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QUALITY ONLINE BANKING SERVICES IN LEBANON

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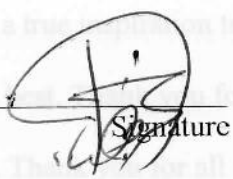

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AN ABSTRACT OF THE PROJECT OF

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The popularity of banking services delivered over the Internet (online banking services) is increasing in recent years. In the highly competitive Internet banking environment, high service quality is essential for survival of banks. This leads to the fact, that a good understanding of the attributes that customers use to judge service quality is necessary in order for the bank to be able to monitor and enhance its service performance and improve its overall service quality.

The purpose of this study is to provide insight into how customers perceive the quality of online banking services and to develop an instrument consisting of different service quality dimensions that can be used to measure the quality of such services.

Using an already developed model for measuring the quality of online services, a modified theoretical model (instrument) for measuring the quality of online banking services has been developed. A quantitative research method including the design and distribution of a questionnaire has been used, and empirical data was collected on which statistical analysis has been performed. As a result of the conducted analysis, the initial theoretical model has been modified, so that the final version of the model (instrument) for measuring quality of online banking services includes five quality

dimensions (Service Performance, Security and Privacy, Overall Quality, Communication and Efficiency) with total of 36 items (questions). Furthermore, based on the modified theoretical model, customer satisfaction with different aspects of the online banking services has been evaluated. Based on the results of the Analysis of the Empirical Data, managerial recommendations are given. Suggestions for further research on quality of online banking services are also offered.

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CHAPTER ONE

INTRODUCTION

1.1 Background

Globalization and deregulation have increased competition in the marketplace, as nowadays it has become much easier for companies to cross borders and compete internationally. The increased competition, on its turn, has made organizations constantly try to increase their productivity and decrease their costs. One way for them to achieve that is by investing in information technology (Fredriksson, 2003).

The recent development of information technology has led to major changes in the way services are delivered to the customers. In these days, customers are using more and more self-service options, which are more convenient and fast. In addition, the advent and use of the Internet has changed considerably the daily activities of most people, such as shopping and banking. The popularity of banking services delivered over the Internet (online banking services) is increasing in recent years (Fredriksson, 2003).

Online services, including online banking services, are becoming an attractive alternative to visiting service outlets or phoning call centers for an increasing number of customers. Some of the reasons for customers to prefer online services (as online banking services) are: convenience (Meuter, Ostrom, Roundtree & Bitner, 2000; Szymanski & Hise, 2000), feeling more in control of the service process (Bateson, 2000; Dabholkar, 1996) and avoiding human

contact and saving time (Dabholkar 1996; Meuter et Al., 2000). As far as online services are concerned, it is quite easier for customers to evaluate and compare the benefits of competing services (Santos, 2003). In addition, the switching costs are very low, that is why retaining the customer in the Internet space is of vital importance (Reichheld & Schefter, 2000). In order for service providers to retain their e-customers, they should have better understanding of how customers perceive and evaluate the quality of the electronically offered services. Businesses that have been experienced and successful in offering e-services are starting to apprehend that besides website presence and low price, the important success or failure factors also include the electronic service quality (Yang, 2001; Zeithaml, 2002). Although the literature on service quality is abundant (Parasuraman, Berry & Zeithaml, 1991; Cronin & Taylor, 1992; Zeithaml, Berry & Parasuraman, 1996; Carman, 1990), very little research has been conducted on the evaluation of the quality of services delivered over the Internet (Cox & Dale, 2001).

As far as banks in particular are concerned, during the second half of 1990s, the way of operating in the banking industry has undergone a fundamental change because of the advent of the Internet (Gunasekaran & Love, 1999). Taking into consideration the huge investments that banks make in Internet infrastructure, customer satisfaction and retention are turning into the crucial factors for success in online banking meaning that the generation of positive customer value on the Internet requires the establishment of long-term customer relationships (Bauer, Hammerschmidt & Falk, 2005). In today's oversupplied world, where customers have very high demands, the financial services organizations are trying to become more customer-focused (Gonzales, Quesada, Picado & Eckelman, 2004). In order for the E-

banking to be profitable, banks should focus not only on acquiring new customers but also on the retention of existing customers (Reichheld & Schefter, 2000). According to Mols (2000) the introduction of E-banking services may change crucially the way banks build and maintain their customer relationships. The increased use of the Internet in the future will heighten the expectations and perceptions of customers, thus making e-service quality an increasingly important issue. Thus, understanding service quality issues within the new delivery channel becomes crucial.

In addition, delivering high quality services is a way companies manage to improve their customer relationships. Delivering high quality services is a prerequisite for achieving customer satisfaction and only through customer satisfaction can the company gain loyal customers (Grönroos, 2000). Because of the highly undifferentiated products and services that financial organizations, and specifically banks, offer, service quality becomes main tool for competing in this marketplace (Stafford, 1996; Kim, Han, Choi & Kim, 1998). In general, because of the higher profits and higher customer retention to which they lead, high-quality services are believed to provide banks with competitive edge in the marketplace (Bennett & Higgins, 1988).

From the concepts mentioned above, it becomes obvious that high service quality is essential for surviving in the highly competitive banking environment (Wang, Lo & Hui, 2003). This leads to the fact, that a good understanding of the attributes that customers use to judge service quality is necessary in order for the company to be able to monitor and enhance its service performance and improve its overall service quality.

A lot of research has been conducted about key service quality dimensions and customer requirements in the traditional banking environment, where personal interaction between the customers and the bank employees takes place (Cowling & Newman, 1995; Johnston, 1995; Bahia & Nantel, 2000; Oppewal & Vriens, 2000). However, the service quality attributes and customer requirements involved in Internet banking, where the interaction between the customers and the bank is impersonal, have not been studied enough, which can be implied by the fact that there is no precise measurement instrument for online services quality (Cox & Dale, 2001). Thus, it is really important for Internet banking providers to learn more about their customers' perceptions of the online banking service quality and the attributes the customers find essential for a quality financial service delivery on the Internet. Customers have some expectations and criteria when they judge whether the provided E-banking service is satisfactory or not. This is what banks, which provide E-banking services should try to find out, so that they can improve their online services and gain competitive advantage in the banking industry.

In addition, as the service delivery process on the Internet differs significantly from that in the traditional brick-and-mortar banks' environment mainly because of the lack of direct contact between the employees and the customers in the Internet space, the attributes for defining a high quality service delivery are expected to differ in the two contexts.

1.2 Problem Discussion

When judging the quality of the provided E-banking services, customers consider a lot of factors which influence their judgment. For some customers the response and efficiency of the service providers would be of greatest importance, for others the security and privacy issues might be more important, and still for others what matters most may be the website design and ease of use. In reality, customers have different expectations and requirements. They deem different aspects of the service delivery process for essential in order for them to be satisfied with the service. Nevertheless, there should be some common requirements among users of online banking services, some overall valid expectations, which are of interest in this study.

As the service delivery process on the Internet differs significantly from that in the traditional brick-and-mortar banks' environment mainly because of the lack of direct contact between the employees and the customers, the attributes for defining a high-quality service delivery are expected to differ in the two contexts. According to Li, Tan and Xie(2002), because of the existing difference between online and traditional services, there exists real challenges in measuring the quality of online services. Although there is a lot of research, made on evaluation of traditional banking services quality (Cowling & Newman, 1995; Johnston, 1995; Bahia & Nantel, 2000; Oppewal & Vriens, 2000), the research on online services quality, in this respect also online banking services quality, is in its infancy (Santos, 2003). As the use of online banking steadily increases over the years (Fredriksson, 2003), knowledge about defining high-quality service delivery over the Internet becomes crucial for banks, which want to stay competitive on the marketplace. If banks have knowledge about

the quality attributes they can use to measure the quality of their online services and the overall satisfaction of their customers with each of these attributes, it would be much easier for them to take necessary measures and steps to improve the overall service quality.

For example, if the efficiency of the service provider is deemed very important for the quality of the delivered online services and customers turn out to be unsatisfied with this aspect of the service delivery, it means that banks and their managers should consider that issue carefully and try to improve it. Additionally, this knowledge will also help banks allocate their resources in a way that maximum service quality improvement is achieved. This will eventually lead to gaining competitive advantage, which will help them retain their customers and increase their profitability (Bennett & Higgins, 1988).

1.3 Purpose of the study

The purpose of this study is to provide insight into how customers perceive the quality of online banking services and to develop an instrument consisting of different service quality dimensions that can be used to measure the quality of such services.

1.4 Research Questions

- Question 1: To Which service quality dimensions should banks consider when evaluating the quality of their online banking services?
- Question 2: How these service quality dimensions of online banking services can be used to measure the quality of online banking services?
- Question 3: How do customers perceive the quality of different aspects of the online banking services they use?

1.5 Limitations

This study is limitated to gathering empirical data through a questionnaire from a sample of the population in Beirut City and other major Cities for people that are using online banking services.

In addition, choosing only 181 people may to some extent limit the generalization of the results and bias the results towards the experiences of these people.

Finally, the thesis excluded the questionnaires relative to non-Lebanese banks as the underlying study is applied to the Lebanese context, which means that only the responses from people using Lebanese banks were included into the analysis.

1.6 Definitions

A short description of the following terms which appear a lot throughout the thesis will be presented below so that the reader has clear understanding of their meaning and can follow more easily the contents of the thesis.

• Online Banking Services (E-banking Services)

Banking services delivered over the Internet. These include opening/closing of account, domestic/foreign money transfer, standing orders, direct debit, debit card

application, loan application, credit card application, insurance investment, mutual funds investment, foreign/domestic equity investment, deposit account opening, life insurance contract, traffic insurance contract and etc (Centeno, 2003).

• E-Service Quality

E-Service Quality is the "Consumers' overall evaluation and judgment of the excellence and quality of e-service offerings in the virtual marketplace" (Santos, 2003, p. 235).

• SERVQUAL

A 22-item instrument for measuring customers' expectations and perceptions from a service along five quality dimensions: tangibles, reliability, responsiveness, assurance and empathy. (Parasuraman & Al, 1991).

• E-SQ (E-S-Qual and E-RecS-Qual) Instrument

An instrument similar to the SERVQUAL scale, developed specifically for measuring online services (e-services) quality. It includes two scales: the E-S-QUAL scale consists of 4 dimensions with 22 attributes, including efficiency, fulfillment, system availability and privacy and the E-RecS-QUAL scale which consists of 3 dimensions with 11 attributes, including responsiveness, compensation and contact (Parasuraman, Zeithaml & Malhotra, 2005).

Furthermore, the following terms will be used interchangeably along the thesis as they are used to represent the same things:

-E-services and online services

-E-services quality and online services quality

- Model and Instrument

- Items and Questions and Variables

- Factor and (quality) Dimension

CHAPTER TWO

LITERATURE REVIEW

2.1 Service Quality: Traditional Banking Services

2.1.1 Definitions and Characteristics of Services

The increase of services in national economies reflects the importance of the service sector in recent years. There is a dramatic shift toward services in the world economy and the number and diversity of service providers increase constantly. In this competitive environment, the service companies have to be faster, leaner, work more efficiently and provide better service quality in order to stay competitive.

From 1960s to 1990's a range of definitions of services was suggested; were the following definition is an example: "A service is a process consisting of a series of more or less intangible activities that normally, but not necessarily always, take place in interactions between the customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems"(Gronroos, 2000, p. 46).

Services have many characteristics that distinguish them from physical goods. As stated by Gronroos (2000, p. 47) some of the main differences between services and physical goods are that services are processes; they are intangible and heterogeneous; they cannot be kept in stock and there is no transfer of ownership; production, distribution and consumption are simultaneous processes in the service context; the core value is produced in buyer-seller interactions and most importantly in service contexts customers participate in the production process. This last characteristic of services that customers participate in the production process is of utmost importance when the issue of service quality is discussed. The reason is that because of the participation of customers in the production of the service, the quality of the service is directly perceived by the customer during the time of production.

That's why service quality can be defined as the quality as it is perceived by customers (Gronroos, 2000, p. 63) and therefore measuring service quality has been a real challenge for service providers.

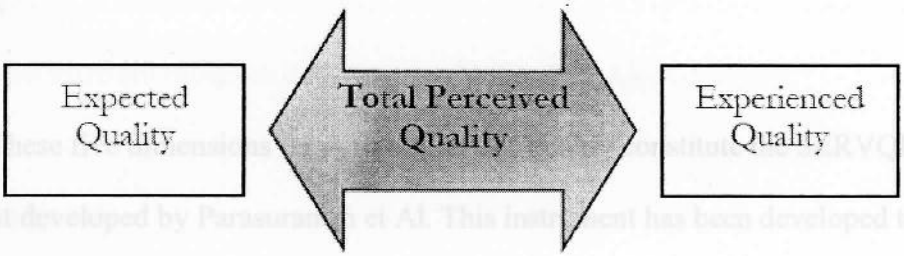
2.1.2 Traditional Service Quality

In the last two decades many researchers have made investigation about service quality and its importance for the differentiation of the service in which gaining competitive advantage has been recognized (Zeithaml et Al., 1996; Ennew, Reed & Binks, 1993). "Early scholarly writing on service quality suggested that service quality stems from a comparison of what customers feel a company should offer (their expectations) with the company's actual service performance" (Zeithaml et. al., 2000, p. 5).

Among the first researchers to suggest that the concept of service quality was strongly related to trust and perceptions was Gummesson (1979). Later, Gronroos introduced the notion of "Total Perceived Service Quality" which defines how a customer perceives the difference between the expected service and the experienced service.

Figure 1

Total Perceived Quality



Source: Adapted from Gronroos C. (2000), "Service Management and Marketing: A customer Relationship Management Approach", p. 67.

According to all these early studies, service quality was accepted as a measure of how well the customer expectations were met by the delivered service. Parasuraman, Zeithaml and Berry (1988, p. 15) defined service quality as "the overall evaluation of a service firm that results from comparing that firm's performance with the customer's general expectations of how firms in that industry should perform".

Many researchers have tried to define the dimensions of service quality. There are two main methods used to define the dimensions of service quality (Santos, 2003). According to the first method, service quality is defined in terms of functional quality ("how" the service is delivered = process) and technical quality ("what" service is delivered = outcome) (Gronroos, 2000). The second method tries to define service quality with the help of specific characteristics of a given service. For example, Parasuraman et Al. (1988) describe service quality in five to ten dimensions (responsiveness, reliability, assurance, tangibles and empathy).

These five dimensions for defining service quality constitute the SERVQUAL instrument developed by Parasuraman et Al. This instrument has been developed to measure service quality based on the difference of customers' expectations and perceptions for a given service (the so called disconfirmation method). It has been very popular and widely used in the field of Service Marketing and Management.

The idea of measuring service quality by comparing customers' expectations and perceptions of a given service has been criticized in recent years. Opponents of this approach argue that measuring only customers' perceptions is more reliable. Some of the opponents are Cronin and Taylor, who developed the SERVPERF instrument in 1992.

SERVPERF instrument is similar to the SERVQUAL instrument, but it measures service quality only on the basis of customers' perceptions of a given service. Other opponents to the disconfirmation method are Dabholkar, Shepherd and Thorpe (2000) who

have found that measuring only the perception of customers can better evaluate their intention and evaluation. Furthermore, Dabholkar et Al. (2000) state that in this way, detailed service quality studies can be performed with the use of more efficient, simpler and cross-sectional designs.

All the above findings have led to defining service quality as an overall evaluation of service performance. Looking at both ways of defining service quality, based on expectation and perceptions, it becomes obvious that service quality is a multi-dimensional concept, which means different things to different people (Brady & Cronin, 2001).

2.1.3 SERVQUAL

SERVQUAL is an instrument for measuring how customers perceive the quality of a service (Gronroos, 2000). In the mid-1980s Berry and his colleagues Parasuraman and Zeithaml began to investigate what determines service quality and how it is evaluated by customers (Gronroos, 2000). As a result of their study they developed the SERVQUAL instrument for measuring service quality, which initially included 10 service quality dimensions, which were later reduced to the following five: tangibles, reliability, responsiveness, assurance and empathy. The following Table 1.1 describes the initial 10 elements of the SERVQUAL instrument.

Table 1

Dimensions of Perceived Service Quality (SERVQUAL)

Service Quality Dimension	Definition
Reliability	Involves consistency of performance and dependability
Responsiveness	Willingness or readiness of employees to provide services(timeliness of service, giving prompt service)
Competence	Possession of the required skills and knowledge to perform the service
Access	Approachability and ease of contact
Courtesy	Politeness, respect, consideration and friendliness of contact personnel
Communication	Keeping customers informed in language they can understand, and listening to them
Credibility	Trustworthiness, believability, honesty and having the customer's best interest at heart
Security	Freedom from danger, risk and doubt
Understanding/knowing the customer	Making the effort to understand the customer's need
Tangibles	Physical evidence of the service

Source: Gronroos, "Service Management and Marketing: A customer Relationship Management Approach", 2000, p.75

Table 2

Dimensions of Perceived Service Quality (SERVQUAL revised)

Service Quality Dimension	Definition
Tangibles	The appeal of facilities, equipment, material and employees which the service firm uses to deliver its services to the customer
Reliability	Consistency of performance and dependability
Responsiveness	Willingness or readiness of employees to provide service
Assurance	The knowledge and courtesy of employees and their ability to convey trust and confidence
Empathy	The providing of caring, individualized attention to customers

Source: Gronroos, "Service Management and Marketing: A customer Relationship Management Approach", 2000, p.74

The revised SERVQUAL instrument is based on the idea of the disconfirmation model, in other words on the comparison of customers' expectations with their experiences from the service. Usually, the five dimensions of the instrument are described through the use of 22 attributes and "respondents are asked to state (on a seven-point scale from "Strongly disagree" to "Strongly agree") what they expected from the service and how they perceived the service" (Gronroos, 2000, p.76).

Furthermore, the reasoning of the SERVQUAL instrument is based on the concept "Zone of Tolerance", suggested by Berry and his colleagues. This concept assumes that customers do not have expectations for a service attribute on one given level, but rather can accept a range in the real experience and still regard the service as satisfactory. The borders of the customer's "Zone of tolerance" are formed by a Desired Level – the level on which the customers believe the service should be, and an Adequate Level – the minimum level of service that customers are willing to accept. Customers consider the service performance which falls within the borders of this "Zone of Tolerance" to be good (Gronroos, 2000).

This instrument has been widely used by researchers, but still, there are some controversies in its applicability across different service industries. In some studies the five dimensions of the instrument (determinants) have been found to be unstable across different types of services. Therefore, the SERVQUAL tool should be applied very carefully and the set of determinants and attributes used should be adapted to the specific situation (Gronroos, 2000).

2.1.4 Studies on Traditional Banking Service Quality

Researchers have used the SERVQUAL scale to measure the quality of various services, including bank services (Cowling & Newman, 1995). According to the study conducted by Cowling and Newman in 1995 concerning the SERVQUAL scale, one bank found out that the highest disparity between the expectations and perceptions of customers was found to exist for reliability, responsiveness, and empathy, and the lowest for tangibles.

Also, concerning the banking industry, by using the critical incident technique, Johnston (1995) examined the service quality perceptions of the customers. He found out 18 service quality attributes: access, aesthetics, attentiveness/helpfulness, availability, care, cleanliness/tidiness, comfort, commitment, communication, competence, courtesy, flexibility, friendliness, functionality, integrity, reliability, responsiveness and security.

Furthermore, an alternative measure of service quality in retail banking that comprises 31 items with six underlying key dimensions was proposed by Bahia and Nantel (2000). These six dimensions are: effectiveness and assurance, access, price, tangibles, service portfolio and reliability.

In addition, by using conjoint experiments to measure the service quality of retail banks, Oppewal and Vriens (2000) proposed the use of 28 attributes including four service quality dimensions to evaluate service quality. These four dimensions are: accessibility, competence, accuracy and friendliness, and tangibles. Of those four dimensions, the most

important in determining banking preference turned out to be the accuracy and friendliness, followed by competence, tangibles and accessibility.

2.2 E-Services

2.2.1 Definitions and Characteristics of E-Services

E-services are services delivered over the Internet. The fact that the services are delivered over the Internet pose some challenges to the service providers. First of all, the direct contact between service employees and customers is missing and secondly the service delivery setting is completely changed. In the case of e-services, websites become the "moment of truth" between customers and the company (Iwwarden, Wiele, Ball & Millen, 2003). As a result the websites (user-interface) determine to high extent how the service is delivered to the customers. Customers evaluate both what the company offers and how it offers it. Because of the lack of face-to-face interaction with service representatives, the user interface (site design) is what customers of e-services interact with, and as such it can be expected to influence their evaluation of the overall service quality. That is why it is advisable that companies consider very well the design and function of their websites as well, because customers might get frustrated and eventually be discouraged of visiting the Website if it cannot be accessed easily or the work with it is very slow. Additionally, the information content of the website is considered to be important for online evaluations (Gronroos, 2000).

2.2.2 E-Service Quality

E-service quality is defined as overall customer assessment and judgment of e-service delivery in the virtual marketplace (Santos, 2003). Businesses that have been experienced and successful in offering e-services are starting to apprehend that besides website presence and low price, the important success or failure factors also include the electronic service quality (Yang, 2001; Zeithaml, 2002). One of the reasons for the increased importance of e-services quality is that over the Internet, it is much easier for customers to compare different service offerings than through traditional channels (Santos, 2003). Thus, customers of online services expect equal or higher levels of service quality than the customers of traditional services (Santos, 2003).

The importance of delivering high quality e-services has been recognized by many companies, but still there is the problem of how the quality of online services is defined, which its determinants are and how it can be actually measured. There exist many models and methods for measuring the quality of traditional services (Cowling & Newman, 1995; Johnston, 1995; Bahia & Nantel, 2000; Oppewal & Vriens, 2000), but there is not that much research made on the quality of services delivered over the Internet (Cox & Dale,2001). Recently, there have been two approaches to studying e-services that can be distinguished. The first approach suggests the study of e-service quality on the basis of already existing service quality theory (Gronroos, 2000 Zeithaml et Al., 2000). The other approach suggests the study of e-service quality through empirical research and the development of new categories of e-services (Szymanski & Hise, 2000).

For example, according to Van Riel, Liljander and Jurriens (2001) some researchers have tested the SERVQUAL instrument on different e-services as web-based service, internet retail and electronic banking. Despite that, there are still some doubts among researchers whether the SERVQUAL instrument can be applied for measuring the quality of online services. Parasuraman and Grewal (2000, p. 171) propose that research is needed on whether "the definitions and relative importance of the five service quality dimensions change when customers interact with technology rather than with service personnel".

Because the SERVQUAL tool dimensions and attributes were developed for traditional services where direct contact between the employees and the customers occur, many researchers believe that the items of the instrument and their content would need to be refined before they can be meaningfully applied in the online service context.

According to Zeithaml et Al. (2000) additional dimensions may also be needed in order for the full construct of e-service quality to be captured. Yang (2001) proposed in his research the use of seven online service quality dimensions which align with those of the SERVQUAL scale. These dimensions include reliability, responsiveness, access, ease of use, attentiveness, credibility and security. Besides the application of already existing models on the e-service quality measurement, some researchers have recently proposed new quality dimensions, specific for the online services.

For example, in a recent study on the quality of online services of 23 travel agencies,

Kaynama and Black (2000) have used seven quality dimensions derived from SERVQUAL: responsiveness, content and purpose (derived from reliability), accessibility, navigation, design and presentation (all derived from tangibles), background (assurance), and personalization and customization (derived from empathy).

Furthermore, Zicthaml et Al. (2000) made research with focus groups consisting of people with experience in online shopping. As a result of the study they defined eleven e-quality dimensions (the so-called E-SQ instrument): reliability, responsiveness, access, and flexibility, ease of navigation, efficiency, assurance/trust, security/privacy, price knowledge, site aesthetics and customization/personalization.

Later in 2002, Zeithaml et Al. revised the E-SQ model and decreased the online service quality dimensions to seven. These dimensions are as follows: efficiency, fulfillment, system availability, privacy, responsiveness, compensation and contact (Parasuraman et Al., 2005). Based on the SERVQUAL scale, Barnes and Vidgen (2001) have developed the WebQual Index with 24 measurement items, which is specifically established for online service quality measurement. The Index includes the following seven online service quality dimensions: reliability, competence, responsiveness, access, credibility, communication and understanding the individual.

Similarly, Madu and Madu (2002) made a literature review, on the basis of which they proposed 15 dimensions of online service quality: performance, features, structure, aesthetics, reliability, storage capacity, serviceability, security and system integrity, trust,

responsiveness, product differentiation and customization, Web store policies, reputation, assurance and empathy.

2.3 Website Quality (Online Systems Quality)

2.3.1 Definition and Importance to the Study of E-Service Quality

The quality of online services can not be measured simply from researching the online service quality dimensions alone. The reason for that is that online services are quite different from the traditional services, where an interpersonal service encounter takes place.

In an interpersonal service encounter, where customers have direct contact with service personnel, the way service personnel behaves, talks, smiles, etc. will influence to a high extent the satisfaction of the customers with the service delivered. In the virtual space, customers communicate with the company through an information system. By using the Internet as a service delivery channel, companies should be aware of the fact that some aspects of the human interaction of traditional service settings cannot be replaced by technology (Cox & Dale, 2001). Such aspects, according to Cox and Dale (2001) are for example courtesy, friendliness, helpfulness, care, commitment, flexibility and cleanliness. The absence of these aspects of human interaction through which quality can be delivered to customers will have to be compensated by other quality factors, for example different features of the company's website, through which the online services are delivered. That is why a literature review on the online systems quality is necessary for the purpose of this study.

2.3.2 Studies on Website Quality (Online Systems Quality)

Much research was done on the quality of online information systems and websites in particular. Doll and Torkzadeh (1988) suggested five quality dimensions that influence customer satisfaction with the Website of a given company. These dimensions are: content, accuracy, format, ease of use and timeliness. In recent years, many studies have been conducted on the success features of websites. According to a study done by D'Angelo and Little in 1998, when designing a website the following factors should be considered: navigational characteristics, visual characteristics, and practical consideration including images, background, color, sound, video, media and content.

Other researchers, Liu and Arnett (2000) propose that major determinants of a website success are the following factors: system use, system design quality, information quality and playfulness.

Studying websites' quality, Cox and Dale (2001) have found out and proved four quality factors of a website: ease of use (the design of the Web site), customer confidence (how the website generates customer trust), online resources (capabilities of the website to offer products/services) and relationship services (how the website bonds with the customer and inspires loyalty) (Yang, Jun & Peterson, 2004).

According to Abels, White and Hahn (1999) user criteria for a good website design include use, content, structure, linkage, search and appearance. Later, using the finding from

Abels et Al. (1999), Santos (2003) has discovered five dimensions of online systems quality: ease of use, appearance, linkage, structure and layout, and content.

The features that a website should possess in order to be successful and contribute to the service quality depend to a high extent on the type of service provided. For example, the features of a website for purchasing music and books are expected to differ from those of a bank's website. As far as Internet banking websites are concerned, Jayawardhena and Foley (2000) proposed website features critical to enhance customer satisfaction: the speed to download, content, design, interactivity, navigation and security. Furthermore, Waite and Harrison (2002) have found seven dimensions that influence customer satisfaction with banks' websites: transaction technicalities, decision making convenience, interactive interrogation, specialty information, search efficiency, physical back-up and technology thrill.

2.4 E-Banking Services

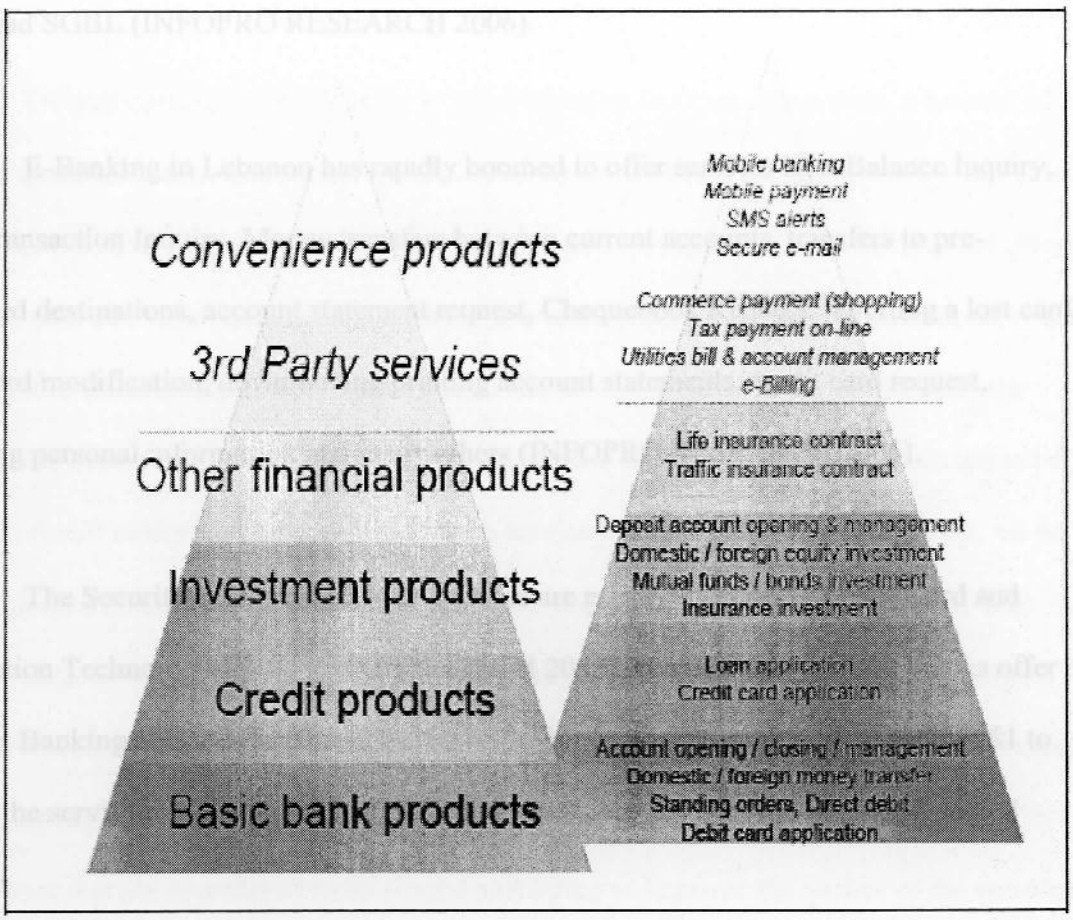
2.4.1 Definitions and Types of E-Banking Services

E-Banking services are banking services delivered over the Internet. The services provided by banks over the Internet which once included only checking of accounts, have recently evolved to include a full range of banking services. It is not a rare case nowadays, when nearly all services accessible at the branch or by phone can be accessed on the Internet as well. The development of technology allows banks to offer not only "branch-based" services over the Internet, but also new added-value services which are available only online such as electronic commerce, real-time brokerage, financial information menus, e-mail alerts

and third party services (tax payment, portals or management of electricity bills) (Centeno, 2003). Figure 2 below shows a possible classification of Internet banking services (Centeno, 2003).

Figure 2

Classification of Internet Banking Services



Source: Centeno, C., "Adoption of Internet Services in the Enlarged European Union: Lessons from the Internet Banking case", European Commission Joint Research Centre, Report EUR 20822 EN, June 2003.

In Lebanon, there are 13 banks who offer Internet Banking as a service. These banks are: Al Mawarid Bank, Arab Bank, Bank Audi, Bank of Beirut, Banque Libano Francaise, BBAC, BLOM Bank, Byblos Bank, Credit Libanais, Fransabank, HSBC, Lebanese Canadian Bank and SGBL (INFOPRO RESEARCH 2006).

E-Banking in Lebanon has rapidly boomed to offer services like: Balance Inquiry, Last Transaction Inquiry, Money transfers between current accounts, transfers to pre-specified destinations, account statement request, Chequebook Request, reporting a lost card, password modification, downloading/printing account statements, credit card request, updating personal information and many others (INFOPRO RESEARCH 2006).

The Security Measures of these services are mainly a Unique ID, Password and Encryption Technology (INFOPRO RESEARCH 2006). Over 60% of the local banks offer Internet Banking Services for free. The rest of the banks charge minimal fees such as $1 to access the service (Libano Francaise, SGBL, Credit Libanais). (INFOPRO RESEARCH 2006).

The increased use of online banking services has many advantages for both customers and banks. For customers, E-banking services allow them to have better overview

of their banking business and help them to manage their banking transactions more conveniently and fast. Additionally, customers who use Internet banking prove to be involved in more banking transactions, which is beneficial for the banks themselves.

Moreover, through the Internet, the bank productivity increases as well, as the distribution and production of their services become more efficient (INFOPRO RESEARCH 2006).

Overall customers' motivation to use E-banking services comes from a number of factors: freedom of time and space, speed, convenience, 24 hours a day availability and price incentives (Mattila, Karjaluoto & Pento, 2002). Despite all the advantages the Internet offers to both banks and their customers in terms of increased productivity and reduced costs, it also hides a lot of disadvantages and challenges for the service providers. On the Internet, the comparison between different service offerings is much easier and switching costs are lower, which makes it easier for customers to change service providers (Santos, 2003). This, on its behalf, posts a challenge for the banks to not only acquire new customers, but retain their existing ones as well. To retain its customers, banks should try to make them satisfied with their services and offerings and this can be achieved through delivering high quality services. Delivering high quality online services requires understanding of the online service quality dimensions that are considered to be crucial and trying to improve the quality of the services provided over the Internet, so that a competitive advantage is gained.

2.4.2 Studies on E-Banking Service Quality

The increased importance of information and communication technology for the delivery of financial services has led to the growing interest of researchers and managers in E-banking quality issues (Jayawardhena, 2004). Different studies consider particular service quality dimensions of simple banking websites.

For example, Jun and Cai (2001), by using the critical incidents method in online banking, distinguish three central quality categories, namely the customer service quality, online systems quality and banking service products quality. Other researchers, Broderick and Vachrapompuk (2002) tracked the usage pattern of members of an Internet banking community. They found out that what influenced the service evaluation most were cues in the service setting, key events in the service encounters and the level and nature of customer participation. Unfortunately, they were not able to deduct from their research a precise and testable measurement of E-banking service quality.

Jayawardhena (2004) did a research on the service quality in E-banking by using an adopted version of the SERVQUAL instrument for the Internet context. The study resulted in 21 items which were reduced to five quality dimensions: access, website interface, trust, attention and credibility.

Conclusively, it should be said that some research has been done to identify service quality dimensions in E-banking, but so far no model has been developed, that can be

universally used and applied as far as E-banking services quality is concerned. More research in the field is necessary, in order for this to be done.

2.5 E-SQ (E-S-QUAL and E-RecS-QUAL) Instrument for Measuring Online Service Quality

E-SQ Instrument is an instrument similar to the SERVQUAL scale, developed specifically for measuring online services (e-services) quality. The model has been developed in 2000 and tested and revised in 2002 by Parasuraman, Zeithaml and Malhotra who made an exploratory study on quality perceptions of customers as far as online shopping is concerned.

The development of this instrument went through three stages. During the first stage the researchers used qualitative study with six focus groups with six to seven participants in each group (Zeithaml et Al., 2000). Furthermore, they claim that "the responses of focus-group participants to e-service quality (e-SQ) dimensions were remarkably consistent across the groups, the experience levels, and e-service businesses discussed. The focus groups revealed that consumers use basically similar dimensions in evaluating e-SQ regardless of the type of product or service being evaluated on the Internet" (Zeithaml et Al., 2000, p.15).

The dimensions for measuring e-service quality, found out at that stage were eleven: reliability, responsiveness, access, flexibility, ease of navigation, efficiency, assurance/trust, security/privacy, price knowledge, site aesthetics and customization /personalization. Table 3 below contains description of each of the above-mentioned dimensions of e-service quality.

Table 3

Dimensions of Perceived E-SQ

E-Service Quality Dimension	Description
Reliability	Involves the correct technical functioning of the site and the accuracy of service promises (delivering when promised) and product information
Responsiveness	Quick response and the ability to get help if there is a problem or a question
Access	The ability to check on the site quickly and to reach the company when needed
Flexibility	Choice of ways to pay, chip, buy, search for and return items

Table 3 (continued)

Dimensions of Perceived E-SQ

E-Service Quality Dimension	Description
Ease of Navigation	The site contains functions that help customers find what they need without difficulty, possesses a good search engine, and allows the customers to maneuver easily and quickly back and forth through the pages
Efficiency	The site is simple to use, structured properly, requires minimum of information to be input by the customer
Assurance / Trust	The confidence the customer feels in dealing with the site and is due to the reputation of the site and the products or services it sells as well as clear and truthful information presented
Security / Privacy	The degree to which the customer believes the site is safe from intrusion and personal information is protected

Table 3 (continued)

Dimensions of perceived E-SQ

E-Service Quality Dimension	Description
Price Knowledge	The extent to which the customer can determine shipping price, total price and comparative prices during the shopping process
Site Aesthetics	The appearance of the site
Customization / Personalization	How much and how easily the site can be tailored to individual customers' preferences, histories and ways of shopping

Source: V. Zeithaml, A. Parasuraman and A. Malhotra, "A conceptual framework for understanding e-service quality: implications for future research and managerial practice", Marketing Science Institution, report No. 00-115, 2000, p. 16

The above described model resembles the SERVQUAL instrument a lot (Parasuraman, Berry & Zeithaml, 1991), but it also includes few new dimensions specific for the online space.

First of all, the quality dimensions of reliability, responsiveness, access, assurance and customization/personalization are also key quality dimensions of the SERVQUAL instrument for traditional service settings. These five dimensions have the same perceptual attributes as those in traditional service quality evaluations, besides the access and reliability dimensions. These two dimensions have some attributes which deal with online-specific issues as well (Zeithaml et Al., 2000).

Secondly, several of the quality dimensions of perceived e-SQ are new and most of them are related to technology: ease of navigation, flexibility, efficiency, site aesthetics and price knowledge (Zeithaml et Al., 2000). The dimensions ease of navigation, efficiency and site aesthetics have been proved to be important for evaluating online systems quality (website quality in particular) by many researchers as shown in the part dealing with online services quality (Doll & Torkzadeh, 1988; Abels et Al., 1999; Jayawardhena & Foley, 2000; Liu & Arnett, 2000; Santos, 2003). One of the new dimensions that do not involve technology is price knowledge, which is probably specific for the case of online shopping, investigated in this study (Zeithaml et Al., 2000).

Later, the attributes pertaining to the above-mentioned 11 dimensions of e-service quality, found out in the research by Zeithaml, Parasuraman and Malhotra in 2000, were used as the e-service quality (E-SQ) domain from which the researchers drew items for the E-SQ instrument. As a second stage in the development of the E-SQ instrument Zeithaml et Al developed a preliminary scale consisting of 121 items which was incorporated into two questionnaire versions. These questionnaires were evaluated with the help of focus groups

and as a result a final, revised questionnaire consisting of 113 items was constructed. Then the researchers hired a marketing research firm to distribute the questionnaire to a random sample of Internet users who had sufficient online shopping experience. After the collection of the survey data, the data was subject to scale-reduction and refinement analyses. As a result of this procedure the initial 11 dimensions from 2000 were reduced to total of 7 dimensions (Parasuraman et Al., 2005).

During the research Parasuraman et Al. observed that there was missing data on some items. After an analysis of these items they concluded that they were all related to service recovery. That is why, in the third stage, they separated those items to develop a separate e-service recovery scale (E-RecS-QUAL). The rest of the items formed an e-core service quality scale (E-S-QUAL). The E-S-QUAL scale consists of 4 dimensions with 22 attributes and the E-RecS-QUAL consists of 3 dimensions with 11 attributes. After the development of these scales, they were empirically tested by using questionnaires distributed to sample of users of the most visited at that time web sites in the USA – amazon.com and walmart.com (Parasuraman et Al., 2005).

The E-S-QUAL and E-Recs-QUAL' dimensions and their description are presented in Table 4 and Table 5 below.

Table 4

E-S-QUAL Dimensions and their description

Dimension	Description
Efficiency	The ease and speed of accessing and using the website
Fulfillment	The extent to which the site's promises about order delivery and item availability are fulfilled
System availability	The correct technical functioning of the site
Privacy	The degree to which the site is safe and protects customer information

Source: Parasuraman, A., Zeithaml, V. and Malhotra A. (2005), "E-S-QUAL: A Multiple-Item Scale for Assessing Electronic Service Quality", p. 220

Table 5

E-RecS-QUAL dimensions and their description

Dimension	Description
Responsiveness	Effective handling of problems and returns through the website
Compensation	The degree to which the site compensates the customers for problems
Contact	The availability of assistance through telephone or online representatives

Source: Parasuraman, A., Zeithaml, V. and Malhotra A. (2005), "E-S-QUAL: A Multiple-Item Scale for Assessing Electronic Service Quality", p. 220

2.6 Summary

In the Literature Review, I have introduced the reader to the field of services, introducing the concepts of services and traditional services in general as well as the research that has been done on measuring the quality of traditional services. Furthermore, the concepts and the studies concerning the measurement of the quality of E-services and E-banking services in particular have also been presented in order to build a theoretical background and give in depth information about the subject of the underlying study. Presenting theoretical background on both E-services and traditional services has been done with the intention for

the reader to understand the importance of measuring service quality, how it has developed in time and how it is changing because of the increased use of online services, where the conditions and characteristics of the service itself change. Finally, the E-SQ instrument for measuring online services has been presented to the reader, based on which the rest of the thesis will be developed.

In order to develop an instrument for measuring the quality of online banking services, the E-SQ (E-S-QUAL and E-Recs-QUAL) instrument created by Zeithaml, Parasuraman and Malhotra in 2002 for measuring quality of online services, will be used as a basis for the thesis. However, since the modified E-S-QUAL and E-Recs-QUAL scales do not completely cover all the issues related to the measurement of the quality of online banking services, a modified version of these scales will be used in the underlying study. In Table 6 below, there is a comparison (according to the definitions of the different quality dimensions presented previously) between the dimensions of the scale from 2000 and those from 2002. The aim of this is to show which dimensions from the research in 2000 are covered in the final version of the scales from 2002 and which are not.

Table 6

Comparison of E-SQ (2000) versus E-S-QUAL and E-RecS-QUAL (2002) dimensions

E-SQ instrument dimension (2000)	E-S-QUAL and E-RecS-QUAL instrument dimensions (2002)
Reliability	Fulfillment, System Availability
Responsiveness	Responsiveness
Access	Efficiency, Contact
Flexibility	
Ease of navigation	Efficiency
Efficiency	Efficiency
Assurance / Trust	
Security / Privacy	Privacy
Price Knowledge	
Site Aesthetics	
Customization / Personalization	
	Compensation

From Table 6 above it can be seen that more than half of the dimensions from 2000 are covered in the modified version of the instrument from 2002.

Still, there are some dimensions which deem to be important for the evaluation of the quality of online banking services. For example, the issue of "value" is of high importance as far as financial services are concerned. Furthermore, many researchers have found loyalty to be considered as a quality dimension for the evaluation of e-services quality (Madu & Madu, 2002; Jun, Yang & Kim, 2004; Cox & Dale, 2001; Jayawardhena, 2004; Jun & Cai, 2001). Also, the "overall quality" has been informative, and thus, has been added as a dimension to the model.

Hence, the value of website/overall value, loyalty and overall quality dimensions have been added to the E-S-QUAL scale's dimensions.

Finally, it is to be noted that the measurement of the compensation dimension of online services quality requires the customers' experiences of problems with the given service. And since this implies difficulty in evaluating this dimension because of the difficulty of finding enough people encountering problems (Parasuraman et Al., 2005), the compensation dimension of the E-RecS-QUAL scale has been dropped from this study.

Conclusively, the study applies adapted and slightly modified versions of the E-S-QUAL and E-RecS-QUAL scales developed by Parasuraman et Al. in 2002, in developing an instrument for measuring the quality of online banking services. The value of the "website/overall value", "site loyalty" and "overall quality" dimensions have been added to the E-S-QUAL scale and the compensation dimension from the E-RecS-QUAL scale has been dropped. All the E-SQ dimensions included in the underlying study have been described

and used based on the research of Parasuraman, Zeithaml and Malhotra from both, 2000 and 2002.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Approach: Quantitative and Qualitative Research Methods

The research strategy should be chosen according to the research questions in the particular situation (Yin, 1994). Each strategy has its own advantages and disadvantages, because of its specific approach to collect and analyze empirical data. According to Yin (1994) the type of question posed; the degree of focus on historical or contemporary events and the control over actual behavioral elements should be the main grounds on which the appropriate research method is chosen.

Qualitative research requires strong contact with the real situation, which is usually reflecting the everyday life of individuals, societies, groups or organizations (Miles & Huberman, 1994). According to Amaratunga, Baldry, Sarshar & Newton (2002), this type of research has few favorable features: this type of studies allows revealing of what the "real life" is by studying events occurring in natural settings; the information gathered through qualitative research is complete and rich and has potential to reveal complexity and finally this type of studies is quite flexible in nature. Furthermore, qualitative approach is found appropriate for discovery, exploring a new area, developing hypotheses and qualitative data which are useful when "one needs to supplement, validate, explain, illuminate or reinterpret quantitative data gathered from the same setting" (Amaratunga et Al., 2002, p.22).

Quantitative research approach is based on the development of testable hypotheses and theory which can be generalized across settings. Quantitative investigations tend to measure "how often" or "how much". This approach allows generalization of conclusions and flexibility in the treatment of data, in terms of comparative analysis, statistical analyses and repeatability of data collection in order to verify reliability (Amaratunga et Al., 2002).

Taking into consideration the description of the quantitative research approach stated above, which is used to measure "how much" across settings and allows for statistical analysis on the collected data, quantitative research method has been chosen for the purpose of this thesis.

First of all, the use of quantitative research method, would measure "how much" customers of online banking services are satisfied with the provided online services.

Furthermore, this method will allow statistical analysis of the collected data, on the basis of which an instrument for measuring quality of online banking services will be developed. To collect the quantitative data the survey method has been used and eventually the data has been analyzed by using statistical techniques. The combination of the quantitative method with the survey method is found appropriate, as a large sample, which consists of 181 Internet Banking users, is studied and general conclusions are drawn for the entire population.

3.2 Sample Selection

The sample focuses on the investigation of people who use Internet banking service in Lebanon. The Questionnaires are randomly distributed in Beirut City to employees, managers and university students. The sample technique used is random sampling, which means that "every member of the target population has an equal chance of being selected" (Oakshott, 1998, p.41). This sampling method was also chosen in order to avoid the occurrence of bias in the chosen sample population.

3.3 Data Collection

For the purpose of the thesis, primary and secondary data are collected. Primary data include data through a survey with customers of online banking services. For that purpose a questionnaire has been designed. Secondary data include data from academic literature, books, journals, reports and Internet sources.

Over the years, different methods have been developed on how to measure service quality. Unfortunately, there is still not that much research made in the field of measuring quality of e-services. Nevertheless, there are some attempts made by researchers to develop models for measuring e-service quality. Based on these models they try to evaluate the quality of online services by using the disconfirmation approach stating that quality is perceived through the comparison between expectations and perceptions of customers for a given service over a number of quality attributes.

Although perceptions-only measures have been shown to demonstrate better predictive validity than perception-expectation measures (Cronin & Taylor, 1992), the perception-expectation measures do seem to yield data about the quality of given service which is richer and more informative (Schneider & White, 2004). Despite its benefits, survey including the measurement of expectations and perceptions individually is too complicated, time-consuming and tedious. Taking into consideration the time and resource limits of this study, the divergence between customers' expectations and perceptions is measured directly using only one scale. Using this approach makes the questionnaire much easier to construct, administrate and analyze. In addition, it is thought to be easier for the customers to respond to such questionnaire including only one scale.

When constructing the questionnaire, a slightly modified version of the E-SQ instrument (E-S-QUAL and E-RecS-QUAL) for measuring e-service quality (E-SQ), developed by Parasuraman et Al. in 2002 has been used. The value/overall value dimension, loyalty dimension and overall quality dimension have been added to the E-S-QUAL scale and the compensation dimension from the E-RecS-QUAL scale has been dropped. All the dimensions of the E-SQ and their attributes included in the questionnaire have been based on the research of Parasuraman, Zeithaml and Malhotra from both, 2000 and 2002.

As mentioned above, the questionnaire is designed to measure the impact of the spread between the expectations and perceptions (perceived quality) that customers of the online banking services apply on their evaluation of the quality dimensions found in the E-

SQ instrument developed by Parasuraman et Al. in 2002. This is expected to help in evaluating the overall satisfaction of customers with the online banking services they use and to give an insight into the important quality dimensions that can be used to measure quality of online banking services in general. For this purpose, the five-point Likert Scale, ranging from "1="Very dissatisfied" to "5=Very satisfied" has been applied.

Before the questionnaire was distributed, it went through a thorough pre-testing. The pre-test included two steps. During the first step, the preliminary version of the questionnaire was tested on a number of users in the Gulf region, who have been using online banking services for a long time and have experience as users of such services. During this first step, the questionnaire was modified, including the use of only one scale and some paraphrasing of words. In the second step, the modified questionnaire was given for inspection to the supervisors of the thesis and few more slightly changes have been made, including paraphrasing of two of the questions.

The questionnaire consists of 38 questions and demographic information about the respondents, including name of the bank they use, gender, age, length of Internet Banking usage and frequency of Internet Banking transactions per month.

3.4 Data Analysis

The collected data in the study will be presented and analyzed using Descriptive Statistics, Cronbach's Alpha Test of Reliability and Factor Analysis with Principal Component Analysis as an extraction method. In order to prove the internal reliability of the

instrument used, Cronbach's Alpha Test of Reliability will be performed. When performing this test, different items (questions) are grouped pertaining to the different quality dimensions and thus, performing the test on each dimension. Applying this test specifies whether the items pertaining to each dimension are internally consistent and whether they can be used to measure the same construct.

Furthermore, using the Principal Component Analysis (PCA) helps to decide whether the division and description of the initial dimensions pertaining to the theoretical model are appropriate. With the help of the PCA, the dimensions of the model can be reduced. For the convenience of the reader, a brief description of Cronbach's Alpha Test of Reliability and Principal Component Analysis is presented below.

3.4.1 Cronbach's Alpha Test of Reliability

Cronbach's Alpha Test of Reliability is the most popular estimate for measuring the internal consistency (reliability) of items in a scale, in other words it measures the extent to which the responses collected for given item correlate highly with each other (Garson, 2002). The results of this test produce an R-score, which is a number between 0 and 1. According to Garson (2002), the higher the R-score is, the more reliable the measured construct is. Furthermore, according to Nunnally and Bernstein (1994), a-score exceeding 0.7 indicates high internal reliability of the scale items, but there are still researchers who use different cut-off R-scores like 0.8 or even 0.6 (Garson, 2002). Finally, what is important to be considered is that the a-scores increase when the number of items in a scale increases (Garson, 2002).

3.4.2 Principal Component Analysis

The Principal Component Analysis (PCA) is a method involving mathematical procedure used to identify patterns in a data set. It means that the method is used to reduce the dimensionality of the original data, which means to summarize the original data that is initially contained into a given number of variables (questions on the different quality dimensions in this case) into a new set of dimensions so that minimum amount of information is lost (Grosuch, 1983). This is done by defining the so called Principal Components (PC) also called factors that are variables explaining the maximum variability of a data set (Li, Shi, Liao, & Yang, 2003). The first principal component explains the most variance in the data and each succeeding principal component explains as much of the remaining variability as possible.

According to Chatfield and Collins (1980), there are two main reasons for using Principal Component Analysis (PCA): reduction of the dimensionality of the data set and formulation of new meaningful variables to describe the problem. In the underlying study each quality dimension pertaining to the used theoretical model is described with the help of given number of questions which customers are asked to answer. The use of PCA in this case is expected to show whether the used questions describe each quality dimension adequately and whether some groups of questions pertaining initially to given quality dimensions can be regrouped into a smaller number of dimensions so that the conducted study becomes more precise.

3.5 Reliability and Validity

When developing and evaluating an instrument and when conducting research in general, there are two important issues that have to be examined - the reliability and validity of the study.

3.5.1 Reliability

An instrument is considered reliable when the outcome of the measuring process is reproducible. According to Zikmund (2000, p. 280), reliability can be defined as:
"The degree to which measures are free from error and therefore yield consistent results"
There are two aspects of the reliability issue: external and internal reliability. According to Hardy and Bryman (2004), external reliability means that the studied variable does not fluctuate greatly over time which means that it is stable. This kind of reliability can be tested through test-retest reliability, which means measuring the same scale twice in different time frames and see to what extent the two sets of data have yielded the same replies of the respondents. This method of measuring the reliability is time-consuming and tedious and will not be applied in the underlying study.

Furthermore, according to Hardy and Bryman (2004), internal reliability means that all the constituent indicators of a variable are measuring the same thing which means that the variable is coherent. One of the most popular methods for estimating internal reliability, also applied in this thesis, is Cronbach's Alpha (R) Test of Reliability.

3.5.2 Validity

An instrument is valid when the outcome of the measuring process has really measured what it was designed to measure.

According to Eriksson and Wiederscheim-Paul (1997, p. 38), validity can be defined as: "The ability of a scale or measuring instrument to measure what is intended to be measured" According to Hardy and Byrman (2004), there are different types of validity: One type is the Face Validity which requires a thorough examination of the wording of the items included in the instrument and their connection to the relevant frame of reference used in the particular study. Face validity can also be examined through the use of the opinion and judgment of experts concerning the items and wording used.

Another type is Criterion-related validity and it evaluates a scale in terms of a criterion on which people tend to differ. This includes concurrent and predictive validity. One more type is Construct validity that requires "an examination of the theoretical inferences that might be made about the underlying construct" (Hardy and Byrman, 2004, p. 24).

In this thesis, the face validity has been applied, where the validity of the study has been proven through thorough pre-testing, re-wording and re-evaluation of the instrument used.

CHAPTER FOUR

EMPIRICAL DATA AND ANALYSIS

4.1 Missing Data

Conducting the survey of this study, more than 250 questionnaires have been distributed and an E- link of the online-posted questionnaire has been forwarded through E-mails, which were sent to diverse contact lists. Some of questionnaires had missing answers and few others included non-Lebanese banks in the field Name of your bank. When starting the analysis of the data, those questionnaires that included non-Lebanese banks as they were not usable in this case were dismissed from the very beginning.

Then, Cronbach's Alpha Test of Reliability and Principal Component Analysis (PCA) were performed both, with and without the questionnaires that had missing data. In the case of PCA for missing data Exclude cases pairwise option was used. The intention was to see whether there would be some differences in the results. Based on this pre-analysis, in the case of the a - scores (Cronbach's Alpha Test of Reliability results), the values from the test with missing data are correspondingly slightly lower than those in the case without missing data, but the difference is so small that it can be disregarded.

In the PCA case, the pre-analysis showed that there were differences in the Principal Component Analysis results for both cases – with and without missing data. In the case without missing data, the pre-analysis showed that five factors should be extracted and in the

case with missing data, also five factors should be extracted which shows that the effect of missing data on the analysis is minimal.

Taking into consideration that missing data can be treated as well in such analysis and also that using the questionnaires with missing data would give more realistic and reliable results (also the total number of analyzed responses would be higher), the thesis has based its analysis on the responses from the questionnaires including those with missing data, only dismissing those responses that stated non-Lebanese bank in the field Name of your bank.

4.2 Descriptive Statistics

A survey was conducted with the distributed questionnaires from which 181 were initially used. This number exceeds the suggested number of five cases for each studied item (Tabachnick & Fidell, 2001). From the collected questionnaires, those where the respondents have stated that they use banks outside Lebanon, were excluded from this study. It was decided that the thesis will exclude the questionnaires including non-Lebanese banks as the underlying study is applied to the Lebanese context, which means that only people using Lebanese banks were included into the analysis. In Tables below the descriptive statistics are illustrated.

Table 7

Age Group

Age	Frequency	Percent	Valid Percent	Cumulative Percent
25-40	85	47.0	47.0	47.0
41-55	32	17.7	17.7	64.6
56-65	7	3.9	3.9	68.5
less than 25	55	30.4	30.4	98.9
more than 65	2	1.1	1.1	100.0
Total	181	100.0	100.0	

From Table 7, above, it can be seen that 30.4% of the respondents are less than 25 years old and 47% are between 25 and 40, which makes the research more valuable, simply because the people of both age groups, which make the majority of the study's age group, will continue their use for Internet Banking services in the future.

Table 8

Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
	1	.6	.6	.6
female	66	36.5	36.4	37.0
male	114	63.0	63.0	100.0
Total	181	100.0	100.0	

In the studied sample 63% are male and almost 36.5% are female. One respondent hasn't specified his or her gender (0.6%).

Table 9

Length of Internet Use

Length of use	Frequency	Percent	Valid Percent	Cumulative Percent
12 months or more	56	30.9	30.9	30.9
3 to less than 6 months	41	22.7	22.7	53.6
6 to less than 12 months	36	19.9	19.9	73.5
less than 3 months	48	26.5	26.5	100.0
Total	181	100.0	100.0	

According to the table above, from all respondents 26.5% have been using online banking services for less than 3 months, 22.7% have been using such services between 3 and 6 months, 19.9% have been using the service between 6 and 12 months and 30.9% have been using online banking services for more than a year. This is quite satisfactory as a big percentage of the people seem to have been using Internet Banking for more than 12 months,

which shows that they have enough experience to judge the quality of the provided online banking services and their overall satisfaction with those services.

Table 10

Frequency of Visits

Frequency of visits	Frequency	Percent	Valid Percent	Cumulative Percent
	2	1.1	1.1	1.1
13 or more times/month	15	8.3	8.3	9.4
4 or less times/month	36	19.9	19.9	29.3
5 to 8 times/month	25	13.8	13.8	43.1
9 to 12 times/month	5	2.8	2.8	45.9
once/week	96	53.0	53.0	98.9
weekly	2	1.1	1.1	100.0

The experience of the customers with the online banking services can be observed also from the frequency of their transactions, which for 54.1% of the respondents use internet banking services once/week, 19.9% use the service 4 or less times/month, 13.8% use it 5 to 8 times/month, 2.8% use it 9 to 12 times/month 8.3% use it 13 or more times/month. Two respondents (1.1%) have not specified Frequency of Internet Banking Transactions that is

why the sum does not total to 100%. What is interesting to be observed is the average number of transactions per month 5.81 times/month, which is a satisfactory number, implying that, on average, people have satisfactory experiences with Internet Banking transactions.

Table 11

Banks

Banks	Frequency	Percent	Valid Percent	Cumulative Percent
Audi	39	21.5	21.5	21.5
Bankmed	1	.6	.6	22.1
BBAC	8	4.4	4.4	26.5
BLF	2	1.1	1.1	27.6
BLOM	28	15.5	15.5	43.1
BNPI	19	10.5	10.5	53.6
BOB	3	1.7	1.7	55.2
Byblos	19	10.5	10.5	65.7
Capital One	1	.6	.6	66.3
City Bank	1	.6	.6	66.9
Credit Libanais	3	1.7	1.7	68.5
Fransabank	2	1.1	1.1	69.6
HSBC	21	11.6	11.6	81.2
Lebanese Canadian	4	2.2	2.2	83.4
Lebanese Swiss	2	1.1	1.1	84.5
SGBL	28	15.5	15.5	100.0
Total	181	100.0	100.0	

As far as the customers' banks are concerned, 21.5% of the respondents use the services of AUDI Bank, followed by 15.5% for BLOM Bank and also 15.5% for SGBL, 11.6% for HSBC, 10.5% for BYBLOS Bank, 10.5% for BNPI, 4.4% for BBAC, 1.7% for each of Bank of Beirut and Credit Libanais, 1.1% for each of Fransabank and Lebanese Swiss Bank and BLF, followed by 0.6% for BankMed and City Bank. Finally, one respondent didn't specify the bank he decided to evaluate in the submitted questionnaire (0.6%).

For full view of the descriptive statistics of the empirical data please refer to Appendix D.

4.3 Cronbach's Alpha Test of Reliability

In order to prove the internal reliability of the model used, Cronbach's Alpha Test of Reliability was performed. When performing this test, grouped the different items pertaining to the different quality dimensions were grouped and the test was performed on each dimension.

Applying this test specifies whether the items pertaining to each dimension are internally consistent and whether they can be used to measure the same construct (dimension).

Performing this test results in a so-called a-score, a number between 0 and 1, which interpretation determines the internal reliability of the measured variables. According to Nunnally and Bernstein (1994) a-score exceeding 0.7 indicates high internal reliability of the scale items. Despite that, there are still researchers who use different cut-off R-scores like 0.8

or even 0.6 (Garson, 2002). Table 12 below shows the a-scores estimated based on the collected data.

Table 12

Cronbach's Alpha Scores

Dimension	Alpha Score
Efficiency	0.9258
Service Availability	0.8642
Fulfillment	0.9108
Privacy	0.9267
Responsiveness	0.8530
Compensation	0.8305
Contact	0.7452
Website / Overall Value	0.9111
Loyalty	0.9091
Overall Quality	0.8571

What can be seen from Table 12 is that the a-scores on all the theoretical model's dimensions are above 0.7, which indicates that these dimensions are quite reliable and that the items pertaining to each of these dimensions can be used to measure the constructs to which they pertain.

According to Garson (2002), the a-scores increase when the number of items in the scale increases, which implies the assumption that the yielded 0.7 a-scores on the "Contact" dimension could be the very small number of items pertaining to each of these dimensions. It is assumed that if the "Contact" dimension was described using more items, the result would have been different, but that was confined by the conditions under which the survey was performed. However an alpha score of 0.7452 is considered as a high score.

Finally, as mentioned earlier in this work, questionnaires were distributed and from them 181 were initially used. Some of the questionnaires had missing data. But the missing data was minimal and its effect on the alpha test was negligible.

4.4 Principal Component Analysis

In order to analyze the collected data and confirm the usefulness of the theoretical model to the banking context, Factor Analysis was performed on the items of the model with the Principal Component Analysis as an extraction method and Varimax as Rotation method with Kaiser Normalization. Before starting the Factor Analysis, a check for outliers was also carried out in order to be examined whether there are outliers and whether they can influence

the results of the data analysis. Furthermore, Bartlett's Test of Sphericity and KMO Measure of Sampling Adequacy were performed to confirm the suitability of the data for Factor Analysis. After that, when performing the Factor Analysis, in order to decide what number of factors (dimensions in this case) to retain, Kaiser's criterion has been used. Then serious iterations were used in order for the items with low loadings on each of the factors to be eliminated. For the convenience of the reader, a brief theoretical explanation and the results of the performed Bartlett's Test of Sphericity, KMO Measure of Sampling Adequacy and Principal Component Analysis (PCA) are shown in Appendix, which includes tables on KMO and Bartlett's Test, Communalities, Correlation Matrix, Total Variance Explained, Component Matrix, Rotated Component Matrix as well as a Scree Plot. The analysis of the data in these tables is presented in Appendix C.

Before starting the analysis, a check for outliers was performed. The results from this check showed that there are few cases appearing as outliers for the different variables (questions) with no cases appearing as extreme outliers. As suggested by some statistics writers, the extreme outliers must be removed from the data file (Pallant, 2005), but since there are no extreme outliers, hence, zero cases have been removed.

After checking for extreme outliers, Bartlett's Test of Sphericity and KMO Measure of Sampling Adequacy have been performed. The table on KMO and Bartlett's Test in Appendix shows that the result of the Bartlett's Test of Sphericity is 0.000, which meets the criteria of value lower than 0.05 in order for the Factor Analysis to be considered appropriate. Furthermore, the result of the KMO Measure of Sampling Adequacy is 0.928, which exceeds

the minimum value of 0.6 for good factor analysis (Tabachnick & Fidell, 2001). After these preliminary steps, Factor Analysis with Principal Component Analysis as an extraction method has been performed using 181 cases. The analysis of the yielded results is presented below. First of all, besides the Bartlett's Test of Sphericity and the KMO Measure of Sampling Adequacy, presented above, the Correlation Matrix also confirms the suitability of the data for Factor Analysis as it includes considerable number of correlation coefficients higher than 0.3.

Looking at the table on Communalities for all variables together, it can be observed that the extraction value of the communalities of all the variables is sufficiently high. The lowest values pertain to Q26* which have communality of 0.505 and Q20* with 0.458 which is the lowest value. From these values, the communality of Q20* is pretty low - 0.458 , which shows that only 45.8% of the variance of this variable is explained by all factors in the analysis meaning that this variable might be considered for removal from the model. The same goes for Q26* with communality value of 0.505. But since Q26 is explained by 50% of the data, it won't be removed.

Furthermore, the column Total under Initial Eigenvalues in the table Total Variance Explained shows different eigenvalues - what amount of the variance in all variables is explained by the corresponding number of components (dimensions in this case). One of the methods for extraction when performing Principal Component Analysis and used in this study is the Kaiser's criterion, according to which the number of factors to be extracted equals the number of eigenvalues higher than 1. In this case, there are five such numbers,

meaning that five factors should be extracted from the whole data set. The table also shows that 48.47% of the total variance in all the variables of the model is explained by one factor, 56.644% of their variance is explained by two factors, 62.869% of the total variance of all variables is explained by three factors, 67.430% of the total variance is explained by four factors and the five factors explain 71.038% of the total variance of all variables pertaining to the theoretical model. Using the Kaiser's criterion for extraction of factors, the performed Principal Component Analysis in this case leads to the extraction of only four factors, meaning that all the 38 variables (questions) should be regrouped to form only five quality dimensions.

Looking at the Scree Plot, which is another method for deciding the number of factors to extract, it seems that only one factor should be extracted, as the slope of the graph is steep only until number 2 on the horizontal axis. Despite that, as mentioned earlier, the Kaiser's criterion for extraction (with eigenvalues higher than 1) is applied, and based on this criterion five factors will be extracted.

The explanations given above lead to the conclusion, that extraction of five factors seems appropriate in this case. What is the most appropriate way to split the variables in five different dimensions (factors) can be found by analyzing the data presented into the Rotated Component Matrix (Appendix C).

The Rotated Component Matrix shows the correlation between each variable (row) and the different factors (column). Each variable should pertain to that factor with which it

correlates best. In case one variable has similar correlation values to more than one factor, this means that this variable can pertain almost equally well to few factors which implies that the variable itself is not very clearly defined and as such can be dismissed from the model. For convenience, the Rotated Component Matrix included in Appendix C, presents only those correlations higher than 0.3.

Looking at the data presented in the Rotated Component Matrix, it can be observed that the following variables are best correlated to the first factor meaning that the highest percentage of the variance of these variables is explained by the first factor and as such they should be grouped together to represent that factor: Q1* (74.7%); Q2* (61.8%); Q4* (73.7%); Q5* (66.5%); Q6* (79.1%); Q7* (69%), Q8* (79.1%) and Q20* (47.8%). All of these values except Q20* meet the favorable level of 60% for factor loadings in Likert Scale cases. Furthermore, and because Q20* has low communality value (less than 0.5), Q20 will be dropped from the model.

Following the same reasoning, the following variables correlate best to and should be grouped together to represent the second factor: Q21* (50.1%); Q29*(61.8%); Q30* (68.1%); Q31* (63.7%); Q32* (60.2%) and Q33* (66.9%); Q34*(74.7%); Q35*(75%); Q36*(63.1%); Q37*(60.2%) and Q38*(63.5%) meet the favorable level of 60% for factor loadings in Likert Scale cases. Only Q21* is a bit lower than 60% with its 51.4%. Based on the fact that 60% is arbitrary level for good factor loadings in Likert Scale cases and the sufficiently high communality value of Q21* - 0.688 meaning that 68.8% of the variance in this variable is explained by all factors in the model, Q21* will be kept in the model.

The third factor should include the following variables which best correlate to this factor: Q3*(64.3%); Q9*(65.9%); Q10*(63.9%); Q11*(63%); Q12*(61.1%); Q13*(67.4%); Q14*(64%); Q15*(72.6%); Q16*(69.7%) and Q26*(41.9%). All values meet the favorable level of 60% for factor loadings in Likert Scale cases except Q26*. And since Q26* also had low communality value of 0.505, Q26* will be dropped from the model.

The forth factor should be represented by the following variables: Q22* (60.3%); Q23* (69.5%) and Q24* (69.5%); Q25*(75.2%); Q27*(76.7%) and Q28*(73.6%). All these values meet the favorable level of 60% for factor loadings in Likert Scale cases.

Finally, the fifth factor should be represented by the following variables: Q17*(80.9%); Q18*(88.1%) and Q19*(88.7%). And all these values meet the favorable level of 60% for factor loadings in Likert scale.

As a result, according to the analysis of the collected data presented above, the number of dimensions included into the presented in the Literature Review chapter model should be decreased. The performed Factor Analysis with Principal Component Analysis as an extraction method showed that all the variables that pertain to the initial theoretical model are not well grouped to represent the initial ten dimensions and thus should be rearranged to represent five new quality dimensions. Conclusively, the new five quality dimensions should include the following variables: first quality dimension consists of Q1*, Q2*, Q4*, Q5*, Q6* Q7* and Q8*. The second quality dimension consists of Q21*, Q29*, Q30*, Q31*, Q32*, Q33*, Q348, Q35*, Q36*, Q37* and Q38*. Third quality dimension has Q3*, Q9*, Q10*,

Q11*, Q12, Q13*, Q14*, Q15* and Q16*. Forth quality dimension consists of Q22*, Q23*, Q24*, Q25*, Q27* and Q28*. Finally, Fifth dimension has Q17*, Q18* and Q19*.

As the initial variables were almost completely rearranged to form five new quality dimensions, these new dimensions should be defined and labeled in a new way.

The questions pertaining to the first quality dimension are seven and at first sight seem to be quite different in content. Some of the questions regard the easiness to get on the website and the availability of the website. Also the questions regard how organized the website is (organization) and how simple it is for the customer to use this website in order to perform any transaction (structure and content). Reviewing carefully the content of these questions, it can be observed that all of them consider different basic aspects of the performance of the online services itself – the website being available, getting on the website quickly and accurate transactions performed.

Based on this reasoning, this quality dimension is labeled as Efficiency (speed of performance). Although it might seem a bit broad, it captures the converging point among all the questions included in this dimension. Despite the fact that some of the other questions, not pertaining to this dimension might also seem suitable to be part of the Efficiency, they seem to be aspects that are not basic, but rather that can enhance the quality of the Efficiency and as such are given different labels.

Looking at the questions included in the second quality dimension, all of them concern issues related to the overall convenience of the website of the bank, the control over the website, the loyalty and finally the overall quality of the website. Based on this, this quality dimension is labeled as loyalty and overall quality.

After dismissing Q26* from the 3rd dimension, Questions Q3* and Q9* till Q16*, were concerned to prompt the availability, consistency and performance of the bank's website. Based on the contents of these questions, the 3rd dimension has been labeled as Service Performance.

As far as the forth quality dimension is concerned, Q22* till Q28* consider the responsiveness of the website in canceling transactions, offering other services, ability to fix problems and availability of direct contact with the company. As such these questions are considered to evaluate how responsive and communicating the provided online banking services are and based on this reasoning the forth quality dimension is labeled Communication.

Finally, since Q17*, Q18*, Q19* concern the security and the privacy of the website, the 5th dimension was labeled as Security and Privacy.

4.5 Cronbach's Alpha Test of Reliability on Modified Theoretical Model

In order to prove the reliability of the Modified Theoretical model, Cronbach's Alpha Test of Reliability was performed once again. This time the test was conducted on the new modified model consisting of the five quality dimensions shown in the table above. The results of the test are summarized in Table below.

Table 13

Alpha Score on Modified Theoretical Model

Dimension	Alpha Score
Efficiency	0.922
Privacy	0.9267
Service performance	0.9344
Communication	0.889
Loyalty and overall quality	0.9517

What can be seen from Table is that the alpha (a) scores on Efficiency, Loyalty and overall quality, Service Performance, Communication and Service Security and Privacy, are

significantly higher than 0.7, which indicates that those dimensions are highly reliable and that the items pertaining to each of these dimensions can be used to measure the constructs to which they pertain.

From the results of the Cronbach's Alpha Test of Reliability conducted on the modified theoretical model, it can be concluded that as the new a-scores are significantly higher than those of the initial theoretical model, the modified theoretical model can be considered much better constructed and much more reliable than the initial theoretical model.

4.6 Modified Theoretical Model

Based on the conducted Principal Component Analysis and Cronbach's Alpha Test of Reliability, a modified theoretical model has been developed. Below is a short summary of the above presented analysis which has led to the development of an instrument for measuring quality of online banking services.

Factor Analysis with Principal Component Analysis as an extraction method has been conducted in order to eliminate some of the items of the initial model and to prove whether the division and description of the initial factors (dimensions) included into this model are appropriate. The analysis based on the collected data showed that changes to the initial model are required.

First of all, the Principal Component Analysis has proven the incongruity of the division of the initial ten quality dimensions, thus requiring the rearrangement of the items

into five new quality dimensions. Based on the results presented in the tables from SPSS it can be concluded that from the initial ten dimensions the following five dimensions can be constructed: Efficiency, first quality dimension consists of Q1*, Q2*, Q4*, Q5*, Q6* Q7* and Q8*. Loyalty and Overall Quality, second quality dimension consists of Q21*, Q29*, Q30*, Q31*, Q32*, Q33*, Q348, Q35*, Q36*, Q37* and Q38*. Service Performance, third quality dimension has Q3*, Q9*, Q10*, Q11*, Q12, Q13*, Q14*, Q15* and Q16*. Communication, forth quality dimension consists of Q22*, Q23*, Q24*, Q25*, Q27* and Q28*. Finally, Service Security and Privacy, fifth dimension has Q17*, Q18* and Q19*.

Furthermore, given the fact that based on the analysis presented above that all variables were rearranged to form five new quality dimensions, the division of the model into two separate scales does not seem appropriate anymore.

Thus, the modified theoretical model (instrument) which can be used to measure quality of online banking services consists of only one scale with five quality dimensions including total of 36 items (variables). Back to our objectives, this modified theoretical model shows which quality dimensions should banks consider when evaluating their services that are interpreted through the data analysis and Frequencies of the dimensions, which answers the first research question written in the introduction of this thesis which is one of the objectives for the thesis.

Conclusively, the analysis presented in this chapter has led to changes in the initial theoretical model and to the development of an instrument (the modified theoretical model) for measuring quality of online banking services.

4.7 Descriptive Statistics Analysis

In this part of the chapter the Descriptive Statistics information on the collected data based on the modified theoretical model will be analyzed.

4.7.1 Analysis by Quality Dimension

Analyzes of the tables in Appendix showing Frequency of Survey Responses in Percentage according to the five-point Likert Scale and interpretation of the medians of the collected data (Appendix D) will be given in order for the readers to be able to get deeper insight into how customers perceive the quality of the online banking services they use based on the different quality dimensions included in the modified theoretical model. The graphical and median analysis will be done separately for each quality dimension. Before presenting the analysis the authors would like to present their interpretation of the seven-point Likert Scale: 1 – strongly disagree; 2 - disagree; 3 – neutral; 4 - agree; 5- strongly agree.

What is important for the analysis is that achieving adequate level of service quality is always required but not enough for service providers to retain their customers and make them involve in positive word-of-mouth which would enhance the company's image and reputation (Grönroos, 2000). What banks as service providers should strive for is quality level of their services which exceeds their customers' expectations (4 and 5 on the Likert Scale).

Efficiency (Q1*, Q2*, Q4*, Q5*, Q6*, Q7*, Q8*)

The analysis of this quality dimension starts by looking at the data for Q1*. The median of this item is 4, which means that at least 50% of the respondents are satisfied or very satisfied with this aspect of the online banking services, namely how easy to find what the customer wants on the website (Q1*). Looking in Appendix D, it can be observed that only 3.9% of the respondents have stated 2 or below on the Likert Scale, meaning that only 3.9% of the respondents were not satisfied or got the minimum level of service quality as far as the ability to get on the bank's website quickly is concerned. This means that in general banks' websites make it easy for the customer to find what he needs.

Referring to item Q2*, the data shows that in general customers are satisfied with the availability of the bank's website for business (Q2*) which has median of 4. Nevertheless, 24.3% of the respondents have answered 3 or below on Q2*. This number indicates that almost one fourth of the respondents do not receive the desired level of service quality as far as getting anywhere into the bank's website is concerned, thus implying that almost 25% of the banks' customers probably have had problems with launching the website. This is an aspect of the online banking services which is important as the availability of the bank's website leads to the use of the online banking services, and when problems with this occur, customers might get frustrated and that might lead to negative word-of-mouth (complaining to friends etc.); stop using the online banking services of their bank or eventually to switching to another bank.

Furthermore, both Q4* and Q5*, pertaining to this dimension, have medians of 4, which means that at least 50% of the respondents stated 4 or 5 on the Likert Scale, showing that banks have exceeded the expectations (the desired level of service quality) of 50% and even more of their customers, which can be considered as a rather high quality on this aspect of the delivered online banking services. Furthermore, 3.3% of respondents have stated for Q4* 2 on the Likert Scale where no one stated 1 for Q4*. 4.4% responded as below 3 for Q5*. More than 90% of the respondents on both, Q4* and Q5*, have stated slight satisfaction (desired level of service quality) or above on the likert scale.

These extremely high numbers and the lack of respondents stating 1 or 2 on the Likert Scale for both Q4* and Q5* imply that in general banks' website are well organized and their page loads fast.

In addition, both Q6* and Q7*, pertaining to this dimension, have also medians of 4 indicating that at least 50% of the respondents find the bank's website simple to use (Q6*) and consider their bank's site can get them to it quickly (Q7*). Furthermore, the data shows. Both questions show that above 90% of the respondents have stated between 3 and 5 on likert scale. This extremely high number shows that in general banks are rather successful in the website simplicity and form.

According to the median value 4 for Q8*, respondents are relatively satisfied with how well the site is organized (Q8*). This number shows that at least 50% of the respondents are satisfied and very satisfied with the way the website is organized. It can be observed in Appendix D, the high percentage of respondents – 32.6%, that have stated very high

satisfaction with this aspect of the online banking services (5 on the Likert Scale). In addition, only 3.4% of the respondents have stated 3 or below on the Likert Scale, meaning that only 9.5% have not received their desired level of service quality on this aspect of the banks' online services.

Concluding, banks seem to be relatively successful in providing accurate online services. Based on the presented numbers and the argument for the importance of this aspect of the service presented above, it is advisable that banks' managers pay higher attention to this feature of their online services as the percentage of not satisfied customers is considerable. From the conducted survey it becomes clear that banks should try to resolve their customers' problems more quickly and efficiently. Not solving problems quickly might lead to customers feeling that they have received poor quality, the quality of the relationship with them deteriorates and the risk of losing those customers increases (Grönroos, 2000).

Conclusively, looking at all items included into the Efficiency dimension, all of them have medians of 4, meaning that besides the solution of occurring problems, in general customers are relatively satisfied with the Efficiency aspect of the online banking services they use. Furthermore, it can be observed that most of the items pertaining to the Efficiency dimension rank lowest on dissatisfaction (2 or below on the Likert Scale) and highest on satisfaction of respondents (4 or 5 on the Likert Scale), thus confirming the relatively high satisfaction of banks' customers with this aspect of their online services.

Loyalty and Overall Quality (Q21*, Q29*, Q30*, Q31*, Q32*, Q33*, Q34*, Q35*, Q36*, Q37* and Q38*)

The first item under the Loyalty and Overall Quality dimension, Q21*, which asks if the site offers guaranteed services has a median of 4. Only one respondent has stated 1(0.6%) on likert scale. 10 respondents (5.5%) stated 2 on the likert scale which sums dissatisfaction level to 6.1% which is very low. Also 49.7% of the respondents have stated 4 on the likert scale which shows that the customers are satisfied with the guaranteed services offered by the website.

Looking at Q29* and Q30*, both of these questions have a median of 4 which means that more than 50% of the respondents are satisfied with overall convenience and the feeling of control that the site delivers. With 52.5 %(Q29*) and 59.7 %(Q30*) of the respondents stating 4 on the likert scale, it is clear that the customers are satisfied with the convenience and control offered by the website.

Furthermore, Both Q31* and Q32* have a median of 4. Only one respondent stated 1 on likert scale for Q31* where as no one stated 1 for Q32* which shows that almost none of the respondents are strongly dissatisfied with the website services related to these questions. Both Questions have 79.5% of respondents stating that they are more than satisfied (4 or 5 on likert scale). This shows that the respondents are satisfied with the overall value they get for their money and effort and they would say positive things about the website.

Also, Q33*, Q34*, Q35*, Q36* have a median of 4 where the respondents showed a high satisfaction level (4 or 5 on likert scale) with 74% for Q33*, 82.8% for Q34*, 74.5% for Q35* and 66.9% for Q36*. Q35* had a lower percentage of high satisfaction level. However, only 6.1% of the respondents stated 1 or 2 on likert scale where as 27.1% stated 3 on likert scale which shows a good satisfaction level for Q35*. These results show that the customers are highly willing to recommend this site to friends and do more business through this website.

Looking at Q37* and Q38* which are related to overall value and quality, we can see that both questions have a median of 4. With 82.3% and 80.2% of high satisfaction level (4 or 5 on likert scale), and therefore, we can conclude that the customers are satisfied with the overall value and quality provided by the website.

Conclusively, all of the items included into the loyalty and overall quality dimension have median of 4. Based on the interpretations made above, it is true that the customers have reached their desired level of service quality in these quality aspects.

Service Performance (Q3*, Q9*, Q10*, Q11*, Q12*, Q13*, Q14*, Q15*, Q16*)

In this dimension, the website's ability to complete a transaction quickly has been asked (Q3*). Q3* with a median of 4 shows that more than 50% have answered 4 or 5 on likert scale. With 8.3% stating 1 or 2 on likert scale and 65% stating 4 or 5 on likert scale, we can see that the customers are satisfied with the website's ability to complete their transactions quickly.

On the other hand, Q9* which is asks if the site is always available for business, and Q10* which is related to the site's speed of launching have a median of 4.

Only one customer was strongly dissatisfied in Q9* (1 on likert scale) where as no one stated 1 on likert scale for Q10*. In Q9*, 29.3% of the customers were neutral (3 on likert scale) which is a high percentage. However, 62.4% stating 4 or 5 on likert scale proves that the customers are very satisfied with the availability of the website.

On the other hand, Q10* shows that 54.7% of the respondents stating 4 on likert and 17.1% stating 5 on likert scale which shows that 71.8% of the respondents are very satisfied with the website's speed of launching.

Moreover, Q11* and Q12* ask if the site doesn't crash and freeze during any transaction. In Q12* we have one missing data but this low number makes the error very small while analyzing the model. Again, both questions have a median of 4. With 65.8% of the respondents of Q11*'s and 68.3% of the respondents of Q12* stated 4 or 5 on likert scale which shows that the customers are satisfied with the service related to these questions which means that the bank website's don't crash or freeze while performing a transaction.

Other questions asked if the site completes transaction as promised (Q13*) and if the site executes requested transactions within a suitable time frame (Q14*). These questions related to the service performance dimension show that a minimum of 50% of the respondents stated 4 or 5 on the likert scale (median equals 4 for both questions). 3.3% and

3.9% were the respondents of Q13* and Q14* that answered below 3 on likert scale (not satisfied). Zero respondents stated 1 on likert scale for both cases. It's also shown that a high percentage of the respondents stated 4 or 5 on likert scale for both questions, with 74.1% for Q13* and 66.8% for Q14* which shows how the customers are satisfied with these service performance aspects.

Finally, Q15* and Q16* didn't change the scenario related to the service performance dimension, with a median of 4 for both questions.

These questions that are related to the speed of performance and the accuracy of transaction processing, had only one missing data (Q16*). With high percentage of people stating 4 or 5 on likert, Q15* (64.7%) and Q16* (70.5%) have a high level of satisfied customers.

Communication (Q22*, Q23*, Q24*, Q25*, Q27*, Q28*)

The communication dimension has questions related to solutions related to unprocessed transactions (Q22*), the site's ability to handle problems promptly (Q23*) and the site's offer to help fixing any problem.

There are 2 missing values for Q22*, 3 missing values for Q23* and 3 missing values in Q24*. The number of missing values seem bigger than questions related to the previous dimensions which shows that the customers don't have a clear idea related to the questions (Q22*, Q23*, Q24*). But 3 missing values is still a very small number which makes the model's analysis still valid. The mean for the 3 questions is 4.

However, Q22*, Q23* and Q24* had lower percentages of respondents whom stated 4 or 5 on likert scale. 62.6%, 62.4% and 59% are lower percentages compared to the questions related to the previous dimensions. However this number is sufficient enough to show that the customers are satisfied with site's ability to solve problems.

On the other hand, Q25*, Q27*, Q28* also had some missing values with 2 missing values on Q25* and 2 missing values on Q27*. The mean for the 3 questions is also 4 and the percentage of respondents stating 4 or 5 on likert scale varied between the 3 questions. 75.4% and 66.3% were the percentages of the respondents who stated between 4 and 5 for Q25* and Q27* which are high percentages which shows how very satisfied the customers are with the services related to these 2 questions. But Q24* had a lower percentage of people who responded 4 or 5 on likert (58.6%). Taking a look at the percentage of respondents who stated below 3 on Q24*, we can find that 10.6% stated 1 or 2 on likert. This number is considered to be low but the bank should watch over the service of compensation for unfinished requested transaction. It becomes clear that banks need to improve the communication aspect of their online services, because not answering promptly requests by email or other means and not being easily accessible by telephone might lead to not solving customers' problems well and quickly which on its behalf might lead to customers feeling that they have received poor quality, the quality of the relationship with them might deteriorate and the risk of losing those customers may also increase (Grönroos, 2000).

Service Security and Privacy (Q17*, Q18*, Q19*)

These 3 questions had a mean of 4 and very high scores on the respondents who stated between 4 and 5 on likert scale. In Q17* and Q18* no one stated below 3 on likert scale and in Q19* no one stated 1 on likert scale and only one person stated 2 on likert scale. There were no missing values in these questions.

This clearly shows that the Service Security and Privacy dimension is very satisfying for the banking customers, which marks a very good mark for the local Internet Banking service.

4.7.2 Ranking Satisfaction and Dissatisfaction Levels of Customers on Different Quality Dimensions

Based on the collected data, the total percentage of people that answered 3 or below on the Likert Scale for each of the items is calculated. The same has been done for people who have stated 2 or below and 4 or 5. Furthermore, those percentages have been calculated for the different quality dimensions. This has been achieved by summing the relevant percentages of all items pertaining to a given quality dimension and dividing the new total percentage into the number of items that have been summed up, assuming that all items have equal importance (weight) for the given dimension.

The idea behind these calculations is to make conclusions about the relative satisfaction of respondents with each of the items and the different quality dimensions respectively. The results of such an analysis will show which features of the online banking

services need higher attention because of lower customer satisfaction and which features are considered satisfactory by most of the respondents. Based on the analysis and interpretations presented earlier in this chapter and the analysis presented below, managerial recommendations will be given in the next chapter of this work.

The calculated percentages used in this part of the analysis are summarized in (Appendix D). The Table shows the Percentage of the total number of respondents that have stated 3 or below; 2 or below and 4 or 5 on the Likert Scale.

Calculating the percentage of people that have chosen 3 or below on the Likert Scale of the questionnaire reveals how many people in percentage of the total number of respondents have been dissatisfied, received the minimum level of online services quality that they would accept or whose average expectations were met (nor satisfied, nor dissatisfied). The calculations reveal that most customers have shown dissatisfaction or indifference with the following features of the online banking services:

Availability for business (Q9*) with 37.6% (of the total number of respondents); ability to tell the customer what to do if the transaction is not processed (Q22*) with 37.4%; ability to take care of problems (Q23*) with 37.6%; the ability of the website to fix problems (Q24*) with 41%; ability to compensate when a requested transaction isn't processed (Q25*) with 41.3% (Appendix D). These considerably high numbers show that banks do need to pay high attention to those aspects of the online services in order to improve their customers' total satisfaction with the offered online services.

On the other hand, the features of the online banking services with which fewest respondents have shown dissatisfaction or indifference are the following: Ability to perform a transaction quickly (Q4*) with 16%; how well organized the site is (Q8*) with 15%; encouraging friends to use the website (Q34*) with 17.1%; overall quality (Q37*) with 17.2%.

Such an analysis on a quality dimension level reveals that fewest customers have shown dissatisfaction or indifference with the Service Security and Privacy dimension (18.6%), followed by loyalty and quality dimension (23.21%). The dimension on which most customers have shown dissatisfaction or indifference is Communication (35.93%), followed by Service Performance (32.3%) quality dimension of the offered online services.

Going now to the relevant numbers for people who answered 2 or below on the Likert Scale (which means that they have been dissatisfied or they have received the minimum level of service quality they would accept) and those who answered 4 or 5 on the Likert Scale (which means that they have been satisfied and their expectations have been exceeded), it can be observed an interesting fact. The reasons for studying exactly the responses of 2 or below and 4 or 5 on the Likert Scale are the following.

First of all, as the numbers 2 or below on the scale show dissatisfaction or minimum level of acceptable service quality, they are of high importance for banks' managers as the aspects of the online banking services (quality dimensions) that have most such responses are

those that might need immediate amendment so that the total perceived service quality does not decrease (Grönroos, 2000).

Secondly, the 4 or 5 respondents present interest as they show the percentage of respondents whose expectations for the online banking services have been exceeded and they have been satisfied, which can be an indication of the relative success of the service provider to offer high quality to its customers as far as the different aspects of the online services are concerned.

The respective calculations based on the collected data show that least number of respondents have stated higher satisfaction (4 or 5 on the scale) for the following features of the online banking services: fixing problems if created (Q24*) – 59% (of total number of respondents); compensation when a transactions is not processed (Q25*) – 58.6%.In comparison, most people have shown higher satisfaction (4 or 5 on the scale) with encouraging friends to use the website (Q34*) – 82.8%; overall quality (Q37*) – 82.8% and "the site protects bank information" (Q12*) – 82.3% (Appendix D).

If the relevant percentages for the whole dimensions are calculated, in can be observed that fewest customers have shown higher satisfaction (4 or 5 on the scale) for the Communication (64.05%) and Service Performance (67.711%) and most customers have shown higher satisfaction with the loyalty and quality dimension (76.79%) and "Security and Privacy" dimension (81.36%) quality dimensions.

Following the same reasoning for calculating the percentage of people that have stated 2 or below on the Likert Scale reveals that fewest respondents have stated dissatisfaction or received minimum acceptable level of service quality for the following aspects of the online banking services: "protects information about internet banking behavior" and "not sharing personal information with another website" (Q17* & Q18*) – 0%; ease to get into the site's sections (Q2*) – 2.2%; recommend the website to others (Q33*) – 2.2%. In comparison, most people have stated dissatisfaction or minimum acceptable level of service quality for the following features of the online banking services: compensates when a transaction isn't processed (Q25*) – 10.6%; offers the ability to speak to a live person if there is a problem (Q28*) – 12.2% and "consider the website to be the first choice of future transactions" (Q35*) – 8.8%.

Calculating the respective percentages for the whole dimensions shows that fewest customers have shown dissatisfaction or received minimum acceptable level of online services quality for the Security and Privacy (0.2%) and Efficiency (3.785%) quality dimensions and most customers have shown dissatisfaction or minimum acceptable level of online services quality for the Communication (9.68%) and Service Performance (5.1%) quality dimensions.

Presenting all these percentages reveals the interesting fact that Communication and Service Performance dimensions have been convincingly confirmed to be the aspects of the online banking services that need most attention from banks' managers. These are the quality dimensions on which the fewest respondents have shown higher satisfaction (4 or 5 on the

scale) and the most respondents have shown dissatisfaction or received minimum acceptable level of online services quality (2 or below on the scale). These facts imply the need for higher concern of managers for these features of the online banking services.

Furthermore, as far as the Service Performance quality dimension is concerned, which includes ability to complete a transaction quickly, the availability of site for business, the website's speed of launching, the site crash and freezing, the completion of transaction through the website, time frame for executing a transaction speed of performance and accuracy of the processed transaction; it is advisable that bank managers reconsider this aspect of their online services. As in the context of online services, there is no direct interaction between the customers and the bank's employees, the website is the medium of communication between the customers and the bank and customers do mainly interact with the bank's website in order to make use of the online banking services. According to Iwaarden, Wiele, Ball and Millen (2003), there are two reasons for companies to use high quality websites: the first is that as part of the connection between the customers and the company, the website should reflect the total quality efforts pervading in the company; secondly, because of the lack of human interaction in the delivery of online services, the website becomes the "moment of truth" between the company and its customers. Therefore, it can be recommended that the bank's website is organized, structured and designed so that it is made possibly easiest for customers to orient and make use of what the website has to offer. As these features of the online banking services are assumed to be of high importance for the online services delivery, they deserve high attention from banks' managers.

As far as the Communication quality dimension is concerned, which includes the ability to tell if the transaction isn't processed, ability of website to take care of problems promptly, site's ability to fix problems that it creates, the compensation if transaction isn't processed, site's customer service representatives, ability to speak to a live person if there's a problem; it has been proved to be essential in the service delivery process, as the ways a company communicates with its customers and answers any questions and inquiries they have can influence the total perception of service quality as it can be a crucial part of the service recovery process. On its behalf, the service recovery process if done well can have positive impact on the development of trusting relationships with customers and can lead to increased customer satisfaction (Grönroos, 2000).

Furthermore, the prompt response to customers' requests by email is becoming more and more important for improving the overall quality of online services (Jun & Cai, 2001).

Finally, the analysis above also shows that customers tend to be rather satisfied with the "Service Security and Privacy", "Efficiency" and "loyalty and overall quality" quality dimensions of the online banking services they use. This means that banks have been relatively successful in taking good care of the actual performance of the service and the speed of this performance. They have been quite successful in providing privacy and safety of their customers' accounts and personal information and have succeeded to a satisfactory extent to gain their trust in the bank.

What is interesting to observe is that the 3 quality dimensions are quality dimensions which mostly comprise service aspects, essential in the service delivery process not only for the Internet context, but for the traditional settings as well (Bahia & Nantel, 2000; Johnston, 1995; Parasuraman et Al., 1991). In comparison, the Service Performance quality dimension whose questions are related to the website's characteristics for example is highly specific for the Internet context. This means that banks should pay higher attention to those features of the service that are specific for the online space. A reason for the higher dissatisfaction of the customers with the Service Performance dimension of the online banking services might be that banks do not consider this aspect important for the quality of their online services and did not put enough effort to improve it. They might instead have concentrated their efforts on more traditional aspects as safety and privacy of transactions, accuracy of transactions, speed of service delivery and speed for completing a transaction through the website, all of which show higher customer satisfaction. Back to our objectives, the analysis above shows how these service quality dimensions can be used to measure quality of online banking services, which answers the 2nd research question mentioned in the introduction of the thesis.

CHAPTER FIVE

CONCLUSION AND DISCUSSIONS

In this chapter, final conclusions and discussions of the underlying study will be made. Furthermore, recommendations to banks' managers and suggestions for further research in the field are given.

5.1 Conclusion

Taking into consideration the huge investments banks make in Internet infrastructure, customer satisfaction and retention are turning into the crucial factors for success in online banking, meaning that the generation of positive customer value on the Internet requires the establishment of long-term customer relationships (Bauer, Hammerschmidt & Falk, 2005). One of the ways for achieving high customer satisfaction and gaining the loyalty of customers is for banks to offer high quality services. That is why being able to measure and evaluate the quality of their online banking services is deemed important for banks in order for them to take action to correct those features of their online services which customers don't find that satisfactory. Based on previously conducted studies, a slightly changed version of a model developed by Parasuraman, Zeithaml and Malhotra for measuring quality of online services to the banking context has been applied in this study, after deciding on what should be changed in that model in order for an instrument to be developed for measuring the quality of online banking services in particular. Furthermore, based on the applied and later modified theoretical model, an attempt to evaluate the level of

customers' satisfaction with the quality of different aspects of the online banking services the customers use has been taken.

For the purpose of the study, a survey has been conducted with more than 250 people, from which the responses from 181 have been used for the analysis. To analyze the data and test its reliability, Cronbach's Alpha Test of Reliability and Principal Component Analysis were conducted. The Cronbach's Alpha Test of Reliability proved the relative reliability of the dimensions used in the model. Conducting the Principal Component Analysis led to some changes in the initial theoretical model: the number of dimensions was decreased to five, including Service Performance, Loyalty and Overall Quality, Communication, Efficiency and "Security and Privacy"; and two of the items pertaining to the initial theoretical model – Q20* and Q26* were dropped from the model. Finally, the initial two scales of the model were combined into one final scale.

Thus, the final version of the developed study instrument for measuring the quality of online banking services consists of one scale with a total of five quality dimensions: Service Performance, Loyalty and Overall Quality, Communication, Efficiency and "Security and Privacy". According to the conducted study, these are the service quality dimensions that banks should consider when evaluating the quality of their online banking services. This is the answer to Question 1 of the research questions mentioned in Chapter 1 that asks about which service quality dimensions banks should consider when evaluating the quality of their online banking services. Furthermore, thirty six items are used to describe these five dimensions. Banks might use these thirty six items described in this work to measure the

quality of their online services along the five different dimensions of service quality presented in the study.

After modifying the theoretical model, in order to evaluate how customers perceive the quality of the different aspects of the online banking services they use, the descriptive statistics presented in the study have been analyzed. This is the answer to Question 3 of the research questions mentioned in Chapter 1 of the thesis which is about how do customers perceive the quality of different aspects of the online banking services they use. Furthermore, the level of satisfaction of customers with the different quality dimensions pertaining to the modified theoretical model was evaluated, in order to conclude which aspects of the online banking services need improvement and attention and to give recommendations to banks' managers. This is the answer to Question 2 of the research questions mentioned in Chapter 1 of the thesis which is about how the considered service quality dimensions of online banking services can be used to measure the quality of online banking services.

The results have shown that despite some slight differences, the overall conclusions and the ranking of the different quality dimensions as far as customers' satisfaction level is concerned do not change. This leads to the conclusion that considering the satisfaction of customers with the different quality dimensions of the online banking services, the conclusions made and the recommendations given to banks' managers in this study can be considered applicable to different banks.

Based on the performed evaluations mentioned above, the following conclusions can be made. First of all, most customers have shown dissatisfaction or indifference with the following aspects of the online banking services: Availability for business (Q9*); ability to tell the customer what to do if the transaction is not processed (Q22*); ability to take care of problems (Q23*); the ability of the website to fix problems (Q24*); ability to compensate when a requested transaction isn't processed (Q25*). Secondly, banks seem to perform very well on the "Loyalty and overall quality", "Efficiency" and "security and privacy" dimensions of the offered online services as those dimensions rank highest on satisfaction of customers. Finally, the aspects consistently ranking highest on dissatisfaction are Communication and Service Performance which should be considered by banks' managers for immediate improvement areas.

Furthermore, what is interesting to have observed is that the aspects of the online services on which banks rank higher in satisfaction of customers like Security and Privacy, "Loyalty and Overall Quality" and "Efficiency" are not specific for the Internet context, but are typical for the traditional settings as well. In comparison, the aspect of the online services on which banks rank higher in dissatisfaction like the Service Performance dimension is more Internet-specific. A reason for that might be that banks do not consider this feature important for the quality of their online services and have concentrated their efforts on the other aspects of the online services. Nevertheless, because of the lack of human interaction in the online space, it should not be forgotten that the website is the "moment of truth" between customers and their banks as far as online services are concerned, and as such the website should be

consistent with the total quality efforts of the service provider, meaning that a high quality website is an important aspect of the offered online banking services.

5.2 Discussions

In the underlying study an attempt to develop a model for measuring the quality of online banking services based on an already developed model for measuring quality of online services has been made. The conducted research showed that some changes were necessary to the initial theoretical model in order for higher reliability and consistency to be achieved. Furthermore, it should be taken into consideration that this attempt has led to a preliminary constructed model which needs to be further tested and modified based on surveys conducted with larger numbers of respondents from different age-groups and national contexts.

In addition, because of the time and resource constraints of the conducted study, the model was constructed to include limited number of quality dimensions and especially items (38 questions in total) so that the survey would be more convenient and easy to conduct. Although, such surveys with banks' customers (for the specific case) are better to be short and as precise as possible, it would be also good if this thesis provokes interest in other researchers to develop a more elaborated model based on the one presented in this work instrument for measuring online banking services.

Finally, it should be considered also that the developed instrument can be used to measure the satisfaction level of customers with different aspects of online banking services, but does not show the relative importance of each of these aspects in relation to the others,

which would be interesting to do and include in further research as well. Next in this chapter the practical implications of the findings is presented and suggestions for further research are made.

5.3 Recommendations to Banks' Managers

As stated in the previous part on Discussions, there is need for further research and testing of the developed instrument in order for better understanding of the quality dimensions of online banking services and their relative importance. The findings of this study, however, have a few important implications for practitioners.

The analysis of this work includes implications for banks' managers as far as the satisfaction level of their customers with different aspects of the online banking services is concerned. Showing with which features of the online services the customers are really satisfied and with which highly dissatisfied, can be used by banks' managers as a guideline for necessary actions leading to improvements of the quality of the online services they offer.

First of all, based on the analysis, customers have shown highest level of dissatisfaction or indifference with aspects of the online banking services such as: Availability for business (Q9*); ability to tell the customer what to do if the transaction is not processed (Q22*); ability to take care of problems (Q23*); the ability of the website to fix problems (Q24*); ability to compensate when a requested transaction isn't processed (Q25*). In comparison, customers seemed to be most satisfied with aspects of the service such as: with encouraging friends to use the website (Q34*); and "the site protects bank information"

(Q12*). What this means for practitioners is that they have been quite successful in building well-known name and reputation probably through well organized advertising campaigns; they are also quite successful in providing and building confidence in customers. Nevertheless, what deserve their attention foremost are the aspects of the online banking services where most customers have shown dissatisfaction, namely the Communication and Service Performance quality dimensions.

Furthermore, what seems to be the case from the results of the analysis is that banks perform relatively well on aspects of their online services such as "Security and Privacy", "Loyalty and Overall Quality" and "Efficiency" which are not specific for the Internet context but are typical for the traditional settings as well. In comparison, their performance seems to be not that satisfactory as an aspect of the online services such as Service Performance is concerned, which is highly specific for the online space. The conclusion is that managers might be undervaluing this aspect of the online services and concentrating their efforts on more traditional features of the services. This implies lack of understanding of and experience with the specific features and requirements of the online space. What is advisable for managers in this case is to gain better understanding and pay more attention to the Internet specific features of their online services, because they are a very important part of the customer's experience and consequently of customer satisfaction with the online services. Because of the lack of human interaction over the Internet, banks' managers should not forget that the website is the medium of interaction between the bank and its customers as far as the online banking services are concerned, and as such it should represent the total quality efforts of the bank.

In addition, the Communication dimension should be also given higher concern from managers because this dimension might play a crucial role in the recovery part of the service delivery process. Many studies have proven the importance of the recovery process for the total perception of service quality and that if done well, the recovery can have positive effects on the development of trusting relationships with customers and can lead to increased customer satisfaction (Grönroos, 2000). As this dimension showed high dissatisfaction of customers and taking into consideration the importance it can have on the overall perceived quality, it is recommended that managers make immediate corrections and improvements in this area in order to enhance total customer satisfaction.

Finally, it should be remembered that although there are relatively high percentages of people whose expectations have been met as far as "Security", "Loyalty and Overall Quality" and "Efficiency" are concerned, in order for loyalty and positive word-of-mouth to be created, banks should strive to exceed their customers' expectations. Conclusively, the aspects connected with these dimensions can also be improved so that the expectations of customers are not only met, but exceeded, because in the contemporary competitive business environment, banks as service providers should strive for excellence.

5.4 Suggestions for Further Research

Because of the time-constraints and the specific conditions under which the study has been conducted, slightly more than 250 questionnaires were used to collect data and test the theoretical model used to measure quality of online banking services. Although the reliability and validity of the theoretical model used in the conducted study has been proven

to be satisfactory, it should be accepted as a preliminary scale and tested further with higher number of respondents. Furthermore, because of the circumstances of the conducted study, the number of items used in the model to describe each quality dimension is limited and reduced on purpose because of resource- and time-constraints. Further research aimed at creating a more elaborated and detailed instrument for measuring quality of online banking services based on the developed instrument in this work might be conducted.

In addition, a survey based on the developed instrument might be conducted to target respondents from different age ranges.

The underlying study was conducted in the Lebanese context and as such is relevant only for the online services offered by Lebanese banks and the experience of Lebanese Internet banking users. It would be interesting to conduct similar research in other national contexts as well.

Furthermore, the presented modified theoretical model was developed especially for the banking services in the online space. It would be interesting and challenging to test the model on other types of online services, of course with the necessary modifications and changes relevant for the new area of interest.

Finally, the developed instrument measures only the level of customer satisfaction with different quality dimensions characterizing online banking services, but does not show the relative importance of each dimension in comparison to the others. Is there a difference in

the evaluative responses to given aspects of the online banking services among different kinds of respondent groups based on factors such as age, occupation, gender, education, income, etc..? These and other related questions seem worth investigating.

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- Izzat Ramadan and Anis Jaradeh (August 2004), Online Questionnaire for Measuring Service Quality of Internet Banking Services In Lebanon **[On-line]** http://members.lycos.co.uk/izzatramadansurvey/admin
- StatSoft, Inc., (1984-2003) **[On-line]** http://www.statsoft.com/textbook/stfacan.html

NB: *All quotes which were mentioned in my Literature Review were said by these generations in the articles above.*

APPENDIX A

APPENDIX A

COVER LETTER (QUESTIONNAIRE)

Measuring Service Quality of Internet Banking In Lebanon

Dear Internet Banking User:

Ref: Measuring Service Quality of Internet Banking Across Lebanon

Thank you for participating in this Internet banking survey.

In recent times, many banks across Lebanon have begun offering banking services through the Internet. The purpose of this survey is to examine your evaluation of Internet banking services. Using the results of this survey, we hope to gain a better understanding of how Internet banking services can be improved to serve you better.

The success of this survey depends on your participation and frank responses. We would therefore greatly appreciate your assistance in answering the questionnaire. Please do not identify yourself on the survey. Please be assured that your responses will be kept strictly confidential. Individual participants will not be identified in the analysis as only aggregated results will be analyzed and presented.

Please note that this survey does not break Lebanese banking secrecy laws.

If you have any queries, please do not hesitate to contact Izzat Ramadan by email at izhram@yahoo.com

Thank you for your participation

Regards,

Izzat Ramadan
Dr. Fadi Assrawi
Prof. Zafar U. Ahmed
Haigazian University
Beirut, Lebanon

APPENDIX B

QUESTIONNAIRE

SECTION 1

Please tick (v) the appropriate box.

1. Do you perform banking transaction on the internet?

Yes
No

2. If yes, how long have you been using the bank website:

< 3 months
3 to less than 6 months
6 to less than 12 months
12 months or more

3. Frequency of bank website visits:

Weekly
4 or less times a month
5 to 8 times a month
9 to 12 times a month
13 or more times a month

4. Please identify the names of the banks, with whom you conduct internet banking transactions:

1
2
3

SECTION 2

In answering Section 2, please evaluate the website of a bank most preferred by you. (i.e. the website of most preferred bank in question 5 of Section 1). Please state the quality of the Web site's performance on each scale item by circling your choice

Strongly disagree	disagree	neutral	agree	Strongly agree
1	2	3	4	5
Efficiency				
This site makes it easy to find what I need.	1	2	3	4	5
It makes it easy to get anywhere on the site.	1	2	3	4	5
It enables me to complete a transaction quickly.	1	2	3	4	5
Information at this site is well organized.	1	2	3	4	5
This site loads its pages fast.	1	2	3	4	5
This site is simple to use.	1	2	3	4	5
This site enables me to get to it quickly.	1	2	3	4	5
This site is well organized.	1	2	3	4	5
System Availability				
This site is always available for business	1	2	3	4	5
This site launches and runs right away	1	2	3	4	5
This site does not crash	1	2	3	4	5
Pages at this site do not freeze after I enter my transaction information	1	2	3	4	5
Fulfilment				
This site completes transaction as promised	1	2	3	4	5
This site executives requested transactions within a suitable time frame	1	2	3	4	5
It quickly performs a certain transaction	1	2	3	4	5
It delivers its online transaction services accurately	1	2	3	4	5
Privacy				
It protects information about my internet banking behavior	1	2	3	4	5
It does not share my personal information with other sites	1	2	3	4	5
This site protects my bank information	1	2	3	4	5
Responsiveness				
It provides me with convenient options for canceling a transaction	1	2	3	4	5
This site offers guaranteed services.	1	2	3	4	5
It tells me what to do if my transaction is not processed	1	2	3	4	5
It takes care of problems promptly.	1	2	3	4	5
Compensation				
This site can help me fix any problem it creates.	1	2	3	4	5
It compensates me when a transaction requested doesn't happen	1	2	3	4	5
Contact				
This site provides a telephone number to reach the company.	1	2	3	4	5
This site has customer service representatives available for free 24/7.	1	2	3	4	5
It offers the ability to speak to a live person if there is a problem.	1	2	3	4	5

SECTION 3

The value measure consists of three items; please rate the Web site on each item using a scale of 1 (*poor*) to 5 (*excellent*).

Poor----------Neutral----------Excellent

1. The overall convenience of using this site.

1	2	3	4	5

2. The extent to which the site gives you a feeling of being in control.

1	2	3	4	5

3. The overall value you get from this site for your money and effort.

1	2	3	4	5

SECTION 4

The loyalty measure consists of five behavioral items; Please indicate your likelihood of engaging in each behavior on a 5-point scale (1 = *very unlikely*, 5 = *very likely*).

Very Unlikely*.....*Neutral* .....*Very Likely

How likely are you to. . .

1. Say positive things about this site to other people?

1	2	3	4	5

2. Recommend this site to someone who seeks your advice?

1	2	3	4	5

3. Encourage friends and others to do business with this site?

1	2	3	4	5

4. Consider this site to be your first choice for future transactions?

1	2	3	4	5

5. Do more business with this site in the coming months?

1	2	3	4	5

SECTION 5

1. In general, please rate the overall quality of the site on a scale of 1 (*poor*) to5 (*excellent*).

Poor.....Neutral.....Excellent

1	2	3	4	5

2. In general, please rate the overall value based on the satisfaction you get from the site on a scale of 1 (*poor*) to 5 (*excellent*).

Poor.....Neutral.....Excellen t

1	2	3	4	5

SECTION 6

Please tick (v) the appropriate box.

1. Which best describes your age group:

< 25
25-40
41-55
56-65
More than 65

2. Gender:

Male
Female

3. Level of education:

Baccalaureate or less
University student
University graduate
Graduate student
Masters or PhD graduate

4. Average monthly household income:

< $ 1,000
$1000- $1999
$2000- $3999
$4000—or more

5. Please identify your occupation:

-------Technical (technician, nurse, accountant, teacher, salesman, factory worker)
-------Administrator (president, director, Chief Executive Officer)
-------Housewife
-------Self employed (Entrepreneur, Businessman etc.)
-------Secretarial (clerk etc.)
-------Unemployed
-------Professional (doctor, scientist, engineer, lawyer, professor, etc.)
------- Other

APPENDIX C

THANK YOU FOR PARTICIPATING IN THE SURVEY

APPENDIX C

THEORY AND TABLES SUPPORTING THE STATISTICAL ANALYSIS OF THE THESIS (PRINCIPAL COMPONENT ANALYSIS)

For the underlying study Factor Analysis with Principal Component Analysis as an extraction method has been applied. According to Bryant and Yarnold (1995), in order for researchers to apply Factor Analysis, the subjects-to-variables ratio should be no lower than 5. In this study, the authors use 181 responses (subjects) to perform Factor Analysis with Principal Component Analysis as an extraction method on 20 variables, which means that the rule for applicability of this analysis is achieved.

Before Factor Analysis is performed, a check for outliers should be carried out. Outliers are cases with values significantly below or above the majority of all other cases (Pallant, 2005). Using SPSS, a check for outliers can be done, which shows those cases that are outliers (cases that extend more than 1.5 box-lengths from the edge of the box of a Box plot) and those that are extreme outliers (cases that extend more than 3 box-lengths from the edge of the box of a Box plot). According to some statistics writers, all extreme outliers should be removed from the data file, before performing an analysis of that data (Pallant, 2005).

Furthermore, before the conduction of Factor Analysis, Bartlett's Test of Sphericity and Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy should be performed to confirm the adequacy and suitability of the data for Factor Analysis. In order for the data to be considered appropriate for conducting Factor Analysis, the result of the Bartlett's Test of Sphericity should be significant ($p<0.05$) and the result of KMO Measure of Sampling Adequacy should exceed the minimum level of 0.6 for good Factor Analysis (Tabachnick & Fidell, 2001). The results of these tests in the underlying study are presented in the table KMO and Bartlett's Test below.

Factor analysis is a data-reduction method "used to identify factors that statistically explain the variation and co-variation among measures" (Green, Salkind & Akey, 2000, p. 292). The variables in such an analysis preferably should be quantitative, have a wide range of scores and be symmetrically distributed. Factor analysis includes two steps to be performed: make initial decision about the number of factors (Principal Component Analysis is used in this step) and then manipulate the outputs to make the factors easier to understand and to make final decisions about the number of factors (Varimax Rotation Method can be used in this step) (Green, Salkind & Akey, 2000).

Conducting the Principal Component Analysis with Varimax Rotation Method has led to the results presented in the tables entitled Communalities, Correlation Matrix, Total Variance Explained, Component Matrix, Rotated Component Matrix as well as a Scree Plot.

The Correlation Matrix shows the correlation coefficients between the different variables included in the analysis. The Correlation Matrix should include at least some correlation coefficient of 0.3 or above, in order for it to be considered suitable for Factor Analysis.

The suitability of the data for Factor Analysis can also be proven by conduction of Bartlett's Test of Sphericity and KMO Measure of Sampling Adequacy presented above (Pallant, 2005).

The Component Matrix contains factor loadings which represent the correlation coefficients between the variables (rows in the table) and the factors (columns in the table). The percent of variance in the variable explained by given factor is represented by the squared factor loading (Garson, 2002).

The value that a factor loading should have in order for that variable to be considered a defining part of that factor is purely arbitrary. Nevertheless, a minimum of 0.3 or 0.35 is used by common social science practice. According to the research context the value of the factor loadings can have different interpretation. For a Likert Scale studies a 0.6 might be required for the factor loading to be considered high (Garson, 2002).

Communality is used to measure the percent of variance in a given variable explained by all the factors together. It can be interpreted as the reliability of the indicator. If the communality value of given variable is low, then this variable should be probably removed from the model, because the factor it pertains to cannot explain its variance enough.

Nevertheless, the interpretation of the values of communalities should be done in relation to the interpretation of the factors. Sometimes, communality of 0.75 can be considered high and under other circumstances communality of 0.25 can be considered sufficient. What is important is the role that this variable plays in explaining given factor, and when the communality is higher, this role is also greater. The table on Communalities consists of Initial and Extracted Values. The Initial Values will be always 1.0 as in this case the number of factors is equal to the number of variables. The extracted value represents the percent of variance in a given variable explained by the extracted factor. As in this case the extracted factors will be less than all possible values, the extracted value will be lower than 1.0 (Garson, 2002).

In the table Total Variance Explained, eignevalues are presented. The variance in all the variables which is accounted for by given factor is measured by the eigenvalue for this factor. If the eigenvalue of a given factor is low, this means that this factor explains little of the variance in the variables and can be dismissed from the model. Thus, the eigenvalue measures the amount of variation in the variables which is explained by a given factor (the total variance in the table Total variance explained should be equal to the number of variables). Furthermore, in the table Total variance explained, the initial eigenvalues and those after extraction are the same when Principal Component Analysis is performed, and the eigenvalues in the column "Rotated Sums of Squared Loadings" will be lower (Garson, 2002). The data presented in the table Total Variance Explained can be used to determine the number of factors to extract, following one of the most common techniques for extraction of factors – Kaiser's criterion (eigenvalue rule). According to the Kaiser's criterion the number

of factors to be extracted should equal the number of eigenvalues higher than1 (Pallant, 2005).

Another approach for determining the number of factors to be extracted is by using the Scree plot (Catell's scree test). According to this method, the number of factors to be extracted should equal the number of points above the point at which the shape of the curve on the Scree plot changes its direction and becomes more horizontal (Pallant, 2005).

In order to make the output of the analysis easier to understand Rotation can be used which is also necessary to help for the interpretation of factors. After Rotation is performed, the eigenvalues of given factors and the factor loadings will be changed. There are exists number of Rotation Methods and one of the most common ones is the Varimax Rotation Method, which makes it possibly easiest to associate given variable with a single factor (Garson, 2002).

The tables presented in Appendix C show the results of conducted Principal Component Analysis in tabular and graphical form. Tables on Communalities, Correlation Matrix, Total Explained Variance, Component Matrix, and Rotated Component Matrix for the whole data set are presented.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.928

Bartlett's Test of Sphericity

Approx. Chi-Square	6378.488
df	703
Sig.	.000

Communalities

	Initial	Extraction
Easy to find	1.000	.742
Get anywhere	1.000	.698
Complete a transaction	1.000	.700
Info is organized	1.000	.614
Loads fast	1.000	.634
Simple to use	1.000	.742
Get to it quickly	1.000	.686
Well organized	1.000	.744

Always available	1.000	.654
Launches and runs	1.000	.741
Doesn't crash	1.000	.697
Doesn't freeze	1.000	.747
Completes as promised	1.000	.760
Suitable time frame	1.000	.711
Certain transaction	1.000	.750
Services accurately	1.000	.675
Protects info	1.000	.832
Doesn't share	1.000	.874
Protects my bank info	1.000	.860
Options for canceling trans	1.000	.458
Guaranteed services	1.000	.688
Tells if not processed	1.000	.724
Takes care of problems	1.000	.735
Helps to fix	1.000	.745
Compensates me	1.000	.693
Provides a telephone #	1.000	.505
Has customer representation	1.000	.635
Ability to speak	1.000	.692
Overall convenience	1.000	.741
Feeling of being in control	1.000	.672
Your money and effort	1.000	.717

Say +ve things	1.000	.712
Recommend this site	1.000	.685
Encourage friends	1.000	.697
Site is your 1st choice	1.000	.794
Do more business	1.000	.765
Overall quality site	1.000	.750
Overall value	1.000	.725

Total Variance Explained

Component	Total	% of Variance	Cumulative %
1	18.419	48.470	48.470
2	3.106	8.174	56.644
3	2.366	6.225	62.869
4	1.733	4.562	67.430
5	1.371	3.608	71.038
6	0.917	2.412	73.450

Component Matrix

Component	1	2	3	4	5
Q1	0.713	0.264	-0.378	0.144	1.028E-02
Q2	0.776	0.269	-0.148	1.889E-02	4.287E-02
Q3	0.754	0.169	3.285E-02	-0.281	0.151
Q4	0.597	0.212	-0.417	0.141	0.137
Q5	0.692	7.055E-02	-0.287	-1.591E-02	0.258
Q6	0.683	0.322	-0.360	0.101	0.178
Q7	0.734	0.257	-0.241	7.724E-03	0.152
Q8	0.674	0.199	-0.474	0.138	7.823E-02
Q9	0.717	-4.066E-02	0.178	-0.311	9.702E-02
Q10	0.780	-1.391E-02	3.369E-02	-0.255	0.257
Q11	0.648	0.347	0.153	-9.150E-02	0.354
Q12	0.694	0.435	9.173E-02	-0.112	0.235
Q13	0.739	0.204	0.392	-0.137	-3.267E-02
Q14	0.762	0.208	0.261	-0.127	4.573E-02
Q15	0.749	3.179E-02	0.208	-0.376	4.665E-02
Q16	0.670	3.687E-02	0.402	-0.249	9.499E-03
Q17	0.600	0.424	0.382	0.334	-0.187
Q18	0.516	0.520	0.343	0.401	-0.246
Q19	0.450	0.564	0.277	0.450	-0.245
Q20	0.632	-6.383E-02	-0.180	9.579E-02	0.110
Q21	0.806	-0.108	0.141	3.263E-02	-8.196E-02
Q22	0.711	-0.452	4.181E-02	0.111	9.483E-03
Q23	0.657	-0.477	-3.709E-03	0.262	7.978E-02
Q24	0.667	-0.446	-6.960E-02	0.274	0.146
Q25	0.582	-0.472	0.130	0.266	0.210
Q26	0.591	-6.046E-02	0.371	0.111	4.558E-02
Q27	0.408	-0.394	0.170	0.497	0.194
Q28	0.431	-0.375	0.447	0.188	0.362
Q29	0.829	-6.221E-02	-0.154	-6.107E-02	-0.151
Q30	0.707	-0.165	-0.201	9.446E-02	-0.309
Q31	0.796	-0.138	-0.164	4.283E-02	-0.188
Q32	0.819	-0.103	-9.389E-02	-8.228E-02	-0.125
Q33	0.760	-3.928E-02	-5.687E-02	-7.645E-02	-0.310
Q34	0.720	-0.172	-0.106	-8.240E-02	-0.362
Q35	0.741	-0.399	-2.760E-02	-0.188	-0.225
Q36	0.728	-0.242	0.253	-0.266	-0.203
Q37	0.818	-5.337E-02	-0.229	-0.124	0.105
Q38	0.805	-0.174	-0.159	-9.515E-03	-0.147

Rotated Component Matrix

Component	1	2	3	4	5
Q1	0.747	0.321	0.127	7.356E-02	0.242
Q2	0.618	0.311	0.362	9.272E-02	0.281
Q3	0.440	0.285	0.640	8.170E-02	9.454E-02
Q4	0.737	0.197	8.311E-02	0.103	0.118
Q5	0.665	0.222	0.305	0.222	-9.160E-03
Q6	0.791	0.170	0.212	7.530E-02	0.190
Q7	0.690	0.235	0.334	0.104	0.177
Q8	0.791	0.2696	7.342E-02	0.100	0.126
Q9	0.223	0.361	0.659	0.197	3.438E-02
Q10	0.426	0.289	0.639	0.258	-2.507E-02
Q11	0.466	-4.086E-02	0.630	0.143	0.248
Q12	0.520	4.937E-02	0.611	3.208E-02	0.315
Q13	0.160	0.298	0.674	0.147	0.412
Q14	0.291	0.277	0.640	0.157	0.340
Q15	0.219	0.394	0.726	0.117	7.926E-02
Q16	5.452E-02	0.315	0.697	0.187	0.229
Q17	0.193	0.161	0.305	0.148	0.809
Q18	0.200	0.115	0.202	6.070E-02	0.881
Q19	0.235	6.437E-02	0.114	2.060E-02	0.887
Q20	0.478	0.303	0.190	0.311	6.167E-02
Q21	0.259	0.501	0.408	0.371	0.258
Q22	0.195	0.519	0.231	0.603	7.518E-02
Q23	0.235	0.429	0.108	0.695	1.660E-02
Q24	0.321	0.386	9.989E-02	0.695	-9.496E-03
Q25	0.153	0.269	0.179	0.752	1.280E-02
Q26	6.455E-02	0.220	0.419	0.415	0.325
Q27	9.254E-02	0.105	-1.894E-02	0.767	0.161
Q28	-6.495E-02	0.287E-04	0.376	0.736	6.744E-02
Q29	0.451	0.618	0.313	0.201	0.134
Q30	0.352	0.681	6.620E-02	0.230	0.168
Q31	0.415	0.637	0.204	0.274	0.150
Q32	0.396	0.602	0.352	0.237	0.114
Q33	0.301	0.669	0.290	0.116	0.222
Q34	0.247	0.744	0.209	0.148	0.131
Q35	0.152	0.750	0.326	0.314	-6.354E-02
Q36	8.058E-03	0.631	0.543	0.249	9.223E-02
Q37	0.505	0.602	0.323	0.158	5.294E-02
Q38	0.410	0.635	0.249	0.289	9.083E-02

APPENDIX D

DESCRIPTIVE STATISTICS

Frequencies (Frequency of Visits)

Frequency of Visit	Frequency	Percent	Valid Percent	Cumulative Percent
	2	1.1	1.1	1.1
13 or more times/month	15	8.3	8.3	9.4
4 or less times/month	36	19.9	19.9	29.3
5 to 8 times/month	25	13.8	13.8	43.1
9 to 12 times/month	5	2.8	2.8	45.9
once/week	96	53.0	53.0	98.9
weekly	2	1.1	1.1	100.0

Frequencies (Length of Internet Use)

Length of Use	Frequency	Percent	Valid Percent	Cumulative Percent
12 months or more	56	30.9	30.9	30.9
3 to less than 6 months	41	22.7	22.7	53.6
6 to less than 12 months	36	19.9	19.9	73.5
less than 3 months	48	26.5	26.5	100.0
Total	181	100.0	100.0	

Frequencies (Gender)

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
	1	.6	.6	.6
female	66	36.5	36.4	37.0
male	114	63.0	63.0	100.0
Total	181	100.0	100.0	

Frequencies (Age Group)

Age	Frequency	Percent	Valid Percent	Cumulative Percent
25-40	85	47.0	47.0	47.0
41-55	32	17.7	17.7	64.6
56-65	7	3.9	3.9	68.5
less than 25	55	30.4	30.4	98.9
more than 65	2	1.1	1.1	100.0
Total	181	100.0	100.0	

Frequencies (Level of Education)

Education Level	Frequency	Percent	Valid Percent	Cumulative Percent
Bacc or less	23	12.7	12.7	12.7
graduate student	19	10.5	10.5	23.2
Masters or PhD graduate	24	13.3	13.3	36.5
university graduate	90	49.7	49.7	86.2
university student	25	13.8	13.8	100.0
Total	181	100.0	100.0	

Frequencies (Monthly Household)

Income/Month	Frequency	Percent	Valid Percent	Cumulative Percent
	5	2.8	2.8	2.8
$1000-$1999	60	33.1	33.1	35.9
$2000- $3999	1	.6	.6	36.5
$2000-$3999	27	14.9	14.9	51.4
$4000 or more	8	4.4	4.4	55.8
less than $1000	80	44.2	44.2	100.0
	Frequency	Percent	Valid Percent	Cumulative Percent

Frequencies (Occupation)

Occupation	Frequency	Percent	Valid Percent	Cumulative Percent
	1	.6	.6	.6
administrator	40	22.1	22.1	22.7
housewife	5	2.8	2.8	25.4
other	18	9.9	9.9	35.4
professional	30	16.6	16.6	51.9
secretarial	13	7.2	7.2	59.1
self employed	15	8.3	8.3	67.4
technical	56	30.9	30.9	98.3
unemployed	3	1.7	1.7	100.0
Total	181	100.0	100.0	

Frequencies (Banks)

Bank	Frequency	Percent	Valid Percent	Cumulative Percent
Audi	39	21.5	21.5	21.5
Bankmed	1	.6	.6	22.1
BBAC	8	4.4	4.4	26.5
BLF	2	1.1	1.1	27.6
BLOM	28	15.5	15.5	43.1
BNPI	19	10.5	10.5	53.6
BOB	3	1.7	1.7	55.2
Byblos	19	10.5	10.5	65.7
Capital One	1	.6	.6	66.3
City Bank	1	.6	.6	66.9
Credit Libanais	3	1.7	1.7	68.5
Fransabank	2	1.1	1.1	69.6
HSBC	21	11.6	11.6	81.2
Lebanese Canadian	4	2.2	2.2	83.4
Lebanese Swiss	2	1.1	1.1	84.5
SGBL	28	15.5	15.5	100.0
Total	181	100.0	100.0	

Descriptive Statistics on Modified Theoretical Model

Question	N	Minimum	Maximum	Mean	Std. Deviation	Median
Q1	181	1	5	4.0552	0.8164	4
Q2	181	2	5	3.9724	0.7411	4
Q3	180	1	5	3.7778	0.8941	4
Q4	181	2	5	4.0994	0.7387	4
Q5	180	1	5	3.894	0.8085	4
Q6	181	1	5	4.0110	0.8096	4
Q7	180	1	5	3.7833	0.8861	4
Q8	180	1	5	4.1389	0.7678	4
Q9	181	1	5	3.7072	0.8611	4
Q10	181	2	5	3.8343	0.7711	4
Q11	181	2	5	3.8066	0.7826	4
Q12	180	1	5	3.8278	0.7827	4
Q13	181	2	5	3.9392	0.7829	4
Q14	181	2	5	3.8287	0.7735	4
Q15	181	2	5	3.7569	0.8209	4
Q16	181	2	5	3.9167	0.7972	4
Q17	181	3	5	4.0829	0.6657	4
Q18	181	3	5	4.0829	0.6902	4
Q19	181	2	5	4.1492	0.7109	4
Q20	180	1	5	3.733	0.8363	4
Q21	180	1	5	3.8444	0.8311	4
Q22	179	1	5	3.6536	0.8758	4
Q23	178	1	5	3.646	0.8189	4
Q24	178	1	5	3.5899	0.8338	4
Q25	179	1	5	3.5922	0.8844	4
Q26	181	1	5	4.1160	0.8517	4
Q27	179	1	5	3.9330	1.0089	4
Q28	181	1	5	3.6796	1.0039	4
Q29	180	2	5	3.9333	0.7882	4
Q30	180	1	5	3.9056	0.7300	4
Q31	179	1	5	3.9665	0.7412	4
Q32	181	2	5	4	0.7226	4
Q33	181	2	5	3.9503	0.7474	4
Q34	181	1	5	4.0884	0.7695	4
Q35	181	1	5	3.8398	0.9017	4
Q36	181	1	5	3.8066	0.8636	4
Q37	180	2	5	3.9724	0.6725	4
Q38	181	2	5	3.9724	0.6785	4

Frequencies of Efficiency Dimension

Question	% below 3(Likert Scale)	% below 2(Likert Scale)	% 4 or 5(Likert Scale)
Q1	19.3	5	80.6
Q2	24.3	2.2	75.7
Q4	16	3.3	65
Q5	26.1	4.4	73.9
Q6	26	2.2	74
Q7	36.7	6.1	63.4
Q8	15	3.3	85
Average	23.34286	3.785714	73.85714

Frequencies of Loyalty and Overall Quality Dimension

Question	% below 3(Likert Scale)	% below 2(Likert Scale)	% 4 or 5(Likert Scale)
Q21	29.4	6.1	70.6
Q29	24.4	5	75.6
Q30	22.8	2.8	77.2
Q31	19.6	3.9	80.5
Q32	20.4	2.8	79.6
Q33	26	2.2	74
Q34	17.1	3.3	82.8
Q35	25.4	8.8	74.5
Q36	33.1	6.1	66.9
Q37	17.2	2.2	82.8
Q38	19.9	2.2	80.2
Average	23.20909	4.127273	76.79091

Frequencies of Service Performance Dimension

Question	% below 3(Likert Scale)	% below 2(Likert Scale)	% 4 or 5(Likert Scale)
Q3	35	8.3	65
Q9	37.6	8.3	62.4
Q10	28.2	5.5	71.8
Q11	34.3	3.9	65.8
Q12	31.7	2.8	68.3
Q13	26	3.9	74.1
Q14	33.1	3.3	66.8
Q15	35.4	6.6	64.7
Q16	29.4	3.3	70.5
Average	32.3	5.1	67.71111

Frequencies of Communication Dimension

Question	% below 3(Likert Scale)	% below 2(Likert Scale)	% 4 or 5(Likert Scale)
Q22	37.4	7.8	62.6
Q23	37.6	9	62.4
Q24	41	9.6	59
Q25	41.3	10.6	58.6
Q27	24.6	8.9	75.4
Q28	33.7	12.2	66.3
Average	35.93333	9.683333	64.05

Frequencies of Security and Privacy Dimension

Question	% below 3(Likert Scale)	% below 2(Likert Scale)	% 4 or 5(Likert Scale)
Q17	18.2	0	81.7
Q18	19.9	0	80.1
Q19	17.7	0.6	82.3
Average	18.6	0.2	81.36667