|--|
| Menos de 1 semana <input type="radio"/> | entre 3 y 6 meses <input type="radio"/> |
| entre 1 semana y 1 mes <input type="radio"/> | entre 6 y 12 meses <input type="radio"/> |
| entre 1 mes y 3 meses <input type="radio"/> | más de 12 meses <input type="radio"/> |

Se descargan las páginas rápidamente.

1 2 3 4 5
fuertemente en desacuerdo muy de acuerdo

Esta página Web es sencilla de usar.

1 2 3 4 5
fuertemente en desacuerdo muy de acuerdo

Esta página Web me permite llegar a ella rápidamente.

1 2 3 4 5
fuertemente en desacuerdo muy de acuerdo

Esta página Web está bien organizada.

1 2 3 4 5
fuertemente en desacuerdo muy de acuerdo

DISPONIBILIDAD DEL SISTEMA

Esta página Web está siempre disponible para realizar operaciones.

1 2 3 4 5
fuertemente en desacuerdo muy de acuerdo

Esta página Web se ejecuta de inmediato.

1 2 3 4 5
fuertemente en desacuerdo muy de acuerdo

Esta página Web no se cuelga.

1 2 3 4 5
fuertemente en desacuerdo muy de acuerdo

Las páginas no se bloquean/congelan después de entrar mi solicitud.

1 2 3 4 5
fuertemente en desacuerdo muy de acuerdo

FIABILIDAD

Realiza las operaciones cuando prometió.

1 2 3 4 5
fuertemente en desacuerdo muy de acuerdo

Realiza lo que pido rápidamente.

1 2 3 4 5
fuertemente en desacuerdo muy de acuerdo

Es veraz en sus ofertas.

1 2 3 4 5
fuertemente en desacuerdo muy de acuerdo

Le hace promesas precisas sobre los servicios ofrecidos.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

PRIVACIDAD

La página Web del Banco X protege la información acerca de mi comportamiento como usuario de banca online.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

No comparte mi información personal con otras páginas Web.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

Mi Banco X protege la información de mi crédito y débito.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

E-SATISFACCIÓN

En general estoy satisfecho con los servicios online del Banco X.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

La página Web de mi banco X online es agradable.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

Estoy muy satisfecho con los servicios online de este banco X.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

Estoy contento con este banco X online.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

VALOR PERCIBIDO

Los precios de los servicios disponibles en este sitio (lo económico que el sitio es).

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

La conveniencia general de uso de este sitio.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

Hasta qué punto el sitio le da una sensación de estar bajo control.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

Valoración global del uso de la página Web por el precio y esfuerzo dedicados.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

LAS INTENCIONES DE FIDELIDAD

¿Qué posibilidades hay de que usted. . .

Diga cosas positivas acerca de esta página Web de banca online a otras personas?

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

Recomiende este sitio de banca online a alguien que le pida su consejo?

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

Aliente a sus amigos para hacer negocios en esta página Web?

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

Considere este sitio de banca online para ser su primera elección para las transacciones de futuro?

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo


Hacer más negocios con este sitio en los próximos meses?

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

SECCIÓN 3

¿Ha experimentado alguna vez algún problema o necesita ayuda al realizar sus operaciones bancarias en línea por parte de su Banco X?

Sí No  Si usted elige "No", vaya al pie de página de la página 6 (ZZZ...)

Por favor, conteste el resto del cuestionario solo si marcó "Sí" en la pregunta anterior.

CAPACIDAD DE RESPUESTA

En caso de problemas, esta página Web ofrece garantías significativas.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

Esta página Web me dice qué hacer si mi transacción no se procesa.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

Esta página Web se ocupa de los problemas con prontitud.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

Es fácil ponerse en contacto con esta empresa en línea.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

Esta empresa está interesada en obtener *feedback*.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

La empresa da respuestas rápidamente a las solicitudes.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

COMPENSACIONES

Este sitio Web me recompensa los problemas que crea.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

CONTACTO

Esta página Web proporciona un número de teléfono de contacto.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

Esta página Web tiene personas responsables del servicio de atención al cliente disponible online.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

Esta página Web ofrece la posibilidad de hablar con una persona si hay cualquier problema.

1 2 3 4 5

fuertemente en desacuerdo muy de acuerdo

(ZZZ...) JA HA TERMINADO LA ENCUESTA LE AGRADECEMOS SINCERAMENTE SU AMABLE COOPERACIÓN.

10.2 Appendix 2: Summary of all the scales used

E-service quality factors (Adapted from Parasuraman et al., 2005)

Efficiency	
EFF1	It is easy to find what I need on my bank X web site
EFF2	It is easy to get anywhere on my bank X site
EFF3	My bank X enables me to complete a transaction quickly
EFF4	Information at this site is well organized.
EFF5	My bank X site loads its pages faster
EFF6	This site is simple to use.
EFF7	This site enables me to get on to it quickly.
EFF8	This site is well organized.
System Availability	
SAV1	This site is always available for business.
SAV2	This site launches and runs right away
SAV3	This site does not crash.
SAV4	Pages at my bank X site does not freeze after I enter my order information
Fulfilment	
FUL1	It performs orders when promised.
FUL2	It quickly delivers what I order.
FUL3	It is truthful about its offerings.
FUL4	It makes accurate promises about performance of online banking.
Privacy	
PRI1	My bank web site protect information about my online banking behaviour
PRI2	It does not share my personal information with other sites.
PRI3	My bank X site protects information about my credit and debit cards

Loyalty intention and e-satisfaction factors

Loyalty Intentions (Adapted from Parasuraman et al., 2005)	
LOY1	Say positive things about this online banking site to other people.
LOY2	Recommend this online banking site to someone who seeks your advice.
LOY3	Encourage friends and others to do business with this site.
LOY4	Consider this online banking site to be your first choice for future transactions.
LOY5	Do more business with this site in the coming months.
E-satisfaction (Adapted from Ribbink et al., 2004)	
ESA1	I am generally pleased with Bank X's online services.
ESA2	The web site of this online bank X is enjoyable.
ESA3	I am very satisfied with this bank X's online services.
ESA4	I am happy with this online bank X.

ISO 9001, questionnaire summary

Is your bank certified ISO 9001 with the scope directly related to customers
Not yet certified but already engaged on the implementation process of ISO 9001
Certified or implementing any other Quality Management Standards with the scope related to customers
No, no intention to implement ISO 9001

10.3 Appendix 3: Printout of online survey

Enquesta / Encuesta / Survey

La banca en línia a Espanya / La banca en línea en España / Online banking in Spain
* Required

Idioma / Language *
Si us plau seleccioneu l'idioma/Por favor seleccione su idioma/Please choose your language

- Català
- Español
- English

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Enquesta / Encuesta / Survey

* Required

Survey, online banking in Spain
We are from the University of Girona, carrying out a research project concerning online Banking or e-Banking. Your opinion will be very important and helpful to us, in the sense that it would help to enhance the validity and reliability of the research. Please be assuring that the survey data are only for academic research and will not be used for any other purpose. Thank you for your kindly cooperation.

Section 1
Please read the subsequent questions and carefully tick the options that you deem correct and right.

Do you live in Spain? *

- Yes
- No

Enquesta / Encuesta / Survey - Mozilla Firefox

Fitxer Edita Visualitza Historial Adreces d'interès Eines Ajuda

7-2... oliver, r.l., 1... 16 Yen, Che... 2007-11-01J... The Design a... 2010_global... Enquesta ... x quantitative ... W Computer-as... customer de... + -

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Enquesta / Encuesta / Survey

* Required

Do you have a Bank account in Spain? *

Yes

No

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* Required

Do you use the internet to do your banking? *

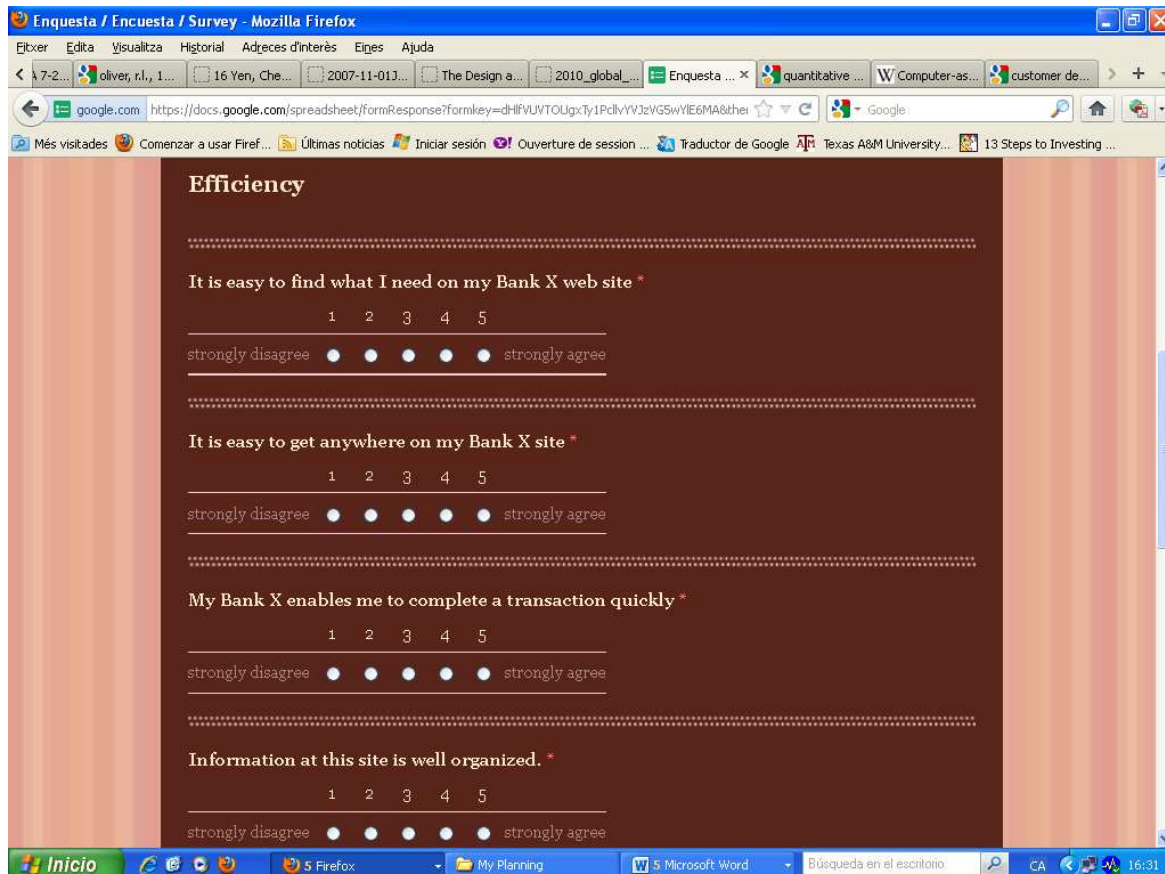
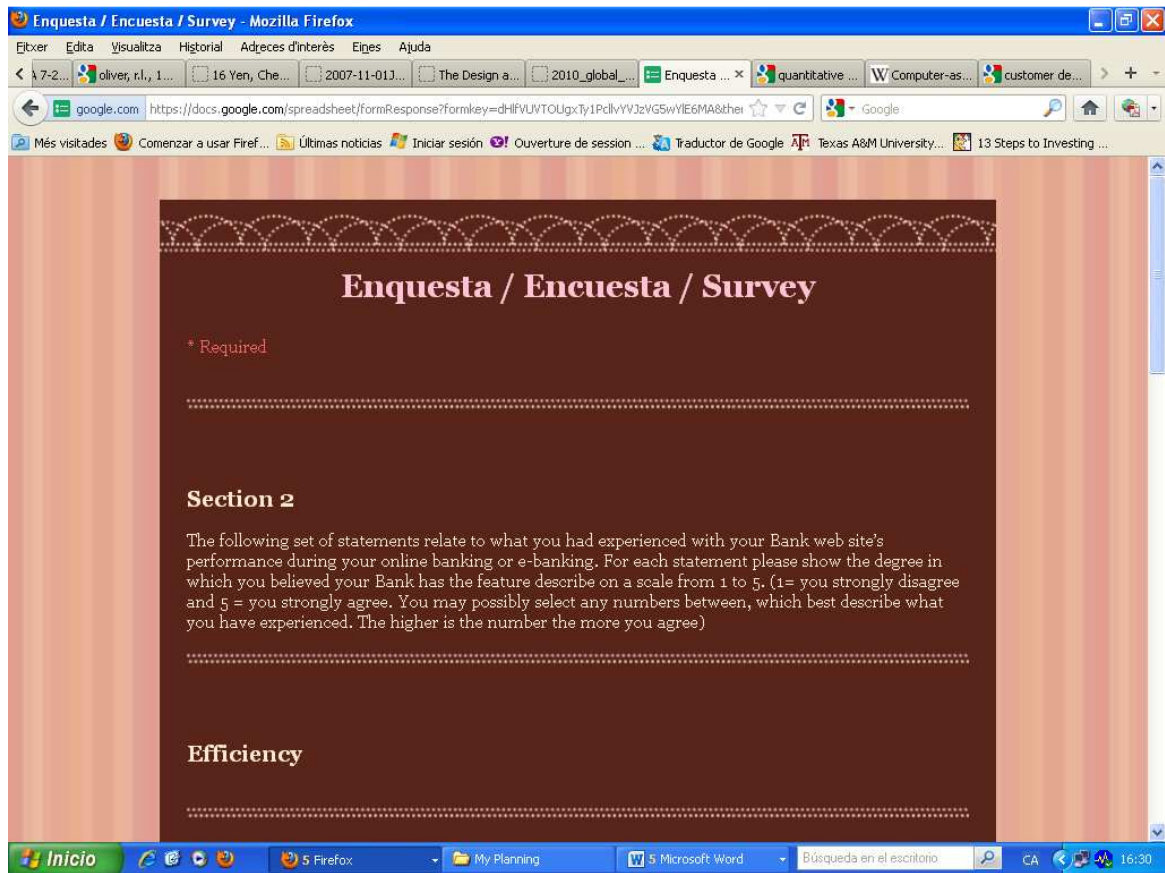
Yes

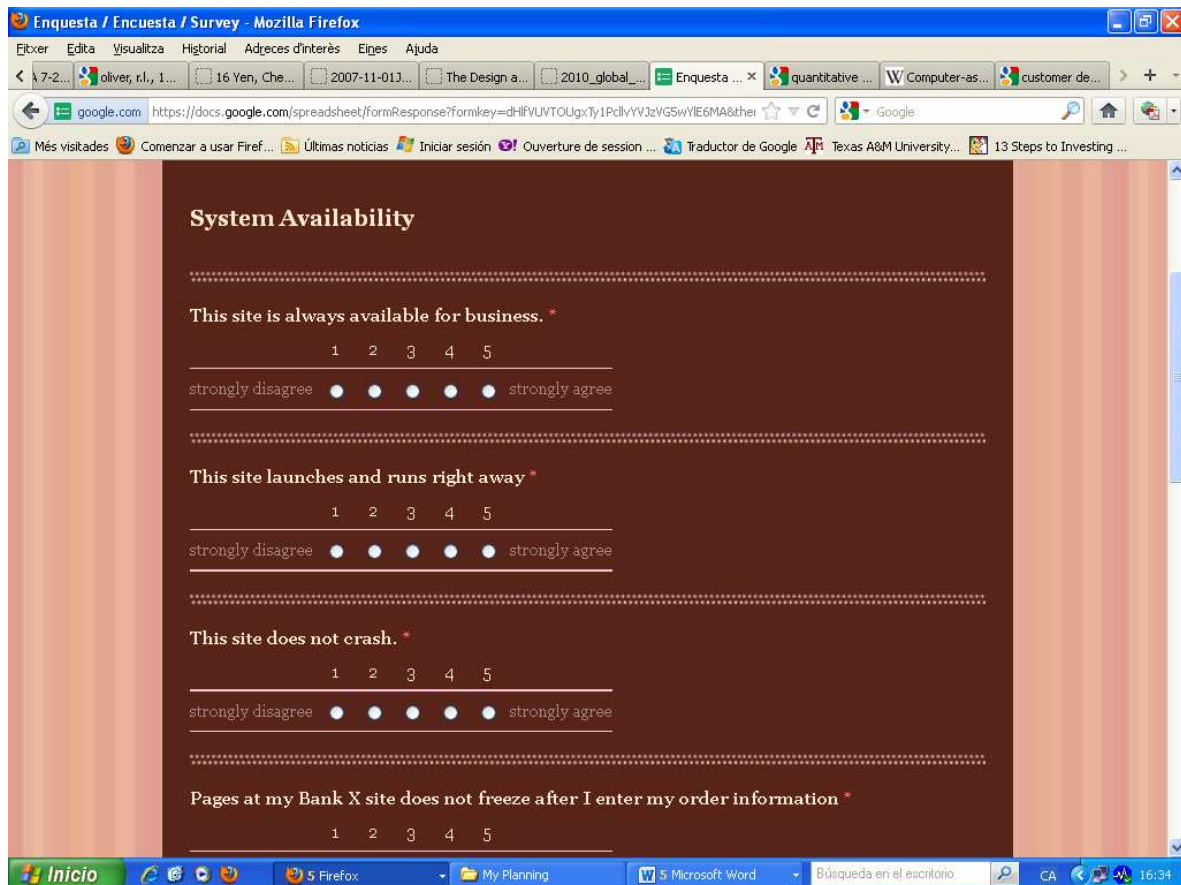
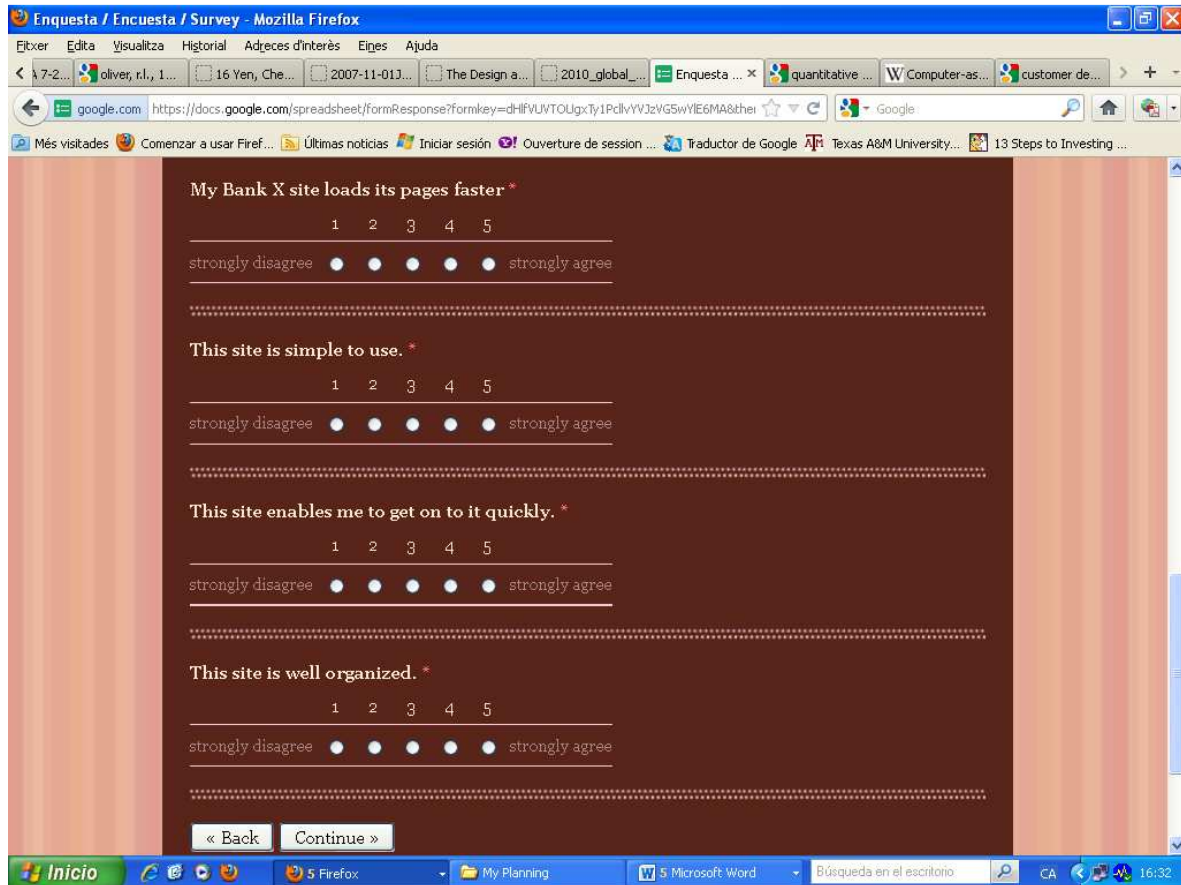
No

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Enquesta / Encuesta / Survey - Mozilla Firefox

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Fulfilment

It performs orders when promised *

1 2 3 4 5

strongly disagree strongly agree

It quickly delivers what I order. *

1 2 3 4 5

strongly disagree strongly agree

It is truthful about its offerings. *

1 2 3 4 5

strongly disagree strongly agree

It makes accurate promises about performance of online banking. *

1 2 3 4 5

strongly disagree strongly agree

Inicio 5 Firefox My Planning 5 Microsoft Word Búsqueda en el escritorio CA 16:34

Enquesta / Encuesta / Survey - Mozilla Firefox

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System Availability

This site is always available for business. *

1 2 3 4 5

strongly disagree strongly agree

This site launches and runs right away *

1 2 3 4 5

strongly disagree strongly agree

This site does not crash. *

1 2 3 4 5

strongly disagree strongly agree

Pages at my Bank X site does not freeze after I enter my order information *

1 2 3 4 5

strongly disagree strongly agree

Inicio 5 Firefox My Planning 5 Microsoft Word Búsqueda en el escritorio CA 16:35

Enquesta / Encuesta / Survey - Mozilla Firefox

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Privacy

My Bank X web site protect information about my online banking behaviour *

1 2 3 4 5

strongly disagree strongly agree

It does not share my personal information with other sites. *

1 2 3 4 5

strongly disagree strongly agree

My bank X protects information about my credit and debit cards *

1 2 3 4 5

strongly disagree strongly agree

E-satisfaction

Inicio 5 Firefox My Planning 5 Microsoft Word Búsqueda en el escritorio CA 16:36

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E-satisfaction

I am generally pleased with Bank X's online services *

1 2 3 4 5

strongly disagree strongly agree

The web site of this online Bank X is enjoyable *

1 2 3 4 5

strongly disagree strongly agree

I am very satisfied with this Bank X's online services *

1 2 3 4 5

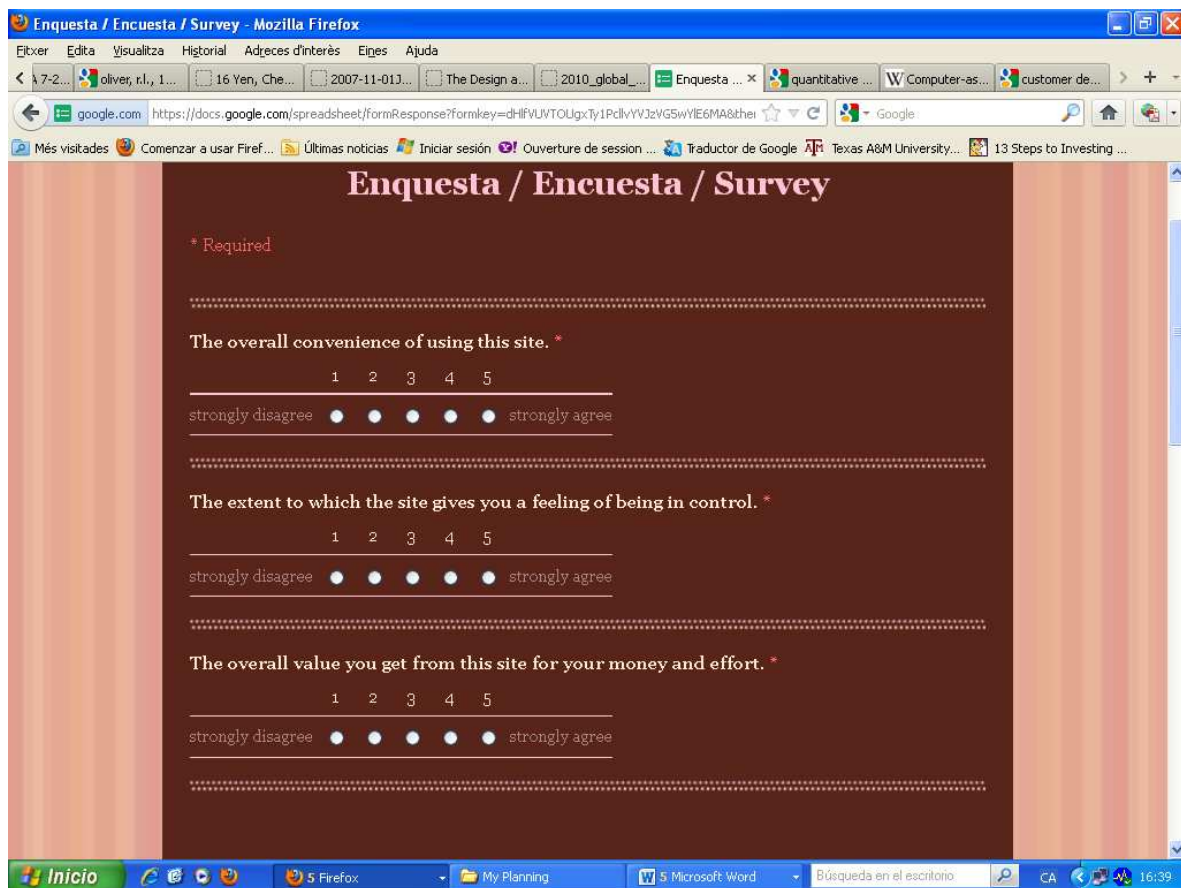
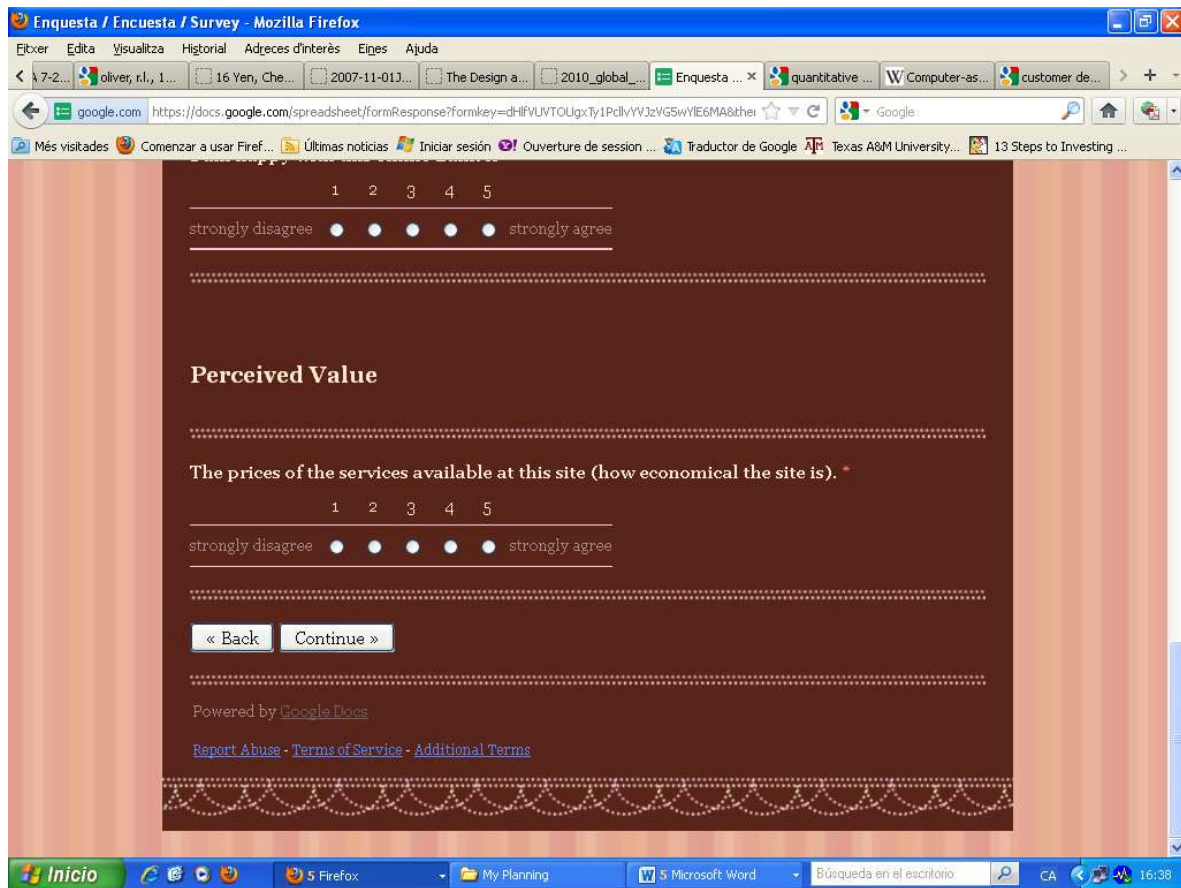
strongly disagree strongly agree

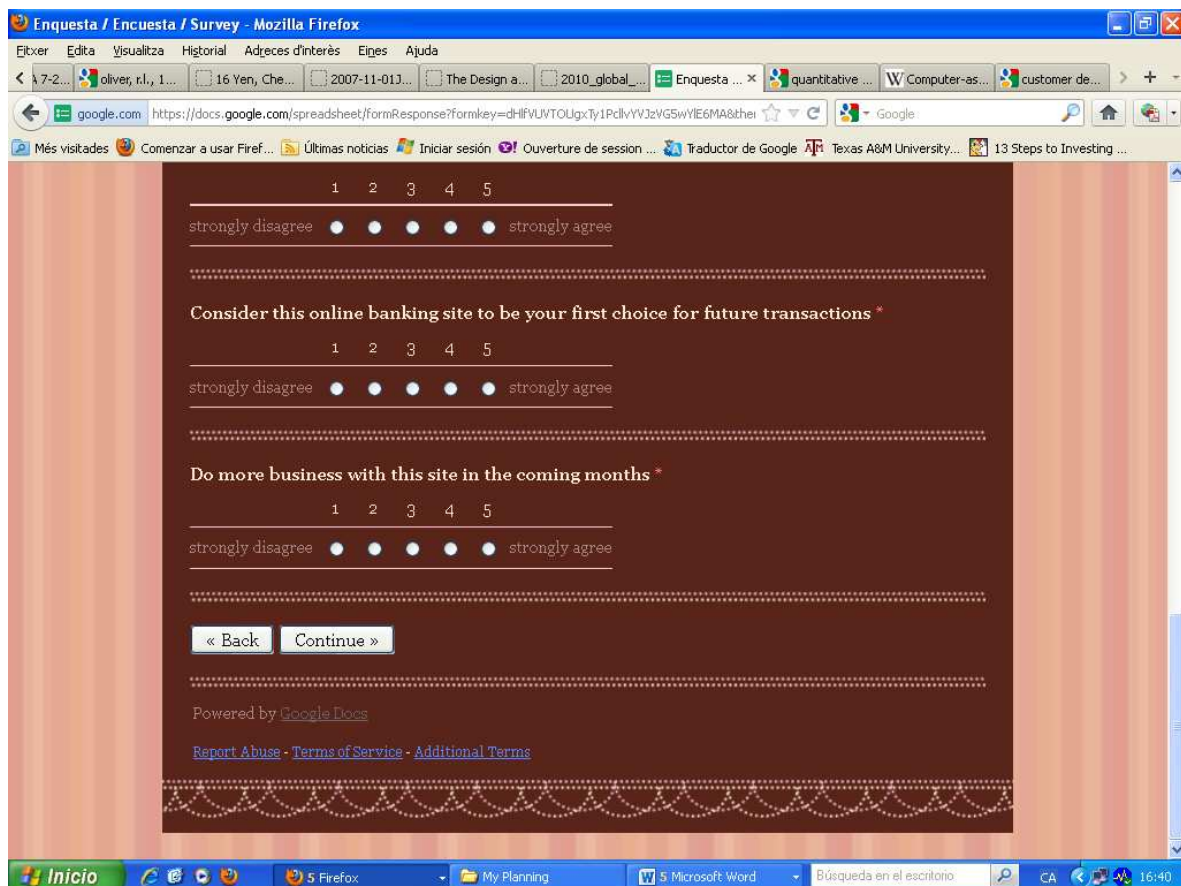
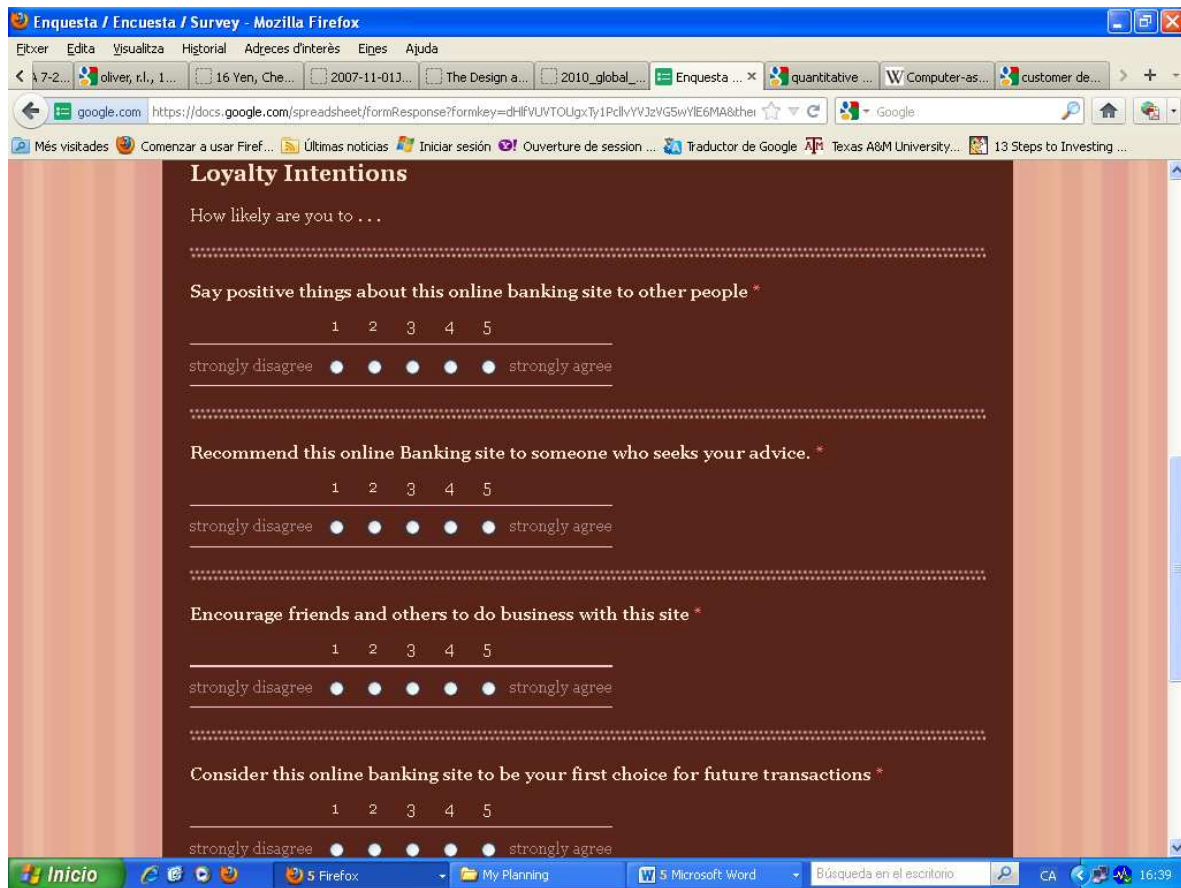
I am happy with this online Bank X *

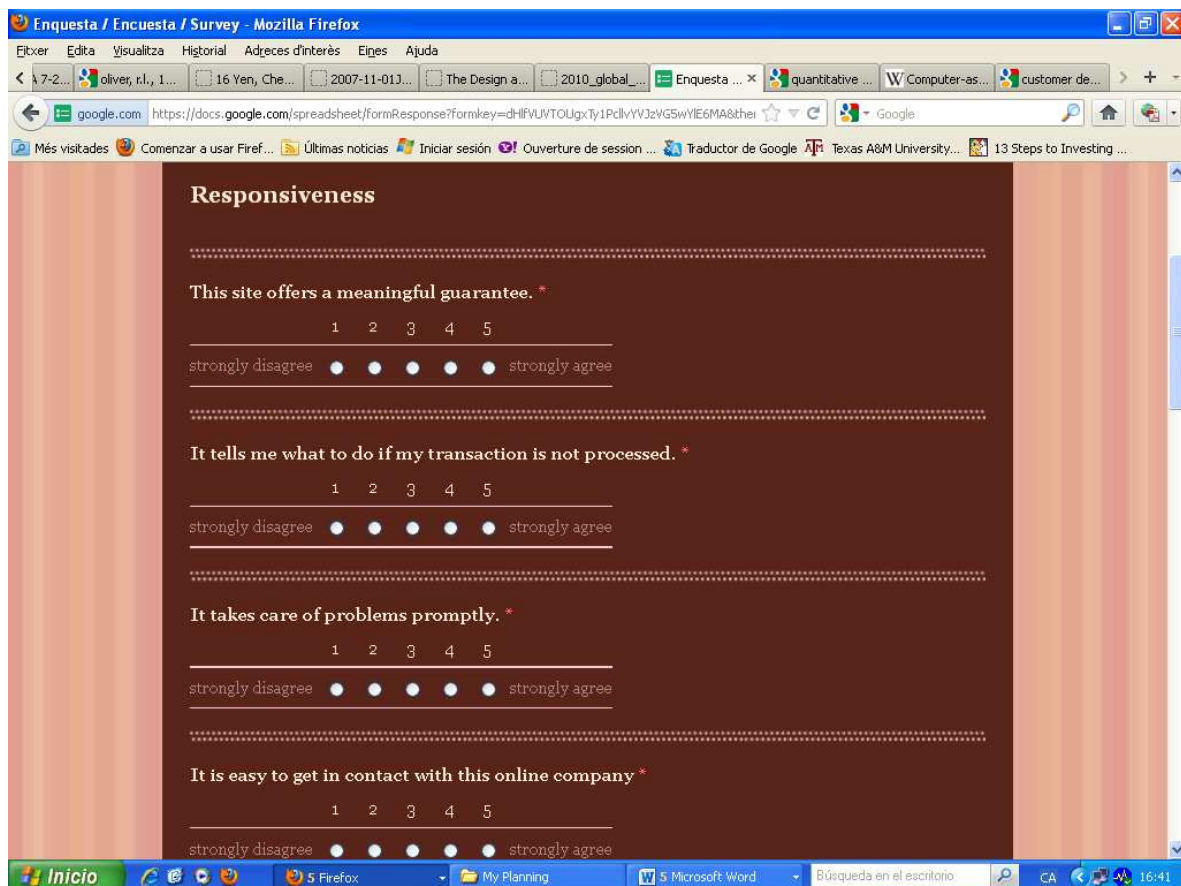
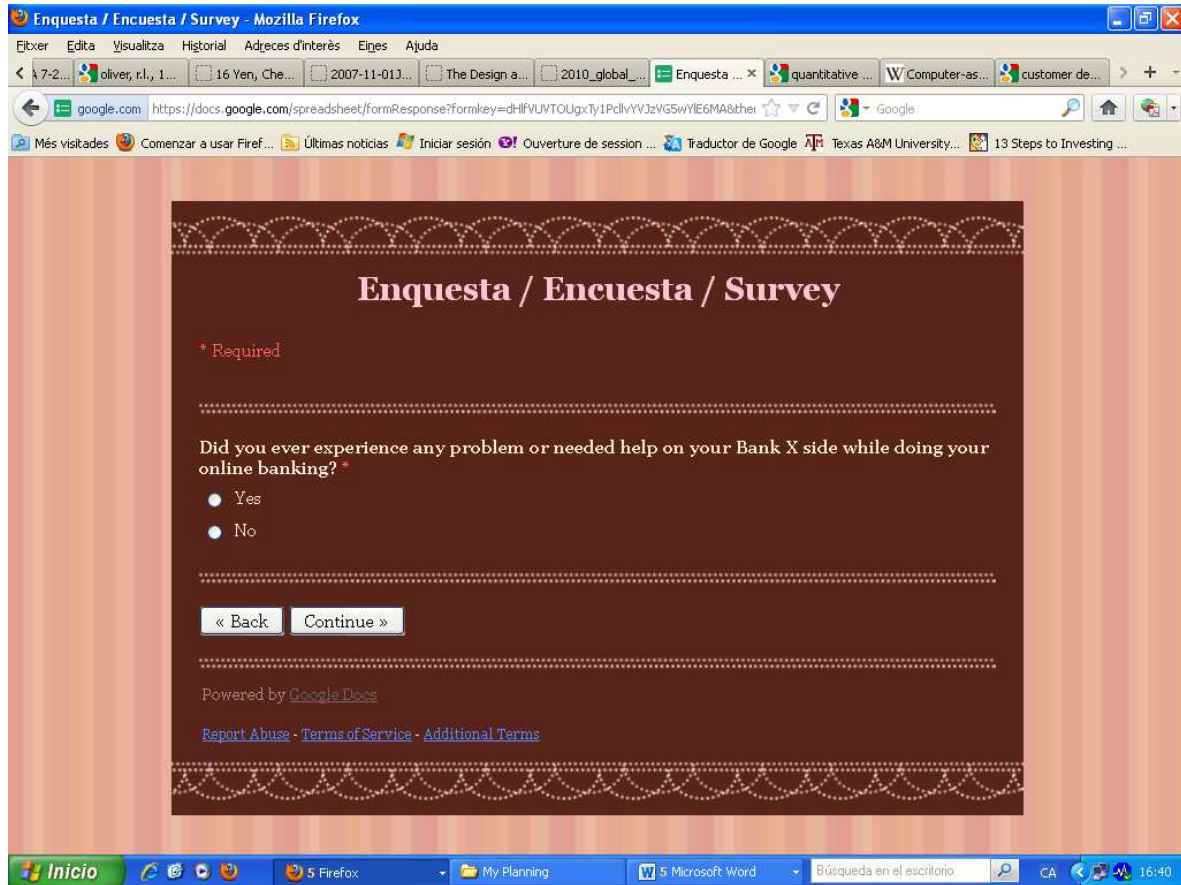
1 2 3 4 5

strongly disagree strongly agree

Inicio 5 Firefox My Planning 5 Microsoft Word Búsqueda en el escritorio CA 16:37







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This online company is interested in feedback *

1 2 3 4 5

strongly disagree strongly agree

The online company quickly replies to requests *

1 2 3 4 5

strongly disagree strongly agree

Compensation

This site compensates me for problems it creates. *

1 2 3 4 5

strongly disagree strongly agree

Inicio 5 Firefox My Planning 5 Microsoft Word Búsqueda en el escritorio CA 16:41

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Contact

This site provides a telephone number to reach the company. *

1 2 3 4 5

strongly disagree strongly agree

This site has customer service representatives available online. *

1 2 3 4 5

strongly disagree strongly agree

It offers the ability to speak to a live person if there is a problem. *

1 2 3 4 5

strongly disagree strongly agree

Inicio 5 Firefox My Planning 5 Microsoft Word Búsqueda en el escritorio CA 16:42

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Fitxer Edita Visualitza Historial Adreces d'interès Eines Ajuda

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Enquesta / Encuesta / Survey

* Required

.....

Please select from the list only one option. *

The Bank you used on a regular basis for your internet banking

LA CAIXA

.....

From today when was the last time you did internet banking? *

Please select from the list only one option.

less than 1 week

.....

Gender *

Male

.....

How old are you? *

Please select your age group

under 16

.....

Inicio 5 Firefox My Planning 5 Microsoft Word Búsqueda en el escritorio CA 16:28

Enquesta / Encuesta / Survey - Mozilla Firefox

Fitxer Edita Visualitza Historial Adreces d'interès Eines Ajuda

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Male

.....

How old are you? *

Please select your age group

under 16

.....

Top education level *

Please select from the list only one option.

High school and below

.....

Please what is your annual income in euros (€) ? *

Please select from the list only one option.

Less than 12000

.....

« Back Continue »

.....

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.....

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10.4 Appendix 4: Online banking User Invitation letters

Appendix 4.1 First invitation letter

Dear Sir/Madam

I am writing on behalf of the University of Girona to request your help with an important project. As part of my PhD thesis and a larger program to evaluate the quality of services offer by online banking in Spain initiate by a group of professors from the University of Girona. We are conducting a survey asking about your experiences with the service offer by your online banking.

You were randomly selected to be part of this project because you are online bank user. We know that you are very busy, but we hope that you will take just a very tiny time to participate in this brief web survey created by us on behalf of the University of Girona.

Please note the survey data are used exclusively for the academic research and not for any other purpose. Your opinion will be very important and helpful to us, in the sense that it would help to enhance the validity and reliability of the research. You can be at peace that all completed questionnaires are confidential and no individual will be identified in any publication resulting from this study. In addition, the results of the survey are reported in a summary format; consequently no one will link you to the survey responses. To complete the survey we plead you Sir/madam to click on the link below and then follow the online survey instructions. It will take less or maximum 10 minutes to complete the whole survey.

<https://spreadsheets.google.com/viewform?formkey=dHlfVUVTOUgxTy1PellvYVJzVG5wYIE6MA>

We appreciate your kind cooperation and thank you in advance for your participation in this important project.

If you have any queries or experience any problems in completing the survey, please do not hesitate to contact me at the address below

Yours sincerely

Luc

Luc Honore Petnji Yaya
Doctorate Student, Universitat de Girona,
Department d'Organització i Gestió empresarial,
Polytechnic 1 Office 122
Tel: +34 972418857
Mob: +34 671180885,
E-mail: arinopetnji@hotmail.com
Uni mail: u1903944@correu.udg.edu

**Appendix 4.2 Second invitation letter and
Appendix 4.3 Third invitation letter**

Dear Sir/Madam

As part of my PhD thesis and a larger program initiated by a group of professors from the University of Girona to evaluate the quality of services offered by online banking in Spain. I recently sent you an e-mail invitation with the link of a web-page survey included requesting your help in participating in the research project.

If you have already completed the questionnaires online, I take this opportunity to say thank you very much for your participation.

If you have not yet completed the questionnaire, I would like to remind you dear Sir/Madam that your opinion will be very important and helpful to us, in the sense that it would help to enhance the validity and reliability of the research.

Also, please note the survey data are used exclusively for the academic research and not for any other purpose. Your opinion will be very important and helpful to us, in the sense that it would help to enhance the validity and reliability of the research. You can be at peace that all completed questionnaires are confidential and no individual will be identified in any publication resulting from this study. In addition, the results of the survey are reported in a summary format; consequently no one will link you to the survey responses. To complete the survey we plead you Sir/madam to click on the link below and then follow the online survey instructions. Please note it will take less or a maximum of 10 minutes to complete the whole survey.

We appreciate your kind cooperation and thank you in advance for your participation in this important project.

If you have any queries or experience any problems in completing the survey, please do not hesitate to contact me at the address below

Yours sincerely

Luc

Luc Honore Petnji Yaya
Doctorate Student, Universitat de Girona,
Department d'Organització i Gestió empresarial,
Polytechnic 1 Office 122
Tel: +34 972418857
Mob: +34 671180885,
E-mail: arinopetnji@hotmail.com
Uni mail: u1903944@correu.udg.edu

10.5 Appendix 5: Bank Mangers Invitation letters

Appendix 5.1 First invitation letter

Girona 10 Gener 2010

ORGANIZATION NAME:

ORGANIZATION ADDRESS:

TEL:

FAX:

MAIL:

Atenció: Responsable de Qualitat

Benvolgut Sr./a,

Com a estudiant de doctorat formo part d'un grup de recerca de la Universitat de Girona. En aquests moments estem portant a terme un projecte que analitza l'impacte dels estàndards internacionals per a la millora de la satisfacció dels clients a la banca per Internet. En aquest sentit, ens seria de molta ajuda si ens poguéss respondre únicament a les dues qüestions concretes que li plantejem en aquesta carta.

Per descomptat, us assegurem que les dades seran utilitzades únicament per a objectius acadèmics, i sempre es presentaran de forma agrupada sense especificar cap nom comercial.

Les qüestions son les següents:

1. El vostre banc està certificat en algun dels següents estàndards? En cas afirmatiu, quin és l'abast d'aplicació?

Estàndards Internacionals *	Si				No	
	Any de certificació	Implementat només a processos directament relacionats amb els clients (oficina, reclamacions, ...)	Implementat a processos No directament relacionats amb el client (recursos humans, planificació, ...)	Implementat a tota la empresa	En procés d'implementació	Sense intenció d'implementar-lo
SO 9001						
ISO 9004						
ISO 10001						
ISO 10002						
ISO 10003						

Mob: +34 671180885,
E-mail: arinopetnji@hotmail.com
Uni mail: u1903944@correu.udg.edu

Descripció o Definició de les normes

- **ISO 9001** Sistemes de gestió de la qualitat --Requisits
- **ISO 9004 (1994)** Gestió de qualitat i normes de garantia de qualitat. Directrius, (2000) Sistemes de gestió de qualitat. Directrius per a les millores de rendiment, (2009) Gestió per a l'èxit sostingut d'una organització - Un enfocament de gestió de qualitat.
- **ISO 10001** Gestió de la Qualitat - Satisfacció del client -- Directrius per als codis de conducta per a les organitzacions.
- **ISO 10002** Gestió de la Qualitat - Satisfacció del client - Directrius per a la tramitació de queixes en les organitzacions.
- **ISO 10003** Gestió de la Qualitat - Satisfacció del client - Directrius per a la resolució de conflictes externs a les organitzacions.
- **ISO 14001** Sistemes de gestió ambiental - Requisits amb orientació per al seu ús.
- **ISO 27001** Tecnologia de la informació - Tècniques de Seguretat - Sistemes de gestió de la informació de seguretat - Requisits
- **UNE 66176** Sistemas de gestión de la calidad. Guía para la medición, seguimiento y análisis de la satisfacción del cliente
- **UNE 66174:2003**.Guia per a l'avaluació del sistema de gestió de qualitat segons la norma UNE-EN ISO 9004:2000 estàndard. Eines i plans de millora
- **OHSAS 18001**: La salut i els sistemes de gestió de la seguretat. Requisits

Appendix 5.2 Second invitation letter

Girona 2nd February 2010

ORGANIZATION NAME:
ORGANIZATION ADDRESS:
TEL:
FAX:
MAIL:

To the attention of the quality Manager

Dear sir/madam

We are a research group from the University of Gerona (Spain) and we are carrying out a research project pertaining to the impacts of few specific International Standards to customer satisfaction on e-Banking, from the perspective of e-retail banking customers. In order to successfully carry out this project, we sent a very short survey to the attention of Quality Manager in your institution in January 2010. But so far we have not received a feedback from you. We implore you Sir/Madam to confirm that you received it. If no, we are very happy to send it for a second time, please could you confirm that the following address is the right one? <<Address>>.

Should we take this opportunity to express our willingness to discuss the project if it is of your interest, or any other person of your institution. Please, also be assuring that the questionnaire data are only for academic research and will not be used for any other purpose. The data must always be presented in aggregated form without specifying a brand name. Thank you very much in advance for your assistance.

Yours sincerely

Luc Honore Petnji Yaya

UNIVERSITAT DE GIRONA
Escola Politècnica Superior Edifici P-1
Dep. OGEDP
Av. Lluís Santaló, s/n
Campus de Montilivi
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E-mail: arinopetnji@hotmail.com
Uni mail: u1903944@correu.udg.edu

Appendix 5.3 Third invitation letter

Girona 25 Marc 2010

ORGANIZATION NAME:
ORGANIZATION ADDRESS:
TEL:
FAX:
MAIL:

Benvolgut/da,

Som un equip de recerca de la Universitat de Girona que estem duent a terme un projecte d'investigació amb l'objectiu d'analitzar els serveis oferts per la banca electrònica. Per tal de desenvolupar satisfactòriament la nostra recerca, vam enviar un breu qüestionari a l'atenció del Director de Qualitat de la seva entitat, el passat mes de gener. Fins al moment, però, no hem rebut cap resposta, és per això, que ens adrecem a vostè i li preguem que tingui l'amabilitat de confirmar-nos si efectivament va rebre aquest qüestionari. En cas contrari, li agrairíem que ens poguéssiu confirmar si l'adreça de l'entitat que apareix més avall és correcta, per tal d'enviar-li de nou el qüestionari. <<Address>>.

Aprofitem la ocasió per manifestar-li la nostra disposició per parlar sobre el projecte si és del seu interès, o amb alguna altre persona de la seva institució.

Finalment, només voldríem insistir en el fet que les dades obtingudes a través del qüestionari seran utilitzades únicament i exclusivament per a la recerca acadèmica i, en cap cas, per a d'altres propòsits. De la mateixa manera, ens permetem de recordar-li que aquestes dades seran presentades sempre de forma global, sense especificar el nom de l'entitat.

Moltes gràcies per la seva col·laboració.

Ben cordialment,

Luc Honore Petnji Yaya

UNIVERSITAT DE GIRONA
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E-mail: arinopetnji@hotmail.com

Uni mail: u1903944@correu.udg.edu

10.6 Appendix 6: Impact of demographic variables on service quality

Appendix 4.1: Impact of age on service quality

Table 1: Impact of Age on Efficiency

ANOVA test Age Vs. Efficiency		Age				P-value
		17-24	25-34	35-44	45 and above	
EFF1	Mean	4.01	3.84	3.88	4.01	.33
	SD	.78	.92	.89	.86	
EFF2	Mean	4.08	3.86	3.91	4.01	.22
	SD	.73	.87	.92	.94	
EFF3	Mean	3.98	4.05	3.90	4.10	.48
	SD	.88	.89	1.03	.88	
EFF4	Mean	3.82	3.72	3.75	4.04	.09
	SD	.87	.96	.93	.85	
EFF5	Mean	3.98	3.89	3.89	3.67	.19
	SD	.89	.90	.96	1.05	
EFF6	Mean	4.01	3.87	3.92	3.91	.61
	SD	.72	.82	.98	.83	
EFF7	Mean	4.23	4.09	4.03	3.93	.10
	SD	.77	.78	.88	.89	
EFF8	Mean	3.92	3.73	3.80	3.96	.18
	SD	.81	.85	.91	.84	

SD: Standard Deviation; P-value < 0.05 is significant

Table 2: Impact of Age on System Availability

ANOVA test Age Vs. System Availability		Age				P-value
		17-24	25-34	35-44	45 and above	
SAV1	Mean	4.08	3.99	4.02	3.96	.85
	SD	.93	.93	.93	1.01	
SAV2	Mean	3.98	3.99	3.99	3.79	.37
	SD	.81	.90	.87	.94	
SAV3	Mean	3.87	3.97	3.89	3.76	.52
	SD	.98	1.01	.92	.98	
SAV4	Mean	3.96	3.97	4.01	3.89	.86
	SD	.87	.97	.96	.98	

SD: Standard Deviation; P-value < 0.05 is significant

Table 3: Impact of Age on Fulfilment

ANOVA test Age Vs. Fulfilment		Age				P-value
		17-24	25-34	35-44	45 and above	

FUL1	Mean	4.18	4.16	4.15	4.11	.96
	SD	.76	.84	.82	.79	
FUL2	Mean	4.10	4.08	4.05	4.00	.84
	SD	.75	.80	.86	.74	
FUL3	Mean	3.57	3.67	3.72	3.67	.67
	SD	.84	.93	.90	.92	
FUL4	Mean	3.50	3.55	3.39	3.51	.58
	SD	.74	.90	.93	.94	

SD: Standard Deviation; P-value < 0.05 is significant

Table4: Impact of Age on Privacy

ANOVA test Age Vs. Privacy		Age				P-value
		17-24	25-34	35-44	45 and above	
PRI1	Mean	4.30	4.15	4.12	4.09	.32
	SD	.86	.92	.87	.84	
PRI2	Mean	4.34	4.25	4.07	4.14	.16
	SD	.83	.84	1.02	1.01	
PRI3	Mean	4.43	4.21	4.20	4.19	.11
	SD	.76	.87	.84	.96	

SD: Standard Deviation; P-value < 0.05 is significant

Appendix 4.2: Impact of education on service quality

Table 5: Impact of Education on Efficiency

ANOVA test Education Vs. Efficiency		Education			
		College and below	University degree	Master degree and above	P-value
EFF1	Mean	3.85	3.96	3.85	.45
	SD	.90	.82	.96	
EFF2	Mean	3.95	3.95	3.97	.99
	SD	.90	.81	.98	
EFF3	Mean	3.94	4.05	3.97	.75
	SD	.97	.90	.99	
EFF4	Mean	3.95	3.78	3.69	.24
	SD	.81	.90	1.02	
EFF5	Mean	3.84	3.86	3.90	.81
	SD	.95	.92	.98	
EFF6	Mean	3.98	3.91	3.86	.75
	SD	.83	.83	.88	
EFF7	Mean	4.09	4.07	4.05	.87
	SD	.90	.78	.87	
EFF8	Mean	4.00	3.82	3.66	.06
	SD	.80	.83	.99	

SD: Standard Deviation; P-value < 0.05 is significant

Table 6: Impact of Education on System Availability

ANOVA test Education Vs. System Availability		Education			
		College and below	University degree	Master degree and above	P-value
SAV1	Mean	3.93	4.05	4.09	.47
	SD	1.04	.87	.950	
SAV2	Mean	3.92	3.96	4.04	.57
	SD	.98	.84	.88	
SAV3	Mean	3.86	3.91	3.96	.62
	SD	1.00	.97	.91	
SAV4	Mean	3.99	3.92	4.01	.87
	SD	.94	.97	.97	

SD: Standard Deviation; P-value < 0.05 is significant

Table 7: Impact of Education on Fulfilment

ANOVA test Education Vs. Fulfilment		Education			
		College and below	University degree	Master degree and above	P-value
FUL1	Mean	4.02	4.19	4.24	.23

	SD	.83	.81	.76	
FUL2	Mean	3.93	4.09	4.13	.24
	SD	.89	.76	.79	
FUL3	Mean	3.58	3.66	3.75	.62
	SD	.90	.87	.98	
FUL4	Mean	3.41	3.53	3.55	.53
	SD	.89	.84	.93	

SD: Standard Deviation; P-value < 0.05 is significant

Table 8: Impact of Education on Privacy

ANOVA test Education Vs. Privacy		Education			P-value
		College and below	University degree	Master degree and above	
PRI1	Mean	4.13	4.20	4.12	.83
	SD	.93	.86	.92	
PRI2	Mean	4.10	4.26	4.20	.48
	SD	1.08	.80	.95	
PRI3	Mean	4.23	4.25	4.30	.94
	SD	.91	.85	.83	

SD: Standard Deviation; P-value < 0.05 is significant

Appendix 4.3: Impact of education on service quality

Table 9: Impact of Income on Efficiency

ANOVA test Income Vs. Efficiency		Income			P-value
		Less than 12,000	12,001-24,000	24,001 and above	
EFF1	Mean	3.94	3.88	3.95	.76
	SD	.79	.93	.88	
EFF2	Mean	4.01	3.84	4.00	.18
	SD	.77	.92	.88	
EFF3	Mean	4.03	4.01	3.99	.92
	SD	.81	.94	1.01	
EFF4	Mean	3.87	3.76	3.79	.58
	SD	.85	.94	.96	
EFF5	Mean	3.90	3.88	3.86	.94
	SD	.87	.91	1.03	
EFF6	Mean	3.98	3.85	3.95	.42
	SD	.77	.89	.84	
EFF7	Mean	4.18	4.06	4.01	.23
	SD	.81	.83	.83	
EFF8	Mean	3.90	3.81	3.78	.47
	SD	.79	.86	.91	

SD: Standard Deviation; P-value < 0.05 is significant

Table 10: Impact of Income on System Availability

ANOVA test Income Vs. System Availability		Income			P-value
		Less than 12,000	12,001-24,000	24,001 and above	
SAV1	Mean	3.96	4.07	4.00	.59
	SD	.90	.85	1.05	
SAV2	Mean	3.87	3.98	4.01	.34
	SD	.88	.82	.93	
SAV3	Mean	3.81	3.92	3.93	.54
	SD	.99	.92	1.02	
SAV4	Mean	3.98	3.95	3.97	.97
	SD	.83	.92	1.06	

SD: Standard Deviation; P-value < 0.05 is significant

Table 11: Impact of Income on Fulfilment

ANOVA test Income Vs. Fulfilment		Income			P-value
		Less than 12,000	12,001-24,000	24,001 and above	

FUL1	Mean	4.13	4.11	4.23	.41
	SD	.78	.80	.82	
FUL2	Mean	4.04	4.03	4.12	.55
	SD	.71	.82	.83	
FUL3	Mean	3.55	3.64	3.76	.15
	SD	.80	.91	.96	
FUL4	Mean	3.44	3.47	3.57	.43
	SD	.80	.92	.90	

SD: Standard Deviation; P-value < 0.05 is significant

Table 12: Impact of Income on Fulfilment

ANOVA test Income Vs. Privacy		Income			P-value
		Less than 12,000	12,001-24,000	24,001 and above	
PRI1	Mean	4.24	4.11	4.16	.49
	SD	.81	.98	.83	
PRI2	Mean	4.25	4.14	4.25	.53
	SD	.84	1.01	.89	
PRI3	Mean	4.31	4.24	4.22	.64
	SD	.80	.91	.85	

SD: Standard Deviation; P-value < 0.05 is significant

Appendix 4.4: Impact of gender on service quality

Table 13: Impact of Gender on Efficiency

T- test Gender Vs. Efficiency		Gender		
		Female	Male	P-value
EFF1	Mean	3.96	3.88	.32
	SD	.84	.90	
EFF2	Mean	3.98	3.92	.43
	SD	.85	.88	
EFF3	Mean	4.08	3.93	.08
	SD	.86	.99	
EFF4	Mean	3.83	3.78	.62
	SD	.90	.94	
EFF5	Mean	3.92	3.83	.31
	SD	.93	.95	
EFF6	Mean	3.95	3.89	.46
	SD	.85	.82	
EFF7	Mean	4.18	3.98	.01*
	SD	.80	.84	
EFF8	Mean	3.89	3.76	.13
	SD	.82	.89	

SD: Standard Deviation; P-value < 0.05 is significant

EFF7, Eta value = 0.122

Table 14: Impact of Gender on System Availab

T- test Gender Vs. System Availability		Gender		
		Female	Male	P-value
SAV1	Mean	4.00	4.02	.82
	SD	.95	.93	
SAV2	Mean	4.00	3.91	.27
	SD	.84	.92	
SAV3	Mean	3.81	3.98	.08
	SD	.97	.97	
SAV4	Mean	3.96	3.97	.90
	SD	.93	.96	

SD: Standard Deviation; P-value < 0.05 is significant

Table 15: Impact of Gender on Fulfilment

T- test Gender Vs. Fulfilment		Gender		
		Female	Male	P-value
FUL1	Mean	4.22	4.08	.08
	SD	.76	.84	
FUL2	Mean	4.12	4.00	.10
	SD	.78	.80	
FUL3	Mean	3.73	3.57	.07
	SD	.86	.93	
FUL4	Mean	3.51	3.48	.73
	SD	.87	.89	

SD: Standard Deviation; P-value < 0.05 is significant

Table 16: Impact of Gender on Privacy

T- test Gender Vs. Privacy		Gender		
		Female	Male	P-value
PRI1	Mean	4.28	4.05	.00*
	SD	.83	.92	
PRI2	Mean	4.29	4.12	.63
	SD	.87	.95	
PRI3	Mean	4.39	4.11	.00*
	SD	.77	.92	

SD: Standard Deviation; P-value < 0.05 is significant

PRI1, Eta value = 0.128

PRI3, Eta value = 0.164

10.7 Appendix 7: Exploratory Factor Analysis of the propose Service Quality and Service Recovery in online banking

Appendix5.1: Exploratory Factor Analysis of the propose Service Quality

two tests are performed to ensure that the data is suitable for factor analysis, the Kaiser-Meyer-Olkin (KMO) measure for sampling adequacy and the Bartlett's test of sphericity (Bollen and Long, 1993).

Table: Tests of suitability for factor analysis

KMO and Bartlett's Test				
	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity		
		Approx. Chi-Square	df	Sig.
Overall service Quality	.935	5125.299	171	.000
Efficiency	.905	1742.244	21	.000
System Availability	.867	1580.295	21	.000
Privacy	.741	743.907	3	.000
Overall Service Recovery	.847	347.008	21	.000
Responsiveness	.796	194.456	6	.000
Contact	.690	96.462	3	.000
Satisfaction	.838	1291.660	6	.000
Perceived Value	.792	683.447	6	.000
Loyalty	.859	1321.511	10	.000

E-service Quality Varimax Rotation**Extraction Method:** Principal Component Analysis.**Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.090	47.840	47.840	9.090	47.840	47.840	4.856	25.559	25.559
2	1.656	8.717	56.557	1.656	8.717	56.557	4.111	21.634	47.194
3	1.436	7.559	64.116	1.436	7.559	64.116	3.215	16.922	64.116
4	.891	4.690	68.806						
5	.751	3.955	72.761						
6	.674	3.550	76.311						
7	.546	2.871	79.182						
8	.495	2.606	81.788						
9	.485	2.555	84.343						
10	.443	2.334	86.677						
11	.380	2.000	88.677						
12	.358	1.882	90.559						
13	.318	1.673	92.232						
14	.300	1.578	93.810						
15	.291	1.532	95.342						
16	.264	1.392	96.733						
17	.221	1.166	97.899						
18	.203	1.068	98.967						
19	.196	1.033	100.000						

APPENDICES

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.090	47.840	47.840	9.090	47.840	47.840	4.856	25.559	25.559
2	1.656	8.717	56.557	1.656	8.717	56.557	4.111	21.634	47.194
3	1.436	7.559	64.116	1.436	7.559	64.116	3.215	16.922	64.116
4	.891	4.690	68.806						
5	.751	3.955	72.761						
6	.674	3.550	76.311						
7	.546	2.871	79.182						
8	.495	2.606	81.788						
9	.485	2.555	84.343						
10	.443	2.334	86.677						
11	.380	2.000	88.677						
12	.358	1.882	90.559						
13	.318	1.673	92.232						
14	.300	1.578	93.810						
15	.291	1.532	95.342						
16	.264	1.392	96.733						
17	.221	1.166	97.899						
18	.203	1.068	98.967						
19	.196	1.033	100.000						

Extraction Method: Principal Component Analysis.

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Rotated Component Matrix^a

	Component		
	Efficiency	Sys Av.	Privacy
EFF1	.783		
EFF2	.773		
EFF3	.603		
EFF4	.778		
EFF5		.555	
EFF6	.749		
EFF7	.610		
EFF8	.809		
SAV1		.749	
SAV2		.788	
SAV3		.823	
SAV4		.644	
FUL1		.558	
FUL2		.645	
FUL3	.422		.441
FUL4	.402		.467
PRI1			.834
PRI2			.857
PRI3			.845

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser
 Normalization.

^a. Rotation converged in 5 iterations.

Appendix 5.2: Exploratory Factor Analysis of the propose Service Recovery in online banking**Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.625	51.781	51.781	3.625	51.781	51.781	2.740	39.138	39.138
2	1.248	17.832	69.613	1.248	17.832	69.613	2.133	30.475	69.613
3	.568	8.108	77.721						
4	.500	7.141	84.862						
5	.419	5.990	90.852						
6	.368	5.263	96.115						
7	.272	3.885	100.000						

Extraction Method: Principal Component Analysis.

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Rotated Component Matrix^a

	Component	
	Responsiveness	Contact
RES1	.742	
RES2	.858	
RES3	.814	
CPS1	.745	
CON1		.857
CON2		.781
CON3	.417	.741

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Appendix 5.3: full results of Internal Consistency (Cronbach's Alpha)

Obviously Cronbach's alpha reliability coefficient normally ranges between 0 and 1 and there is actually no lower limit to the coefficient. However (George and Mallery, 2003, p. 231) provide the following rules of thumb: “ $> .9$ – Excellent, $> .8$ – Good, $> .7$ – Acceptable, $> .6$ – Questionable, $> .5$ – Poor, and $< .5$ – Unacceptable”.

Efficiency		Cronbach's Alpha .906		N of Items 7	
Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	
EFF1	23.60	17.824	.739	.890	
EFF2	23.57	17.899	.732	.891	
EFF3	23.51	18.232	.624	.904	
EFF4	23.71	17.386	.754	.889	
EFF6	23.60	18.077	.733	.891	
EFF7	23.44	18.574	.669	.898	
EFF8	23.69	17.517	.801	.884	

System Availability		Cronbach's Alpha .887		N of Items 7	
Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	
EFF5	24.04	18.295	.574	.884	
SAV1	23.91	17.823	.642	.876	
SAV2	23.96	17.233	.794	.857	
SAV3	24.03	17.037	.721	.866	
SAV4	23.96	17.480	.689	.870	
FUL1	23.77	18.704	.638	.876	
FUL2	23.86	18.255	.726	.867	

Privacy		Cronbach's Alpha .890	N of Items 3	
Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
PRI1	8.47	2.816	.752	.871
PRI2	8.43	2.629	.790	.839
PRI3	8.38	2.756	.813	.819

Responsiveness		Cronbach's Alpha .835	N of Items 4	
Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
RES1	8.98	9.082	.658	.795
RES2	9.26	8.456	.679	.785
RES3	9.30	8.261	.763	.747
CPS1	9.65	8.787	.573	.835

Contact		Cronbach's Alpha .771	N of Items 3	
Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
CON1	7.11	4.561	.559	.741
CON2	7.50	4.432	.614	.681
CON3	7.42	4.066	.643	.647

Satisfaction		Cronbach's Alpha .916		N of Items 4	
Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted	
ESA1	11.75	5.553	.800	.894	
ESA2	11.99	5.337	.732	.920	
ESA3	11.91	5.283	.858	.874	
ESA4	11.85	5.306	.851	.876	

Perceived Value		Cronbach's Alpha .821		N of Items 4	
Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted	
PVA1	11.47	4.742	.596	.815	
PVA2	11.10	5.271	.739	.736	
PVA3	11.10	5.774	.552	.815	
PVA4	11.04	5.357	.744	.736	

Loyalty		Cronbach's Alpha .887		N of Items 5	
Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted	
LOY1	14.22	13.305	.774	.867	
LOY2	14.14	13.364	.809	.861	
LOY3	14.55	12.590	.782	.865	
LOY4	14.23	13.603	.718	.879	
LOY5	14.48	13.599	.652	.895	

Appendix 5.4: Confirmatory Factor Analysis

Component Matrix^a

	Component
	Efficiency
EFF1	.815
EFF2	.812
EFF3	.715
EFF4	.830
EFF6	.813
EFF7	.757
EFF8	.866

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Component Matrix^a

	Component
	Syst Av.
EFF5	.681
SAV1	.739
SAV2	.861
SAV3	.804
SAV4	.779
FUL1	.745
FUL2	.816

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	Syst Av.
EFF5	.681
SAV1	.739
SAV2	.861
SAV3	.804
SAV4	.779
FUL1	.745
FUL2	.816

Extraction Method: Principal
Component Analysis.

a. 1 components extracted.

Component Matrix^a

	Component
	Privacy
PRI1	.887
PRI2	.909
PRI3	.920

Extraction Method: Principal
Component Analysis.

a. 1 components extracted.

Component Matrix^a

	Component
	Responsiveness

RES1	.818
RES2	.830
RES3	.886
CPS1	.744

Extraction Method: Principal
Component Analysis.

a. 1 components extracted.

Component Matrix^a

	Component
	Contact
CON1	.795
CON2	.835
CON3	.854

Extraction Method: Principal
Component Analysis.

a. 1 components extracted.

Component Matrix^a

	Component
	Satisfaction
ESA1	.891
ESA2	.842
ESA3	.926
ESA4	.923

Extraction Method: Principal
Component Analysis.

a. 1 components extracted.

Component Matrix^a

	Component
	Perceived Value
PVA1	.771
PVA2	.873
PVA3	.741
PVA4	.876

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Component Matrix^a

	Component
	Loyalty
LOY1	.869
LOY2	.890
LOY3	.869
LOY4	.819
LOY5	.765

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

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- University of Girona, Department of Business Organization, Apr 2011 – Jan 2012
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- Service and E-services Operations and Management.

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- Comparative study between English and Spanish e-banking consumers (ref: TIN2011-13075-E)” financed by the Ministry of Economy and Competitiveness within the aid subprogram of complementary actions to research no orientated. 2012
- European Union Project “Erasmus Mundos” Univesitat de Girona (GREP), 2011
- European Union Project “Modelo de evaluación de la actividad docente” Universidad de Malaga, 2010
- Improvement of the customers’ satisfaction of the Spanish companies by quality management standards and models” (ECO2009-12754) financed by the Spanish

Ministry for Education and Science under the system of aid grants for R+D projects. 2010

- Impact of management standards on customer satisfaction (2009 PBR 00056), financed by the Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR) of the Catalan government via funding from the Baptista Roca Program for research.

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- Marimon, F.; Petnji Yaya, L.H; Casadesus, M, (2011), “E-Quality, Service Recovery and Loyalty relationship: the e-banking case”, 18th EuroMA International conference, Cambridge (UK)
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- Petnji Yaya, L.H; Marimon, F.; Casadesus, M, (2012) “Understanding the expansion and application of the E-S-QUAL in various settings and cultures”

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OTHER MERITS

As a Reviewer of international journals:

- The Service Industry Journal (ISI web of Science)
- Journal of Service Research in (ISI SAGE Journals)
- Total Quality Management

LANGUAGES

- English
- French
- Spanish
- Catalan