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INTERNET BANKING IN GREECE: DEVELOPMENT, EVALUATION AND PERSPECTIVES

By

Andreas-Nikolaos Papandreou

Supervisor: Anders Hederstierna

Dedicated to my dear mother Olga, for all her support during the years of my studies.

Executive Summary

Abstract: Revolutionary developments in marketing, information and communications technology continue to transform the banking and financial industry. Distribution of banking services through the Internet is an important part of this transformation. The objectives of this thesis are mainly to examine the role, which Internet banking can play as a new distribution channel of banking services for the benefit of both financial institutions and customers in Greece. The study explores the growth in on-line banking services and the ways in which financial institutions in Greece can take advantage of Internet technology to offer successful and cost-effective banking solutions. Moreover, this thesis addresses the key issues of concern to the banks regarding their strategic positioning and the products/services they offer or could offer on the Internet. Technology can help banks build an integrated delivery strategy for effective multi-channel management. Results identify the reasons why Greek banks use Internet banking and their effect and place an emphasis on the strategic impact of Internet technology as a core element of financial services. Greek banks want to expand their existing distribution channels using the Internet as another alternative channel. Internet banking in Greece is on its way to become the centerpiece of direct banking strategies.

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Author: Andreas-Nikolaos Papandreou

Supervisor: Anders Hederstierna

Institution: School of Management,
Blekinge Institute of Technology, Sweden

Course: Master Thesis in Business Administration

Purpose: The purpose of this thesis is mainly to examine the role, which Internet banking can play as a new distribution channel of banking services for the benefit of both financial institutions and customers in Greece. The study explores the growth in on-line banking services and the ways in which financial institutions in Greece can take advantage of Internet technology to offer successful and cost-effective banking solutions.

Method: Research method includes a combination of theoretical analysis (literature review) and empirical analysis (questionnaires). A structured questionnaire survey was conducted on 35 banks operating in Greece.

Conclusion: Results identify the reasons why Greek banks use Internet banking and their effect and place an emphasis on the strategic impact of Internet technology as a core element of financial services. Greek banks want to expand their existing distribution channels using the Internet as another alternative channel. Internet banking in Greece is on its way to become the centerpiece of direct banking strategies.

Keywords: Internet banking, e-banking, online banking, distribution channel, financial services, Greece

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CHAPTER ONE: INTRODUCTION AND BACKGROUND

1.1 Introduction

The global credit system has undergone a process of reformation and reorientation, both at structural and organizational levels. The banking sector has been at the heart of this procedure. Phenomena of mergers and acquisitions, globalisation and internationalisation of services and products, changes in organizational structures, innovation policies and practices, are just some examples of the worldwide changes in the banking industry.

Banks perform intermediation functions that are vital to a country's economic growth and development. Banking services have evolved from an early emphasis on deposit taking (primarily demand deposits and savings accounts) and short-term loans into a much wider range of deposits and loans. Operating in a dynamic environment, banks need to intensify their approach towards service quality in an attempt to increase sales volume, market share and ultimately their profit. One of the strategies that have been offered for success in such a business is the delivery of high service quality. As banking clientele has become more financially sophisticated, so have bank operations that have expanded from traditional commercial banking services to investment services, fund management services, insurance brokerage and other financial services. Moreover, technological developments such as the use of computers and especially the Internet and the World Wide Web can facilitate these bank operations.

Given the wealth of opportunities that the Internet creates for financial institutions, having a strong on-line presence is becoming a strategic necessity for most of them and raises the importance of the Internet as a strategic distribution channel for providing banking services. According to Mols (2001), there has been a considerable growth in the segment of consumers preferring Internet banking due to the increase in computer literacy, the availability of computers and the reduction in the costs of PCs and Internet access. This fact will change the optimal distribution structure for most banks and financial institutes.

Especially in Greece, although the use of Internet is not the expected one, Internet banking continues to increase because of Internet's easiness in use, its low cost and the requirement from some public authorities to only receive online payments.

1.2 Background

Due to changes in the European banking sector and expansion plans in the Balkan region, Greek banks are trying to strengthen their position in the market and improve their efficiency. Greek banks are trying to find new distribution channels and methods of providing their services in order to maintain and increase their share in the market. An appealing method of doing that is through the Internet because it can offer banking services at cheaper prices to more potential clients and the transactions can be carried out from anywhere in the world at any time of day or night. This means that by using Internet technology, financial institutions can establish a direct link to customers and

improve their market shares while increasing their profits, without paying the high cost of building new branches.

1.2.1 Structure of the financial system in Greece

Until the late 1980s, the financial system in Greece functioned under many bureaucratic rules and regulations that restricted competition and market development (Mylonidis and Kelnikola 2005). However, the Greek banking sector in Greece, which was once dominated by the government, has been transformed in recent years. There is a recent financial deregulation and market liberalization because of the convergence with European Union standards, competition and privatisation. Participation in the European Union has encouraged the convergence of banking services, while the introduction of the Euro and European integration has increased competition among banks. The continuous privatisation of public banks has further restructured the Greek banking industry. These reforms have mostly taken place through mergers and acquisitions, with ownership remaining in local hands. Such developments are expected to continue within the new and dynamic international and domestic financial environment; nevertheless, a bigger role for foreign institutions (through ownership of Greek banks and/or formation of strategic alliances) is expected to appear.

The Greek financial system had a remarkable transformation during the 1990s and is still evolving rapidly as a result of the continuing liberalisation process and its integration into the European financial market. Consequently, the actual state of the Greek financial system is best described in the context of the on-going process of financial reform and restructuring.

The structural changes in the Greek banking system included among others (Gortsos 2005):

- Interest rate deregulation
- Liberalisation of cross-border capital movement
- Abolition of direct credit controls
- De-specialisation of credit institutions
- Modernisation of money and capital markets as well as payments systems
- Rationalisation of monetary policy- adoption of the single European currency

Moreover, the European Union banking Directives and regulations towards the establishment of a single financial market have led to the following developments (Gortsos 2005):

- Freedom to provide cross-border financial services within the European Union
- Minimum harmonization of Greek legislation to European standards
- Enhancement of prudential supervisory measures (capital requirements, large exposures, internal controls, corporate governance)
- Creation of a deposit guarantee scheme
- Enactment of money laundering legislation
- Enactment of extensive legislation on the operation of capital market and financial intermediaries providing services in them

- Implementation of International Accounting Standards

The liberalisation measures in the Greek financial sector have given the banking system the following characteristics (Gortsos 2005):

- Being subject to monetary and foreign exchange policies performed at a European level
- Full integration into the single European financial market
- Universal banking prototype (banks may engage in-house in both commercial banking and investment banking services- they can also provide bank assurance services)
- Segmentation of supervisory authorities (Bank of Greece, Capital market Commission, Supervisory Committee of Private Insurance)

Nowadays, the European economic and monetary union is concentrating Greek banks on boosting their competitiveness in what will become a much tougher market. Greek banking is characterised by the strong presence of the Central Bank (Bank of Greece) which supervises and controls the banking sector, intervening, if necessary, to secure the smooth operation of the banks. Furthermore, Greek banks are expanding in the Balkan markets and support strategic cooperation with distinguished international credit institutions in order to take advantage of synergistic effects and know-how transfers, to expand distribution networks and to secure a position in major international financial centers (Mylonidis and Kelnikola 2005).

The Greek financial intermediaries include (Gortsos 2005, Hellenic Bank Association 2006): a) Credit institutions such as commercial banks, specialised credit institutions and cooperative banks, b) Financial institutions such as leasing companies, credit card issuers, foreign exchange bureaus, venture capital companies and payment institutions, c) Market intermediaries providing investment services: either on a collective basis (mutual fund management companies and investment fund management companies) or on an individual basis (investment firms).

According to the Hellenic Bank Association, at the beginning of year 2005 the credit institutions operating in Greece consisted of 21 commercial banks incorporated in Greece (with a steadily increasing participation of foreign institutional investors in their capital basis), branches of 19 commercial banks incorporated in other member states of the European Union, branches of 4 commercial banks from third (non-EU countries), 2 specialised credit institutions and 16 cooperative banks (see table 1.1).

	Banks
Greek Commercial Banks	21
Foreign Commercial Banks	23
Specialised Credit institutions	2
Cooperative banks	16
Total	62

Table 1.1: Credit Institutions operating in Greece during 2005 (Hellenic Bank Association 2006)

Commercial banks in Greece offer all kinds of banking services, at the same time expanding their activities through the markets operating in Greece and abroad.

However, there is a strong competition among commercial banks and other financial institutions in Greece.

	Assets		Loans		Deposits	
	2003	**2004**	**2003**	**2004**	**2003**	**2004**
Greek Commercial Banks	82.1	80.9	84.5	85.1	82.6	81.8
Foreign Banks	9.3	10	9.4	8.8	7.3	8.2
Specialised Credit institutions	8	8.4	5.2	5.1	9.4	9.2
Cooperative banks	0.6	0.7	0.9	1.0	0.7	0.8
Total	100	100	100	100	100	100

Table 1.2: Market Shares (%) of Credit Institutions operating in Greece (Hellenic Bank Association 2006)

The banking sector in Greece is relatively concentrated. The five biggest banks (The National Bank of Greece, Alpha Bank, EFG Eurobank Ergasias, Emporiki Bank and Piraeus Bank) accounted for 65% of assets, 67% of loans and 65% of deposits in 2004 (IMF 2006).

Recently, changes took place in the Greek banking system. Credit institutions became commercial banks; investment banks stopped their operations, new banks have been established, while some banks have been bought or merged and now operate under new name and management. However, the Greek banking system needs to consolidate and strengthen its position in order to survive at the European Monetary Union playing field. Greece does not need so many banks to operate and future market conditions will not support the inefficient ones.

1.3 Problem Formulation

The problematic that is going to be investigated in this thesis is the role, which Internet banking can play as a new distribution channel of banking services for the benefit of both financial institutions and customers in Greece.

The study aims to explore the growth in on-line banking services and the ways in which financial institutions in Greece can take advantage of Internet technology to offer successful and cost-effective banking solutions. Moreover, this thesis will address the key issues of concern to the banks regarding their strategic positioning and the products/services they offer or could offer on the Internet.

1.4 Methods

As already mentioned, this thesis aims to examine the impact of Internet banking on the financial services industry.

Research methodologies will include a combination of theoretical analysis (literature review) and empirical analysis (questionnaires). Data will be collected from publications (secondary data) and questionnaires (primary data).

Studying of recent publications will constitute the literature review in this thesis. The aim of the literature review is to show what has been done in the field and how the current study relates to earlier research. The review will give an overview of the findings of various previous studies and identify general patterns of the findings and the conclusions that can be made. The need for the literature review is to serve as a foundation for rational reasoning on which the current topic can be built upon. This will give an insight of the current status of Internet banking and especially marketing of banking services through the Internet in Greece.

For this thesis, secondary data was collected from various publications to better understand and explain the research problem. These publications include general statistics, internal sources, government publications, periodicals and books, online data sources, business information, commercial data, associations, research reports and international information (Kotler 2003).

As part of the study, a questionnaire (see Appendix A) was sent to a number of banks (see Appendix C) operating in Greece, representing a fair share of both banks that offer some level of interaction with the customers and banks that provide full Internet banking via their WWW pages. According to Berdie (1986), a questionnaire is a series of predetermined questions that can be either self-administered, administered by mail, or asked by interviewers. It is a research method used for many purposes that vary depending on the type of information sought. During the current study structured questions were used to generate answers that were meaningfully compared and analysed. In addition, the author of this thesis tested the bank Web sites that responded (see Appendix F) and answered a second questionnaire (see Appendix B) that represents an evaluation of the bank Web sites.

1.5 Thesis Outline

This study is divided into six chapters.

Chapter One gives a short introduction to the subject and the central theme of the thesis is highlighted. Moreover, the chosen topic is brought in and the aims of this study are being presented together with their methods. In addition, the structure of the following chapters is being provided.

Chapter Two defines Internet and gives a brief historical review of it. Moreover, the strengths and weaknesses of it are listed so that the reader understands its importance. In addition, the current status of Internet in Greece as a new distribution channel is being provided.

Chapter Three outlines how the Internet is affecting banks today. It starts by defining Net impact for banking services. Then it refers to the four types of Internet use in financial institutions and the growth of Internet banking is being explored. After that,

a detailed analysis of the advantages and disadvantages and risks of Internet banking is being provided.

Chapter Four has a detailed analysis of on-line banking in Greece. Moreover, there is a reference in the Greek banking system and the development of Internet banking in Greece.

Chapter Five explains the role of Internet banking as a distribution channel for providing banking services. Moreover, a four-phase framework is being introduced for understanding the different ways banks can get on-line and the advantages of each level of on-line commitment. Furthermore, some suggestions are being offered for developing an Internet banking offering.

Chapter Six presents the author's methodology and questionnaire development. The data (secondary and primary) and methods used for collecting it, their logic and limitations are highlighted. Moreover, he explains his findings and concludes with a summary of result. Finally, there is a review of the objectives of the study and some last concluding remarks, concerning the research and its results.

CHAPTER TWO: AN OVERVIEW ON THE USE OF THE INTERNET

2.1 Introduction

Nowadays, when everything is developing rapidly and the power of information plays a major role in everyday life, technology comes to create new means of communication that are going to dominate in the following years. These recent developments are being expressed without any doubt through the opportunities that the use of computers and especially the Internet offer.

The Internet is the physical network that links computers across the globe (Smith and Chaffey 2005). It consists of the infrastructure of network servers and communications links between them that are used to hold and transfer information between the clients and servers. According to census data from U.S., 62 million U.S. households, or 55% of American houses, have a computer connected to the Web (Lieb 2005). Moreover, in the EU the percentage of people that have access to the Internet is 49% and is growing (Eurostat 2005).

According to the OECD, there are 270.7 million Internet subscribers at the OECD countries and this number is increasing fast. In addition many more individuals who do not have their own direct Internet access though their home, are logging on through other sources, such as the university, workplace, libraries or civic organisations. Internet World Stats (2006) estimates the Internet users around the world to 1,018,057,389 people. Given the fact that Earth's population is about 6.5 billions, approximately 1 out of 6 people has access to the Internet.

2.2 Internet Definition and History

The Internet refers to a large interconnected network of a number of computer networks that link people and computers all over the world through the use of phone lines, satellites and other telecommunications systems that help them to exchange information (Ellsworth and Ellsworth 1995).

Historically, the Internet was a military experiment that started in the early 1970s by the US Department of Defence. It was called ARPAnet and it was a system originated by the Advanced Research Projects Agency to improve communication and data exchange between researchers and scientists.

However, the usage of Internet has increased dramatically during the 1990s. Together with the World Wide Web (WWW) they can be extremely useful for various applications of education, commerce, communication or entertainment. As a result, the original communication standard could not keep up with Internet's astonishing rate of growth and changed to TCP/IP standard, which is a group of communication protocols used to connect hosts on the Internet.

2.3 How Does the System Work

In order for an individual to have access to the WWW, he needs to have the necessary software installed on his computer (e.g. Web browser, E-mail etc.) and a communications network. Moreover, Internet usage in home includes a modem, which is supposed to connect the computer and the telephone line and a public telephone service. In addition, the user needs to have access to a "service provider" and his computer must be at least a Pentium-based or other type of processor machine.

2.4 Strengths and Weaknesses of the Internet

Undoubtedly, the Internet is an extremely important phenomenon with some strong and some weak points that affect many aspects of the society (Jones 1996). The most significant ones are:

Strong points:
1) The international impact of the Internet allows communication and exchange of information 24 hours per day among people of every country in the world using a universal language.
2) World-wide use of e-mail communication is cheap.
3) Given a sufficient infrastructure, all the computers can communicate with each other regardless of their operating systems.
4) Increasing demand for advanced Internet services and applications makes the related companies to invest more funds, which contributes in the development of each country's economy.
5) Demand for Internet services makes users to spend more money for better services and create new opportunities in the market.
6) New approaches of communicating with the customers are created by the ability to monitor individual domestic lifestyles.
7) New education opportunities are created by a universally low-cost access to the Internet for all the people.

Weak points:
1) Many people, especially old or less educated, find computers difficult to use and expensive.
2) When using a slow, dial-up connection, downloading Web pages takes a long time and can frustrate users, especially when the net is busy.
3) Finding information by using search engines or other software tools can be difficult because of unnecessary complexity into Web-sites design that can reduce Internet usage for many people.
4) Probability of network failure that can cause major economic losses.
5) A continuous increase in premium Internet access costs can reduce the entrance of new customers.
6) Accessing illegal or undesirable material through the Internet can cause restrictions on its growth due to social or government concerns.
7) Fears for lack of security when using the Internet and possible access to private information need to be eliminated in order to preserve confidence in the system's capabilities.

2.5 Internet Users in Greece

The Internet is now becoming a popular tool in Greece. According to a survey made by the Observatory for the Greek Information Society, the percentage of Internet users in Greece was 20.8% in 2005, while the percentage of Internet access (irrespective of having a personal connection) was 23%. In addition, it was estimated that the majority of Internet users include men, younger age groups, residents of Athens and Thessalonica (the two biggest cities), as well as higher education individuals.

Internet access is mainly accomplished through a dial-up connection (67%), while ISDN follows with 21% and broadband with only 8%. However, according to the Observatory for the Greek Information Society, there were 167,000 broadband connections (1.5% of the population) in the beginning of 2006. In addition, there are over 15,000 new broadband applications every month, which together with the increasing rate of personal computers sales show great prospects in the future use of Internet in Greece.

2.6 The Emergence of the Internet in Greece as a New Distribution Channel

The Internet is fast becoming an important distribution channel for a wide range of businesses. According to Seitz and Stickel "Distribution channels are physical capacities to build up customer contracts in a systematic way in order to inform, counsel and sell products and services". Distribution channels show or deliver products and services to the buyers or users and are physical distribution channels such as warehouses, transportation mediums and also trade channels like distributors, wholesalers and retailers (Kotler 2003). So the Internet is what we call an electronic distribution channel.

Managers cannot ignore the impact of Internet on their businesses. According to Ghosh (1998), in order for a company to deliver new services or bypass the go betweens, it first needs to construct direct connections with the customers; and this can be accomplished by using Internet technology.

Providing services through the Internet can be very compelling for the customers because of the low cost that these electronic exchanges have. By this method, the cost of traditional sales and marketing are being reduced. However, the biggest advantage is that it offers clients convenience, personalization and interactive communication that traditional competitors are unable to offer.

The use of the Internet distribution channel offers economies of scale. With it, there is no need for having many suppliers in the company, since there is no physical distance with the clients. Moreover, successful branches that are originated in the Internet can expand themselves without the high cost and the delay that usually occurs in the physical world. Furthermore, the Internet can become a concentrating medium by gathering the buyers to sites that can cover all their needs. Today, businesses all over the world are using the Web and e-commerce to generate billions in revenues from on-line trading market.

According to Datamonitor the Internet has a great potential as a distribution channel if it is used cost effectively and gets integrated with other direct and non-direct channels. In addition, according to Strategic International SA, Internet penetration is growing fast in Greece and although 92% of the consumers use the Internet for information search, 58% uses it for e-mail communication and only 5% for online purchases, consumption in online shopping is expected to increase. What is mostly sold online in Greece includes travel tickets, CDs, computer ware, books, mobile telephony products and flowers.

There are five categories of online customers in Greece (Vrechopoulos et al 2000):
1) Innovators: these are Internet users who first adopt the new product/service or the innovation. They are not so many in numbers but are interested in trying new products and services. They are characterised by having higher education and good information about the new products and services through other innovators and their impersonal and scientific sources of information.
2) Early adopters: these are Internet users that are less interested to adopt than innovators. They are generally more integrated in their local communities than innovators, and are more likely to be opinion leaders. Early adopters are usually younger, educated, have a high social class and read a lot of specialized magazines about new products and innovations in comparison to the average consumers. They often make contact with salespeople of new products and services and play a fundamental role as opinion leaders who influence other consumers.
3) Early majority consumers: these consumers adopt the innovation just before the average consumer in the market does. They consider it a lot before taking the decision to adopt an innovation. They are characterised by a higher age, higher education and higher socio-economic level than the average members of the society. Finally, they mostly rely on opinion leaders such as the early adopters.
4) Late majority consumers: these consumers delay the adoption of the innovation primarily because they are sceptical about new products and services. Generally, they decide to adopt them after they have felt a strong social pressure. Moreover, they mainly rely on opinions expressed at an informal level by people they know well. Finally, they watch electronic media less frequently than others.
5) Laggards: they generally decide the adoption of new products and services when they are close to their withdrawal from the market or their substitution from others. Laggards do not trust innovations so much and are socially isolated. They are older consumers of lower socio-economic status.

Consequently, the World Wide Web represents a remarkable opportunity for businesses and as we will see in the next chapters, Greek banks and financial institutions, to market financial services to new and existing customers in a very integrated way. The Internet is too important to ignore and the companies that currently do not want to participate in electronic commerce may be forced to do so in the future either by their competitors or their customers.

CHAPTER THREE: BANKING AND FINANCE ON THE INTERNET

3.1 Introduction

In modern society, financial institutions such as banks, savings and loan associations and insurance companies, facilitate economic growth by performing essential intermediation and distribution functions. When they act as financial intermediaries they channel funds to productive uses while providing investors with a variety of outlets for their savings. Through well-developed financial markets, securities brokers and dealers, they distribute efficiently securities that firms issue to finance productive investments. Financial institutions accept money and provide services in return. They take deposits from the public so that they are able to issue loans to a variety of companies and individuals. Therefore, financial institutions and especially their most familiar form, the commercial bank, perform an asset transformation both by providing diversification and liquidity.

However, the role of bank branches as a distribution network of banking services in international level has changed during the last years with the increase of activities outside branches. During this decade, the use of a telephone, a mobile, a PC or access to the Internet is enough to fulfil a variety of banking transactions in the least time and with the least cost. The high speed in providing a service and the low cost of a transaction offer a competitive advantage to a bank and contribute to the decrease of expenditure, the increase of productivity indices, the growth of businesses and strengthen the relations with the customers.

Today, the use of financial services is characterised by individuality, mobility, independence of place and time and flexibility. Because of the great international competition, financial transactions are being held both by traditional banks and non-traditional banks that are trying to find new methods of providing their services in order to maintain and increase their share in the market. An attractive way of doing that is through Internet technology because it can offer complicated products in an equivalent quality with cheaper prices to more potential clients and the transactions can be carried out from anywhere in the world at any time of day or night. Because of the above, it is important for a bank to participate actively in Electronic Banking and in Electronic Commerce.

3.2 Defining Net Impact for Banking Services

Although most products are of a physical nature, financial products and services have a completely different nature. Financial services are comprised of two core, non-physical elements that are ideally suited to on-line interaction: transactions and information. This happens because the transactions that are being executed through the computer don’t involve people and all their associated costs, so investors get significant savings. On the other hand, the vast information that the Web provides revolutionises both the ability to deliver information and its cost for the benefit of the customers.

On-line banking through the WWW does not need any special software to buy and set up. The customer contacts his bank and then he inputs his user id and password at his bank's Web site to get full access to his accounts. He just needs to have a secure Web browser such as Netscape Navigator 8.1 or higher, Microsoft Internet Explorer 6.0 or higher and others. This way of banking online requires the use of Internet browsers that support 128-bit encryption, which protects consumers by scrambling all the personal information transmitted between a consumer's computer and the bank (Nixon and Nixon 2000).

3.3 Areas of Use of the Internet in Financial Institutions

There are four types of Internet use in financial institutions (Seitz and Stickel 1998, Keyes 1999, Nixon and Nixon 2000):
1) Information presentation: it is when a financial institution uses the Internet to present its products, services, branch locations and hours to the public. This type, not only announces that the bank exists, but also provides a kind of electronic brochure that informs the customers about facts concerning the bank. However, financial institutions that have such a basic Web site do not allow viewing of customers' accounts or other transactions.
2) Information presentation with two-way communication: it is when the client sends an electronic mail or fills a feedback form to the bank, requesting further information.
3) Interaction with user: it is when there is a quick exchange of information between the user and the server because the former is data stored in the databases of the financial institution. Information on the interest rates for loan and deposit products can be featured but with the added ability for Web site visitors to complete loan and new account applications on-line. In this way, the bank directly receives the applicant's information.
The interactive type has many advantages and offers real value to the customer. The customer can price the bank's products on-line and e-mail back any questions he might have. The bank can also provide on-line financial calculators so that customers can use the current rates to see the return on a deposit or the cost and payment of a loan. Moreover, the bank can offer currency conversions that allow the determination of different currencies values from one denomination to the other.
4) Transaction banking: this includes various financial transactions, such as opening and closing of accounts, paying bills, securities transactions, money transfers, implementation and deletion of standing orders, applications for loans or insurance acquisitions, credit card applications, financial planning services, information for tax purposes.

We are going to see these types in detail later on.

3.4 The Growth of Internet Banking

Internet banking is the situation under which an individual performs common banking transactions over the Internet by using a browser, instead of going to his local branch to carry them out. Moreover, an Internet bank is a bank that has established a presence on the WWW to facilitate customers to perform these bank transactions. Some

Internet banks only exist on the web and have no brick-and-mortar branches (Furst et al 2002).

Internet banking is growing faster today than most financial institutions had ever expected and the number of banks on the Net is continuously increasing. Yahoo has reported 4921 banks on the Web. According to the Online Banking Report, online banking penetration continues to climb reaching 34% of all U.S. households by year-end 2004. NetBanker defines as a "true Internet bank" one that provides account balances and some transactional capabilities to retail customers over the Web.

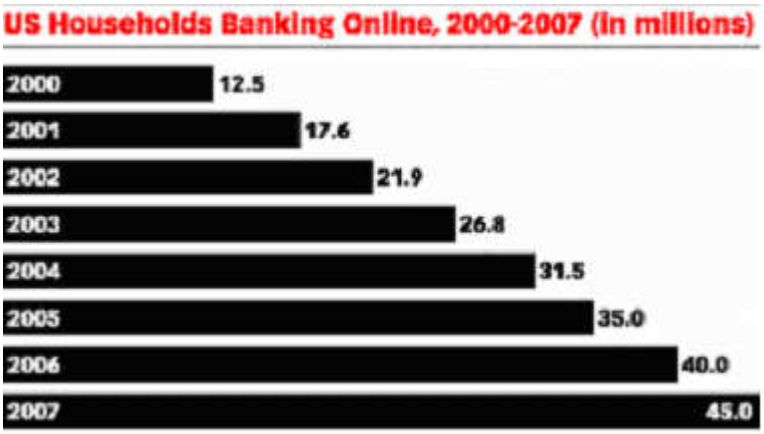

Figure 3.1: US Households Banking Online (eMarketer 2004)

According to the Pew Research Center (2005), in US 53 million people or 44% of Internet users and one-quarter of all adults, currently say they use online banking, which corresponds to an increase of 47% over the number of Americans who were having Internet banking in late 2002. Moreover, on a usual day online, 13 million Americans are having banking tasks online, a 58% increase from late 2002 (Pew Research Center 2005).

According to International Data Corporation (2004), in Europe the number of e-banking accounts will continue to have double digit growth rates over the next couple of years, especially in Italy, Spain, and the U.K. During 2004, from the 122.3 million users of Internet banking 57.9 millions came from Western Europe (see table 3.1). It is expected that over the next 5 years, online banking will be an essential requirement for European banks that want to add the Internet channel to more traditional channels for their businesses.

Region (millions of users)	2000	2001	2002	2003	2004
Western Europe	18.6	28.0	37.8	47.7	57.9
United States	9.9	14.7	17.1	20.4	22.8
Japan	2.5	6.5	11.9	19.6	21.8
Asia-Pacific (excluding Japan)	2.4	4.4	6.8	9.8	13.8
Rest of the world	1.0	1.7	3.1	5.1	6.1
Total	34.4	55.3	76.7	102.6	122.3

Table 3.1: Growth of Internet Banking from 2000 to 2004 (ePaynews.com 2006)

According to Datamonitor (2005), European banks are going into e-banking technology to improve the functionality and usability of their websites as well as levels of integration with other channels. Moreover, as the Internet is becoming an increasingly effective revenue generation tool, European banks are spending more on electronic banking channels (see table 3.2).

Country	1999	2004
UK	USD 99 bn	USD 395 bn
Germany	USD 88 bn	USD 243 bn
France	USD 69 bn	USD 271 bn
1999	Banks spent almost $1 million per day on e-banking	
2004	4-fold increase in e-banking spend, to $1.4 billion	
*	$850 million of this total will go on external contractors	

Table 3.2: European Spending on Electronic Banking Channels (ePaynews.com 2006)

There are various reasons for the rapid growth of Internet banking. First of all, Internet usage has become very popular. There are over 1000 million persons that have Internet access worldwide, a number that is increasing every day. Moreover, technological developments and customer acceptance encourage electronic commerce. There is a high number of people that have made a purchase on-line, which is increasing fast. Finally, more banks and other financial institutions are realising the advantages that on-line banking offers and are developing a presence on the WWW that includes both brochureware and transactions.

	Offer today	Plan to offer in 3 years
Monitoring of account balances	52%	91%
Funds transfer between different accounts	52%	90%
Bill payment (funds transfer to billing companies)	41%	84%
Loan applications	22%	81%
Cash management and other services for small business	27%	74%
Bill presentment from business customers to consumers	10%	64%
Person-to-person electronic payments	17%	61%
Brokerage accounts	9%	56%
Business-to-business portal or finders services (e.g. Net Market)	6%	47%
Aggregation of customers' financial information from other service providers (e.g. "screen scrapers")	3%	42%
Insurance	6%	41%

Table 3.3: Percentage of banks with Internet banking services that offer the following features today and plan to offer them in 3 years (Xpressways 2006)

3.5 Advantages for the Banks

According to a survey conducted by Forrester Research, banks have various advantages by using the Internet (see figure 3.2).

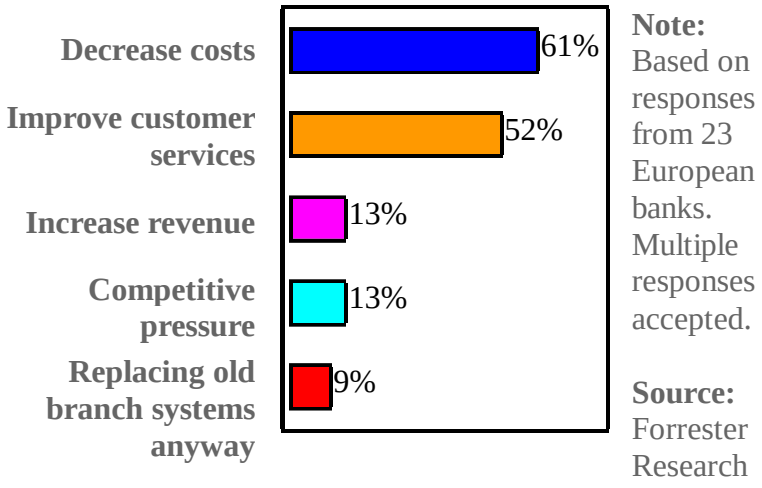

Figure 3.2: Reasons for Integrating Branches with the Internet (Xpressways 2006)

Indeed, the Internet is both a marketing communications tool and a new distribution channel for providing banking services with numerous benefits:

3.5.1 Internet is a cost-effective distribution channel

For the banks one of the most obvious advantages is that it has the lowest cost of any of the current delivery channels and it is cheaper than mailing information or providing phone services (see table 3.4). Moreover, banks can have cost savings by sending e-statements instead of paper statements and accepting online bill payments.

Banking Transaction Costs	
Channel	**Average cost per transaction**
Full service branch	$ 1.00
Mail	$ 0.70
Telephone	$ 0.55
ATM Full Service	$ 0.28
PC Banking	$ 0.015
Internet Banking	$ 0.010
Definition: Direct cost of a non-cash payment transaction (excludes set-up, installation and capital expenditure cost)	

Table 3.4: Banking Transaction Costs (Benton 2002)

This is because electronic banking services via the WWW do not need a lot of manual intervention to process a transaction or to answer a customer's query so the operations costs, which are the costs directly associated with the conversion of inputs into outputs, are being minimised. In that case, the bank supports a single computer system instead of a multitude of personal finance programs.

Furthermore, there are huge potential cost savings if there is a high percentage of bank customers that carry out their transactions by using the Internet as a primary channel. The reason for that is the reduction in the number of branches required to

service an equivalent number of customers. Of course, that can lead the banks to reduce their employees and use the buildings or the equipment for other purposes and introduce new activities by taking advantage of the additional revenue that the utilisation of their resources can bring. Servicing additional Internet customers has a low cost in comparison to the large cost of opening a new physical branch. Moreover, the set-up cost for a bank to establish and maintain a site is less than setting up and operating a traditional branch. In addition, the start-up costs are going down because technology providers have increased their experience and the market is developing.

Another important issue here is the minimisation of the opportunity cost when using Internet banking instead of utilising an alternative resource. The banks have to introduce electronic banking because if they do not, their traditional bank or non-bank competitors will and they might lose part of the market share.

3.5.2 It identifies profitable customers and increases the bank's economic profits

In the modern monetary system, the assets of the balance sheet include two broad categories (Hellenic Bank Association 2006): loans and investments and defensive assets. The first one, which is the most important business of every bank, in the short-run tends to be illiquid or with unpredictable value. So if the bank wants to realise their full value, it must hold them to maturity. As a result, these assets can be obtainable to meet deposit withdrawals only at some risk of loss and it might also be not possible to sell or to borrow against certain loans. On the other hand, defensive assets have very high liquidity, are reversible and their value can be predictable. Such defensive assets can be currency, cash, deposits the bank has in the Central Bank or in other banks, Treasury bills e.t.c. Moreover, bank's deposits with the Central Bank are called reserves and can be either primary or secondary. In addition, legislation requires banks to hold a particular quantity of defensive assets, which are the required reserves of the bank. Furthermore, bank's net holdings of defensive assets should exceed the required reserves (this is the bank's defensive position) in order for the bank to be able to cover unexpected deposit withdrawals or extraordinary demand for loans. In that case, the bank asks for cash from the Central Bank or from other commercial banks.

Concerning the liabilities of the balance sheet, these include overnight loans, deposits and shareholders' equity.

So, the basic accounting identity for the commercial bank's balance sheet is (Hellenic Bank Association 2006):

$$D+E=kD+R+L ,$$

where D is the deposits, E is the shareholders' equity, kd is the required reserves ($0<k<1$, k is the proportion of deposit required reserves), R is the defensive position and L is the loans and investments.
In this identity, D+E represent the liabilities and kD+R+L represent the assets of the balance sheet. If L+I exceed disposable assets, then the defensive position of the bank is negative.

In order for the bank to grow, it needs to maximise its profits. This can be done if there is an augmentation in deposits, which will allow the bank to offer more loans.

That's why the bank tries to acquire additional reserves for lending by selling part of its asset portfolio, by borrowing and of course by encouraging new deposit liabilities.

Bank profits can be measured in several ways (McCarty 1982):
1) By the ratio of bank income after taxes to its total assets
2) By return on capital
3) By the ratio of capital relative to total assets

As long as the interest earned on assets is higher than the interest paid on interest-bearing liabilities, the bank can issue more loans and improve its revenue. However, it can't use all its cash reserves for loans because it won't be able to face immediate withdrawals from its customers and problems of liquidity will appear.

Bank liquidity is an important issue for safety and soundness in the banking system. It shows "the ability of a bank to meet its current obligations for cash outflow and to respond to changes in customer demand for loans and cash withdrawals without selling assets at a substantial loss" (Johnson 1993). Bank assets are liquid to the extent that they may be easily converted into cash without a loss.

The aim of the commercial banks is to be as profitable as possible within reasonable limits of liquidity. If the bank isn't successful in attaining and maintaining liquidity, it will be at a disadvantage as against other financial institutions and it will lose the confidence of depositors. This constitutes the rationale behind legislation that obliges for partial reserve requirements. In addition, the bank should encourage long-term deposits that have smaller possibilities of withdrawal.

Another aim of the bank is to maintain its solvency, which is a condition where the value of the assets is greater than the value of liabilities. Solvency and profitability of the bank, together with a proper management of capital, contribute to the growth of banks.

The bank's capital includes preferred and common stock, paid-in surplus and undivided profits. Moreover, it plays an important role in the growth of banks for several reasons:
1) It is a measure of the bank's solvency. Capital protects the depositors by absorbing temporary operating losses until profitability is restored.
2) Adequate capital inspires public confidence in the bank. If this is present, then the bank can avoid high deposit withdrawals from its clients.
3) Capital provides constraints on bank growth from a regulatory point of view. Unlimited deposit taking and lending can be prevented through regulations.
Consequently, if capital is large, the depositors feel more secure in cases of default risks because the capital will pay the loss. However, capital can't be invested and thus can't give any profit to the bank.

Until recently, bank regulators established capital guidelines. Banks were classified by size and banks within a given size category were expected to maintain minimum capital ratios (capital as a percentage of bank assets) in order to grow in the normal course of operating profitably.

The Internet now, gives the banks the opportunity to capture transactions and customer information and deliver targeted marketing messages. As a result, they can use this knowledge to promote special products and new services and use customer data to find out which Internet banking customers are more profitable. According to an Internet banking survey (Radigan 1996), there is a close correlation between a bank's most profitable customers and Internet users (see figure 3.3). They keep higher balances on their accounts, carry out more transactions, generate more revenues than the average and cost less to serve than customers who use branches. Internet banking brings higher profitability, which is being caused by the more than average financial needs of on-line banking customers and their attractive demographics and economics. These customers tend to be younger and more educated than non-Internet users and have above average incomes that show that they are going to have a close relationship with their Internet bank both today and in the future. Finally, some banks charge fees for the services they provide to their Internet banking customers and they get additional revenue. Depending on the type of the service, number of transactions and kind of account, these fees range from free to a few dollars per month.

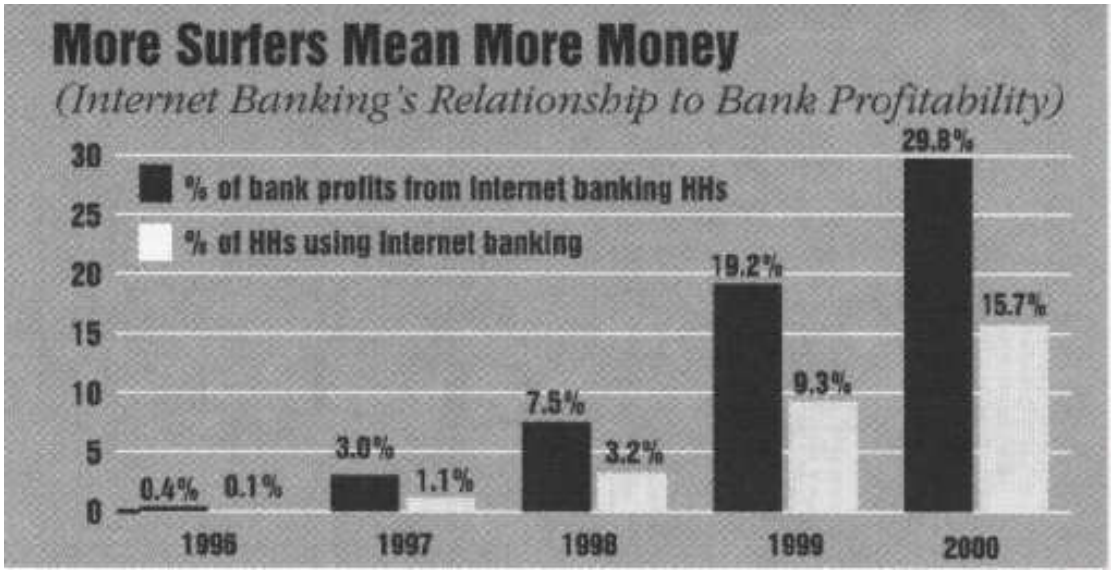

Figure 3.3: Internet Banking's Relationship to Bank Profitability (Radigan 1996)

3.5.3 It increases customer retention, up-sell and cross-sell services

Banks' first objective is to cement ties with their customers. Their aim is to retain and grow their customer base by providing better customer service and round-the-clock convenience without increasing their operating expenses (Keyes 1999). However, when people move from one area to another they usually change their bank because they desire a branch that provides access and services in their new location. With the rise of Internet banking, customers can meet all their needs on-line with their current bank without feeling isolated or having to open an account at a new bank. On-line banks have been shown to develop high customer loyalty because customers appreciate the convenience of banking online at any time, not just during bankers' hours.

Moreover, Internet sites allow banks to monitor their customers' preferences and gather useful data for personalised marketing (Orenstein 1998). Then, they use this information to target banking products and services more effectively to customers. They know which products the clients have and which they are most likely to buy and they display them to capture the customers' attention. As a result, the buyers find incentives to continue having transactions with the same bank.

3.5.4 Other advantages

Internet banking allows banks to expand product offerings and have a larger percentage of their clients' assets (Datamonitor 2005). Nowadays, banks compete with other financial institutions like insurance companies, investment firms, credit card companies, securities and mutual fund companies. The Internet offers the banks the opportunity to provide new advanced services directly or co-branded with special companies that requires limited marketing attention but provide immediate benefits. With this method, they maintain and control their relationship with their clients and offer products or services that they might not otherwise be able to provide.

Another important benefit for the banks is that they can include anyone on the Internet, even if they are customers outside their home regions. So they can attract new customers who have never lived in the bank's home region and extend their geographic reach outside their territory (Keyes 1999).

3.6 Advantages for the Customers

For the customers the advantages are more obvious:

3.6.1 Low cost

Because of cost savings that Internet banking has for banks, they can charge customers with lower fees or even eliminate them completely (Bughin 2003). Some large banks don't charge fees for on-line banking services and electronic bill payments, while others charge a few dollars per month for basic electronic banking services and an additional fee for electronic bill payment (Pew Research Center 2005). However, because of the strong competition between the banks, prices could fall and clients also save money by stop buying stamps for letters or avoid making phone-calls to the bank. Moreover, on-line banks offer attractive interest rates. Consequently, in time consumers should expect savings to be passed along to them.

3.6.2 Compelling convenience

Today, many customers want convenience, they want their banking service to be there at their own time and in their own space. With Internet banking there is no need for the customer to rush to the bank before closing or wait for his turn at an ATM. Instead of the customer leaving his work to go to the branch and do his on-line banking tasks, with on-line banking he can do almost everything from any place where there is a computer that has access to the Internet. Internet banking provides fast services that are available seven days a week, 24 hours a day and customers can choose with simplicity when and where to conduct their transactions (Nixon and Nixon 2000).

After all, on the Internet, there are no holidays or banker's hours. Moreover, it eliminates paper checks and mail. In order for the customers to feel satisfied from a bank it is necessary that it offers products and services through multiple distribution channels like branches, ATMs, kiosks, phones, PCs and the Internet. Because of the Internet banking alternative, customers can be retained to the bank and conduct more business that increases their convenience. On the other hand, they can switch banks very easily according to their preferences because continuous competition in providing Internet banking lowers the barriers between the large banks and the smaller newcomers. Customers have more choice, which decreases their dependence on one financial institution to handle all their banking needs. Finally, on-line banking is a tremendous time-saver and delivers more accurate and timely financial data.

3.7 Disadvantages and Risks

There are also some increasing problems in conducting Internet banking that concern both banks and customers:

3.7.1 The issues of security and privacy

Despite growing demand for Internet banking services there are many news stories that provide doubts about security, Web page design and performance of Internet-only banks (Courchane et al 2002). In addition, security measures and failures have a tangible impact on Internet banking customer behaviour (Datamonitor 2005). According to the Consumer Internet Barometer, almost 52% of US online consumers are extremely concerned about security when banking online, although the level has fallen from 62% in 2004. The main concern of customers about on-line banking is security. They have the fear that hackers could access their financial information or even withdraw money and steal or corrupt their personal data.

A common method to steal financial data from unsuspected customers is called "phishing". Hackers send e-mails to Internet banking customers asking for their passwords or advising them to visit a Web site that looks like the site of the customer's bank but is actually not, requiring specific bank information (Investor's World 2006). Phising is spreading rapidly because according to a survey made by Infosury, phising is effective for the reason that:
1) 44% of e-banking users use the same passwords for all Internet banking services that they have with all banks.
2) 37% of e-banking users use the same passwords even at sites with less security.
3) Although 79% of e-banking users check if there is a safety lock in the bottom of a secure Web page, only 40% click on it to see the details of the digital certificate. However, hackers can easily fake the lock icon.

Of course, the Internet will never be completely secure but the fears that some clients have, are sometimes irrational. Recent developments in security technology provide highly secure transactions over public networks like the ones being held in NASA or in the military. With the widespread adoption of secure firewalls, 128-bit encryption schemes and digital certificates that accurately identify authorised users, on-line purchases and transactions are safer. In addition, although the 128-bit encryption is usually considered to be strong enough because it's virtually impossible to crack,

some banks even boost that encryption higher to a 256-bit level (Britt 2005). Moreover, a well-designed Internet banking system is less vulnerable to fraud and attack than a physical branch or an ATM and the security cost for a complete on-line system is less than the cost needed to secure a physical location of a bank (Ellis 2005). That's why banks are trying to inform their customers of the types of security and privacy they offer, to protect their financial data and provide them written assurance that their personal information will not be exploited.

However, the high profile that Internet banking has can increase significantly the operational risk (Ogden and Turner 1998). Since it is a challenge for hackers and code-breakers, it can have an increased impact of adverse publicity from the press that can lead to reputational damage. So to avoid consequential financial damage, banks, must take a proactive approach to fraud prevention and have controls in place to ensure authenticity of the transaction, confidentiality and integrity of information sent. Some banks provide a special device (security token) that produces extra PIN numbers that can only be used once to access bank accounts and more importantly, by monitoring through electronic reviews of transactions, statements and credit reports they notice any suspicious transactions and contact directly their customers to confirm their validity in their effort to detect crime.

3.7.2 Internet banking might "dehumanise" banking

Some people think that Internet banking can "dehumanise" banking activities by removing the social, human contact aspect of banking (Hennigan and Gourvennec 1996). There are many people, especially older, that see standing in a queue waiting to have banking transactions at a branch as a great social event where they can meet their friends or even make new ones. However, banking through the WWW does not intend to replace completely traditional banks. It just offers an additional service channel that customers can use together with phone banking, PC home banking, ATMs and physical branches. Finally, Internet banking is here and sooner or later is going to change our perceptions and attitudes of managing our money. As a result, it is important for the people to know its weaknesses but there is not any way of preventing it since many banks all over the world have either launched an Internet banking service or announced their intention to do so in the near future.

3.8 Internet Banks

There are four different categories of banks that are currently present on the Internet (see figure 3.4):

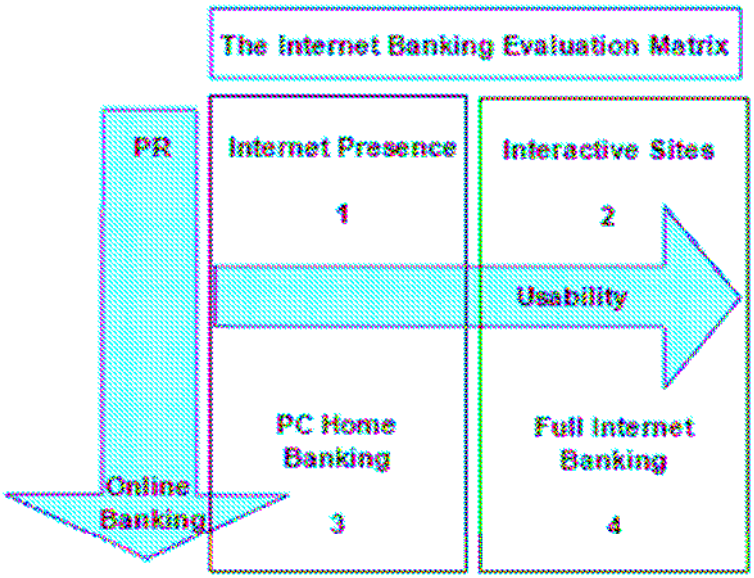

Figure 3.4: Internet Banking Evaluation Matrix (Hennigan et al 1996)

The first category is Internet presence, which is the most basic one because it describes sites, which focus on providing information but fail to identify the complete advantages that the Internet gives in comparison to paper-based information.

The second category is interactivity, which is the following step of describing sites that attempt to be interactive with the user. In this category a feedback form and an e-mail address are provided. In order for these sites to make the user's visit more interesting and useful, they need to be well designed and easily navigable, while having a combination of features such as Java, Java Script, animated graphics, sound and video.

The third category is PC Home banking, which is the use of proprietary financial software running on a computer at home, to perform transactions such as fund transfer and bill payment.

The fourth category is full Internet banking, which is accessing accounts from a browser, without the need for proprietary software that PC Home banking requires.

3.8.1 Functionality of the banks' web sites

Banks are trying to take advantage of three different opportunities that Internet technology offers (Diniz 1998): i) to provide information, ii) to conduct banking transactions like the ones held in branches or in ATMs, iii) to improve customer relationship. However, sometimes these opportunities become blurred, which makes difficult the classification of the Web sites.

Each of these different categories can be splitted in three levels of interaction to classify the various kinds of applications of the banks' Web sites. There are three levels of interactivity: i) Basic or incremental, where a bank reproduces the way it works with other media than the Web, ii) Intermediary, where particular features of the Web are used to improve banking services and activities, iii) Advanced, where

business opportunities are created. The categories of activities and the levels of interactivity can be seen clearly in the following table:

	Basic (incremental)	**Intermediary (improvement)**	**Advanced (transformation)**
Information delivery	• electronic brochure • institutional • promotional • contact • offers	• search engines • report download • recruitment forms • hot links	• customise • subscription • advertisement • discussion groups
Transaction	• open account • product and service request • investment and credit application	• balance • statement • fund transfer • bill payment	• banking by service
Customer relationship	• e-mail • suggestion forms	• calculator • investment advisor • software download	• product and service development • video conference

Table 3.5: Framework for Banks' Classification (Diniz 1998)

CHAPTER FOUR: INTERNET BANKING IN GREECE

4.1 Internet Banking in Greece

Internet technology can provide cost-effective banking solutions and Greek banks are trying to take advantage of the opportunities that this technology and computers offer by enhancing competitiveness and expanding market base via Internet banking. Although Internet use in Greece is still not as high as in other European countries, online banking transactions continue to increase because Greek customers are seeking for convenience. They are tired of the sometimes-endless queues at the cashiers' desks and the strikes, they want to minimize their transaction time, they are afraid of bank robberies and they don't want to carry cash with them. According to the Hellenic Bank Association, the daily turnover is about 100 million Euros and the number of transactions for 2004 was about 7 million. Moreover, there are 20 credit institutions and 10 branches of foreign banks in Greece with presence on the Internet. Although the numbers are constantly changing, in the Greek market the Internet offers an alternative distribution channel, which at the moment only 16 banks are taking full advantage of with approximately over 500,000 online banking customers. However, soon more Greek banks are expected to follow, which shows that Internet banking is poised for rapid growth in the country.

Cyberbanks are advancing all across Europe and online banking represents about 24% of all European bank customers (European Banker 2006). Greek institutions are already comfortable in a culture that offers complete financial services, such as loans, credit cards, insurance and investments under one roof. Greek spending for Internet - delivered financial services areas will contribute to big changes in Europe's financial services industry. Bankers have realised that traditional branches have a high cost due to the expenses for staff's salaries, which can be up to two thirds of total running costs, while the Internet has dramatically cut transaction costs (European Banker 2006). As a result, banking fees and margins are being driven down and the use of the Euro in the EMU countries make Internet banking across different countries even easier. This situation puts more pressure to Greek banks to establish or to improve their Internet banking technology faster and to gain a higher market share in neighbouring countries, mainly in the Balkan region.

All the Greek sites provide information with or without interactivity, regardless of the size of the bank. Most of the banks offer addresses, phone numbers etc in order to make the customers contact with the physical branches. Others have press releases, newsletters and welcome letters to improve their public relations. Big banks depend on their brand names so they like to show their successful managers and financial information concerning assets and profits, while smaller banks provide information on fees and rates of products and services, where they are more competitive. Moreover, many banks provide economic information about the financial market, job offers and promote other channels of providing banking services.

Concerning the transaction channel, banks are trying to create an alternative method to deliver products. Customers can open accounts and request products and services. They can ask for credit cards and apply for investments. They can have access to bank

databases to look up account balances and statements or transfer funds between accounts and pay bills (electricity, water, fixed phone, mobile, insurance premiums). At the advanced level of interactivity, full-fledged transactions are being handled. However, some transactions (transfers within the same bank) are being executed in real time while others (transfers to other than the customer's bank or remittances) occur late at night depending on the bank. In addition, corporate customers can pay VAT and social security contributions, personnel's salaries, suppliers and co-operators fees, while setting different levels of Internet banking access and transactions execution for various users.

Concerning improving customer relationship, all the banks provide e-mails and feedback forms to the clients, so that they can make suggestions, complaints or general queries. Electronic communication can eventually save banks money because it is cheaper than mailing information or providing phone services. With this method, the banks get structured information from their customers in order to find out what the clients want and build a better relationship with them. Once they identify the investment profile of the customers, they can offer them specific products and services tailored to their needs.

Regarding security, Greek banks are very concerned, especially after the phising attack towards the customers of Alpha Bank, Emporiki Bank and the National Bank of Greece that took place during autumn 2005 and they use firewalls and special software such as IDS-Intrusion Detection System.

4.1.1 Classification of Internet Banks

Generally, there are two categories of full Internet banks. First, there are some traditional banks that decided to expand their activities in the field of Internet banking, including respectable Greek banks like the National Bank of Greece, Alpha Bank or EFG Eurobank-Ergasias. Second, there are pure Web banks, which exist only in the cyberspace and have no physical branches. However, in Greece only the first category of banks exists.

4.2 The Development of Internet Banking Services in Greece

Greece has a concentrated banking sector, where the five biggest banks dominate the market. During 2005 their profits exceeded 2.1 billion Euros, which accounts to 1.5% of the Greek GNP- see table 4.1 (Ziotis 2006).

	Bank Profits (Biggest 5 in million Euros)	
	2004	**2005**
National Bank of Greece	441.2	715
Alpha Bank	408	502.2
EFG Eurobank Ergasias	368	501
Piraeus Bank	127.3	263.8
Emporiki Bank	-67	90

Table 4.1: Bank Profits of 5 biggest Greek Banks (Ziotis 2006)

Due to high competition between banks, banking institutions in Greece are seeking to expand market base via Internet banking. On-line banking is evolving rapidly because of the low operating and maintenance costs that are associated with the Internet. Although most Greek banks use static Web sites, which are simply interactive brochures that promote services and products, they can make the banks to close user groups according to their preferences, offer specific products to them and result in a more intense customer commitment.

During the first period of Internet expansion in Greece, most Greek banks had static or interactive Web sites. E-banking first appeared in the Greek market in 1997 but it was adopted by major Greek banks after 1999 (Lymperopoulos et al 2004). For example, Alpha Bank launched a Web site in December 1995, Emporiki Bank in December 1997, Egnatia Bank in February 1998 and EFG Eurobank-Ergasias in May 1998 (Alimonos et al 1998). Nevertheless, Egnatia Bank was the first bank to introduce full Internet banking in 1998. In addition, Alpha Bank started offering full Internet banking services in November 1998, EFG Eurobank-Ergasias in February 2000 and Piraeus Bank in April 2000.

4.3 Greek Internet Banks

Internet banking has become an area of great interest in the Greek banking sector. Some examples follow.

4.3.1 The case of Piraeus Bank

Piraeus Bank (http://www.piraeusbank.gr) has developed an autonomous site for its Internet banking services called Winbank (https://www.winbank.gr) - see figure 4.1, which allows several bank transactions from home.

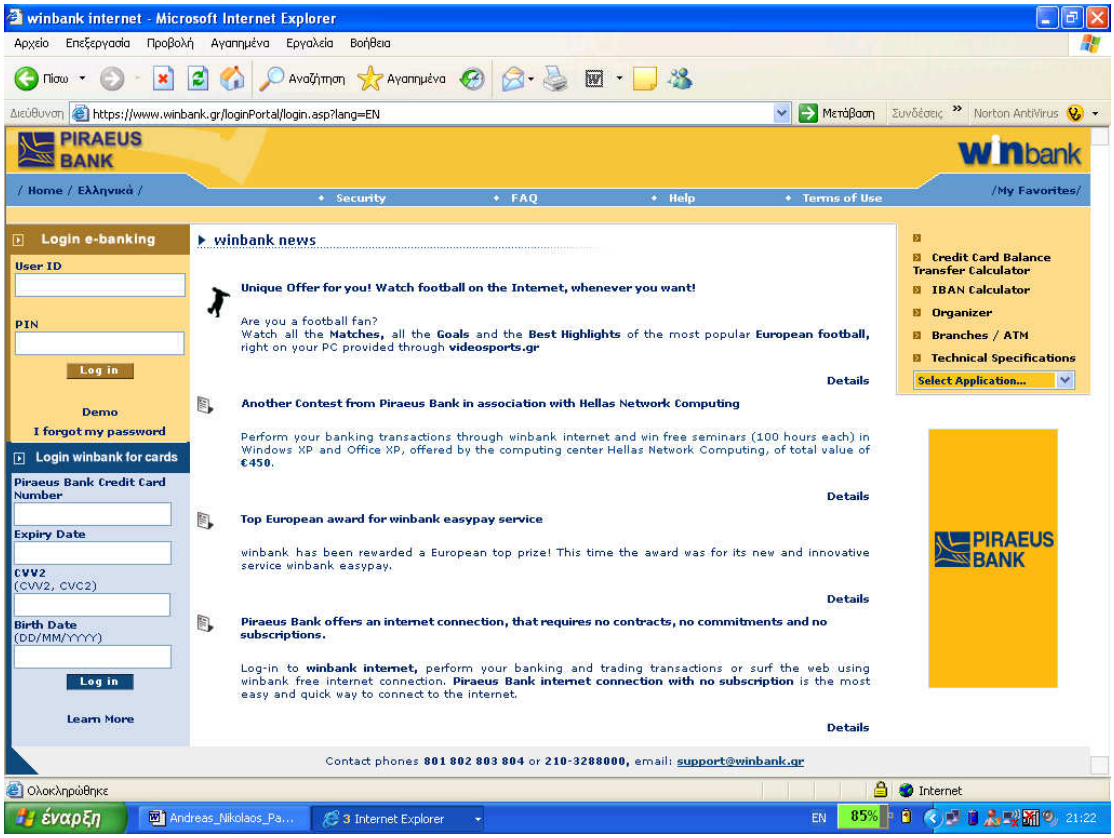

Figure 4.1: WinBank Home Page

To access their accounts, online customers use a user ID and a PIN, which changes every 2 months. Moreover, the "Winbank for cards" service allows Piraeus Bank credit card holders to access information about their credit cards very easily and with full support.

Navigation is easy through the menu in the left. Winbank supports a variety of banking services, such as bank accounts, credit cards, payments, remittances, loans and cheques. In addition, customers can see their balances and details for their transactions, download them and print them. Furthermore, customers can pay their bills online and send remittances to other banks in Greece or abroad at their convenience but at a rather high commission of 7.5 Euros. Moreover, Winbank permits alerts sent to its clients by SMS or e-mail that inform them about their executed transactions. Finally, Visa Direct allows transfer of money from one credit card to another or to a bank account at a specified fee.

4.3.2 The case of Egnatia Bank

Egnatia Bank (http://www.egnatiabank.gr) through its Egnatia Teller e-banking platform supports a digital signature with unique numbers that are being produced by a small device (security token) that customers get from the bank. By pressing one button, these unique and single use numbers are being produced by algorithms that make them impossible to get cracked. This electronic transaction signature is used in all monetary transactions.

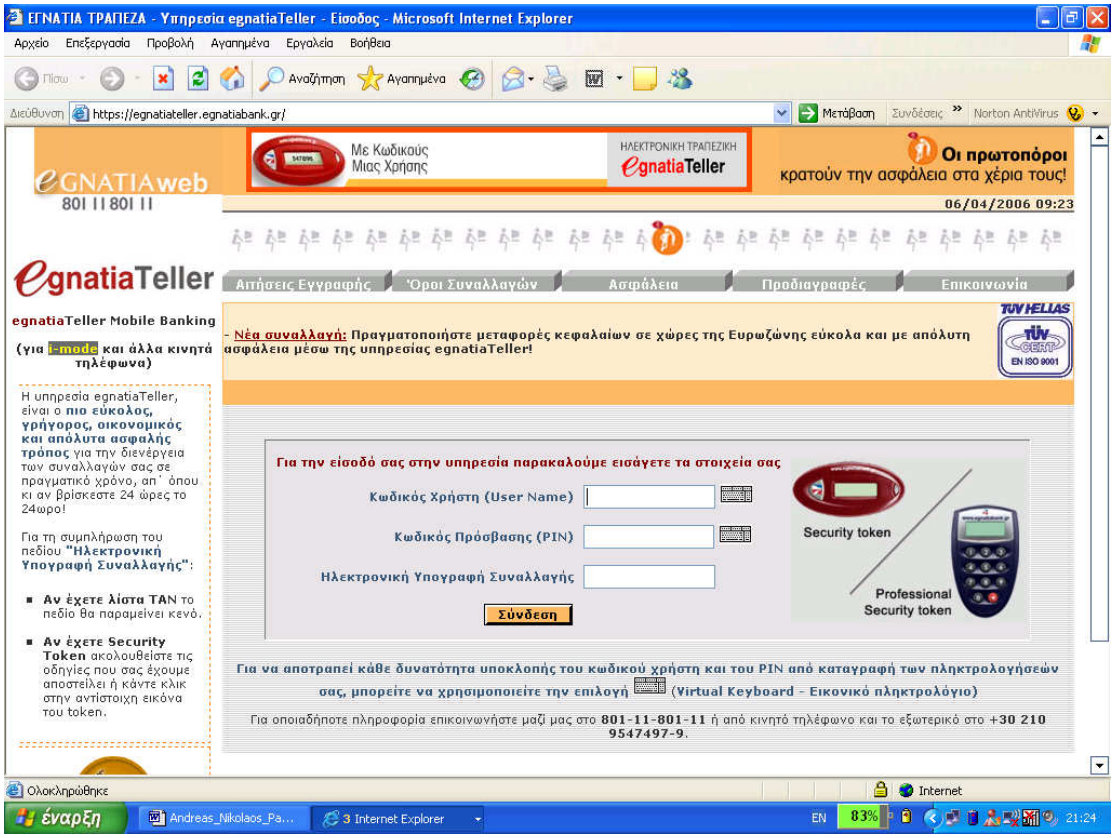

Figure 4.2: Egnatia Teller

Egnatia Teller supports customers' accounts, credit cards, remittances, and alerts by SMS or e-mail. Moreover, it allows showing analytical data (statement) of transactions (date, description, balance etc) and the possibility of saving this data at Excel or Money format. However, it does not support loans and cheques.

Egnatia Teller offers remittances to other accounts in the same bank or other banks in Greece and abroad at a fee of 2.50 Euros. In addition, customers can pay their debts to the government (VAT, income tax, social security contributions) and other bills (water, electricity, telephony).

4.3.3 The case of Alpha Bank

Alpha Bank (http://www.alpha.gr) provides e-banking services through the application of a user ID and a password. However, customers can buy a special device that costs 7 Euros and creates additional single use 5-digit numbers for extra security.

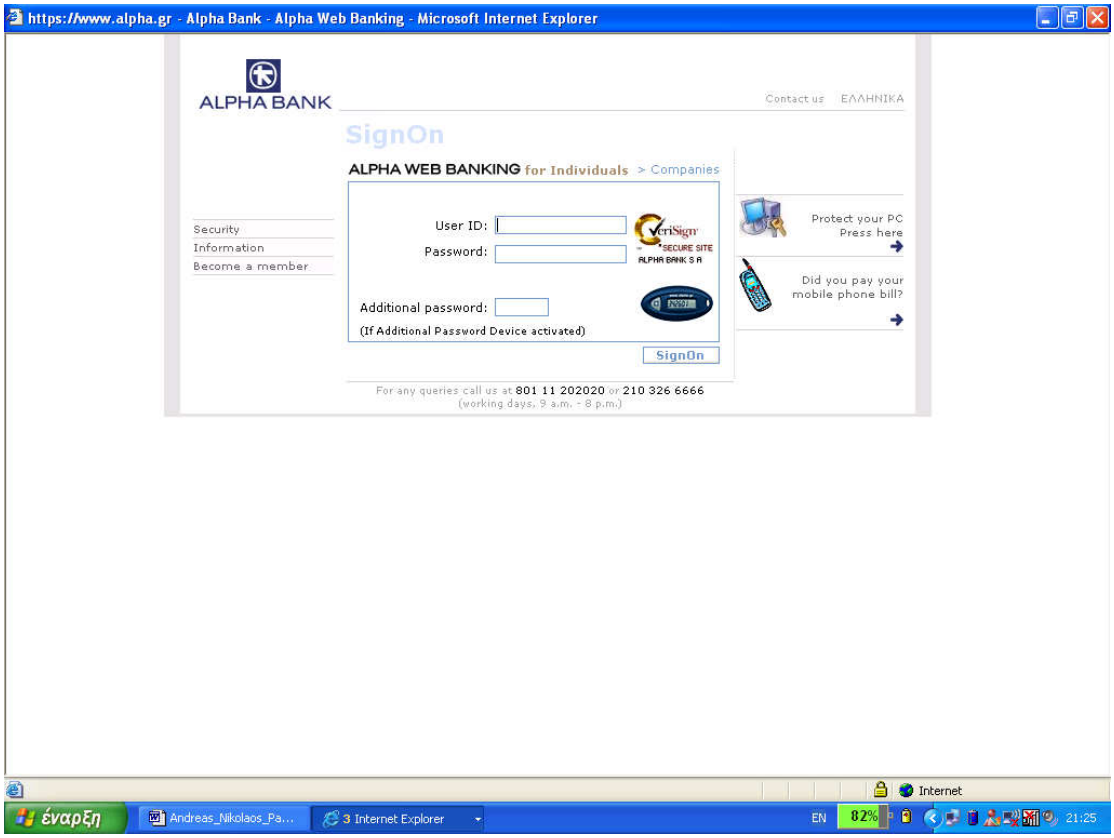

Figure 4.3: Alpha Web Banking

Alpha Bank has an easy menu that offers access to bank accounts, credit cards, loans and payments in Web interface. Moreover, it allows viewing of information related to the 10 last transactions. In addition, it supports various payments including insurance premiums, cable TV and tolls. Execution of monetary transactions requires an additional password for extra security.

CHAPTER FIVE: DISTRIBUTION OF FINANCIAL SERVICES THROUGH THE INTERNET

5.1 Introduction

National economies are undergoing rapid transformations due to globalisation and technological developments. The explosive growth of global trade and international competition together with the remarkable advances in the availability of information and the speed of communication emphasise the need for the banks to search for new opportunities in the marketplace. The Internet can play a major role in economic development by making exchange easier and allow greater time for production, consumption and other activities.

The Internet is a vast, global network of other computer networks that in turn are comprised of individual computers. The WWW is the easy to use, graphic, click and point part of the Internet that is already an effective means of delivering financial products and services to the marketplace. More important, it will dramatically change the distribution channel structure in the retail-banking sector as it continues to grow and evolve as a primary channel for banks in the future. There are major strategic challenges that financial institutions must address now in order to get prepared for future growth. Banks must reassess opportunities for adding value in the open environment to defend their positions and to compete on the basis of superior capabilities.

Given the wealth of opportunities that the Internet creates for companies dealing with financial services and the accelerated pace with which banks are going on-line, having a presence on the Internet is becoming a strategic necessity for most banks and other financial institutions.

Internet's possibilities for delivering enhanced services with emerging, cost-effective technologies are palpable in the financial technology community. For those banks that have already have some program in the pipeline, there are four phases in developing an Internet presence and four steps involved in deploying an Internet banking offering.

Porter considers the Internet technology as an extremely important strategic tool for doing business that can contribute in a company's sustainable competitive advantage. He thinks that Internet technology can be used in all industries and as part of any strategy. However, he explains that the Internet should not replace all conventional ways of doing business but be used as a supplementary tool to traditional methods of competing.

5.2 Distribution Channel Strategies

With the use of the Internet a variety of financial services are being offered from the banks that make it a new and possibly the most important distribution channel of the future.

According to Mols (1999), the ideal distribution channel is determined by what services customers want and at what they cost, the way these services can be provided to them and the costs of alternative distribution channels.

Previous studies have identified various bank customer segments. However, Mols (1999) assumes that there exist two important ones, an Internet banking segment and a branch-banking segment. The first one includes the bank customers that are familiar with computers and the use of Internet and they value the convenience that Internet banking's distribution channel of financial services offers. The second one includes the bank customers that are mostly old or computer-illiterate persons and value personal relationships at the bank branches' distribution channel of financial services.

The two customer segments give the banks a choice of which segment to focus and what distribution channel decision to take. There are three options of both or either one of the customer segments. Moreover, another significant decision is related to the geographical area that the banks target, which can be local, national or multinational. These four different pure strategies and a dual channel strategy where two of the pure strategies are combined are illustrated in figure 5.1.

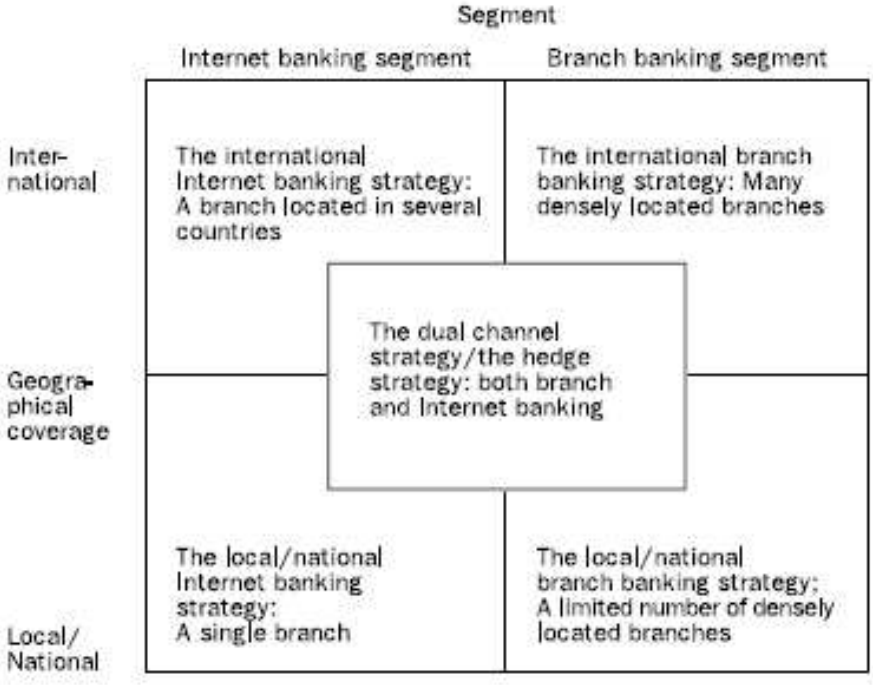

Figure 5.1: The Distribution Channels Strategies (Mols 1999)

The local/national branch banking strategy is characterized by a rather dense branch network in a limited geographical area in one country. This a distribution channel structure that can lead to a decreasing number of customers and the closing of branches if the banks fail to keep branches costs low. However, this strategy can be combined with the offering of Internet banking services if they manage to find the necessary resources and suitable partners.

Another option is the international branch banking strategy, which is characterised by a rather dense branch network in a large geographical area, covering two or more

countries. Some banks have managed to become international by establishing only a few branches in neighbouring countries. This strategy has a significant growth potential if it is possible to acquire suitable banks, otherwise it can lead to exhaustion of resources and reduction of customers. In that case, a better decision for the banks is to pursue a dual strategy offering both branch and Internet banking services.

The local/national Internet banking strategy only requires one single branch, as all regular transactions are controlled through the Internet and it has the advantage that it aims at serving the fastest growing customer segment and try to get a larger market share. In addition it is a low cost strategy because the Internet is a much cheaper distribution channel than the traditional branch network.

The international Internet banking strategy only requires a centrally situated branch in each country to serve customers in case of unexpected problems and to handle contact with the national authorities.

The dual channel strategy or hedge strategy is a combination of the previous branch network and Internet banking strategies that gives the banks a gentle transition from a branch banking strategy to an Internet banking strategy. However, dual channels may lead to conflicts between Internet banking departments and branch banking departments.

5.3 Internet Banking as a Strategic Necessity

Internet banking has three strategic objectives, none of which has a customer focus: i) to create new opportunities for the bank, ii) to defend the bank against competitors and iii) to reduce costs. While opportunities and defence came out nearly even as strategies, costs were far behind. This suggests that the bankers who pioneered Internet banking consider it as either a justifiable investment or an unavoidable necessity.

This can be realized by thinking about the effect of the ATMs on the banking industry (Dynamic Net 2006). When Citibank introduced ATM technology in 1977 and until 1988, it tripled its market share in New York just because the ATM was a source of strategic differentiation for Citibank and other early adopters. However, as the technology was deployed more widely, the value of having ATM shifted. Today, ATM technology does not differentiate a bank because consumers expect it as a basic service offering. Consequently, ATMs have migrated from a differentiator to a strategic necessity.

In the same way, the American banks that introduced Internet banking first got the competitive advantage in comparison to their opponents. It took ATMs about 10 years to reach acceptance. Today, technology is progressing very rapidly and Internet banking has followed the same path as ATMs, migrating from a strong competitive differentiator to a basic and expected service. Consumers expect to transfer funds and pay bills from anywhere in the world at their convenience, in the same way they can retrieve cash wherever they go in the world.

Especially in Greece, Internet banking is on its way to become a “strategic weapon” for all financial institutions in the next few years. If a bank wants to remain

competitive and properly service the needs of its most attractive customer base, it must plan and deploy an on-line banking strategy that will distribute financial services through the Internet.

5.4 Reasons for Distributing Banking Services through the Internet in Greece

5.4.1 Improvement of bank's image through innovation

Electronic banking can help banks to improve their image through innovation (Hennigan and Gourvennec 1996). They realise that they must be pioneers to offer new services through alternative distribution channels and in order to keep their customers from competitors and maintain their market position they have to be innovative. In addition, multiple distribution channels offer effective market coverage by enabling different products to be targeted at different demographic segments (Lymperopoulos Chaniotakis 2004). Innovation builds a reputation for the banks that customers learn to trust and comment positively to other people.

5.4.2 Market transparency

In comparison to traditional channels of distribution, Internet banking allows the clients to search and compare the financial services of competing firms faster and in a more efficient way.

5.5 The Four Phases of Internet Banking

There are four phases for a bank that wants to develop a presence on the Internet (Dynamic Net 2006): i) Marketing and promotion, ii) "Light" interactivity, iii) Full transactions and services, iv) Strategic usage. Most of the banks move from one phase to another in the order given. However, there are some banks that pass over phases one and two and move directly to the third one.

	Phase One: Marketing and Promotion	Phase Two: Light Interactivity	Phase Three: Full Transactions and Services	Phase Four: Strategic Usage
Focus	Marketing Web site	Customer acquisition	Banking functionality	Strategic change
Primary Services	• Published information on bank services • Branch / ATM map • Customer service e-mail	• Loan calculators • Credit card applications • Savings, checking account applications • Financial Planning articles, advice	• Account look-up, balances, transfers • Bill payment • Car loans, credit cards, mortgages • Statement review • Cleared check presentment	• Sophisticated cross-selling of new services • Customer profitability analysis • Bill presentment and payments
Primary Benefit	• Provide information to customers and prospective customers	• Reducing paperwork • Low-cost ways to attract and impress customers	• Retention of existing customers • Attracting high-value customers • Reduction in service costs	• Increased service offerings • New revenue opportunities • Increased margins

Table 5.1: The Four Phases of Internet Banking (Dynamic Net 2006)

In the above table we can see some of the key distinctions of the four phases. The resources that are needed to pursue these phases are highly dependent on the bank's back-end processing system and technology infrastructure. Moreover, there is not necessarily a connection between bank size and the phase in which the bank is presently functioning.

5.5.1 Phase One: Marketing and promotion

Beginning a Phase One presence has a very low risk. For banks Phase One is a learning experience (Dynamic Net 2006). They use existing marketing and promotional material, adjust it for the Internet and form a Web site, which is their brochure on the Internet. Online promotion uses communication through the Internet to raise awareness about an attractive Web site and drive traffic to it. This phase requires least investment, restricted maintenance and limited resources. Usually, not many employees are responsible for creating and maintaining the Web site, therefore reducing the cost on the bank. Actually, many banks outsource the creation and management of the Web site to qualified specialists, who take care of the context and content factors (Kotler 2003). A Web site should not be one long page. On the contrary, it should have a central or "home page", from which other pages of the site emanate. When banks allocate funds for Web site development and maintenance they

do it because they consider the return on their investment. Engaging in Phase One gives the banks the chance to learn more about the Internet and the WWW and to make customers understand the importance of the Internet while promoting customary services to a broad audience.

5.5.2 Phase Two: Light interactivity

Phase Two involves light interactivity with useful tools for banks' clients. In this phase, banks develop their public Web sites in an effort to offer more value to existing and future customers. Examples of services or functions offered in this phase include financial calculators, currency converters, credit card and loan applications, and information concerning stock or mutual funds. Banks regularly provide economic articles about financial planning, statistics as well as explanations of financial terms and products. These services aim to maintain existing customers and keep them coming back to the Web site on a regular basis.

Moreover, providing well-designed free services on the Internet give banks a chance to promote their services to new customers who visit the Web site to make use of these free tools. What differentiates Phase Two from Three is that in the last phase there is no connection from a bank's back-end processing system to its Internet Web site. A Phase Two assembly requires a bigger investment than a simple marketing site but does not require the larger systems integration investment of a full Internet banking system.

5.5.3 Phase Three: Full transactions and services

This phase provides full Internet banking transactions, such as balance transfers, account statement access, bill payment services, account applications, customer service mechanisms etc.

Deploying a Phase Three can offer considerable advantages and there are many incentives for pursuing this phase. Some banks move to Phase Three to keep key customers; others to attract new ones. Some banks think of it as a defensive move because they fear they will lose their best customers if they do not offer on-line banking. Other banks are trying to find alternative methods to reduce overhead costs either in physical branch operations or customer support resources. Furthermore, others think Phase Three an opportunity to create fee income and to offer services they otherwise would not be able to offer, such as credit cards, mortgages and mutual funds.

Phase Three deployments are considerably more complicated than those of Phase One and Two, because of the systems integration requirements in connecting a public Web site to existing transaction systems. Moreover, Phase One and Two deployments do not have the security concerns of Phase Three, since actual account and customer information is unavailable.

Luckily, because of standard protocols and security products that are now available, a Phase Three banking deployment costs only a part of what it did even a few years ago, while offering all of the benefits described before.

5.5.4 Phase Four: Strategic usage

In this phase, banks modernize transaction processing and customer interaction. They substitute "bricks and mortar" investments with investments in advanced Internet services and Web technology. They build up sophisticated customer databases to facilitate advanced customer segmentation to increase cross-sell and up-sell opportunities and customer retention. They construct well-organized targeted marketing campaigns that give greater success rates than direct mail campaigns. Web-enabled decision support systems within the organisation advance the creation of both targeted on-line and direct mail campaigns by giving bank marketing departments access to critical information, such as spending and saving habits and the ability to query and run simulations against these sophisticated customer databases. Such advances allow banks to test with new ways of exceeding their customers' expectations.

The leaders in this area are beginning bill presentment options and electronic commerce solutions, and they are experimenting with electronic payment systems like smart cards. They are generating intelligent agents that watch for particular trends in a customer's banking habits, or changes in financial or family situation, and then make recommendations for how to reorganize investments or take advantage of new services appropriate for that particular customer's needs. They are using the various capabilities of the Internet and sophisticated databases for dealing with their customers in ways that are not possible with the traditional banking model.

For some American and Western European banks, Phase Four is a sight of the present. Yet, it will also be the battlefield of competition among Greek financial institutions in the near future. The banks that make the best use of the sophisticated data they have, can service their clients better while improving their operating margins and they can be the winners in the battle for customer assets. Investments in tracking, database and decision support systems to manage, analyse and use this data beneficially are wise investments for financial institutes.

5.6 Developing an Internet Banking Offering

Regardless of which phase of electronic banking is suitable for a particular financial institution, the development and deployment of a solution involves four key steps (Dynamic Net 2006): 1) Strategy Development, 2) Analysis and Design, 3) Technology Development and 4) Implementation.

5.6.1 Step One: Strategy development

In composing a strategy, it is important for a bank to clearly clarify the goals of its Internet presence. The financial institution should decide if it is aiming to increase margins, reduce costs, attract new customers, broaden its geographic presence or increase customer retention. Moreover, it should find out if it seeks to expand its own offerings to clients or co-operate with appropriate organisations to offer these services. The bank should know its most profitable customers and those customers' needs and expectations from an on-line banking solution. It is also necessary at this stage to carefully analyse the strategic landscape of the marketplace and identify the bank's real competitors and their offerings. A good Internet strategy clearly defines

the business reasons for developing a Web site focusing specifically either on customer and product targets or on international growth potential and possible strategic alliances. In addition, it helps choose which phase of Internet banking to consider.

5.6.2 Step Two: Analysis and design

With a strategic basis in place, a bank can be prepared to discover technology requirements and plan the system architecture that supports those requirements. In this phase, the bank will need a detailed comprehension of the competing hardware platforms, linked solutions and financial transaction protocols used in the marketplace today. If the operation is a Phase Three offering, much of the time and costs at this phase will be in the areas of connectivity with existing transaction systems and in the careful planning of security and customer authentication systems.

A crucial step often disregarded at this stage is the plan for how the system will be rolled out to existing customers and marketed to prospective customers. Problems such as the general graphic look of the site, the on-line support and training information that will be essential and the marketing plan for attracting users to the system must all be contained in the roll-out plans.

At the end of Step Two, the project team will have detailed technical documents that outline the overall system architecture and the functional specifications of the system to be deployed, as well as a comprehensive plan of how the system will be announced and introduced to the market.

5.6.3 Step Three: Technology development

When the functional specifications and system architecture plans are in their final form, the system is ready to be built. At this stage, systems and hardware are obtained and deployed. This may take place either on site at the bank, at its transaction-processing vendor's location or at a third-party hosting centre, depending on the strategy laid out in Step Two. The appropriate systems integration code will be written, tested and deployed to make sure that the relevant systems can communicate effectively with each other. The security and authentication systems will be deployed and thoroughly tested. At the completion of this step, partially or fully functional versions of the major components of the system will allow the solicitation of feedback and the identification of problems before the institution moves on to Step Four.

5.6.4 Step Four: Implementation

In the final step, the project team assembles and tests the full production system from the technology elements obtained or built in Step Three. Workers are trained in the use and support of the system. Moreover, the bank initiates the execution of the rollout strategy developed in Step Two to help customers understand the new offering. Finally, the bank will adopt systems for measuring the success of the project and evolve a plan for maintaining and updating its Web site.

Web sites are hardly static. Once Step Four is finished, it is probable that the bank will return to Step One to update its Web site or to add functionality.

CHAPTER SIX: ANALYSIS AND DISCUSSION

6.1 Introduction

It is the author's intention to identify the impact of Internet banking as a method to provide financial services. Thus, attempts were made to find out the views of various banks that either offer full Internet banking or not in Greece. These views will help the readers to understand how the Internet is affecting banks today and also what some of the opportunities will be in the future. Then, a comparison will be made on how the opinions of the respondent banks are connected with the evaluation of the banks' Web sites from the author's point of view.

6.2 Methodology and Questionnaire Development

6.2.1 Research methodology

In order to establish a strong support for this thesis topic the author included in his methodology a literature review and a questionnaire that can help him achieve a critical analysis of this thesis.

The literature review was the first research analysis to be used by the author in chapters two, three, four and five and it provided an insight into the approaches and methodologies adopted by different researchers. The author was able to enlist the support of relevant contributions in the fields of international banking, information technology and strategic marketing. Through the analysis of recent writings and publications from various sources of information relevant to the subject matter (see references for details), he was able to gain the needed support for the thesis topic he studied. The need for the literature review is to serve as a foundation for rational reasoning on which the thesis topic can be built upon. This gave an insight of the current status of Internet banking in Greece.

The questionnaire (see Appendix A) was administered on a sample population of banks in Greece (see Appendix C), representing a fair share of both banks that offer some level of interaction with the customers and banks that provide full Internet banking via their WWW pages. By administering this survey questionnaire on the sample population, the author believed he could obtain effective information with the intention of receiving the views of financial institutions on a large scale concerning how they use Internet technology benefits to distribute banking services. The method that the author used to distribute the questionnaire was by sending e-mails that had the questionnaire attached for feedback. The advantage of this method is that it could be sent concurrently, ensuring that data collection is less time consuming. In addition, the confidentiality of the questionnaire makes respondents more comfortable in giving more detailed information and data. In the cases where the author could not find the e-mail of the banks, he faxed them the questionnaire, although it was a more time consuming method.

By researching this topic, the author believes that he will find out the reasons why the Greek banks use the Internet and generalize the findings to the Greek banking industry. That is why he carried out a questionnaire on the sample population of

thirty-five (35) banks with at least basic Net presence, of which seventeen (17) answered (see Appendix D for a list of respondents) and also a questionnaire that represents an evaluation of the bank Web sites by the author (see Appendix B).

As far as these methodologies are concerned, the author has decided to combine both theoretical analysis (literature review) with empirical analysis (questionnaires) to arrive at a desired conclusion.

6.2.2 Sampling procedure

A sample population of banks (public, private, Greek and foreign branches in Greece) was chosen to represent financial institutions that have static Web pages, interactive Web sites and banks that offer true Internet banking in Greece. So the author chose 35 banks (out of the total of 62 mentioned at table 1.1) that have a Web site and at the same time have transactions with their clients through traditional channels like branches, ATMs or telephone. However, this sample of 35 banks represents over 80% of the banking market share in Greece as among others it includes the 5 biggest banks mentioned at table 4.1.

6.3 Findings

6.3.1 Data analysis

The data collected from the questionnaire was analysed to show the various responses given by the banks. The responses to each question were arranged to show the various degree of respondents. By noting the trend of answers, the author was then able to analyse each response with the conclusions gathered from previous research analysis from earlier chapters. Thus making it easier to arrive at a summary review and implication of the result on the thesis topic.

6.3.2 Presentation of data and evaluation of questionnaire sent to banks

As earlier mentioned, the author desired to give a broader view of the strategic implications of providing Internet banking services that led him administering a questionnaire to a sample population of thirty-five banks with Web sites. This was done by using their e-mail addresses (see Appendix C for names of the banks and e-mail addresses). Although questionnaires were sent out to thirty-five banks, there were only seventeen that answered (see Appendix D). Therefore, the number of responses were 17 out of 35 or 48.5%.

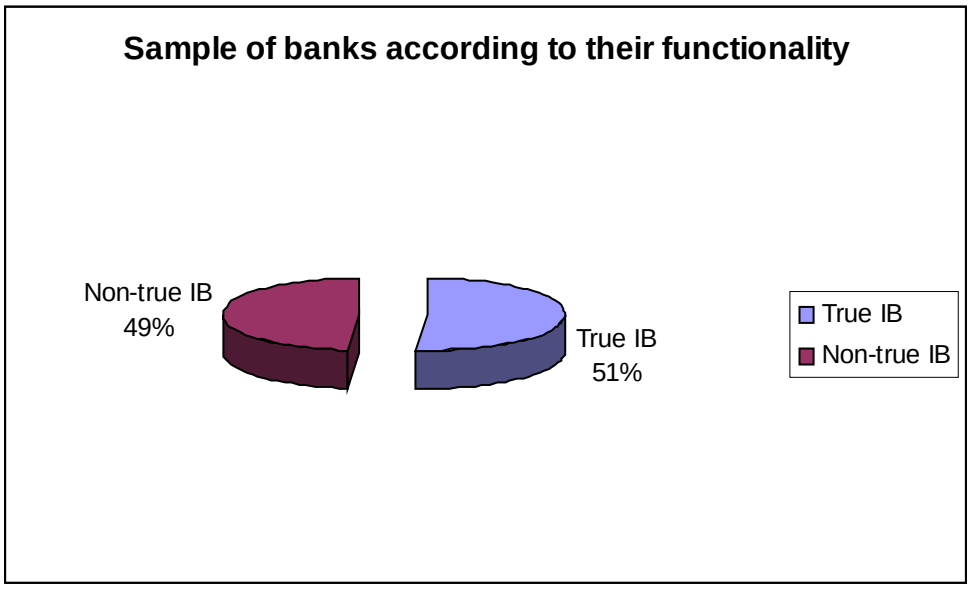

Figure 6.1: Population Sample of Thirty-five Banks according to their Functionality

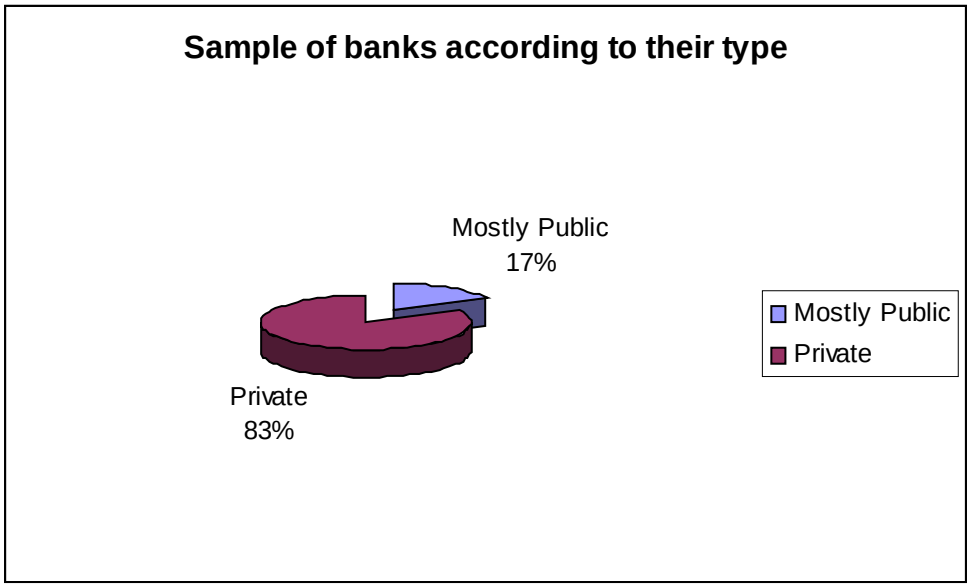

Figure 6.2: Population Sample of Thirty-five Banks according to their Type

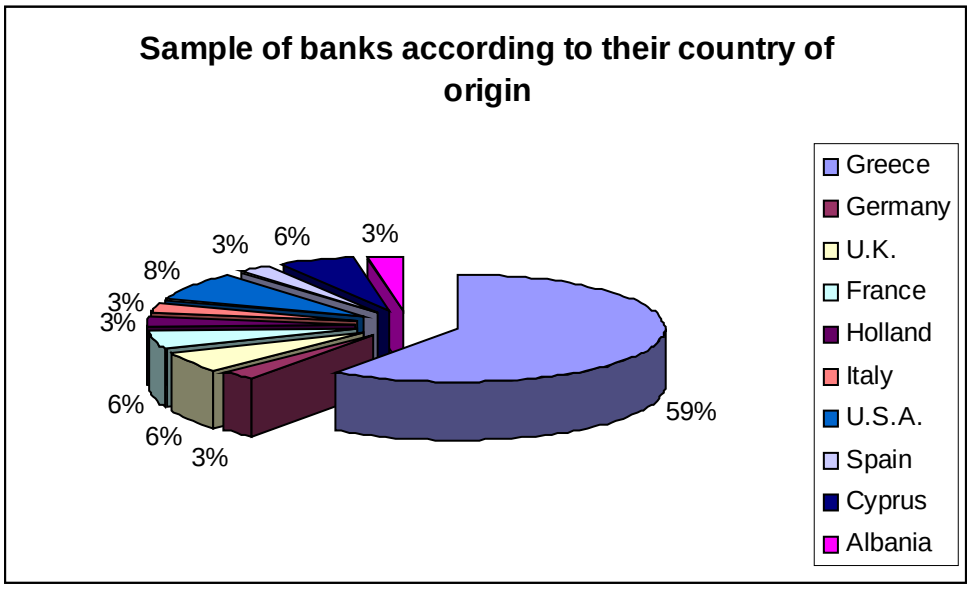

Figure 6.3: Population Sample of Thirty-five Banks according to their Country of Origin

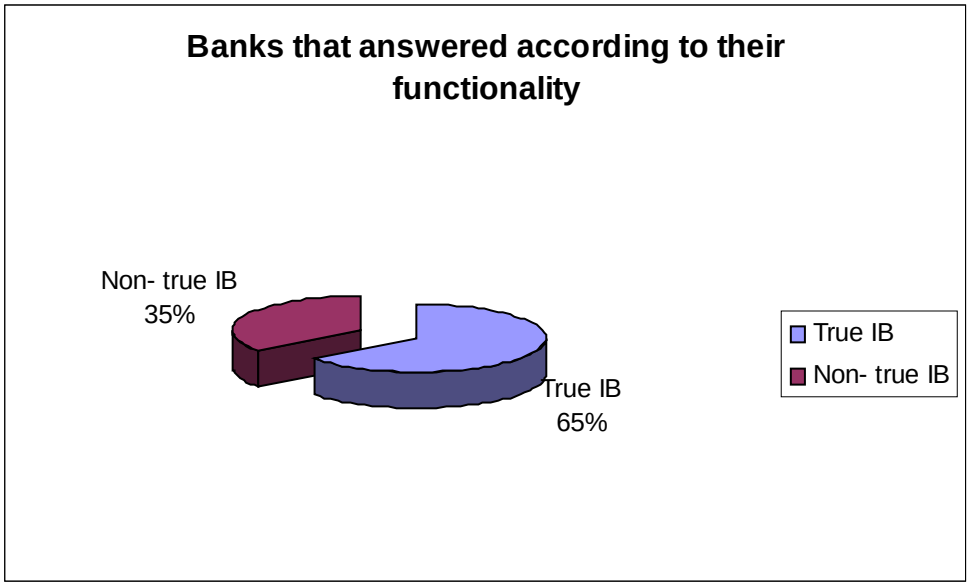

Figure 6.4: The Seventeen Banks that answered according to their Functionality

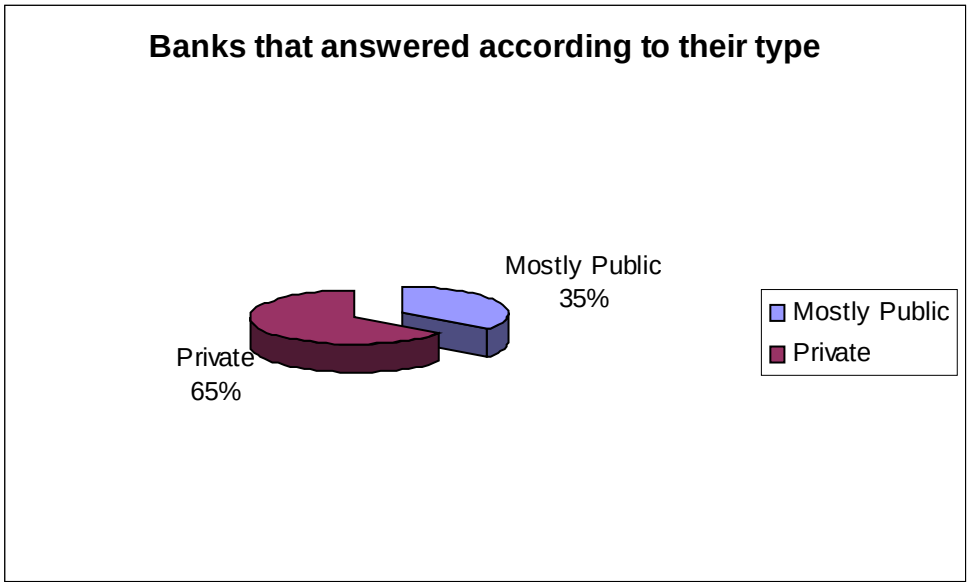

Figure 6.5: The Seventeen Banks that answered according to their Type

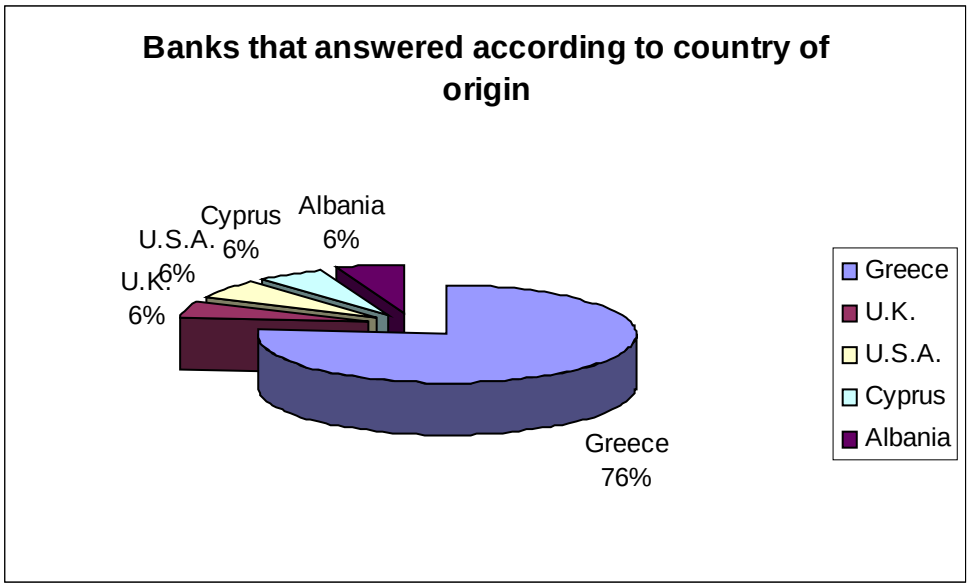

Figure 6.6: The Seventeen Banks that answered according to their Country of Origin

The results of the questionnaire were as follows:

Section One:
The first section of questions contains "closed ended" questions where respondents have a choice of alternative replies. These questions are designed to get precise and factual information concerning the banks. Questions (1),(2),(4),(5) show the profile of the bank. Questions (3),(6) refer to Internet banking, while (7) has to do with communication.

Question (1):
Your bank's assets are:
(a) More than Euro 10 billion
(b) Between Euro 500 million to Euro 10 billion
(c) Less than Euro 500 million

Option	Response
(a)	7
(b)	9
(c)	1

Comment :
The first question was meant to find out the size in assets of the banks that replied in the questionnaire to obtain a profile of the bank. We can see that most of them have their assets between Euro 500 million to Euro 10 billion.

Question (2):
Approximately, how many people visit your site per day?
(a) More than 5000
(b) Between 1000 to 5000
(c) Up to 1000

Option	Response
(a)	5
(b)	8
(c)	4

Comment :
The second question was intending to check how popular is the bank's site to people that browse in the Internet. We can see that the majority of banks in the sample are quite popular since they attract between 1000 to 5000 visitors per day.

Question (3):
How long has your bank been providing Internet banking?
(a) More than 5 years
(b) Between 1 to 5 years
(c) Less than a year
(d) Not provided at the moment

Option	Response
(a)	9
(b)	2
(c)	0
(d)	6

Comment :
This question was aiming to find out which of the financial institutions are true Internet banks and also their experience in on-line banking. The answers show that from the ones that offer true Internet banking most of them are old in the field.

Question (4):
How frequently do you update your Web site?
(a) Daily
(b) Weekly

(c) Monthly
(d) More than one month for every update

Option	Response
(a)	9
(b)	5
(c)	2
(d)	1

Comment :
The fourth question shows that most of the banks update their Web site often, since the majority updates it daily. This means that the banks show importance to the Internet as an information delivery tool that can also be a significant business tool for distributing their services.

Question (5):
Which is the bank's level of interaction?
(a) Basic
(b) Intermediary
(c) Advanced

Option	Response
(a)	2
(b)	5
(c)	10

Comment :
This question aims to identify the bank's level of interactivity. Some of them are at the intermediary level, where some specific features of the Web are used to improve services and activities done by the banks. However, most of them are at the advanced level, which opens the possibilities for business transformation and the creation of new business opportunities.

Question (6):
What was the reason behind introducing Internet banking?
(a) Because of competition
(b) Pre-planned reason

Option	Response
(a)	6
(b)	11

Comment :
Question six was intending to identify the reasons the banks have to introduce full Internet banking if they have not already done so. Some of them chose (a) because fear of losing market share to other bank or non-bank competitors is forcing banking institutions to speed up plans for offering on-line financial services. However, most of them have a pre-planned reason for introducing Internet banking, such as a strategic decision taken by the top management.

Question (7):
How do you make your potential customer aware of your location on the Net?
(a) Advertising on the Net
(b) Conventional news media
(c) Banks' publications
(d) Other

Option	Response
(a)	7
(b)	6
(c)	3
(d)	1

Comment :
In this question the objective was to see how the banks announce to the public their Internet presence. Most of them use advertising on the Internet, which shows what a major promotional tool Internet can be for the banks.

Section B:
Section B contains questions of "observation scales", which are specifically designed to find out how important a particular factor is to the respondents. The use of numbers to determine importance is useful as they tell the questioner just how much weight a respondent attaches to the factor and also the order of significance that each factor has. In this case, we have numbers from (1) to (7), where (1) represents "strongly disagree" and (7) "strongly agree". Questions (8)-(15) are related to the use of the Internet by the banks. Questions (16)-(23) deal with the impact of Internet banking.

Question (8):
Your bank uses the Web as an information delivery tool.

Option	1	2	3	4	5	6	7
Response	-	-	-	2	2	4	9

Comment :
Question (8) aimed to identify how banks use the Internet. All of them agree that it is mainly an important means of providing information.

Question (9):
Your bank uses the Web as a tool to improve customer relationship.

Option	1	2	3	4	5	6	7
Response	-	1	-	-	4	6	7

Comment :
Question (9) shows that according to most of the banks the Web can help them improve customer relationship for their benefit.

Question (10):
Your bank gives information to encourage contact with customers in physical branches.

Option	1	2	3	4	5	6	7
Response	-	1	-	1	2	8	5

Comment :
In this question, we see that banks use the Internet to make people go to physical branches because they want to use all their distribution channels. The only exceptions are Alpha Bank and Emporiki Bank, which aim to reduce the long queues at their branches through the use of Internet banking.

Question (11):
Your bank uses the Internet as an important business tool for marketing and communication.

Option	1	2	3	4	5	6	7
Response	-	-	-	1	1	7	8

Comment :
This question shows that all the banks have realized the importance of Internet for marketing their services and communication with their customers.

Question (12):
Your bank uses the Internet as a cost-effective distribution channel.

Option	1	2	3	4	5	6	7
Response	1	-	-	2	2	6	7

Comment :
This question shows that most of the banks agree that the Internet can help them reduce their distribution costs.

Question (13):
Your bank is interested in becoming a total Web bank in the near future.

Option	1	2	3	4	5	6	7
Response	7	6	3	-	1	-	-

Comment :
Here there is a clear unwillingness from the banks to become total Web banks in the future. That shows that they are using the Internet as an alternative distribution channel to their existing channels for delivering their products and services.

Question (14):
Internet helps you to identify profitable customers.

Option	1	2	3	4	5	6	7
Response	-	3	2	3	6	3	-

Comment :
In this question many of the banks agree that the Internet can help them find the more profitable customers.

Question (15):
Internet contributes to the increase of your bank's profits.

Option	1	2	3	4	5	6	7
Response	-	2	2	4	8	1	-

Comment :
In this question the majority of the banks agree that Internet banking can contribute in the increase of their profits.

Question (16):
Internet banking customers carry out more transactions than traditional customers.

Option	1	2	3	4	5	6	7
Response	2	1	2	1	3	8	-

Comment :
In this question many banks agree that Internet banking customers carry out more transactions than traditional customers.

Question (17):
Internet banking customers keep higher balances on their accounts.

Option	1	2	3	4	5	6	7
Response	1	-	4	2	5	5	-

Comment :
Here it seems that there is a small balance in the banks' answers.

Question (18):
Internet banking can increase customer retention.

Option	1	2	3	4	5	6	7
Response	-	1	-	2	6	7	1

Comment :
In this question, most of the banks agree that on-line banking can increase customer loyalty.

Question (19):
Internet banking is helpful for expanding product offerings.

Option	1	2	3	4	5	6	7
Response	-	-	-	1	4	10	2

Comment :
Here banks agree that Internet banking facilitates the expanding of product offerings.

Question (20):
Your operating and maintenance cost has been reduced since you introduced Internet banking.

Option	1	2	3	4	5	6	7
Response	1	2	7	4	3	-	-

Comment :
In this question, many banks disagree on the view that Internet banking contributes in reducing operating and maintenance costs.

Question (21):
Internet banking can help you offer more complex products of an equivalent quality with lower costs to more potential customers.

Option	1	2	3	4	5	6	7
Response	-	-	-	2	6	9	-

Comment :
Here most of the banks agree that Internet banking facilitates offering many complicated products.

Question (22):
The number of your clients has increased since you introduced Internet banking.

Option	1	2	3	4	5	6	7
Response	-	1	4	1	3	8	-

Comment :
In this question, most of the banks agree that Internet banking attracts more clients.

Question (23):
The productivity of your bank has increased since you introduced Internet banking.

Option	1	2	3	4	5	6	7
Response	-	1	2	4	5	5	-

Comment :
Concerning the productivity the banks seem to agree that it has increased after introducing Internet banking.

6.3.3 Presentation of questionnaire that evaluates the respondents' sites

Question (1):
The home page of the site motivates me to continue browsing.

Option	1	2	3	4	5	6	7
Response	-	-	-	-	3	9	5

Comment:
Here the results show that all the banks have interesting Web sites to attract the visitors' attention.

Question (2):
The bank's site is user friendly.

Option	1	2	3	4	5	6	7
Response	-	-	-	-	1	12	4

Comment:
Here we see that all the banks have easy to use sites so that everybody can browse in them easily, regardless of his knowledge, age, etc.

Question (3):
The site helps the bank introduce new products & services.

Option	1	2	3	4	5	6	7
Response	-	-	-	-	1	5	11

Comment:
The answers here show that banks use their site to improve the sales of new products.

Question (4):
The site gives information to encourage contact with the physical branches.

Option	1	2	3	4	5	6	7
Response	-	-	-	-	1	11	5

Comment:
All banks encourage contact with traditional branches, so that they make use of all available distribution channels.

Question (5):
The site provides financial information about the bank.

Option	1	2	3	4	5	6	7
Response	-	-	-	-	1	8	8

Comment:
All financial institutions provide information concerning their financial profile to convince the public about their reliability and solvency.

Question (6):
The site releases information about staff and board of directors.

Option	1	2	3	4	5	6	7
Response	-	-	1	2	8	3	3

Comment:
Here we see that financial institutions reveal information about their successful employees and board of directors.

Question (7):
The site provides information on fees and rates.

Option	1	2	3	4	5	6	7
Response	-	-	-	1	8	7	1

Comment:
All the banks give extensive or some information concerning fees and rates to attract customers from their competitors.

Question (8):
The site provides economic information about the financial market.

Option	1	2	3	4	5	6	7
Response	5	3	2	1	2	1	3

Comment:
Only the sites of the biggest banks in Greece give financial information about the market to inform the public about the current economic issues. The small banks do not provide so much of this information.

Question (9):
The site provides job offers.

Option	1	2	3	4	5	6	7
Response	-	3	-	-	2	7	5

Comment:
Only private banks give the opportunity for people to find a job through their site. Public financial institutions such as Postal Savings Bank and Deposit and Loans Fund follow a different recruitment procedure through an independent governmental authority and prefer to use their site mainly to promote their services.

Question (10):
The site provides application forms to request the most common banking products.

Option	1	2	3	4	5	6	7
Response	2	2	2	1	3	3	4

Comment:
Here we see that many banks give more information when requested and that most true Internet banks offer application forms for products and services on-line.

Question (11):
The site provides options where customers can make complaints, right opinions, and request services in a generic way.

Option	1	2	3	4	5	6	7
Response	1	1	2	2	2	4	5

Comment:
Here we see that most of the banks allow their customers to communicate with them.

6.3.4 Summary of result

It should be stated that the questionnaire response rate, although adequate, is lower than anticipated. Thus, it should be noted that this would have a direct effect on the conclusions drawn from them. The conclusions would only be a general representation of the banks' views on Internet banking. However, there is no reason to assume that other banks that did not or chose not to participate would have answered very differently from the ones who did.

The results from the questionnaire firstly show that banks of all sizes have placed themselves on the Internet, regardless of the phase they are functioning. More importantly, the results reveal that banks want to expand their existing distribution channels using the Internet as another channel for delivering banking services. They see the Internet as a means of targeting more customers. In addition, the costs of going on-line are cheaper in comparison to traditional forms of banking.

The Internet is a mainstream trend, which requires a strategic response. Some banks consider it as a vector for future growth and development and have adopted aggressive technology and marketing strategies. It is no surprise that Web advertising is the most common method of attracting more clients. Virtually all the financial institutions verified that they receive more than a thousand hits per day (Question 2). This may show that they are indeed making new customers. Moreover, while non-true Internet banks have informative sites, true Internet banks focus aggressively in full banking transactions.

From all indications, the above result has been able to explain the reasons why Greek banks adopt Internet banking. Although there were some deviations in the apparent ways that the various banks intend to use the Internet to market the services they provide. But in general, all respondents agree that it is an essential distribution channel for delivering banking services that can help them to annex their potential, particularly in the South European and Balkan market.

6.4 Conclusions

6.4.1 Summary and results

From all indications, it is safe to say that most financial institutions in Greece have realised the important role of Internet banking for developing alternative distribution channels of banking services. This is supported by the fact that there is a change in their distribution channel structure through an increase in the number of banks setting-up a Web site or even becoming true Internet banks. The Internet is becoming an important distribution channel for the banks offering an extensive range of services and it can help customers execute and monitor their transactions cost-effectively. In addition, the methodology used in the course of this research work (literature review and questionnaire) have all contributed immensely to support the belief that Internet banking in Greece has a strategic importance for the banks and the development of the financial services industry. The results of the questionnaire showed that more and more banks are becoming aware of the strategic potentials of the Internet. The majority of the respondents agreed that it is indeed an effective new medium for marketing financial products and services as well as a strategic tool for expanding market base.

What can be understood from the questionnaire is that Internet banking in Greece has been more of a success than a failure and it is concluded that online transactions will continue to grow and expand while the Greek financial services market matures. There are constant developments in the areas of security, protocols and Net marketing techniques that will strengthen the case for banking on-line.

Banks see the Internet as the latest cheap, fast and convenient way of selling and distributing their products. They view it as a supporting tool to increase value-added service. Some banks will find the Internet and WWW more serviceable and beneficial than others but the Internet will not revolutionise banking services offering. It is merely an alternative distribution channel that cannot replace completely existing traditional distribution channels.

6.4.2 Final comments and recommendations

The Internet and the WWW have attracted a great deal of attention during the last years because they are superb channels of displaying information cheaper and more effectively than any other traditional channel. The Net involves communication between computers on networks that allows the users direct communication with each other regardless of time or place factors. As a result, it has become a popular distribution channel. To compete successfully in today's dynamic marketplace and manage the complexities of diverse banking operations, Greek banks must deliver superior value to target customers and be able to adapt in a continuously changing marketplace through market-oriented strategic planning. Fear of losing market share forces financial institutions that do not provide on-line banking to speed up online Internet banking plans. Internet banking is finally progressing in Greece fast. With its low-cost structure, attractive demographics and innovative services, the Internet is going to present a real challenge to traditional forms of banking. Internet banking offers a great deal of advantages both to the banks and to the customers. Clients are

becoming more and more demanding and they are expecting even higher levels of service from their bank. On the other hand, Internet banks by offering ease of use, ease of access, choice and competitive pricing, they add depth and breadth of functionality to meet the expanding needs of their diverse customer base. They increase customer loyalty and cross selling by targeting smaller and smaller groups until ultimately the banks offer tailored products for individual customers.

Because competition across the European countries and across different banks has been intensified, the growth of Internet banking seems to continue for the following years. Although it is difficult to forecast the future in such a volatile environment, the amount of activity in the area means that the situation will evolve extremely quickly. Greek banks and branches of foreign banks in Greece will soon understand that the Internet can take them beyond their own borders in order to expand their customer base. Nevertheless, they will have to link that with a geographical strategy which, by targeting specific neighboring countries, will help them minimize risk as well as they maximize revenue. As a matter of fact, this is already happening now with banks such as the National Bank of Greece, Alpha Bank, EFG Eurobank-Ergasias and Piraeus Bank, which are trying to gain awareness outside their frontiers and have positioned themselves in the Web. This might force other institutions to reconsider their Internet strategies sooner rather than later. Some banks view Internet as a cost-reduction measure for transaction services, while others try to provide information and advisory services. Nevertheless, financial institutions across Europe are seeking opportunities to enhance cost competitiveness and to expand market base via Internet banking.

Electronic banking does not essentially alternate the underlying trends of the competitive environment: intense competition, need to reduce costs and the critical role of information technology. Rather it broadens and strengthens them. Banks will have to decide whether to fully ride the Internet wave, reduce quickly and dramatically their distributions costs and pass on the savings to the customers and to adopt a more careful and gradual attitude. The choice will be largely determined by the perceived intimidation of newcomers attracted by the economics of Internet banking.

Internet banking can perform a significant role in the development of the banking system, as on-line banking becomes a standard way of life. On-line banking in Greece has finally reached the point at which it is being accepted by consumers and is financially successful for the institutions that offer it. In fact, banks are discovering that a comprehensive on-line banking strategy is the key for success in the increasingly competitive financial services market. In designing an on-line banking presence, a bank needs to think about various options, ranging from a simple marketing presence on the Internet to an advanced on-line banking system that changes the way in which the financial institution works and the consumer carries out financial transactions. Whatever the type of offering a bank decides to follow, it is essential that the bank undertake a comprehensive analysis and planning process up front to ensure the success of the project.

To conclude, the potential for on-line banking is present for all banks to utilize. This thesis has shown that the Internet is a unique opportunity and a major channel for distributing banking services in Greece. The banks that stand to gain full advantage of this are the ones who have done their marketing and demographic research and who

are able to attract their targeted group by devising interesting and memorable homepages to benefit from the increase in e-banking services.

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APPENDIX A:

Questionnaire

To: The Marketing Department

Dear sir/madam,

I am an MBA student, studying Business Administration at Blekinge Institute of Technology in Sweden. I am currently working on a thesis that researches Internet Banking in Greece and I am distributing the attached questionnaire to Greek banks.

I would appreciate it if you would answer this questionnaire and e-mail it back to me until March 31st, 2006. Please be assured that your answers will be treated with the strictest confidence.

If you feel that you are not the correct person to fill in this questionnaire, please could you pass it on to the person in your bank that is.

If you have any questions, please do not hesitate to e-mail me at:
paad04@student.bth.se

Thank you in advance for you co-operation,

Sincerely yours,

Andreas-Nikolaos Papandreou

QUESTIONNAIRE

Please fill this questionnaire and send it back to Andreas-Nikolaos Papandreou **(paad04@student.bth.se)** before March 31st, 2006.

Section one:

Please type the letter of your answer in the last column. If for example, the answer to the first question would be "more than Euro 10 billion" i.e. choice "A" then please type "A" in the last column labelled "Choice" and so on.

#	Question	A	B	C	D	Choice
1	Your bank's assets are:	More than Euro 10 billion	Between Euro 500 million to Euro 10 billion	Less than Euro 500 million	-	
2	Approximately, how many people visit your site per day?	More than 5000	Between 1000 to 5000	Up to 1000	-	
3	How long has your bank been providing Internet banking?	More than 5 years	Between 1 to 5 years	Less than a year	Not provided at the moment	
4	How frequently do you update your Web site?	Daily	Weekly	Monthly	More than one month for every update	
5	Which is the bank's level of interaction?	Basic	Intermediary	Advanced	-	
6	What was the reason behind introducing Internet banking?	Because of competition	Pre-planned reason	-	-	
7	How do you make your potential customer aware of your location on the Net?	Advertising on the Net	Conventional news media	Banks' publications	Other	

Section two:

For the following questions, number (1) would represent 'strongly disagree' while (7) represents 'strongly agree'.

Please type "X" in the appropriate column, which would represent your feelings for every question.

#	Questions	1	2	3	4	5	6	7
8	Your bank uses the Web as an information delivery tool.							
9	Your bank uses the Web as a tool to improve customer relationship.							
10	Your bank gives information to encourage contact with customers in physical branches.							
11	Your bank uses the Internet as an important business tool for marketing and communication.							
12	Your bank uses the Internet as a cost-effective distribution channel.							
13	Your bank is interested in becoming a total Web bank in the near future.							
14	Internet helps you to identify profitable customers.							
15	Internet contributes to the increase of your bank's profits.							
16	Internet banking customers carry out more transactions than traditional customers.							
17	Internet banking customers keep higher balances on their accounts.							
18	Internet banking can increase customer retention.							
19	Internet banking is helpful for expanding product offerings.							
20	Your operating and maintenance cost has been reduced since you introduced Internet banking.							
21	Internet banking can help you offer more complex products of an equivalent quality with lower costs to more potential customers.							
22	The number of your clients has increased since you introduced Internet banking.							
23	The productivity of your bank has increased since you introduced Internet banking.							

You have now completed the questionnaire. Thank you very much for your time and help!

Best Regards,

Andreas-Nikolaos Papandreou

APPENDIX B:

Questionnaire that Evaluates the Bank Web Sites

#	Questions	1	2	3	4	5	6	7
1	The home page of the site motivates me to continue browsing.							
2	The bank's site is user friendly.							
3	The site helps the bank introduce new products and services.							
4	The site gives information to encourage contact with the physical branches.							
5	The site provides financial information about the bank.							
6	The site releases information about staff and board of directors.							
7	The site provides information on fees and rates.							
8	The site provides economic information about the financial market.							
9	The site provides job offers.							
10	The site provides application forms to request the most common banking products.							
11	The site provides options where customers can make complaints, express opinions, and request services in a generic way.							

APPENDIX C

List of Banks where the Questionnaire was sent

#	Bank	True I.B.	Type	Country of Origin	Contact
1	National Bank of Greece	Yes	Public	Greek	homebank@nbg.gr
2	Alpha Bank	Yes	Private	Greek	marketing@alpha.gr
3	Emporiki Bank	Yes	Public	Greek	ebankingsupport@emporiki.gr
4	EFG Eurobank Ergasias	Yes	Private	Greek	marketing@eurobank.gr
5	Piraeus Bank	Yes	Private	Greek	support@winbank.gr
6	Geniki Bank	No	Private	Greece	marketing@geniki.gr
7	Egnatia Bank	Yes	Private	Greece	ebanking@egnatiabank.gr
8	Agricultural Bank of Greece	No	Public	Greece	ategt@ate.gr
9	Bank of Attica	No	Public	Greece	marketing@bankofattica.gr
10	Laiki Bank	Yes	Private	Greece	marketing@laiki.gr
11	Nova Bank	Yes	Private	Greece	Webinfo_Banker@novabank.gr
12	Omega Bank	Yes	Private	Greece	marketing@omegabank.gr
13	Probank	No	Private	Greece	marketing@probank.gr
14	Panellinia Bank	Yes	Private	Greece	marketing@paneliniabank.gr
15	First Business Bank	Yes	Private	Greece	info@fbbank.gr
16	Marfin Bank	No	Private	Greece	info@marfingroup.gr
17	Aspis Bank	Yes	Private	Greece	marketing@aspisbank.gr
18	Postal Savings Bank	No	Public	Greece	webmaster@ttbank.gr
19	Deposit and Loans Fund	No	Public	Greece	Fax
20	Proton Bank	No	Private	Greece	customer@proton.gr
21	Bayerische Hypo- Und Vereinsbank	Yes	Private	Germany	marketing@hvbeurope.com
22	HSBC Bank	No	Private	U.K.	marketing@hsbc.gr
23	BNP Paribas	No	Private	France	marketing@bnpparibas.gr
24	ABN-AMRO Bank	No	Private	Holland	Fax
25	CETELEM	No	Private	France	Fax
26	Royal Bank of Scotland	No	Private	U.K.	sylvia.gouloumis@rbos.com

27	SANPAOLO IMI S.p.A	No	Private	Italy	Fax
28	CITIBANK	Yes	Private	U.S.A	marketing.greece@citigroup.com
29	Union de Creditos Immobiliarios	No	Private	Spain	Fax
30	Bank of Cyprus	Yes	Private	Cyprus	marketing@bankofcyprus.gr
31	Hellenic Bank	Yes	Private	Cyprus	marketing@hellenicbank.gr
32	Bank of America	No	Private	U.S.A.	Fax
33	American Express	No	Private	U.S.A.	Fax
34	American Bank of Albania	Yes	Private	Albania	abaathens@ambankalb.com
35	Pancretan Cooperative Bank	Yes	Private	Greece	mail _ info@pancretabank.gr

APPENDIX D:

List of Questionnaire Respondents

1. American Bank of Albania
2. Alpha Bank
3. Emporiki Bank
4. Agricultural Bank of Greece
5. National Bank of Greece
6. Bank of Cyprus
7. Piraeus Bank
8. Postal Savings Bank
9. EFG Eurobank-Ergasias
10. CITIBANK
11. Deposit and Loans Fund
12. Egnatia Bank
13. HSBC Bank
14. Bank of Attica
15. Probank
16. Aspis Bank
17. Laiki Bank

APPENDIX E:

Answers of Respondents

Question	American Bank of Albania	Alpha Bank	Emporiki Bank	Agricultural Bank of Greece	National Bank of Greece	Bank of Cyprus	Piraeus Bank	Postal Savings Bank	EFG Eurobank-Ergasias	CITIBANK	Deposit and Loans Fund	Egnatia Bank	HSBC Bank	Bank of Attica	Probank	Aspis Bank	Laiki Bank		Average	Mode
1	3	1	1	1	1	2	1	1	1	2	2	2	2	2	2	2	2		2	2
2	3	1	2	2	1	1	1	3	1	2	3	2	2	2	3	2	2		2	2
3	1	1	1	4	1	1	1	4	1	1	4	1	4	4	4	2	2		2	1
4	2	1	1	2	1	1	1	3	1	2	4	1	2	3	2	1	1		2	1
5	2	3	3	2	3	3	3	2	3	3	1	3	2	1	2	3	3		2	3
6	2	2	1	1	2	2	2	2	1	2	1	2	1	2	2	2	1		2	2
7	2	3	1	2	2	1	1	2	3	1	4	1	2	3	2	1	1		2	1
8	4	6	4	7	7	7	7	6	7	7	5	7	7	5	6	6	7		6	7
9	6	5	5	6	6	7	7	6	7	7	5	7	6	5	6	7	7		6	7
10	6	2	4	6	5	6	6	7	6	7	7	6	6	6	7	5	7		6	6
11	5	6	4	7	6	7	7	6	7	7	6	7	7	6	6	6	7		6	7
12	4	7	6	6	6	7	7	6	7	7	5	7	6	4	5	7	6		6	7
13	1	1	5	1	2	3	3	1	2	1	1	2	2	1	2	2	3		2	1
14	2	4	5	2	3	6	6	2	5	6	3	5	5	4	5	4	5		4	5
15	5	2	4	3	4	6	5	2	5	5	3	5	4	4	5	5	5		4	5
16	1	6	6	1	4	6	6	2	6	6	3	6	3	5	5	5	6		5	6
17	3	4	5	1	5	6	6	3	6	6	3	6	3	5	4	5	5		4	5
18	5	7	6	2	5	5	6	4	6	6	4	6	5	5	5	6	6		5	6
19	5	4	6	6	5	6	7	5	6	6	5	6	6	6	6	7	6		6	6
20	5	3	2	1	3	4	4	3	5	3	2	5	4	3	3	3	4		3	3
21	6	4	6	5	5	6	6	5	6	5	4	6	5	6	6	5	6		5	6
22	6	2	3	3	6	6	6	5	6	5	3	6	4	3	5	6	6		5	6
23	6	3	6	2	5	6	6	4	5	4	4	5	4	3	5	6	5		5	6

APPENDIX F:

Evaluation of Respondents

Question	American Bank of Albania	Alpha Bank	Emporiki Bank	Agricultural Bank of Greece	National Bank of Greece	Bank of Cyprus	Piraeus Bank	Postal Savings Bank	EFG Eurobank-Ergasias	CITIBANK	Deposit and Loans Fund	Egnatia Bank	HSBC Bank	Bank of Attica	Probank	Aspis Bank	Laiki Bank		Average	Mode
1	6	7	7	6	6	6	6	6	7	7	5	7	6	5	5	6	6		6.1	6
2	6	7	7	6	6	6	6	6	7	7	5	6	6	6	6	6	6		6.2	6
3	7	7	7	7	7	7	6	7	6	7	5	7	6	6	6	7	7		6.6	7
4	7	5	6	7	6	6	6	7	6	7	6	6	6	7	6	6	6		6.2	6
5	7	6	6	7	7	7	7	6	7	6	6	7	5	6	6	6	7		6.4	7
6	6	5	7	5	5	5	6	5	5	4	4	7	3	5	5	6	7		5.3	5
7	5	6	5	5	7	6	5	5	5	4	6	6	5	6	6	5	6		5.5	5
8	2	7	7	6	7	5	3	2	5	1	1	4	2	1	1	1	3		3.4	1
9	6	7	6	5	2	6	7	2	7	7	2	6	5	6	6	6	7		5.5	6
10	2	5	7	3	2	7	6	3	4	6	1	6	5	1	7	5	7		4.5	7
11	3	6	6	5	7	7	7	6	7	3	2	4	4	1	6	5	7		5.1	7