# Internet Banking in Terms of Profitability: The Case of Northern Cyprus Banks

**Jude Chimezie Nwobodo**

**Submitted to the**
**Institute of Graduate Studies and Research**
**In Partial Fulfilment of the Requirements for the Degree of**

**Master of Science**
**in**
**Banking and Finance**

**Eastern Mediterranean University**
**June 2011**
**Gazimağusa, North Cyprus**

Approval of the Institute of Graduate Studies and Research

Prof. Dr. Elvan Yılmaz
Director

I certify that this thesis satisfies the requirements as a thesis for the degree of Master of Science in Banking and Finance.

Assoc. Prof. Dr. Salih Katircioglu
Chair, Department of Banking and Finance

We certify that we have read this thesis and that in our opinion it is fully adequate in scope and quality as a thesis for the degree of Master of Science in Banking and Finance.

Asst. Prof. Dr. Nesrin Ozatac
Supervisor

Examining Committee

1. Assoc. Prof. Dr. Salih Katircioglu

2. Asst. Prof. Dr. Eralp Bektas

3. Asst. Prof. Dr. Nesrin Ozatac

# ABSTRACT

In Northern Cyprus, many if not all different bank services are being provided for their customers. Banking activities on the small Island in rather perfect and it is very flexible in satisfying and meeting the persistent wants of the general public. Currently, North Cyprus banks have gone ahead of traditional ways of banking. Newer products and services are being developed through electronic ways or electronic platforms (online banking), by using different delivery channels to reach the end users.

The principle aim of this study is to analyze the empirical test of whether banks offering Internet banking are profitable, and to help fill essential space in knowledge concerning profitability, cost efficiency and other characteristics based on Banks perspectives for adopting internet banking system

A panel data from 22 retail banks operating in Turkish Republic of Northern Cyprus (KKTC), comprising of 1 Public Bank, 14 Private Banks and 7 Foreign Branch Banks. These banks have adopted Internet banking some time between 1997 and 2010. Our dataset is drawn from the year-end aggregate income statements and balance sheets compiled by the Central Bank of Northern Cyprus. It covers a period of six years ranging from 2004 to 2009

**Keywords**: Profitability, internet banking and North Cyprus

# ÖZ

Kuzey Kıbrıs Türk Cumhuriyetinde birçok banka çok çeşitli bankacılık hizmeti vermektedir. Bu hizmetler, küçük bir ada ülkesi olan KKTC'de yaşayan banka müşterilerinin beklentilerini oldukça tatmin etmektedir. Son zamanlarda KKTC bankacılık hizmetleri geneleksel bankacılık uygulamalarını dışına çıkmaya başlamış, yeni ürünler özellikle elektronik altyapı ile müşterilere ulaştırılmaya çalışılmaktadır.

Bu çalışma, KKTC e-bankacılık uygulamalarının banka karlılıkları üzerinde etki yaratıp yaratmadığını görmek amacını içermektedir. Internet bankacılığı uygulayan bankalarla uygulamayanlar, karlılık açısından mevcut olan farklılıkları ortaya çıkarmaya çalışılmaktadır.

KKTC'de faaliyet gösteren 22 Ticari Banka incelenmeye alınmış ve panel data yöntemi ile 14 yerli banka, 7 şübe bankası ve 1 kamu bankası dikkate alınarak analiz yapılmıştır. Analiz 2003 ve 2009 yılları arasını içermekte ve internet bankacılığının banka karlılığı üzerinde positif bir etki oluştuğu kanısına varılmamıştır.

**Anahtar Kelimeler**: Karlılık, internet bankacılığı( e-bankacılık), Kuzey Kıbrıs

# ACKNOWLEDGMENTS

I would like to thank Asst. Prof. Dr. Nesrin Ozatac for her continuous support and guidance in the preparation of this study. Without her invaluable supervision, all my efforts could have been short-sighted and I consider myself blessed to be under her supervision.

I am thankful to the entire staff in the department especially the Department Chair, Assoc. Prof. Dr. Salih Katircioglu for his assistance. Special thanks also to my special friend Nigar Taspinar for her enormous assistance and encouragement in completing this study. I wouldn't fail to appreciate Mr. Volkan Turkoglu for providing me with most of the materials used for this study.

Many thanks to Prof. Dr. Glen for his support; and more thanks to Assoc. Prof. Dr. Majid Hashemipour, the Vice Rector for International Affairs for his Divine Assistance all through my year in Cyprus, May the good Lord bless you sir.

Finally I owe an extreme thanks to my late Father, Chief Mmeziamaka Nwobodo, Ogbuefi (Onyemalu-ife-ga-eseokwu), My dearest Mum, Lolo Eriko Nwanyi and Brothers, Prince Valentine Nwanwelugo and Prince Churchill Omekannaya who encouraged me to travel all the way from Nigeria to Turkish Republic of Northern Cyprus and supported me earnestly all throughout my studies. I would love to dedicate this study to them as my sincere love and an indication of their significance in this study as well as in my life.

I dedicate this work to my Heavenly Father, Our Lord Jesus Christ,

The Prince of peace and The Lord of lords, for He made a way where there seems to be no way for me.

# TABLE OF CONTENTS

# LISTS OF TABLES

# LIST OF FIGURES

# Chapter 1

# AN INTRODUCTION TO INTERNET BANKING

## 1.1 Background of the Study

Sequel to the rapid improvement in modern informational technology, new IT innovations has become or is continuously becoming a very imperative feature in the future expansion and development in recent days, especially in the banking and financial industry. Its modernization and improvement in this sector contributes to the economic increase of any nation. The outstanding development in modern technology together with the persistent merge of information technology had not only created severe awareness, but also had brought a great lot in banking operations as a whole. For the banking sectors, modernized technology has become known as a tactical way of realizing higher efficiency, control of operation, higher yield and most importantly, profitability. Profitability per say is the optimum concern for every manager in the banking industry, so as to increase the shareholder's equity. Not only for the banks, coming from the view of bank's customers, the innovation of the modern technology is the apprehension of anywhere, anytime and any day banking desires (Balwinder and Pooja, 2004).

This remarkable development in our world of technology today has really encouraged the banks to embrace the trend in new technology to meet up with the day to day increasing customers' prospect and face the hard-hitting competition especially in Northern Cyprus, Jenkins (2006). The most important challenge facing

banks nowadays is to follow up the fast rising development of internet banking and try to adopt those required new technology so as to provide satisfying services to customers. Probably, the use of these modern technological infrastructures should give vital results to enhance consumer service, lesser cost of usage and fast delivery medium.

Information technology adoption and usage is becoming an essential feature in today's development most especially in the banking sector. The use of Internet banking allows for detailed assesses of customers account, make necessary enquiries and undertake banking transaction. In the midst of the fame usage of personal computers, easy access to the internet and World Wide Web, the use of internet has provided an easy channel for accepting orders and a medium for delivering products and services to the entire customers. This innovation has been increasing radically in these recent times. This kind of banking is commonly known as Internet Banking (RBI, 2001).

## 1.2 Definition of Internet Banking

Electronic banking or internet banking can be defined as the recent bank delivery channel for their products and services. Different authors have given different definitions of Internet Banking and the definitions being given depends on or varies amongst the researchers (Daniel, 1999).

Mobarek (2007) defined Electronic Banking as "An automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels.

E-banking is the newest delivery channel of banking services according to Mols, (1998). He mentioned that electronic banking definitions vary amongst researchers partially because electronic banking refers to several types of services

through which bank customers can request information and carry out most retail banking services through computer connected network, television or mobile phone" (Mols, 1998).

In line with this, Kolodinsky et al (2004) mentioned that electronic banking could also be defined in several different platforms as follows:

- Telephone Banking
- Internet banking or online banking
- PC Banking or Offline Banking
- TV – Based banking
- Mobile Phone banking

From the above mentioned definition platforms, the fastest amongst the list of electronic banking areas are Mobile phone banking and the Internet banking.

With reference to OPPapers (2008), internet banking is said to be a useful and secure way in which we can achieve our online banking transactions so far we are connected to an Internet network. The services provided by e-banking includes the payment of bills, money transfer, making some online shopping and checking of account balances which are done either at home or in the office without the stress of going to bank to perform same transactions.

Online banking transactions and products include the following; account access, account statement enquiry, fixed deposit enquiry, money transfer, credit card payment, utility bills payment, checkbook request etc. As more people embrace the use of the internet, it is expected that online banking will grow massively. This anticipated growth will be influenced by people's age, income and educational levels. Many research studies have been carried out on Internet banking adoption;

however, there is a paucity of scholarly examinations on the effect of Internet banking on bank performance (Daniel and Storey, 1997).

Banks had long begun offering internet services since 1995 (Sullivan, 2000). Though the expansion of the system of Internet banking has been moving in a slow pace, most users and observer would attest that its development has been steady still. The initiation and rising usage of the Internet together with the usage of cellular phone and the familiarity of personal computers, had offered a prospect and a serious test for the banking industry who have adopted the use of this modern technology (Internet). Customers in these present days not only want to do only online transactions; they also would need to receive SMS and email messages of all their financial account activities and their newest financial updates anytime and whenever it is requested.

Nowadays, almost all financial institutions use a competent online computer networks to reach out to millions of their clients which have now replaced the use of paper records. In today's banking system, paper records are mostly used when customers make some purchase and ask for the receipt of their transaction and this reduction in paper record is as a result of the ability of each customer to connect to their bank through their mobiles and personal computer (Business communication, 2000).

The ever increasing competitive banking environment has made banks to conclude that the inclusion of internet banking is being seen as a useful means which helps in reducing the use of the paper record. This is because the maintenance of paper record is now seen so difficult to keep and are being destroyed easily.

## 1.3 The Aim of the Study

Though many works have been done on internet banking generally, the performance level of this modern technology in the banking industry is rather a thing worth discussing and researching on. The principle aim of this study is to analyze the empirical test of whether banks offering Internet banking are profitable, and to help fill essential space in knowledge concerning profitability, cost efficiency and other characteristics based on Banks perspectives for adopting internet banking system.

## 1.4 The Scope of the Study

The work will investigate the profiles of each of the banks by examining their performances in terms of their profitability, using some financial ratios; like Return on Assets (ROA), Return on Equity (ROE), Profit Margins (PM), Equity to Total Assets, and some other profitability ratios. Statistical and econometric analysis would be used as a test module to reaching a satisfying conclusion of the profitability for banks using internet transactional web sites.

At the end of this thesis work, it will clarify and make available a detail understanding in knowledge of profitability concentrating on the banks offering internet banking basic services to their customers. The study also presents financial data, gotten from a review of the Central Bank of the TRNC website, on the number of money-making banks that renders internet banking services to its customers. A research also was carried out on the World Wide Web by using both the understanding of the web sites and different exploration engines to discover the home pages of these banks.

We also contributed to the literature of Internet banking in Northern Cyprus by showing that the adoption of internet banking has a positive correlation with Returns on Assets of a bank which is one of the ratios for measuring profitability.

The thesis is organized in different chapters. Chapter one discussed the introductory path of the study, Chapter two highlighted some literature reviews in line with this study, Chapter three discussed Internet banking in detail and the features associated to it, Chapter four of this study discussed the technological background and its importance to Internet banking, Chapter five brought up the knowledge of Northern Cyprus banks in general and some findings based on the activities each of the banks operates on. Chapter six discussed the type of data used and the source, and then followed by the research methodology applied in the study. Lastly, Chapter seven made some final recommendations and remarks from the outcome of the study.

# Chapter 2

# LITERATURE REVIEW

With Turkish Banks operating in North Cyprus, there is little or a few literature that has investigated the current condition of internet banking on the island. Most literatures on subject focused on the U.S. and the European banking systems mostly because of the availability of data. Thus almost no literature is available on this subject (Internet Banking in terms of Profitability) in North Cyprus. Based on this, the study is the first of its kind as there are no studies done on this topic before. Therefore this paper reflects the current status of internet baking by Turkish Republic of Northern Cyprus (TRNC) Public, Private and Foreign Branch Banks operating in North Cyprus.

There are several written documents that studied the adoption, growth and customer's satisfaction as regards to internet banking. For instance, Jenkins (2006) surveyed the factors that affect the adoption of internet banking services by domestic commercial banks in North Cyprus (TRNC). The study found out that there are no domestic banks in TRNC that was offering internet banking services while just two foreign branch banks, IS Bank and HSBC were the only banks as of then that were offering internet banking. These not withstanding, there are still lots of scope that are available for internet banking expansion in North Cyprus.

Abeido (2004) investigated North Cyprus banks with only 85,000 prospective internet users with 23 Private and Foreign commercial banks. He concluded that the potential market in North Cyprus for internet banking services is minute. Yet the

penetration of internet banking services increased remarkably from 8.7% of total banks in 2004 to 30% of total banks in 2006, of which the number of users has increased by 10% giving room for more recent analysis and inference. This is because as customers become more familiar and contented with internet banking services, internet banking will continue to grow.

Egland, et al (1998) are among the first to conduct the initial imperative survey that evaluated effects of Internet banking on the United States banks and evaluated the performance and structural uniqueness of these banks. But the study could not highlight any evidence or linkage on key distinctions in the performance of the banks rendering Internet banking services to their customers as compared to those not offering Internet banking. Their findings and that of Sullivan (2000) are much same. He found no strong proof of an advantage of Internet banking in the case of U.S click-and-mortar banks.

Referring to the study of Furst, et al (2002a), they made available a relative documented work of Internet and non-Internet banks which are based in the U.S. and established that establishments offering Internet banking are more profitable than those not offering Internet banking. They claimed in the study that national chartered U.S. banks experienced a huge Return On Equity by using the click-and-mortar business form and that different sizes of banks offering Internet banking do not rely mainly on their internet profiting activities and deposits than non-Internet banks do; but he later again in 2002 concluded that internet banking was not a significant factor to have an effect on bank's profitability.

Furst, et al (2002b) examined the reasons explaining the decision for which banks adopt Internet banking. The findings showed that, new, large and efficient banks that are located in developed areas (Main Cities), and which incur higher cost

on their fixed assets (like land and building), are mostly likely to embrace Internet banking. In addition to this, Daniel (1999) pointed out that the market share or bank's force, is positively associated to its decision to provide Internet banking to its customers depending the pressures received from their well to do customers to provide a wider range of service to satisfy the needs of these customers and mentioned that this anticipated growth will be influenced by people's age, personal income and educational levels people that intend to use Internet banking services.

De Young (2005) made a research comparison between the US traditional brick and mortar banks and Internet only banks. His investigation was based on the performances on the US economy. The study led to a very strong proof that newly start-up Internet-only banks to a large extent underperformed the well-known banks at first. He found that bank profitability in the US market is lower for internet-only banks and remarked that the performance gab of this bank diminishes over time as these fresh banks grow older, larger and stronger; and recommended in his study that the Internet-only banking model could possibly be practicable as far as it is performed efficiently.

De Young et al, (2007) again analyzed the US public banks market investigating the outcome of Internet banking on bank performance. Their study compared brick and mortar banks with click and mortar banks performances; and established that the average one year old Internet-only bank makes notably lower profit than the normal one year old branch bank, owing to low business size and high non-interest expenses; and suggested that Internet banking improves bank profitability through enhancement in earnings from deposit service charges.

Cicretti et al, (2009) in their latest study examined the performance of an Italian bank. They used different definitions of banks' internet transaction to find a

significant link between offering of Internet banking products and their performance. The study broke down internet banking into different groups based on different services the banks offering online and therefore provided a more clear measure of this variable. In their analysis also, they showed a strong positive impact of internet banking banks performance stating that the analysis is strong under different description of the internet banking adoption variable.

Hernado and Nieto (2006) showed that Internet banking is perceived as an additional channel to complement traditional banking. They estimated the effect of adopting of a transactional websites on over 70 Spanish banks between 1994 and 2002 and found a gradual decline in overhead and staff expenses as a result of the adoption which they associated with improved bank profits. These researchers find that larger Spanish banks have been more likely to adopt Internet banking.

# Chapter 3

# INTERNET BANKING

## 3.1 Features of Internet Banking

The era when it is an obligation meant for bank users to go to a branch to complete their transaction or inquire for certain information from the branch is over. The advancement of Online or Internet Banking has conveyed an enormous transformation to the entire financial industry.

Bankers view online banking mechanism as an additional means of attracting and retaining new customers. The online banking activities by banks are helping to get rid of handling expensive paper transactions and front teller exchanges in a rising competitive banking setting (Basics, 2003).

## 3.2 Origin of Internet Banking

The Origination of the word online banking in the ‘80s made the subject a popular way of banking. Some devices also were used in connection to this online banking system, of which they must be connected in other to achieve their purpose back then. The use of workstation, keyboard and tele-vision set or monitor were used to access the banking system when connected to a telephone line.

Four of the main banks in the United Sates (Chase Manhattan, Citibank, Manufacturers Hanover and Chemical) started online services in their banks in 1981. They were using the Videotex system to render home banking service. Videotex, also known as “Interactive Videotex" was among the earliest accomplishments of an "end-user information system". Videotex system was used to convey information

usually in the form of text messages to a user in computer-like format between the 1970s and mid-1980s which would be display on the recipient's television. The use of Videotext lasted for a while but crashed due to some new innovations which made banking services not to be known world wide apart from in France where Videotex (Minitel) usage was being supported financially by the telecom provider (Aldrich, 2003).

Although banks begun offering their services via internet in 1995, yet the spread of internet banking has been slower, but expansion has been steady and in a continuous trend. Many banks today are internet only banks, banks with no physical outlets. These Internet only banks give all their banking services via the internet without any branch unlike brick and mortar banks; and what typically differentiates them is that they offer quality services, giving higher interest rates and have good online banking features (Sullivan, 2000).

## 3.3 Characteristics of Internet Banks

Internet Banking can be offered in two ways. The first and most common is when existing banks transit from their traditional way of banking which are referred to as "Brick and Mortar" banks, to create their own Website and provide their financial services online. Bricks and Mortar banks are those ordinary banks that don't render any kind of internet services. They depend on their physical branches for their services (Furst, et al 2002).

### 3.3.1 Brick-to-Click Banks

More or less, online banking is being offered by mainly all large public banks, co-operative banks, credit unions, many depository institutions and even regional banks. They render some type of online banking, otherwise identified as PC banking, Internet/ electronic banking or simply home banking. These kinds of banks

are generally known as **"brick-to-click"** banks. Brick-to-Click banks distinguishes themselves from Brick-and-mortar banks in the way that Brick-and-Mortar banks are still making use of the old traditional ways of banking, and also from virtual banks (no physical structure whatsoever) which uses only internet to administer their services to their customers. A typical example of this kind of a bank is the Citibank, amongst the leading financial institutions in the UK. It has just four physical locations in the entire UK. Yet servicing numerous numbers of customers it has in London. This was achievable because of online banking that is organized through a well connected internet network platform (Furst, et al 2002).

### 3.3.2 Virtual banks

The second is referred to as "Virtual" banks, in which no real physical location exists. This kind of banking offer their transactions through a computer server located in a house or an office that serves as a legal address. Customers have no physical or direct contacts with these kinds of banks. Virtual banks are banks that have no any kind of physical structure or bricks in existence; from customer's view and understanding, they exist completely on the Internet. Virtual banking system offer the same range of services with the other types of banks, but with very good online packaging and they stick on to same federal regulatory body as the traditional banks. One problem with Virtual banks is that it makes it difficult for users to lay physical complains to their banks (Furst, et al 2002).

According to Murthy and Venugopal (2008), the idea of virtual banking started with the in the 1970s following the installation of the first ATMs. The ATMs installations turned the banking sector around to the extend that they started providing additional mechanized banking services which includes, phone banking, intranet and Internet banking, and also the use of smart cards.

## 3.4 Real Internet Banking

Real internet banking mechanism is the online internet banking system only, without bricks and mortar branch access. Of course banks must provide their websites to be able to reach their customers online. (Nath, at el 2001) defined two basic models of Internet banking in the banking system. The first model (e-bank) is to represent a banking institution that exists on internet based platform only, and the second model (e-branches) is the traditional bricks and mortar banks that offers internet banking services to their customers.

Grosse (2009) stated in his book that there are two fundamental models of virtual banking systems. The electronic substitution of already existing bank services by the use of Internet or telephone is the first and the second involves the banks giving new services that were not offered in virtual form formerly. Almost all form of virtual banks has no physical or substantial infrastructure whatsoever and exist only over the internet.

## 3.5 Bank Websites

A simple and user friendly bank's websites assures as increase in the way stakeholder will use the site. Display or site tour direction also assists website guests (Swanick and Berish, 1999). A clear function detail information of website home page is used as a sieve to allow users in making quick assessment as to whether they would visit the site or not. Well organized and good website will without doubt positively enhance the services being presented by banks.

Eccher, et al (2005) proposed that a bank's website ought to at least contain a well defined purpose in which they were created; else, the banks would not invest in non-profitable venture like Internet banking. Stakeholders' visit bank websites because of the relevant information contained in those websites and there are no

specific regulations guiding good content of a website because every website has its own different assignment entirely as Bakos (1997) mentioned.

As mentioned by Perumal and Shanmugan (2004), there exist three types of internet banking platforms or websites that are being employed in the market place. They are:

- Informational websites
- Communicative Websites
- Transactional Websites

### 3.5.1 Informational Websites

Informational website is the simplest and has the basic stage of internet banking. In this all the marketing information of bank's services and products (such as information about loan or deposits interest rates and information on banks benefits) are being displayed on a stand alone server. This level of internet website allows intending customers to browse through the banks site to acquire enough information concerning a bank and its mode of operation.

### 3.5.2 Communicative Websites

This type of internet banking calls of interaction between the bank's system and the customer. It's a communicative website in the sense that it's non-transactional. According to Perumal and Shanmugan, (2004), customers could only do the following:

- Access their online statements, cheque links, cobrowsing and chat
- View their latest transactions
- Loan applications
- View images of paid cheques.
- Download bank statements, for example in PDF format

The pattern of Website has a higher risk than the former system. Therefore appropriate measures need to be in place to avoid intruders from monitoring or hacking into the website. Under this platform, bank's user or customers make requests of which the banks subsequently respond through e-mail (Perumal and Shanmugan, 2004).

### 3.5.3 Transactional Websites:

This is the real internet banking system. In this model, all kind of transactions that involves cash is being taken place. Multitudes of informational, administrative, transactional and portal services are performed with this kind of websites and consumers expects this kind of bank's websites to protect personal information by using secure privacy policies. Transactional website according to Cronin, Mary J. (1997) is capable of performing some financial transactions such as:

- Account to account transfers, bill payments, wire transfer, creating new financial account, applying for a loan, etc.
- Payments to third parties, including payments of bills and wire transfers
- Funds transfers between a customer's own transactional account and savings accounts
- Investment purchase or sale
- Loan applications and transactions, such as repayments of enrollments
- Financial educational information
- Interest rate quotes and current bank news
- Corporate services like (Online brokerage and insurance services)
- Provides links to local businesses, community information and search functions.

Relative to the informational and communicative websites, this system possesses the highest level of risk and need to have the strongest control measures against hackers and attacks.

Features that are usually distinct about internet banking are that; individual financial managements support, like importing data into individual accounting software. Some online banking policy support account collection to allow the customers to monitor all of their accounts in one place whether they are with their main bank or with other institutions (Cronin, Mary J. 1997).

## 3.6 Advantages of Internet banking

Basics (2009) in their yearly online publishing listed some of the advantages and disadvantages of online banking which are based on consumers' perspectives. They details are discussed below:

- **Convenience:** Different from our usual traditional physical bank, online banking sites are always up. They're made available 24 hours of the day, seven days a week, and 365 days a year. Transaction is done with only a click on the mouse.
- **Ubiquity:** When a customer is being faced with a monetary problem because he or she is off the base either on a tour or on an official trip, all they need do is to simply log on to the internet and transfer funds from one account to another and take care of their personal needs and business.
- **Transaction speed/Cost reduction:** Online banking instigates for an immediate transactions and they are very cost effective and is generally quicker than the transactions conducted at the ATM's or at the bank

- **Efficiency:** Efficiency in the sense that it allows free access, free managements and control all people's bank accounts, including CDs, Individual Retirement Accounts, or even securities, from one's secure site.
- **Effectiveness:** Internet Banking helps in managing one's money, investment, bank accounts without having the problem of going to the bank, receive email and wireless alerts on the transactions completed. It also makes it easier for one to receive his statements online, make payment of bills and finally transfer funds to different all at a free service

## 3.7 Disadvantages of Internet banking

The disadvantages of Internet banking can be listed as below as stated by (Basic, 2009). These are also based on consumer's perspectives.

- **Start-up may take time:** In order to register for your bank's online program, you will probably have to provide ID and sign a form at a bank branch. If you and your spouse wish to view and manage your assets together online, one of you may have to sign a durable power of attorney before the bank will display all of your holdings together.
- **Learning curve:** Banking sites can be difficult to navigate at first. Plan to invest some time and/or read the tutorials in order to become comfortable in your virtual lobby.
- **Bank site changes:** Even the largest banks periodically upgrade their online programs, adding new features in unfamiliar places. In some cases, you may have to re-enter account information.

- **The trust thing:** For many people, the biggest hurdle to online banking is learning to trust it. Did my transaction go through? Did I push the transfer button once or twice?

To avoid all these questioning and doubts, the best bet is simply to always print out the transaction receipt and keep it with your bank records until it shows up on your personal site.

Due to the enormous benefits provided by Internet banking, all banks today are encouraging its customers to use their online services rather than going to the bank itself to make their transactions. This helps the customers to save money, time and energy, because banking online eradicates all these inconveniences for customers. The challenge for the banking industry with Online banking is that it has been to design this new service channel in such a way that its customers will enthusiastically learn to use the system, get to like it and finally have a full trust in it.

## 3.8 Goals of Internet Banking Channel

For over 10 years, banks have tracked customer service and sales provided through Internet channel platforms, Calent.com reported. Also in his report, over the last 18 months, leading banks and vendors have been shoring up their platforms (i.e. a method of bracing a structure to keep it from collapsing) to address gaps in features and functions, increase overall usability, and increase system liveliness. What has been most interesting in this period is the growing emphasis placed on increasing the effectiveness of the Internet channel already in place. Banks are on the lookout for ways to optimize the online experience to drive customer acquisition and cross-sales and increase use of relationship building services, while also reducing their costs to sell and serve (Business communications, 2000).

Banks should consider which factors in breadth, technology, experience, and client service are most important to them and use the analysis provided in this report to generate their own shortlists.

Most Banking practices provide consulting and goals of Internet-banking sites which are much different today than a decade ago. The following is the summary of what Internet Banking sites should aim at achieving today declared (Calent, 2009). This is based on Banks perspective.

- Enable independent revenue generating means
- Harmonize revenue generation with other channels
- Guarantee customer retention
- Provide new mechanisms and strategies
- Build a brand, nurture the built brand and improve it
- Provide offline to online migration
- Ensure cost reduction.

As described by TAA Consultancy services, Internet Banking today is being incrementally seen as essential e-real estate for a bank and not just must-have URL location to stay in the competition. Therefore it demands a 360 degree assessment of space, contents, services, return on investment (ROI), and customer experience among others.

Without doubt, the online channel is the most cost-effective way for financial institutions of all sizes to deliver their services; Calent (2009) mentioned. It also delivers a strong ROI: research from The Boston Consulting Group and other research firms has shown that online banking users are over 30% more profitable than offline users, while bill payers are nearly 100% more profitable.

## 3.9 Internet banking basic requirements

For a consumer to be able to transact business online, the consumer must pass through these following basic steps to accomplish his or her need:

- The Customer need acquire web-based,
- Credit slip special software,
- An electronic personal account,
- A login name and a password,
- A PC with a browser,
- And an Internet connection using a dialup modem or a broadband network connection (Adams & Lloyd, 2003).

The customer fills the credit slip online, and the entered data is then moved through the Internet network to the bank's central clearinghouse server. It then replies to same customer automatically, confirming that a certain business has been established with a transaction number, time and date. The Central Clearing House (CCH) processes the payments and mail back a confirmation to the customer by e-mail as regards the transaction made (Loshin et al, 2001).

**Table 3.1 - Comparison between a Traditional Bank Branch and Internet Banking Bill Payment:**

| Payment Traditional Bank Branch | Internet Banking |
|---|---|
| *Raw materials, energy* | Raw materials, energy |
| *Supply of payment slips* | Payment slip via online |
| *Fill out payment* | Fill payment slip online |
| *Take slip to the bank; Customer transports it* | Transfer slip via Internet account, login name, and password |
| *Receive slip at bank and Verify customer identity.* | Via Internet verify customer digitally |
| *Enter slip into computer* | Via Internet accept Transaction digital Signature |
| *Process order at central Clearing* | Process order at central Clearinghouse |
| *Scanning payment slip at central Clearing house* | Process order at central Clearing house and transfer Data to Central Clearing House |
| *Storage of data* | Storage of data Monthly Account Statements |
| *Monthly account statements* | Nil. |

**Table 3.1 - (Source) Digital Europe: The environmental and social impact of e-banking (EU 2003, for case study with Barclays PLC).**

In table 3.1, detailed scenarios involved in bill payments for normal Traditional banking system and Internet banking system is given. The steps listed in the table simplified the general bill payment processes for the banks and the customers themselves.

## 3.10 Partnerships in Internet Banking Industry

The interesting thing about the Industry is that collaboration is highly needed for Internet Banking to be achieved successfully. Because of the competition level in electronic banking, David Cracknell (2004) highlighted the need for banks, especially the big banks to go into partnership.

To give an idea in detail, all of the following participants in Internet banking sector may be involved in an e-banking solution, production or consumption. Each of these partners has a specific aim in which they are focusing on and they will be motivated by a different business interest aimed at achieving their different goals. Cracknell (2004) listed and described most of these partners that are involved in the banking industry. They are:

- Technology Solution Providers: (mainly software engineers)
- Banks: necessary for outreach, human contact positions and licensing.
- Communications Providers: To provide interconnectivity (even off line Smart Card solutions need to go online sometimes)
- ATMS Suppliers: Includes both Credit and debit cards and POS payment machines.
- Internet Service Representatives: (Those maintaining the communication networks)
- Internet Security Companies: (Those that maintain the cash level on the machines)
- Mercantile: To have POS devices for cash transactions
- Government Departments: To provide materials in larger quantity
- Post Office: Providing the widespread circulation network
- Issuers: To make available of and increase the spread of cards

- Marketing and media professionals: group of skilled people that have a gold mine of communications prospect.
- Risk and fraud professionals: electronic fraud need to be safeguarded against hackers and intruders.
- Visa and MasterCard: Visa and MasterCard are essential especially in developed markets like South Africa, because being Visa / Maestro branded increases the number of access points, and acquiring rights with banks that issues them.
- Large Employers: They are capable of eradicating handling cash by issuing their workers cards.
- Microfinance Programmes: To reach into the unbanked / underbanked financial market.
- Trainers: Bank and Micro Finance Institutions hire staff that could help them in improving financial knowledge.
- Regulatory Body: making sure that the whole system safe and orderly.
- Lawmaker: Guaranteeing the enabling settings.

All the above mentioned partnerships in the internet banking work hand in hand to make sure that these service delivery channels are available. We can observe clearly the reason why it requires many smaller Micro Financial Institutions finds it simple to migrate through Palm pilots at first and then turn out to be a partner in a bigger project.

We are going to focus on the major stakeholders in the internet banking system, which are main physical subjects that are involved in internet banking.

## 3.11 Stakeholders of Internet Banking Industry

Many written literature has already established the major key players or participants in internet banking industry. Joshi (2004) stated in his work the different players who are participants in aspect of the application, fulfillment, utilization and more so, to the performance Internet Banking. The key players could be termed major stakeholders.

These stakeholders contribute or benefits from the enormous service of the internet. These goals are put in relation to those stakeholders that would somehow be affected by the change internet banking development is making.

## 3.12 Major Stakeholders

Internet Banking has a collective participation of four parties.

1. Consumers
2. Banks
3. Internet Service Providers
4. Regulatory Authorities.

### 3.12.1 Consumers

One of the Stakeholders that participate in the internet banking industry is the Consumers. Consumers are the main users of internet banking services. They could be suppliers, individual customers, employees, stockholders, management, and the local community, companies, organizations, (Beauchamp and Bowie, 2004).

Due to the ongoing competitive nature of today's banking industry environment, consumers demand for high values in their banking activities. (Cho & Kim, 2002) described the relative benefit or value of high stands as the degree to which an innovative technology seemed to be much better than the common

technology and the one that provided stakeholders with something of greater value or their equity.

Jenkins (2006) mentioned that consumers are most probably eager to move over to online financial services if the conveniences and effectiveness involved with online services is greater than the personalized branch network service. Mann (2003) in line with Jenkins, proposed that the rise of the person-to-person (P2P) technology such as, PayPal and the daily rise in Internet billing as a medium of replacing paper payment and checks have contributed to customer's value. Online payment of bills is convenient to stakeholders, and stakeholders who used checks for paying their bills in the past saved money on mailing and postage.

### 3.12.2 Banks

Developing internet banking for customers use requires that banks need to make a serious improvement that addresses consumers' anxieties. Sequel to this, it would prompt financial institutions to increase their knowledge of some major issues which may alter consumers interest for adopting internet banking (Lichtensten et al 2006). Banks provides internet banking services to consumers through different channels like, ATM, POS etc. Banks also have two major roles which they play:

- They provide access to conventional banking products over the internet
- They aid in the development of new product that would make internet banking possible.

### 3.12.3 Internet Service Providers (ISPs)

Internet service providers are the back bone behind e-banking. They provide the required network on which banks gain access into. ISPs maintain and secure bank's connections to avoid intruders or hackers having access into their network.

The importance of ISPs to the development of Internet banking service is of the following:

- **Internet service availability:** The means for customers to access their internet bank. Limited number of internet connection gives limited e-banking users.
- **Internet service quality:** Slow internet connection can have bad results on internet banking services.
- **Internet service price:** Very important attribute high price reduces acceptance or rate of adopting internet banking and make customers to think before using e-banking.

### 3.12.4 Regulatory Authorities

In most countries the regulatory authorities is the country's Central Bank or else it is the government. The body supervises the activities of a bank, controls the monetary system in the country and maintains the integrity or standard of the banking industry. The regulatory authority makes sure that bank customers are being protected; certifying that all the transactions performed by customers through the banks are well delivered to the destinations which they needed them and also guarantees safety to bank users.

# Chapter 4

# TECHNOLOGY AND THE INTERNET

## 4.1 Introduction

Technological modernization has been a major worry for Banks nowadays. Banks, investment establishments and insurance firms have sought to progress or better the performance operations in these sectors with most important investments done domestically and externally. Internet and wireless communications technologies do have major impact on banks services especially when it has something to do with its expansion (Saunders and Cornett, 2008).

These technologies they said are more than just new delivery mediums. They are entirely diverse technique of providing different services. Citigroup a renowned global financial service firm has its operations in more than 100 countries, and is connected in real time by a proprietary-owned satellite system.

Indeed as bank customers become more sophisticated in their ways banking, it becomes a necessity for banks to consider the use of modern technology to respond to their continuously changing requirements and demands (Mobarek, 2007).

## 4.2 Technological Innovation and Profitability

As a bank, profitability is a major reason bank would want to provide internet based services once the service is being demanded or considered. Banks are concerned with profitable products that add more value for them and also generate higher profits for her stakeholders. If this is not the case, banks, may abandon the

idea of adopting internet banking from the unset. Knowing fully well that a little adjustment in the financial sector would instigate a search by financial institutions for new developments that brings profits for them (Mishkin, 1989).

Previous studies has shown that internet banking probably allowed most banks to generate additional profits and reduce cost of there operation. Furst, et al (2009) demonstrated that internet banks are very effective with report of more profitable and cost effective, and realizes more revenue as compared with traditional banking system.

Technological equipment for internet banking includes; network terminals, computers, visual and audio communication systems, and additional information technology facilities. In recent years, U.S. banks alone have spent $20 billion per annum in technology-related expenditures (Saunders and Cornett, 2008). They also mentioned that an efficient technological base for a bank or a financial institution can result in:

- Lower costs, by replacing paper-based labour intensive methods with machine automated processes.
- Increase incomes, this is can achieve by letting a wider range of financial services to be created and sold to customers.
- May modify the ways in which consumers have access to bank's services and products.
- Enhances the profitability of markets services; especially in retail banking.

The importance of a bank's operating cost and the resourceful use of technology in impacting these costs is simply established by this profit function stated (Saunders and Cornett, 2008):

Earnings or profit before taxes = (Interest income – Interest expense)
+ (Other income – Non-interest expense)
- Provision for loan losses.

## 4.3 Impact of Technology on Internet Banking

New technology is very vital because investing wisely in a particular venture can increase a bank's net interest margin. It can also increase the differences between the interest income and the interest expenses, including other net income of a company. Profitability generally can be improved by adequate use new technology. Sanders (2008) explained in detail some direct examples of this kind of impact. They are as follows

- **Interest Income:** The interest income of a bank can grow if the bank sells a lager range of financial services due to the developments being observed from current technology. These consist of mix selling financial products. Also it can be achieved through using computer to recognize customers, and also using the Bank tele-market financial services and products like insurance over the internet.
- **Interest Expense:** This kind of expense can decrease when the access to market for bank's liabilities is being controlled by the bank's technological capacity. A good example is the Fed-wire and CHIPS (two wire transfer system) that links the domestic and international interbank lending market. They are also used for interlocking computer network systems.
- **Other Income:** Additional income could be realized when fees for bank services, most importantly those that arise from off-balance-sheet activities, are connected to the technological quality of the

bank. According to Sanders (2008), off-balance sheet activities or items are mainly conditional assets or liabilities that have an effect in the future. In accounting, off-balance sheet activities are normally shown as footnotes in the financial statements. A plain example of this is the letters of credit which are now normally created by customers electronically.

- **Non-Interest Expenses:** This type of expenses is realized from most of the off-balance sheet activities. They can be reduced if all the activities like processing, storage, collection and settlement of several financial products are computerized other than using paper documentations.

## 4.4 The Impact of Technology on Internet Banking Services

Discussions previously have been based on the direct effect of modern technology on banks. The following discussion focuses on some specific technology-based products in the internet banking services. Internet based services are categorized into two main groups.

- Wholesale Internet Banking Services
- Retail Internet Banking Services

### 4.4.1 Wholesale Internet Banking Services

The most crucial aspect where technology has a strong-hold on wholesale corporate customers' services is the bank's capability of making cash management available, or by providing working capital (inventory, day to day bank's activity in cash transactions) services (Saunders, 2008). Furthermore, discussing more on wholesale services, we will therefore focus on big and established national and international financial institutions. Wholesale internet banking subdivision includes

products traded to big and middle market commercial firms. It also involves trading and direct sales made to customers on wholesale bases, such as; mutual funds, commercial and real estate, lending, treasury management, asset-based lending, Wells Fargo investment securities and corporate institutional trust services.

Wells Fargo & Company (NYSE: WFC) is a good example of a bank that offers the wholesale internet banking services nation wide. They not only provide services to modern internet based banks, they also help in improving the portfolio efficiency of financial institutions. Reference to Wells-Fargo (2010), the ways by which the firm improves and manages the financial positions of a corporate firm are as follows:

- **Account Reconciliation:** Features that checks and identifies the firms' that have remitted their checks and also which of the checks is been paid by the bank.
- **Electronic Funds Transfer:** Payments overnight by the use of CHIPS or Fedwire, through automated clearinghouses (ACHs), and automated transmissions of payments messages by SWIFT.
- **Check Deposit Service:** Handling customers check electronically and and as well as encoding, endorsing and microfilming.
- **Electronic Billing:** This kind of service provides corporate organizations with the means of presenting and compilation services for companies that usually send large amount of recurring bills out to their customers. This is achieved by using e-mail to send out bills to customers.

- **Electronic initiation of letters of credit:** This allows customers in banks network to have access to their account in order to open letters of credit.

There are many services that banks offer to their wholesale customers even to corporation and other banks too. But the above mentioned few are the major ones often transact by banks.

### 4.4.2 Retail Internet Banking Services

Retail customer always or have rather or will keep demanding for better services from their banks so as to improve in their daily financial transactions. As mentioned by Saunders (2008), Individual do not like holding cash or using of checks anymore because the use of checks or holding of cash is more or less very time consuming and expensive also. Rather they prefer using retail-oriented online payments technology. The use of technology in internet banking network have significantly reduced the costs of electronic transactions and have made room for a better cost determination. Some of the main retail payment product innovations as highlighted by Saunders (2008) are as follows:

- **Automated Teller Machine (ATMs):** This is computerized machine that is designed to give out cash to bank customers without requiring human interface. This technology allows banks customers a 24-hour access to their deposits accounts. With this kind of machines, customers can pay their bills as well make cash withdraws.
- **Point-of-Sales (POS) Debit Cards:** This kind of machine allows banks users to make transaction anywhere that this device is available. These are customers that does not like holding cash, credit cards or checks to make their buying. POS refer to the capturing of

figures and customer payment information at a physical spot when goods or services are purchased or sold. The money paid using a debit card are transferred immediately from the holder's bank account into the merchant's account, rather than having the bearer/buyer pay back the money at a later date.

- **Home Banking:** This is a practice of performing banking transactions from home instead of doing it at branch locations. The facility connects customers to securely access personal funds, account information, and other banking services through a personal computer via an internet.
- **Payment of bills via telephone:** This practice allows banks customers to make a direct cash transfer from one account to the other. It could be done by a standing order from an account holder either by voice instruction or by making a call to that particular bank.
- **Online Banking:** Simply the performance of banking activities through the internet. It allows customers to carry out retail banking and investment services offered through the internet.
- **E-mail Billing:** This kind of service provides customers a means to receive and make bill payments via the internet. Paper wastage and postage time is being reduced in this kind of service.
- **Preauthorized Debits/Credits:** This consists of direct deposits of payroll checks of companies or firms into bank accounts. It allows also for payments of utility bills and mortgage payments.
- **Smart Cards (store-value cards):** With this, it allows customers to spend and store money for different deals by using cards that have

chips storage mechanisms, which are mainly in strip form. It is being used almost everywhere and without limitations.

## 4.5 Performance on Banks

Many research studies have been carried out on Internet banking adoption by different researchers. But there are still little or fewer numbers of scholarly researches on the effect of Internet banking based on their performances. Moreover, critical issue that has received varied opinions among researchers is the effect of internet banking on performance. Furst et al, (2000) stated that the typical bank offering Internet banking services is most like more profitable than those not offering Internet banking services. This not withstanding, they also tend to generate larger sums of non-interest (fee-based) revenue (Furst et al, 2000).

The variation in opinions could be traced to the difficulty in determining the influence of online banking on performance. The costs value and the amount of earnings that are related with Internet activities are not accounted differently from the expenses and incomes that are being generated by other departments in a bank. However, there are some exceptions to the above claim.

According to DeYoung (2001), he mentioned that the average one-year old Internet-only bank earned significantly lower profits than the average one-year old branching bank. This is because of the low business volumes and high non-interest expenses being experienced in banking. In a follow up study, DeYoung (2005) also mentioned that Internet-only banks are potentially viable, but its limited market share will lead to low average level of profits

## 4.6 Impact of Internet Technology on Banks Performance

There is no gainsaying that the main objectives of banks in incorporating Internet banking is to increase market share and net income while reducing operation

cost. However, as already mentioned earlier on, measuring the effect of Internet banking on banks performance is quite challenging. This is equally made complicated due to the fact that bank performance can be any of the following; net income, profit margin, return on equity (ROE), or return on assets (ROA), expenditures and marketing costs over total average assets and etc. Hence, mixed results can be obtained from different banks since their sizes and intensity of online activities varies. Nonetheless, the rest of this chapter will try to address some of the key determinants of the impact of Internet banking on bank performance.

### 4.6.1 Impact of Internet Technology on Market Share

Stakeholders are the backbone of any bank without which it cannot survive competition. Bank stakeholders include the customers, employees and shareholders. The Internet has made it feasible for most banks to be able to new attract customers and shareholders previously out of reach through the provision of convenient, fast and reliable online services. According to Siaw and Yu (2004), Internet banking is very suitable to stakeholders as compared to bank branches because customers can access their account at any time and anywhere. However, in order to acquire online customers, banks have to market their products. This becomes extraordinary and competitive given the number of banks jostling for attention. Thus, significant financial resources are expended for advertising, marketing and setting up of attractive and user friendly websites.

Trust is the cornerstone of relationship among people and between people and institutions. The issue of trust and security of online transaction is another factor undermining the efforts of banks to attract more online customers. Several prospective customers have been scared away by stories of online frauds. Liu et al.

(2005) were of the opinion that lack of trust in online transactions represents an important obstacle to the market penetration of electronic commerce.

Therefore, given the huge cost of maintaining an Internet banking web site and the reluctance of some customers to embrace online transactions, it is unlikely that some banks will achieve their aim of achieving higher market share. Thus, the question is; which banks will emerge victorious in the contest to enhance performance through increased customer base? Definitely, the big brand banks with already established reputation and huge financial outlay enjoying significant economies of scale in their operations will be better of competing for market share.

### 4.6.2 Impact of Internet Technology on Overhead Cost

Measurement of the impact of Internet banking on overhead cost involves the comparison between the cost of operating Internet banking websites and the cost of operating a bank branch. Cost of Internet banking operation includes staff salary, recurring costs of software and hardware acquisition, updates, maintenance contracts, etc. The key performance determining parameters to be evaluated are fee income, income growth, cost per transaction, and efficiency. Yakhelef (2001) suggested that Internet banking leads to lower transaction cost for banks.

Adoption of Internet banking by banks tends to reduce physical overhead since the number of bank staff and branches being maintained are reduced. However, these savings in physical costs may be nullified temporarily by the high costs associated with acquiring and updating IT infrastructure. Nevertheless, the impact of Internet banking on reduced overhead expenditures will gradually manifest as automated processes using existing IT platform becomes routine with time. Furthermore, as banks increases in size and boost their market share, IT start up costs

are distributed over a larger base of customers. The cost reduction associated with this will invariably lead to an improvement in bank performance.

### 4.6.3 Impact of Technology on Banks – Profitability

It is expected that banks offering Internet banking will have some profitability edge over their competitors. Furst, Lang, and Nolle (2000) found that banks incorporating Internet banking are more profitable than their non-Internet counterparts since they tend to generate greater amounts of non-interest (fee-based) revenue. The increase in profit gained by banks that adopted the Internet as a part of their delivery channel is mainly attributed to reduction on overhead cost. Although, the reductions in staff costs, IT, marketing expenditures and etc. are gradual, however, on the long they may make a significant impact on a banks profit. Ciciretti, et al (2009) suggested that there is a substantial fact of significant connection that exists between the adoption of Internet banking by traditional banks and their profitability.

Nevertheless, some banks that tried Internet-only banking struggled for profitability and many of them had to close business. This observation about Internet-only banks was re-enforced by the statement by DeYoung (2001) that the average Internet-only bank was less profitable than the average branching bank of similar age and circumstance. Moreover, certain services like loan procurement by customers require physical interaction at bank branches, hence, reduced revenue for Internet-only banks.

## 4.7 Major Draw-Backs in Internet Banking:

(The manager Paynet E-company) Ron Webb in his report on virtual conference on E-banking for the poor stated some draw-backs that most internet banks do face in the case of adopting and implementing the new technology;

"Internet Banking". Though he confirmed that his company has been operating e-banking services since 1997, they presently manage more than half a million transactions monthly between retail customers and financial institutions including the use of ATM and POS devices, they still face enormous limitations using the internet technology. These are the key constraints as regarding e-banking:

- **Vision / Inertia:** In his report, he mentioned that many financial institutions are not able to break through the fear an existing procedure to embrace something new, (Webb 2004). The fear of uncertainties is an everyday trauma that sets in when the idea of trying to make a change begins. So it becomes very difficult to let lose an already laid old method of doing things.
- **Affordability:** He report that many of these services offered by banks are simply too expensive for the lower class consumers. In order words the target consumers may not find these services interesting because of the financial constraints. Therefore in dealing with banks, there is a general tendency to want to improve in service offerings rather than diminishing the service availability.
- **Profitability/Sustainability:** This constraint is the main objective of my research work. Are internet banks really profitable? Beside affordability is the equal requirement for profitability and a reasonable return on shareholder investment. Profitability is the main concern of all the stakeholders that plays the game of internet banking, especially the bank manager. Webb stated that "Without scale - often big scale, this cannot be achieved without compromising on affordability".

- **Appropriateness/Ease of use:** Ease of use is yet another major problem that arises on the consumer's side. Though the use of new internet technology gets clearer and familiar as time goes on. Many solutions look great to the technologists but do not translate into an appropriate solution. Much is said of the challenge cause by illiteracy & skills.
- **Infrastructure:** it is obvious that lack of consistent, inexpensive data communications and electricity is a strong setback to adopting e-banking especially in less developed countries. These constraints reduces the rate at inspired users would have been using internet banking. Of course different options of technology could be in existence that can aid in overcoming most of the laid constraint, but, can only work or will become feasible only with good and long lasting business model.

## 4.8 North Cyprus in Brief

### 4.8.1 History of North Cyprus

Cyprus is the third biggest island in the world with 9,250 kilometers square in the Mediterranean Sea; and its station on the border of the Eastern and Western worlds has often attracts the interests and attentions of more powerful outside forces. Cyprus in the past has had many names, due to several capturing and rulings of many empires in the past, but the name being called today is believed to have come from the word copper which the island possessed and could still possibly exist in abundance on the island.

The 1974 war led in the division of the island into two states, the Turkish Republic of Northern Cyprus (TRNC) and South Cyprus. 36% of the island, 3,355

kilometers square belong to TRNC and 59% of the island belong to the south; and the rest of the island in under the control of United Nations and England. TRNC was established in 15th November 1983; with the population of 188,662 according to 1996 census. It increases 1.1% approximately every year.

Northern Cyprus financial services market in unique in many aspects, though a small island, yet it is developing fast. The controversial history state of the island between the Turkish and the Greece in the past could be seen as positive or negative impact depending on the viewer's perspective.

### 4.8.2 North Cyprus Banks

Banking in Northern part of Cyprus emerged from Turkish structure. Therefore its method of operation is same in terms of all activities being performed in their daily transactions. North Cyprus itself is strongly and directly depending on Turkey. This was due to severe series of political instability the Island experienced years back. And after its independence in 1983 the island experienced a major growth in her tourism sector and increases in her economy level. This growth in last few years made banks on the island to adopt some reforms thereby changing and embracing a modern structured banking system, of which in general it was very appropriate for electronic banking applications and availability of personal computers and internet access (Jenkins, 2006).

### 4.8.3 North Cyprus Bank Services

In Northern Cyprus, many if not all different bank services are being provided for their customers. Banking activities on the small Island in rather perfect and it is very flexible in satisfying and meeting the persistent wants of the general public. Currently, North Cyprus banks have gone ahead of traditional ways of banking. Newer products and services are being developed through electronic ways

or electronic platforms (online banking), by using different delivery channels to reach the end users. The adoption and application of internet banking in Northern Cyprus has increased its business scope and eases internet transactions (Jenkins, 2006).

Most banks in Northern Cyprus offer a range of services similar to one another. These services where viewed from each of the bank's websites. The services provided by the banks are the following:-

- Account balance Enquiry
- Loan application
- Safety Box
- Funds transfer
- Automated bill/other payments
- Insurance
- Opening account
- e-shopping
- Credit card transaction
- Standing order
- Brokerage
- Investment product
- Foreign exchange transaction
- P.O.S. transaction
- Customer correspondence
- Tax transaction

## 4.9 Chapter Conclusion

Consequently, there are many approaches nowadays that investigate the use of technology as indicate that it is cure-all solution. Without any doubt, technology has a critical part to play in providing workable solutions towards internet banking.

Incorporation of Internet banking has increased interaction between banks and their stakeholders. This improved remote communication with customers has lead to an increase in market share and a reduction in the demand for bank branches. However, the overall impact of Internet banking on bank performance depends on the bank's size and the extent of application. For banks that embraced Internet banking in addition to their traditional mode of operation, the adoption of the Internet as a delivery channel will lead to a gradual reduction in overhead cost. This cost reduction is quite significant for the big banks and will inevitably lead to an improvement in banks performance. On the other hand, banks using the Internet-only banking model will be struggling for profitability since they cannot compete favorably with the traditional banks having some branches for further physical interaction with customers. Thus, Internet banking adopted as a complement rather than as a substitute for physical bank branches will definitely enhance bank performance.

# Chapter 5

# DATA AND RESEARCH METHODOLOGY

## 5.1 Data Collection

We have collected **a Panel data** from 22 retail banks operating in Turkish Republic of Northern Cyprus (KKTC), comprising of 1 Public Bank, 14 Private Banks and 7 Foreign Branch Banks. These banks have adopted Internet banking some time between 1997 and 2010. Our dataset is drawn from the year-end aggregate income statements and balance sheets compiled by the Central Bank of Northern Cyprus. It covers a period of six years ranging from 2004 to 2009. This range of period 2004 – 2009 was chosen because of availability of data from the Central Bank of Cyprus. Data set from (http://www.kktcmb.trnc.net/).

## 5.2 Data Definitions

**Profitability Ratios**

This study will look into details the performance of banks operating in North Cyprus in terms of their profitability on Return on Assets (ROA), Return on Equity (ROE) and their Profit Margins (PM). These Profitability ratios being used in this study are group of econometrics that is used to find out a company's capability of meeting its short-terms debts obligations. It is also used to evaluate businesses capability of generating incomes when being compared to its expenses. Profitability ratios measures significant costs acquired in the duration of a specific period of time.

Nevertheless, when Profitability Ratio gives a higher value, it signifies that the company is strong enough to clear its short-term debts it acquired (Ross, et al 2008).

These Profitability ratios (ROA, ROE and PM) according to (Ross, et al 2008), gave the detailed explanations of what they ratios means and how they are calculated as follows:

- Gives a clear picture of corporation's health
- Provides a clearer representation of company's performance
- And simply a profitability indicator level on an organization.

**Return on Assets = Net Income/Total Assets:** ROA is the ratio of a company's annual revenues to its total assets and always displayed as a percentage. Return on Assets measures and displays how lucrative a company could be in comparison to the firms' total assets. Also for management efficiency, ROA gives a detailed idea as to how it uses its fixed assets to produce incomes.

**Return on Equity = Net Income/Share holder's Equity:** Return on equity is another profitability ratio that that evaluates profitability of any company, especially for big sized company, by giving a detailed information of how much income or earnings a company makes with the total money shareholders of that company invested. The ratio is always in percentage.

**Profit Margin = Net Income/Total Operating Income:** This ratio calculates the level of dollar worth in sales a company actually retains in income. It is very of use when evaluating different companies in the same scale. We also know that when profit margin is high, it shows that the company is a very profitable one, and it also indicates that the company has an enhanced control of its expenditures as compared with those they are competing with.

## 5.3 Findings from the Survey

### 5.3.1 Profile of Banks

Turkish Republic of Northern Cyprus has a total of 22 (Twenty Two) functioning banks presently, of which 14 are Private Banks, 7 are Foreign Branch Banks and 1 Public Bank. Table 5.1 indicated that all the banks have an informational website where each of the banks information can browsed at. However, most of the banks adopted internet banking from 2005 upwards. On the other hand, the asset size of transactional banks termed to be higher than those without internet transactional website.

**Table 5.1: List of Banks Operating in Northern Cyprus.**

| LIST OF BANKS IN NORTHERN CYPRUS | | | |
|---|---|---|---|
| **PRIVATE BANKS WITH INTERNET BANKING** | | | |
| **BANKS** | **TOTAL ASSETS** | **Year established informational website** | **Year started Internet banking transactional website** |
| K.T. KOOPERATİF MERKEZ BANKASI LTD(KOOP BANK) | 2,143,501,249 | 2003 | 2010 |
| TÜRK BANKASI LTD. | 523,348,122 | 2004 | 2006 |
| LİMASOL TÜRK KOOPERATİF BANKASI LTD. | 217,509,683 | 2001 | 2010 |
| KIBRIS İKTİSAT BANKASI LTD | 604,607,561 | 2003 | 2003 |
| ASBANK LTD | 335,724,374 | 2003 | 2007 |
| YESILADA BANK LTD | 23,851,347 | 2005 | 2005 |
| CREDITWEST BANK LTD. | 414,946,228 | 2004 | 2008 |
| NEAR EAST BANK LTD. | 198,253,987 | 2007 | 2007 |
| AKFİNANS LTD. | 44,366,475 | 2002 | 2009 |
| UNIVERSAL BANK LTD. | 207,419,420 | 2008 | 2008 |
| **PRIVATE BANKS WITHOUT INTERNET BANKING** | | | |
| KIBRIS CONTINENTAL BANK LTD | 45,351,777 | 2003 | Bankrupt (2010) |
| VİYABANK LTD | 71,192,453 | 2009 | NONE |
| ARTAM BANK LTD. | 3,358,873 | 2003 | NONE |
| FAISAL ISLAMIC BANK LIMITED | 22,585,425 | 2003 | NONE |
| ŞEKERBANK (KIBRIS) LTD. | 90,178,879 | 2002 | NONE |
| **PUBLIC BANKS WITH INTERNET BANKING** | | | |
| KIBRIS VAKIFLAR BANKASI LTD | 654,619,524 | 1997 | 2006 |

| FOREIGN BANKS WITH INTERNET BANKING | | | |
|---|---|---|---|
| HSBC BANK A.Ş. | 523,256,404 | 2000 | 2000 |
| TÜRKİYE GARANTİ BANKASI | 220,049,483 | 2004 | 2005 |
| TÜRKİYE İŞ BANKASI | 745,825,115 | 1995 | 1997 |
| ING BANK (OYAK BANK) | 41,654,968 | 2004 | 2005 |
| TURK EKONOMI BANKASI A.S | 129,643,949 | 2007 | 2008 |
| T.C. ZIRAAT BANK | 337,633,927 | 2001 | 2005 |
| TÜRKİYE HALK BANKASI AŞ | 146,158,461 | 1998 | 2007 |

*Source of Total Assets: The Central Bank of the TRNC – KKTC Merkez Bankasi*

Table 5.1 - Shows the list of bank operating in North Cyprus, total assets size, establishment dates and years of Transactional Internet Banking adoption dates. Total Assets of Banks in our Sample as of 2009;

**Table 5.2 – Internet Banking and Scheduled Commercial Banks in TRNC**

| **BANKS IN TRNC (Public, Private, Foreign Branch) Operating from 2004 till 2011** | **NUMBER** | **Percentage of All Scheduled Commercial Banks** |
|---|---|---|
| Banks with only Informational Web sites | 4 | 18.2% |
| Banks without Informational Web sites | 1 | 4.5% |
| Banks with Transactional sites | 17 | 77.3% |
| Total number of Banks | 22 | 100% |

*Calculated from the financial statement of banks provided by the Central Bank of Northern Cyprus*

Table 5.2 assessed the percentage of all the banks profile in Northern Cyprus. In all the 22 banks, 77.3% have transactional website. Transactional websites are where

transaction that involves money or transfer of funds takes place. 18.2% of the banks have only an informational website while 4.5% don not have website at all.

**Table 5.3 – Adoption Rates of Internet Banks**

| BANKS | Total no. of banks | Banks with websites | Banks without websites | No. of banks Offering Transactional Internet Banking | No banks without Transactional internet banking |
|---|---|---|---|---|---|
| PUBLIC BANKS | 1 | 1 | - | 1 | - |
| PRIVATE BANKS | 14 | 13 | 1 | 10 | 4 |
| FOREIGN BRANCH BANKS | 7 | 7 | - | 7 | - |
| **Total** | 22 | 21 | 1 | 18 | 4 |

*Calculated from the financial Statement of Banks Provided by the Central Bank of Northern Cyprus*

Table 5.3 simplified the profile of operating banks in North Cyprus. Out of the 22 banks, 21 have a website, while only 1 of the private banks does not have any website. 18 banks of the 21 that have a website have a transaction website where real internet banking transactions take place.

### 5.3.2 Range of Services Offered by Transactional Internet Banks

**Table 5.4 - Percentage of transactional banks offering selected services**

| Service Code | Type of Service | All banks | Foreign Branch banks | Private Banks |
|---|---|---|---|---|
| **1** | Account balance Enquiry | 100.0 | 100.0 | 100.0 |
| **2** | Loan application | 70.6 | 100.0 | 50.0 |
| **3** | Safety Box | 64.7 | 85.7 | 50.0 |
| **4** | Funds transfer | 100.0 | 100.0 | 100.0 |

| | | | | |
|---|---|---|---|---|
| **5** | Automated bill/other payments | 100.0 | 100.0 | 100.0 |
| **6** | Insurance | 58.8 | 71.4 | 50.0 |
| **7** | Opening account | 100.0 | 100.0 | 100.0 |
| **8** | e-shopping | 100.0 | 100.0 | 100.0 |
| **9** | Credit card transaction | 100.0 | 100.0 | 100.0 |
| **10** | Standing order | 94.1 | 85.7 | 100.0 |
| **11** | Brokerage | 23.5 | 42.9 | 100.0 |
| **12** | Investment product | 64.7 | 85.7 | 50.0 |
| **13** | Foreign exchange transaction | 100.0 | 100.0 | 100.0 |
| **14** | P.O.S. transaction | 100.0 | 100.0 | 100.0 |
| **15** | Customer correspondence | 100.0 | 100.0 | 100.0 |
| **16** | Tax transaction | 70.6 | 85.7 | 60.0 |

*Source: Form from the information provided by the banks*

As shown in Table 5.4, 100% of the transactional banks provide the BASIC services of Internet banking (Account balance Enquiry, Loan application, Funds transfer, automated bill/other payments, Credit card transaction, Foreign exchange transaction, P.O.S. transactions). Table 5.4 distinctly showed that Foreign Branch transactional banks are more likely to provide most of these banking services as

compared to the Private transactional banks. On the other hand, less number of both banks provides Brokerage, Insurance and safety box services.

## 5.4 Research Methodology - Regression Analysis

This research study follows the work of Hernando and Nieto (2007). They found a negative effect of deposit growth on ROE for Spanish Banks in their GLS estimations. Understanding the relationship between Internet banking and bank performance is an empirical matter. The profitability of banks is being measured using two most common ratios used in the banking system. Return on a bank assets (ROA), a ratio of a bank's profits to its total assets and return on equity (ROE), a ratio of profits to its total equity. These ratios used in the analysis were obtained directly from the banks' balance sheets. Other ratios were also considered in other to reach a clear conclusion on our findings. A detail list of these criteria used in the regression analysis is provided below:

ROA = Return on Assets: Ratio of Net Income to Total Assets

ROE = Return on Equity: Ratio of Shareholders Equity to Total Assets

CA = Ratio of Total Credit to Total Assets

CD = Ratio of Total Credit to Total Deposits

INTERNET = A dummy Variable.

**Dummy Variable:** A dummy variable or an indicator variable as may be use by different scholars is a numerical variable used in regression analysis to represent subgroups of the sample in any study. In the simplest case, a 0 and a 1 is used as a dummy variable in this thesis. Therefore a group of banks using Internet as a medium of delivering services to their customers starting from any year between the ranges of observation would be assigned a dummy value of 1 and 0 to those not offering Internet services.

**Table 5.5 - Regression Analysis Table**

| Dependent Variable: ROA | | | | |
|---|---|---|---|---|
| Method: Least Squares | | | | |
| Sample: 1 108 | | | | |
| Included observations: 108 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 2.701533 | 0.751740 | 3.593708 | 0.0005 |
| ROE | 0.024715 | 0.004960 | 4.982597 | 0.0000 |
| CA | 0.074870 | 0.016422 | 4.559200 | 0.0000 |
| CD | -0.059633 | 0.013760 | -4.333898 | 0.0000 |
| INTERNET | -1.980717 | 0.769263 | -2.574825 | 0.0114 |
| R-squared | 0.363312 | Mean dependent var | | 2.073519 |
| Adjusted R-squared | 0.338586 | S.D. dependent var | | 3.910759 |
| S.E. of regression | 3.180517 | Akaike info criterion | | 5.197155 |
| Sum squared resid | 1041.916 | Schwarz criterion | | 5.321328 |
| Log likelihood | -275.6464 | F-statistic | | 14.69365 |
| Durbin-Watson stat | 2.057172 | Prob(F-statistic) | | 0.000000 |

**MODEL**

$ROA = \beta 0 + \beta 1(Internet) + \beta 2(ROE) + \beta 3(CA) + \beta 4(CD)$

$ROA = 2.701 - 1.9817(Internet) + 0.0247(ROE) + 0.0749(CA) - 0.0596(CD)$

From Table 5.5, we analyzed the table of the given variables as follows. If there are no effects of Internet, ROE, CA and CD on ROA, the level of ROA will be 2.70%. Also if Internet usage increases by 1%, the level of ROA is decreased by 1.98%, having an elastic impact on Internet. Subsequently when ROE increases by 1%, the level of ROA is 0.024%, having an inelastic impact on Internet. However, when CA increases by 1% ROA level is 0.074% thereby having an elastic impact on Internet and finally when CD increases by 1% ROA level is 0.060% also having an inelastic impact on Internet.

Also from the table 5.5, we estimated the value of R squared and analyzed as follows, 36% of change in ROA, can be explained by in terms of variations in INTERNET, ROE, CA, and CD.

From this point we tested our variables to ascertain if each and every one of them is significant in the model. T-test is used in testing the variables.

**T-test for Intercept**

H0: $\beta 0 = 0$ (Intercept is not statistically significant)

H1: $\beta 0 \neq 0$ (Intercept is statistically significant)

**t-prob = 0.0005 < α = 0.01.** So we reject our Null hypotheses and accept the alternative at **α** = 0.01, meaning that intercept is statistically significant.

**T-test for ROE**

H0: $\beta 1 = 0$ (ROE is not statistically significant)

H1: $\beta 1 \neq 0$ (ROE is statistically significant)

**t-prob = 0.00 < α = 0.01.** So we reject our Null hypotheses and accept the alternative at **α** = 0.01, meaning that Return on equity (ROE) is statistically significant.

**T-test for CA**

H0: $\beta 2 = 0$ (CA is not statistically significant)

H1: $\beta 2 \neq 0$ (CA is statistically significant)

Again **t-prob = 0.00** and is **< α = 0.01.** However we reject our Null hypotheses and accept the alternative at **α** = 0.01, meaning that Credit to Assets ratio (CA) is statistically significant.

**T-test for CD**

H0: $\beta 3 = 0$ (CD is not statistically significant)

H1: $\beta 3 \neq 0$ (CD is statistically significant)

**t-prob = 0.00 < α = 0.01.** We reject again our Null hypotheses and accept the alternative at **α** = 0.01, meaning that Credit to Deposits ratio is statistically significant.

**T-test for INTERNET**

H0: $\beta 4 = 0$ (INTERNET is not statistically significant)

H1: $\beta 4 \neq 0$ (INTERNET is statistically significant)

**t-prob = 0.0114 < α = 0.05.** So we reject our Null hypotheses and accept the alternative at **α** = 0.05, meaning that Internet usage is statistically significant.

We confirmed that each of the variables used in the model is statistically significant. But we still need to confirm if the whole model being used is also statistically significant.

F-test measure is adopted for this kind of a test.

**F-test for the whole model**

H0: $\beta 0 = \beta 1 = \beta 2 = \beta 3 = \beta 4 = 0$ (Model is not statistically significant)

H1: $\beta 0 \neq \beta 1 \neq \beta 2 \neq \beta 3 \neq \beta 4 \neq 0$ (Model is statistically significant)

**f-prob = 0.00 < α = 0.01.** Therefore we also reject our Null hypotheses and accept the alternative at **α** = 0.01, which means that the whole model is statistically significant.

**Table 5.6 - Correlation Matrix**

| | INTERNET | ROA | ROE | CA | CD |
|---|---|---|---|---|---|
| INTERNET | 1.000000 | | | | |
| ROA | -0.155486 | 1.000000 | | | |
| ROE | 0.244900 | 0.403950 | 1.000000 | | |
| CA | -0.100254 | 0.123919 | -0.054710 | 1.000000 | |
| CD | -0.043840 | -0.096777 | -0.119510 | 0.877441 | 1.000000 |

## 5.5 Econometric Results

Eviews, an econometric software is used as a tool to finding most of our results in the regression analysis. Some variables and ratios are obtained from the bank yearly reports and are used in the econometric findings. In this study, only four of the ratios listed in table 5.6 were used. A multivariate regression model was

estimated to investigate whether there is a link between offering internet banking and bank profitability. A bank ROA from our data is regressed against control variable and a variable denoting whether or not a bank offers Internet banking. The dummy variable is included as a regressor in explaining ROA.

Results from table 5.6 correlation matrix shows in details the relationships between the variables used in the model. We saw clearly that relationship between the variables are very low, signifying the absence of multicollinearity problem amongst variable. ROA is the Dependent variable also called the regressor and the effect of Internet on ROA is having a negative and poor relationship of -0.15%. This tells us that as the adoption of internet is increasing amongst banks, their return on assets is decreasing also. From this result, it means that the income generated from their assets decreased because they do not make efficient use of the internet.

ROE has a positive poor relationship of 24% with Internet. A good and excellent correlation should be 90% and above. In line with these analyses from table 6.6, CA which is Credit to Total Asset ratio of the bank and CD, Credit to Deposits ratio has negative poor relationships of -10% and -4% with internet usage respectively. Therefore as the use of internet increases amongst bank, CA and CD decreases telling us that loans and deposits are not used judiciously.

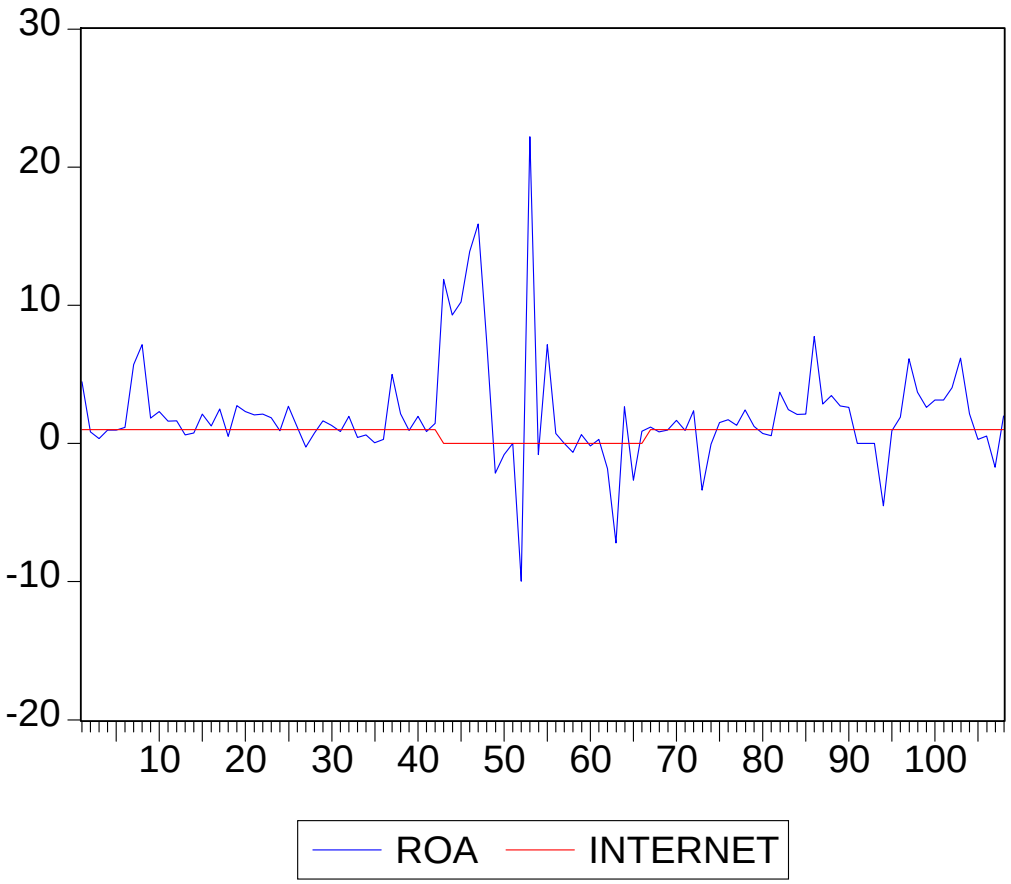


**Figure 5.1 Correlation line graph**

Fig 5.1 shows a clear picture of what have been discussed above from the results. The banks offering internet banking experienced an increase on returns from there assets and while those who are not using internet as their medium for service delivery experienced a lower return on their assets.

# Chapter 6

# REMARKS AND CONTRIBUTIONS

## 6.1 CONCLUSION

The use of Internet has become ubiquitous in banks and most financial institutions nowadays. The internet has really changed the dimensions of competition in the retail banking sector. New distributive channels for rendering services to customers are being achieved. Bank customers have adopted internet banking because of acceptance of the new innovative information technology; of which customers in Northern Cyprus are not exempted. Nevertheless the notion that internet banking would lead to the end of retail banks, local and community banks could not be established in this study. But what is clear is websites are an integral part of the participating banks' business strategies. Even there are banks today without a website even if the banks do not offer online financial services.

The findings from this study presented significant progress towards understanding the nature of internet banking and its perceived impact on commercial banks both foreign branch and private banks in Northern Cyprus. We showed that internet adoption had a negative impact on banks return on assets, CA and CD.

This finding is interesting but not necessarily surprising. Hernando and Nieto (2006) found a negative effect of deposit growth on ROE for Spanish Banks in their GLS estimations. We showed also that banks offering internet banking services to

their customers or has internet as their alternative distributive channel experienced an increase on the banks returns from their assets and while those banks that are not using internet as their medium for service delivery experienced a lower return on their assets. This also signifies a positive effect of internet adoptions on banks profitability.

Further research could be done on bank profitability in KKTC but it is advisable for at least 10years from now as most of the banks in KKTC adopted internet banking in mid 2000.

# REFERENCES


[1] Abeido, Zakaria J.Z. (2004). Internet Banking and its pontential in TRNC, Masters thesis, Department of Banking and Finance, Eastern Mediterranean University, Magusa, North Cyprus.

[2] Adams, C., and Lloyd, S. (2003). Understanding pki: *Concepts, standards, and Deployment Considerations*. Boston, Addison-Wesley.

[3] Aldrich, T., Turk, V., Kuhndt, M., Alakeson, V., and Geibler, J. V. (2003). The environmental and social impacts of e-banking: *A case study with Barclays plc. Final Report Barclays Plc., study within the Digital Europe project, London.*

[4] Asma Mobarek, Article, *e-Banking Practices and Customer Satisfaction: A case Study in Botswana, University of Leeds, Sept. 4, 2007.*

[5] Bakos, J.Y. (1997, December). Reducing buyer search costs: Implications for Electronic Marketplaces. *Management Science*, *43 12, 1676-1692.*

[6] Balwinder, S. and Pooja, M. (2004). Adoption of Internet Banking: An Empirical Investigation of Indian Banking Sector. *Journal of Internet Banking and Commerce. 01/2004*

[7] Bielski, L. (2000, July). E-business models stress putting the customer first. *ABA Banking Journal*, 92(7), 67.

[8] Calent.com: Retail Internet Banking Vendors: Shifting Gears to Optimize the Online Channel. *Report Published by Celent.com; January 09, 2009.*

[9] Carl Rutstein, (2006, June) Vice President, the Boston Consulting Group. Online Banking: *Expanding the Channel with Convenience and Security.*

10] Cho, J. (2000) Effective use of customized incentives for trust building in the online financial industry. *Dissertation Abstracts International, 62(02), 676.* UMI No. 30042

[11] Cronin, Mary J. (1997). *Banking and Finance on the Internet*, John Wiley and Sons. ISBN 0471292192 page 41 from Banking and Finance on the Internet

[12] Ciciretti, R., Hasan, I., Zazzara, C. (2009). *Do Internet Activities Add Value*? Evidence from the Traditional Banks. J Finan Serv Res 35, 81–98

[13] Daniel, E., Storey, C. (1997), "On-line banking: strategic and management challenges" *Long Range Planning, vol. 30 no. 6*, 89-98.

[14] Daniel, E. (1999), "Provision of electronic banking in the UK and the republic of Ireland" *International Journal of Bank Marketing*, vol. 17 no. 2, 72-82.

[15] DeYoung, R. 2001. "*The Financial Performance of Pure Play Internet Banks*." Federal Reserve Bank of Chicago, Economic Perspectives 25(1): 60-75.

[16] DeYoung R. (2005) "*The performance of internet-based business models: evidence from the banking industry*", *Journal of Business, vol.78, no.3*, 893-947.

[17] D. K. Murthy and K. R. Venugopal (2008) "*Indian Financial System,*"

[18] Eccher, C., Hunley, E., & Simmons, E. (2005). *Professional web design: Techniques and templates ( 2nd ed.). Hingham, MA: Charles River Media*

[19] Financial Review: Overview." Wells Fargo Annual Report 2004. [PDF] San Francisco: Wells Fargo & Co., 2005. p. 35. Retrieved 27 October 2005.

[20] Furst, Karen, William W. Lang, and Daniel E. Nolle, (2000), .*Who offers Internet banking. Quarterly Journal, Office of the Comptroller of the Currency, vol. 19, no. 2*, June, 29-48.

[21] Furst, Karen, William W. Lang, and Daniel E. Nolle, (2002), Internet Banking: *Development and Prospects,* Program on Information Resources Policy Research, Harvard University

[22] Hatice Jenkins, (2006) Article, A*dopting internet banking service in a small island state: Assurance of bank service quality.* A case Study of North Cyprus banks, vol. 17, No. 5, 2007.

[23] Hernando, Ignacio and Nieto, Maria J. J., Is the Internet Delivery Channel Changing Banks' Performance? The Case of Spanish Banks (September 14, 2006). Banco de Espana Research Paper No. WP-0624. Available at SSRN: http://ssrn.com/abstract=930563

[24] Kolodinsky, J.M., Hogarth, J.M. and Hilgert, M.A. (2004). The Adoption of Electronic Banking Technologies by US Consumers; *International Journal of Bank Marketing.* Vol.22, No.4, 233 – 241.

[25] Liu C, Jack M, June L, Chun Y, 2005. Beyond concern: *a privacy-trust-behavioral intention model of electronic commerce*. Inf Manag;42: 289–04.

[26] Loshin, P., Vacca, J., & Murphy, P. (2001). *Electronic commerce on-line ordering and digital, money* (3rd ed.). Hingham, MA: Charles River Media.

[27] Mann, R, J. (2003). *Regulating internet payment intermediaries*. Pittsburg, PA: ICEC.

[28] Michael Aldrich (1982), *Videotex: Key to the Wired City*, London: Quiller Press. ISBN 0907621120, available at (http://en.wikipedia.org/wiki/Videotex)

[29] Michael Russell, *Your Independent guide to Online Banking. Article Source available at* http://EzineArticles.com/?expert=Michael_Russell , http://EzineArticles.com/445102

[30] Mols, N. (1998) The Behavioral Consequences of PC banking; *International Journal of Bank Marketing,* Vol.16, No. 5, 195 – 201.

[31] Nath, R., Schrick, P., and Parzinger, M. (2001), Banker's Perspectives on Internet Banking, *e-Service Journal, Indiana University Press vol. 1,* 21-36

[32] Online Banking Report (2005, September).Top150 largest banks (USA). Retrieved on 10/27/05 from: http://www.onlinebankingreport.com/resources/100.hml?PHPDESSID=20051027141443

[33] OPPapers (2008) Prime Bank Internet Banking – Essay submitted by Monami on 02/19/2008, available at http://www.Oppapers.com/essays/prime

[34] Reserve Bank of India (RBI), (9th September 2008). *Banking Transactions in India – Operative guideline for banks.*

[35] Robert E. Grosse (2009) in the book "*The Future of Global Financial Service*,"

[36] Rose, Peter S. and Hudgins Sylvia C. (2008). Bank Management and Financial Services, Seventh Edition, 167-171.

[37] Saunders, A. and Cornett Marcia M. (2008) Financial Institution Management: A Risk Management Approach. *McGraw-Hill International Sixth edition*, 458-465.

[38] Siaw, I, Yu, A. (2004). *An analysis of the impact of the internet on competition in the banking industry, using porter's five forces model.* International Journal of Management, 21(4), 514-522.

[39] Sullivan, R.J. (2000), *How has the adoption of Internet Banking Affected Performance and Risk at Banks? A look at internet banking in the Tenth Federal Reserve District, Financial Industry Perspectives, Federal Reserve Banks of Kansas City, December.*

[40] Swanick, P. J., & Berish, J. T. (1999 summer). Key2your$+internet – *How Key Corp integrates all delivery channels*. Journal of Retail Banking Services, 21(2), 7-14.

[41] The Basics 2003, Online Banking: Available at http://www.bankrate.com/brm/olbstep2.asp

[42] Tanisha Coffey, eHow Contributor *(What Is a Point of Sale Transaction?)* Available at, http://www.ehow.com/about_5167287_point-sale-transaction.html

[43] Wells Fargo Financial (2003). *Wells Fargo today*: Company fact sheet 2nd. *Quarter 2003. Retrieved* 11/28/2003 from: http://www.wellsfargo.com/about/today2.jhtml.

[44] "Wells Fargo Today". Wells Fargo and Company, available at, https://www.wellsfargo.com/downloads/pdf/about/wellsfargotoday.pdf. *Retrieved* 2010-12-14.

[45] Williamson. Kirsty and Linchtenstein (2006) Journal of Electronic Commerce, available at www.allbusiness.com

[46] Yakhlef, A. (2001), *Does the Internet compete with or complement bricks-and-mortar bank branches*? *International Journal of Retail & Distribution Management, vol. 29, no.6,* 272-281.