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INTERNET BANKING ADOPTION IN TURKEY
AN EMPIRICAL ANALYSIS ON ATTITUDES OF CUSTOMERS

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Danışman
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FOREWORD

To my family,

I would like to thank to my adviser, Associate Professor Tülay Yücel for her constant guidance and support throughout the writing of this thesis. Needless to say, this work has benefited tremendously from the inspiration and enthusiasm she has provided. I would also like to thank Professor Yasemin Arbak, Professor Banu Durukan and Assistant Güzin Özdağoğlu for their contributions to this thesis. Also, special thanks go to my friends, Tayfun Kocabaş and Volkan Cağlayan, who supported and encouraged me throughout this journey.

ABSTRACT

The Internet provides banking sector to move towards using a new distribution channel in reaching their customers. Previously, customers have been performing banking transactions only at a bank branch, ATM or telephone, but the Internet has opened new opportunities for both banks and customers.

In this study, we have made a detailed review of the Internet banking phenomenon in the present banking literature and then concentrated on bank consumers' demographic profiles, attitudes, and behaviors in terms of their Internet banking usage situation based on empirical evidence collected from a bank in Turkey. Thus, a survey questionnaire was developed to collect the primary data from the customers.

In order to use in our analysis, five factors, perceived ease of use, perceived usefulness, security and privacy, quality, and relative advantage are selected from the literature. After testing the reliability of the factors, factor analysis is used to see whether the set of questions form or not these factors. It has seen that five factors are predominant. In order to see the factors more deterministic for the use of Internet banking of Turkish bank customers', regression analysis has been conducted. As a result, three of the factors, namely perceived ease of use, perceived usefulness and security and privacy are determined as more valid reasons for influencing Turkish bank customers' usage of Internet banking.

ÖZET

İnternet, bankacılık sektörünün müşterilerine ulaşmasında yeni bir dağıtım kanalı kullanmasını sağlamaktadır. Daha önceden, müşteriler bankacılık işlemlerini yalnızca banka şubelerinde, ATM veya telefonda yapmaktaydı, fakat internet, bankalar ve müşterileri için yeni fırsatlar açmıştır.

Bu calışmada, Internet bankacılığı kavramının şu anki banka literatürlerinin detaylı taraması yapılmıs ve daha sonra Türkiye'de bir bankadan toplanan ampirik verilere dayanılarak banka müşterilerinin demografik durumları, internet bankacılığının kullanımına yönelik tutum ve davranışlarına yoğunlaşılmıştır. Buna göre, müşterilerden veriler toplamak üzere anket hazırlanmıştır.

Analizimizde kullanılmak üzere, literatürden beş faktör, algılanan kullanım kolaylığı, algılanan yararlılık, güvenlik ve gizlilik, kalite ve göreceli avantaj seçilmiştir. Faktörlerin güvenilirliği test edildikten sonra, soru kümelerinin birer faktörü niteleyip nitelemediğine bakmak için faktör analizi yapılmıştır. Beş faktörün baskın olduğu görülmüştür. Türk banka müşterilerinin internet bankacılığını kullanmada daha fazla belirleyici olan faktörleri görmek için regresyon analizi yapılmıştır. Sonuç olarak üç faktörün, yani, algılanan kullanım kolaylığı, algılanan yararlılık, güvenlik ve gizlilik, Türk müşterilerinin internet bankacılığını kullanmalarını etkileyen daha geçerli nedenler olarak belirlenmiştir.

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ABBREVIATIONS

ATM: Automated Teller Machine

IB: Internet Banking

ISP: Internet Service Provider

TAM: Technology Acceptance Model

TRA: Theory of Reasoned Action

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INTRODUCTION

The Internet is an international computer network connecting people and organizations around the world. This technology has profoundly impacted society, culture, employment, communication, and even global economy. The Internet, together with e-commerce, are reshaping how business thinks about delivering value to its customers.

Online financial activity has increased steadily as more and more Internet-capable households use Internet banking. Internet banking can be defined as accessing and manipulating financial information via the Internet using personal computer and Web browser.

Some analysts argue that Internet banking is revolutionizing the banking industry. Others see the Internet as simply adding another delivery channel for remote banking to existing channels such as automated teller machines (ATMs) and telephone banking.

At the basic level, Internet banking can mean the setting up of a Web page by a bank to give information about its product and services. At an advance level, it involves provision of facilities such as accessing accounts, funds transfer, and buying financial products or services online (Sathye, 1999).

The new concept of “Global World” as “New Economy” use “internet” as a powerful gun. Retail banking business in this New Economy is becoming much more complex along all dimensions: customer, distribution, and product. Turkey is also put his hands to this development and take the place in this situation.

Until 1997, banking activities in Turkey were mainly conducted in branches. Turkiye Is Bankasi was the first bank to introduce Internet banking services via the World Wide Web (WWW) in 1997. Many Internet subscribers make use of Internet banking

and shopping facilities. In 2005, Turk Telekom claimed over 500,000 asymmetric digital subscriber line (ADSL) customers, up from 70,000 in 2003, as well as providing Internet access via its cable television network. Thus, Internet usage would grow quickly.

Although the Internet banking has been available in the Turkey since 1997, it is still at an embryonic stage. It is not clear whether all customers want or are comfortable with the Internet banking. Technology is changing at a rapid pace making it difficult for both the customer and the bank to determine the best approach. Particular problems arise with trying to integrate or replace new channels with existing channels.

Academic research is needed in this newly emerging delivery channel. It is for these reasons; the purpose of this study is to examine factors that influence Turkish bank customers' attitudes towards Internet banking in Turkey and the place of Internet banking in Turkey will be analyzed. Besides, relationship between the factors like gender, age, income, education and internet availability in Internet banking usage, usage of three alternative delivery channels of banks', reasons for not using Internet banking, Internet banking services used and institutions' Internet banking facilities used are examined in this study.

To reach our goals successfully, Internet banking should be analyzed in a systematic manner from its establishment to the acceptance by customers. Thus, chapters are formed carefully.

In the first chapter, the nature of banking and changes in the sector has been studied in the global context. Central to these challenges are delivery strategies of banking services.

In the second chapter, the distribution channels of banks have been evaluated. Branch and non-branch banking difference has given in a systematic way with the clear definitions of these systems.

Third chapter evaluates the Internet banking from its definition to advantages and disadvantages of using this channel. Also, two important concepts that facilitate adoption of Internet banking, that is quality and security will be examined.

In the fourth chapter, attitudes and adoption of Internet banking and some important factors in the literature affecting the adoption of Internet banking has been explained.

Finally, bank customers of Turkey in the Internet banking concept have been the subject of fifth chapter. With the help of a questionnaire, some important findings about the usage of the Internet banking and the factors effective on the usage would provide clues bank managers for the successful implementation of this new delivery channel.

CHAPTER ONE
OVERVIEW OF BANKING AND CHANGES IN THE BANKING SECTOR

In this chapter, the nature of banking and changes in the sector will be studied. Namely, preparatory challenges for the change of banking will be discussed. Central to these challenges are delivery strategies of banking services.

1.1. Banking and Bank Services

Banks have offered an efficient means of intermediating between people who want to consume in the future (save) and those who want to obtain resources to invest in productive enterprises. Alternatively, individual savers can find, analyze, administer, monitor, and collect their investments in these enterprises (Benston, 2004).

The client base of most of the universal banks can be broken down into three main market segments: retail, corporate and financial institutions. (Chang et al., 1997). Financial institutions banking constitutes the sales of almost the full range of product groups to other banks and non-bank financial institutions, while retail and corporate institutions banking provide services and products to corporate and retail markets.

Within this part, retail banking and its services and products will be discussed.

1.1.1 Traditional Retail Banks

As early as the 1800s, people have held their money in banks. These banks set up businesses in towns with buildings called *branches*. This is known as traditional banking (or brick and mortar) and continues strong today.

Retail banks have traditionally provided intermediation and payments services to individuals and small businesses with all the components of those services supplied

by the bank. However it is becoming increasingly difficult to identify the nature of a retail bank. Firstly because many banks now combine both retail and wholesale activities. Secondly because technological developments have enabled banks to supply a wide range of retail financial services to its customers but not supply all the sub-components of those services.

Technological developments are also changing the nature of retail banking. Traditionally a retail bank would need a substantial branch network to collect the deposits of the public, facilitate repayment of deposits and other account payments and make loans. The widespread use of automated teller machines and the growth in telephone banking, postal accounts and more recently internet banks have allowed new types of retail bank to emerge that do not require extensive investment in branches. To make sense of the many developments in retail banking it is helpful to see retail banking as a set of processes rather than institutions.

1.1.2 Services and Products of Retail Banks

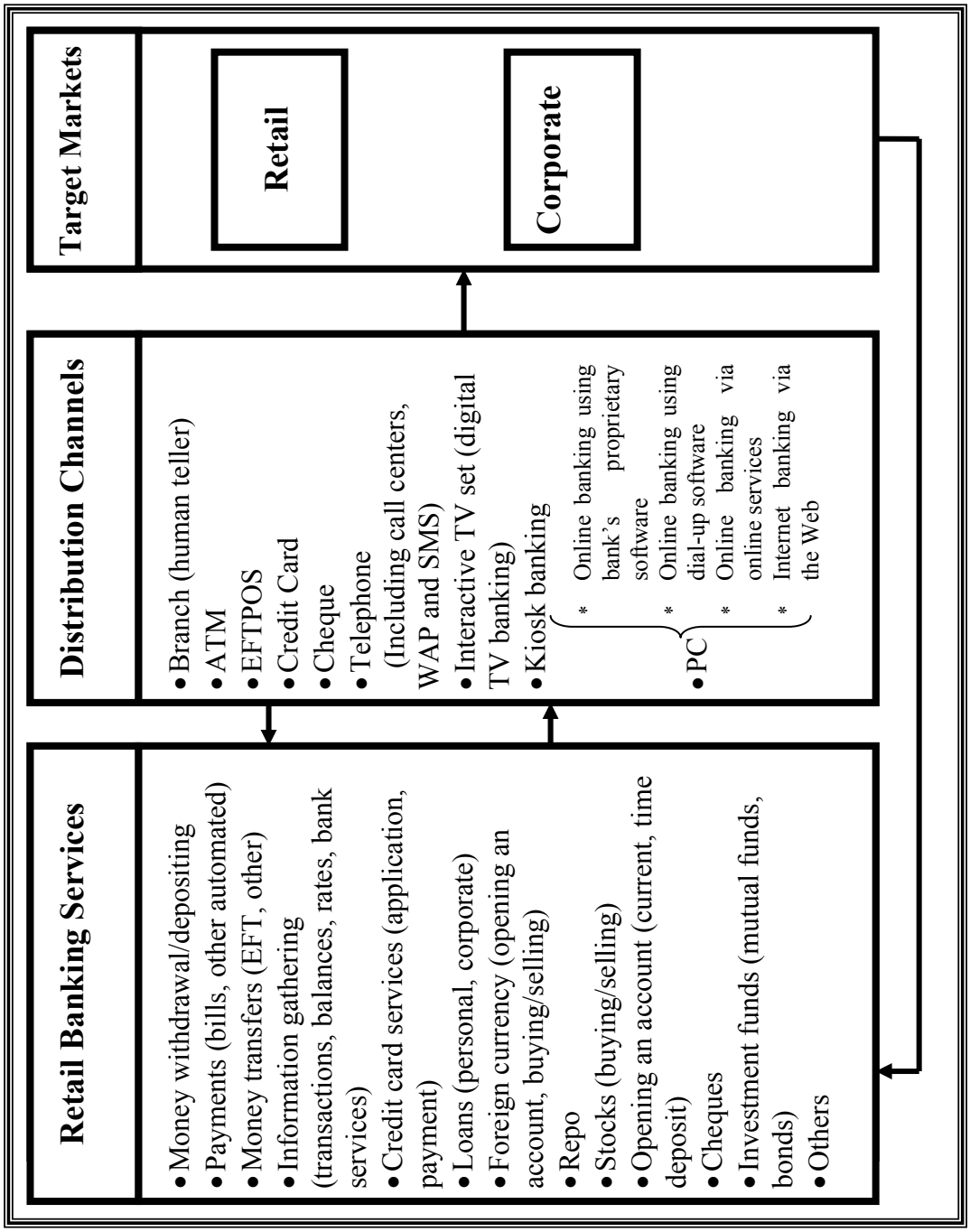
Retail banks provide various products and services to individuals and small businesses. Traditionally a retail bank provided (Buckle, and Thompson, 1998):

1. intermediation services and
2. payments services.

They perform some services in general such as (Mandaci and Soydan, 2002):

- Carrying out currency exchanges
- Providing credits by discounting commercial loans
- Safekeeping of customer valuables
- Financial advising to customers who use credits and have savings
- Selling insurance policies such as life and non-life
- Providing security brokerage services to their customers through buying stock, bonds and other securities
- Providing mutual funds, which usually provide higher returns than that on bank deposits

Increasingly retail banks are providing a much wider range of products/services including insurance products, pension schemes, stock broking services etc. In short, retail banks are becoming financial supermarkets (see Figure 1.1).



Source: Akinci et al., 2004.

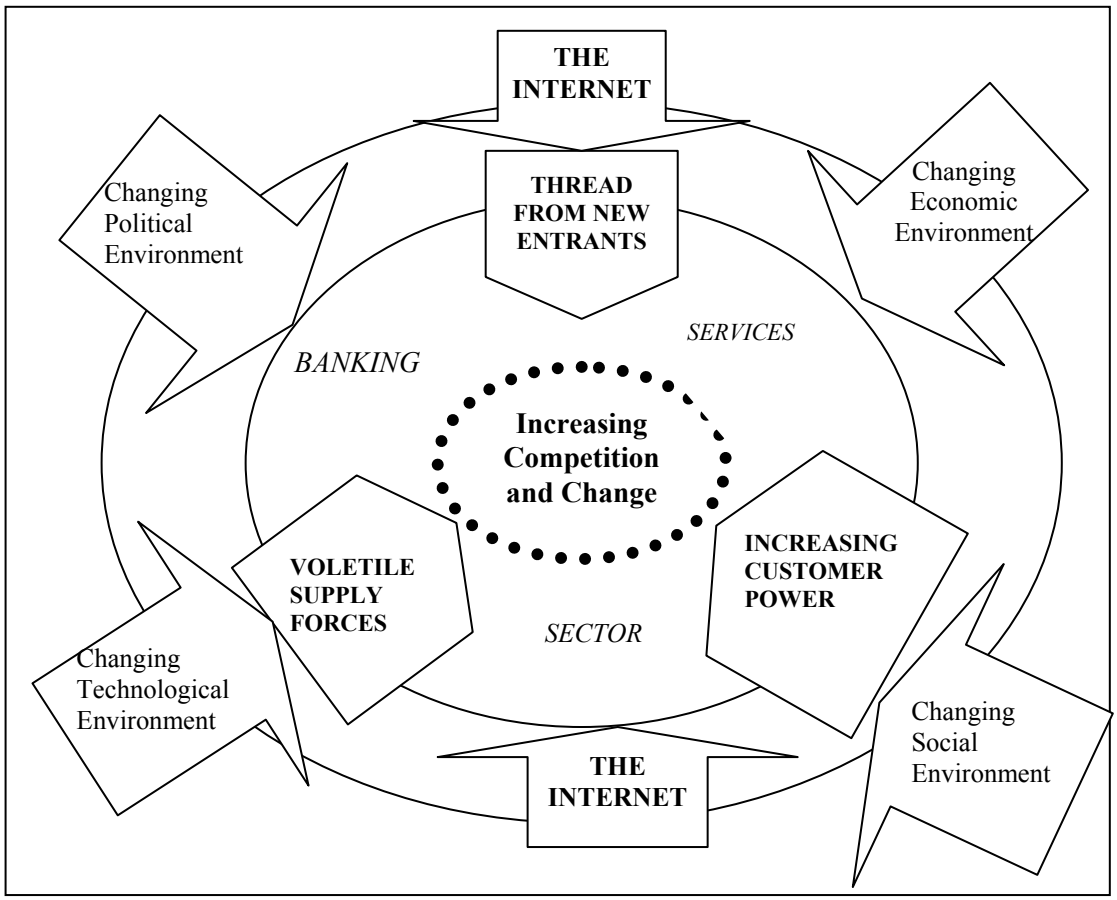
Figure 1.1: Retail banking services and distribution channels

1.2 Changes in the Banking Sector

The time which we are living is probably the most exciting time in history to be studying financial markets and institutions. The increasing turbulence in the environment, co-operation, competition and change, globalization and convergence as well as changing consumer preferences mean that new strategies to attract and maintain customers are becoming of key importance. One of the most fundamental changes in the industry has been the consumer movement from traditional branch banking to more stand-alone banking. In other words, a move towards using electronic delivery channels such as the Internet, telephone and mobile phones in private banking (Karjaluoto, et al., 2002).

Technological innovations reduced both geographic and economic barriers to competition, and created an added dimension of uncertainty within the industry. Automated teller machines (ATMs) significantly reduced geographic barriers and helped banks well serve their customers. Other advances facilitated an increase in the number of products that banks provide, most of which are "system-dependent," which means they are "fundamentally different from older, traditional products" and are "all vitally linked to systems technology". Increasingly, banking products are information products. However, information technology is not providing most banks or their customers what they need; value-rich content, rather than speed of transaction processing (Nelson, 1999).

Banking, which has been characterized by its "tried and tested" processes of service delivers, is greatly affected by environmental change (Bradley and Stewart, 2003). The banking sector is subject to both internal and external forces. In the article of Jayawardhena and Foley (2000), external factors have been categorized under political, economic, social and technological changes (see Figure 1.2). In the wider business environment, they are likely to have the greatest impact on the sector. Such developments are, by definition, beyond the control of the businesses themselves. However, success or failure will depend on how well management is able to anticipate and react to these changes (Jayawardhena and Foley, 2000).



Source: Jayawardhena and Foley, 2000.

Figure 1.2: The banking services sector and interaction with forces

Figure 1.2 provides a clear indication of the internal and external factors that have led to what has been a notable change in the financial services sector in recent years.

Given this dramatic change within the banking industry, traditional financial services providers are now finding themselves in the situation whereby they have to work ever harder to retain customers that they once had the luxury of taking for granted (Ibbotson and Moran, 2003).

1.2.1. External Forces in Changing Environment of Banking Sector

1.2.1.1 Technology

Technology has the power to transform the fundamental economics of any industry. In this respect, developments in technology have dominated the revolution in the banking sector during the last two decades. The world-wide expansion in technologies for connection has supported increased globalization of capital flows and financial organizations.

According to Llewellyn (1997) technology:

- enables existing services to be provided more efficiently,
- enables new services to be offered,
- lowers entry barriers in some areas, and
- changes the economics of delivery.

Also, technology has the potential to increase the availability and reduce the cost of information. This is a potentially powerful force as it both reinforces and challenges one of the banks' major core competencies: information.

Information technology has had a major impact on banking ever since computers and electronic transactions were introduced in the 1950s and 1960s. Since then, plastic money has evolved to a nearly universal media which is now used widely instead of cash. Most recently "electronic money" is starting to emerge in the form of "smart cards", electronic cash, electronic wallets and cyber money. As soon as these take on the mass markets, retail banking is likely to go through another hurdle of dynamic changes (Lowe and Kuusisto, 1999).

1.2.1.2 Regulation

Historically, regulation in banking has been protective and has often had the effect of limiting balance-sheet growth and the allowable range of business that banks can undertake. It has also had the effect of limiting competition on the premise that 'excessive competition' in banking can lead to increased risk and potential systemic hazards. Regulation in banking has often condoned restrictive practices and anti-competitive devices, and has in general had the effect of limiting price competition. In turn, profits in this regulated industry have been reasonably assured; there has been a high value attached to the banking franchise, and risks in banking have been comparatively low as various forms of credit-rationing have been the norm. At the same time, costs tended to rise to exploit the economic rents created by a protective environment, and non-price competition has dominated price competition. This in turn has created an excessive cost structure. All of this created incipient excess capacity that was viable while the protection lasted but proved to be unsustainable in the absence of that protection (Llewellyn, 1997).

The universal trend is that public policy priorities have shifted towards improving banking efficiency through competition, and in the process public policy has become less protective of the banking industry. As competition in banking becomes increasingly globalized, the ability of individual countries to stand aside from this general trend is strictly limited. There is no uniform pace of deregulation for all countries.

1.2.1.3 Changing Customer Preferences

Lowe, A. and Kuusisto, J. (1999) cited the B.A. thesis of Lagouette. According to Lagouette (1996): There are three main trends that are currently influencing retail customers' behavior: increasing affluence, people living longer and growing economic importance of women. Most consumers' wealth has increased in developed countries over the last decades and they are showing much greater discrimination in

their search for value. Demographic change is characterized by ageing and of particular importance is the maturing well-educated post-war generation. As this group grows older, they will have plenty of purchasing power. This creates opportunities for businesses which are able to tap into their sophisticated tastes. The third trend is the changing role of women in society, including increasing participation in the work force and higher average age of marriage and birth of the first child. Time has become an increasingly important factor for families where both parents are working, creating demand for convenient and time saving services (Lowe and Kuusisto, 1999).

These trends will change working patterns, with more part-time, temporary and home-based workers. This will have further implications for the banking sector.

These unavoidable developments have profound implications for the kind of products and services that business will provide and how they are delivered. In this context, the banking sector lies at the forefront of change in terms of society's needs. Technological change is likely to have the most far-reaching impact on the banking sector over the next decade.

Technology is frequently touted as a, if not the, key element in the formulae for productivity and profitability in the 1990s and beyond. It is likely to be the key factor driving change within the banking sector for the foreseeable future.

The advantages technology has brought to other industries are also evident in banking: it is cheaper, it makes fewer errors, it does not call in sick, it can work twenty-four hours a day, and it can be faster (Bednar et al., 1995).

1.2.2 Internal Forces in Changing Environment of Banking Sector

The slogan “the customer is king” has never been truer for the banking sector than it is today. Legislation has increased customers’ rights; technology and competition have increased their choice of products and providers. The Internet will bring about

changes in the working environment, living conditions and patterns of banking use (Hagel et al., 1997).

These changes will inevitably place users under a different set of conditions resulting in changes in their behavior. One of the outcomes of these changes will be growth in users with more sophisticated needs. Customers will become more discerning as information becomes more accessible over the Internet.

As organizations seek new sources of revenues and profits outside traditional banking disciplines, they will demand different skills and aptitudes from their staff. This demand, coupled with cost cutting and the impact of new technology, has already led to a significant reduction in overall staffing levels within the banking industry. Further changes can be expected with the implementation of Internet-enabled delivery mechanisms.

As a result of the developments discussed above, the attractiveness of this sector to a wide range of potential new entrants has increased. The cost of entry to the banking sector is low, returns seem very promising and the risk seems manageable (Jayawardhena and Foley, 2000).

Changes in the banking industry such as those resulting from deregulation, rapid global networking, and the rise in personal wealth have thus made the implementation of sophisticated delivery systems (e.g. online and telephone banking, remote site automated teller machines, etc.) a strategic necessity in many cases (Lewis et al., 1994).

As technology continues to drive down costs, it becomes easier for new competitors to enter the market and target the top customers of the banks with better prices.

CHAPTER TWO
DISTRIBUTION OF BANK SERVICES

In this chapter, we will focus on the distribution channels of banks as a service industry. Branch and non-branch banking difference will be given in a systematic way with the clear definitions of these systems.

2.1 Technology and Innovation in Retail Banking Distribution

Over the past two decades, technology has increasingly been employed in the delivery of services. The adoption of technology into service industries is becoming a strong trend as service providers are now being urged by industry bodies to invest in technology as a way of securing their future in the electronic age.

The role of technology in service organizations has been predominantly employed to reduce costs and eliminate uncertainties. In the service sector, technology has been used to standardize services by reducing the employee/customer interface (Quinn, 1996).

Accessibility has been extended through technological developments as well as the introduction of new service delivery methods that allow consumers to do business with service firms from the home and office (Joseph et al, 1999).

McKechnie (1992) cited convenience and ease of transaction as two of the major factors influencing bank selection, concluding that consumers were most interested in "how the service is delivered". It means that the issue of distribution of financial services will remain an important competitive variable. This is particularly the effect of the changes in demographic, economic and social factors alter consumers' preferred distribution channels. As a more computer literate generation emerges, far more trusting of, and at ease dealing with, technologies, then Information Technology based delivery systems are likely to become more popular.

In an economic sense an innovation is accomplished with the first commercial transaction involving a new or improved product, process, system or devise. Thus, innovation is restricted to intentional attempts to bring about benefits from new changes. These might include economic benefits, personal growth, increased satisfaction, improved group coherence, better organizational communication, as well as productivity and economic measures that are usually taken into consideration (Koskinen and Vanharanta, 2002).

Through market research, identify customer needs and then take steps to develop products to meet these needs is a way for innovation process of bank marketers. First Direct, part of the Midland Bank Group was launched in October 1989 as a telephone banking service available around the clock at all times. First Direct has undoubtedly been a success story thus far and its innovative distribution of retail banking services has obviously been a major contributory factor.

However, it should be remembered that this innovation was not purely technology and systems driven but relied more on innovative management structures and organizational factors.

2.2 Channels of Distribution in Service Industry

The design and management of distribution channels is a powerful weapon in an increasingly competitive and continually shifting battle for consumers. An important way in which companies use this weapon is by adding new channels to existing ones; for instance, by adding a direct channel to an indirect one.

In order to understand the concept of distribution in banking, it is important to understand the channel of distribution concept. A channel of distribution is the sequence of firms involved in moving the goods or services from the producer to the

consumer. Because of the unique characteristics of services, the distribution process is just more difficult for the services marketer.

2.2.1 Distribution of Bank Services

We must think of a channel of distribution in a somewhat different manner for banks. A distribution channel is any means of increasing the availability or convenience of a service that simultaneously increases its use or the revenues from its use. The channel may help to maintain existing users, increase use among existing users, or attract new users.

The development of the service has been viewed as a response to changing consumer requirements and usage patterns (Lockett and Littler, 1997).

Changing lifestyles and increased affluence have led to higher service expectations by the customer; this has made distribution the key marketing variable of the 1990s. The mass marketing era saw the establishment of branches on every main thoroughfare, however as this investment took place it was not fully recognized that these new non-business customers did not have the same discretionary time to visit the branches as the business community on which banks had traditionally focused (Trethowan and Scullion, 1997).

A distribution channel model is likely to take a customer perspective, analyze the output from the commercial part of the different distribution channels and relate it to the customers' costs and benefits from the different levels of service output offered by the available distribution channels (Mols, 1999).

The branch network of a retail bank has traditionally been viewed as its "flagship in the high street" the banks' number one asset. The rationale behind such branch investment is the need to distribute banking services. High street presence encourages usage and maintains contact. A large branch network gives customers

easier geographic access and the reassurance that the bank has substantial resources and hence offers security for their savings (Lockett and Littler, 1997).

The extensive branch network has enabled banks to capture market share (Jayawardhena and Foley, 2000).

2.2.1.1 Branch Banking

The traditional delivery channel is the branch network. Ordinary branch banking requires the customers to come to the branch, where they have access to a wide variety of banking services but have to wait in line before getting served.

The branch banking segment consists mainly of older, non-computer literate persons, who value personal relationships. These customers value the face-to-face contact with the bank teller and emphasize a trustful relationship. They do not own a PC and do not work with information technology. Today this segment is still large and important but it is shrinking (Mols et al., 1999).

Currently, with branch based banking, the bank is in direct contact with their customer. The need to gain direct contact with customers has in recent times been seen as an important feature in the marketing and delivery of financial. The benefits of this include being able to control all aspects of these processes and also allow the customer to become familiar with the bank itself, rather than building a relationship with intermediaries (Daniel and Storey, 1997).

Most banking experts expect the trend of slow growth in new full-service offices and the consolidation of existing branch offices to continue into the future as new information technologies continue to grow in importance in modern banking and as production costs continue to rise. However, the role of full-service branch offices is changing and will change even more in the future. Information technology can help a branch to offer a wider range of services with fewer staff, and so branch offices and

the newest electronic delivery systems must be used as complements to each other rather than as combatants.

And, if that were not enough, the branch of the future must be framed within a flexible organization and have adaptable physical structure – one that can be changed with minimal human and resource costs in order to keep pace with ever-changing customer needs.

No one may know the future of the bank branch office, but there are a few clues unfolding of which bankers should be aware. Whatever else it may be or do, the full-service branch offices of the future will:

- provide the customer with access to more services than were available in the past – both traditional banking services and new services that reflect customer tastes;
- provide the customer with the speed and convenience of electronic processing and also the opportunity to experience the "human touch" – to interact one-to-one with staff or management in answering questions and in financial planning;
- be flexible in design to allow changes in layout and function in order to keep pace with rapidly changing customer needs, while keeping remodeling costs low.

The spatial or marketing approach to the location, design and structure of branch networks is an example of how the major clearing banks are beginning to regard their branches as retail outlets. The traditional branch network is not best suited for the distribution of the full range of financial services, especially the more complicated life products that require a more personalized approach (Moutinho et al., 1997).

As well as the pressures of computerization, the deregulation of the banking and financial services industries in the 1980s has opened up the market to increased competition. This has resulted in the retail banks facing competition from building societies, which traditionally have smaller branch networks with lower associated cost to income ratios, and from other potential new entrants into the market. These competitive pressures and the introduction of alternative channels have forced banks to re-evaluate their existing channel strategies (Lockett and Littler, 1997).

2.2.1.2 Bank Branches versus Non-Branch Bank

As time passes, financial institutions world-wide become more interested in diversifying their traditional service delivery channels, basically the branch network, which is known to be associated with high staff and overhead costs (Akinci et al., 2004).

The objective of bank distribution decisions is the same as that of the consumer goods manufacturer – that is, to select channels that will maximize the firm's profit position over the long run. For the bank this would involve providing optimum service and coverage at a minimum cost. Customers do business with those banks which make the products available in a place which is convenient to them. Of course, place utility is only one variable in the marketing equation, but in an industry which sells virtually homogeneous products, it is a strategically vital variable. Hence banks have traditionally established large branch networks.

Today, a bank may indeed have branches, but with increasing technological advances it may also be represented by a telephone in the customer's home, a plastic magnetic stripe debit card, or a self-service cash dispensing machine on the street.

A bank branch serves two main functions: it extends the service level for customers by providing access points in a number of different locations and it acts as a place of money transfer: that is, the physical movement of cash and cheques from senders to receivers (Prendergast and Marr, 1994).

The increasingly competitive environment in the financial services market has resulted in pressure to develop and utilize alternative delivery channels. The most recent delivery channel to be introduced is electronic banking. The term electronic banking is used to describe the provision of information or services by a bank to its customers, via a computer or television (Daniel, 1999).

2.2.1.3 Electronic Banking

The term electronic banking often refers to online banking/Internet banking. However, electronic banking is an upper construct including also telephone banking, WAP banking as well as iNet-television banking (Karjaluoto et al., 2002).

According to the Basel Committee report on banking supervision (1998), electronic banking refers to the provision of retail and small value banking products and services through electronic channels. Thus, in the most encompassing definition, electronic banking would run the gamut from direct deposits, ATMs, credit and debit cards, telephone banking, to electronic bill payment and web-based banking.

Electronic banking services were first launched in the UK in the early 1980s with the "Homelink" service provided by the Nottingham Building Society and the Bank of Scotland.

Since the rapid growth of other types of electronic services, most based on the Internet, there has been a renewed interest in electronic banking services and many banks have recently launched (see Table 2.1) or are developing such services (Daniel, 1999).

Table 2.1: Key Technological Innovations in Electronic Retail Finance, 1979–2001

Year	Name	Characteristic	Contribution
1979–85	Telephone banking (US, UK)	Branch-less retail intermediaries	Multi-channel distribution system for banks based on an integrated customer account and information system.
1988–96	Mondex cards (UK)	Debit card with re-writable micro-chip	Facilitate small-value retail transactions with the potential to substitute central bank issued notes and coins. Formalize ways of collecting broad array of information from customers.
1989–98	DigiCash (NL)	Electronic only medium of exchange and unit of account	Payment systems and products that depend exclusively upon high-speed communications done through computers
1995–2001	Security First Network Bank (US)	First intermediary working through the Internet	Technology opens new opportunities for bank growth and offers managers of banks possibilities to achieve high organizational flexibility.

Source: Bátiz-Lazo and Wood, 2002.

McMahon (1996) considers three direct delivery means:

1 telephone;

2 PC; and

3 the WWW.

McMahon concludes that these should be employed in a complementary and integrated way with existing distribution channels if financial service providers are going to survive into the next decade (McMahon, 1996).

Also, Dannenberg and Kellner (1998) propose the next step in electronic banking provision when they discuss the possibility of offering individual customer advice through Internet picture telephony and video conferencing software (Dannenberg and Kellner, 1998). A brief description of each of these delivery platforms is given in Table 2.2.

Table 2.2: Delivery platforms for electronic banking

Type of service	Description
PC banking (private dial-up)	Proprietary software, distributed by the bank, is installed by the customer on their PC. They then access the bank via a modem linked directly to the bank
Internet banking	Customers can access their bank and account when they use the Internet
Managed network	The bank makes use of an online service provided by another party, such as AOL
TV-based	The use of satellite or cable to deliver account information to the TV screens of customers

Source: Daniel, 1999.

Liao et al. (1999) identified the virtual bank as a "non-branch bank" and virtual banking as the provision of services via electronic media such as automated teller machines (ATMs), telephone, personal computers and/or the Internet.

The first virtual bank was the automatic teller machine (ATM). Other forms of virtual banking include telephone banking and internet banking (Wan et al., 2005).

The provision of banking services through electronic channels namely ATMs, PC banking, telephone banking and banking kiosks have provided an alternative means to acquire banking services more conveniently.

E-channel, also known as innovative distribution channel, refers to the methods of delivering financial products using electronic media such as personal computer (PC), the telephone, and the Internet (Dannenber and Kellner, 1998).

Lockett and Littler think that (1997) the market for such services is only a niche, but the niche is very substantial and attractive for banks. The niche is important because it is anticipated that the customers will be generally from higher income groups and consumers of a larger number of financial products and thus prove to be highly profitable (Lockett and Littler, 1997).

More specifically, ATM or the automatic teller machines, is the most commonly used electronic distribution channel that enables bank customers to conduct their banking transactions 24-hours a day (Hway-Boon and Ming Yu, 2003).

2.2.1.3.1 Automated Teller Machine (ATM)

The first alternative channel was the automated teller machine (ATM) introduced in the USA in the early 1970s. It took years to develop a full-blown national network and even longer to convince consumers to use it (Sarel and Marmorstein, 2003).

ATMs are machines, often located off bank branch premises, which distribute cash and provide information services to customers on presentation of a computer readable card and keying of PIN (personal identification number) (Prendergast and Marr, 1994).

ATMs allow customers 24 hour access to their checking accounts. They can pay bills as well as withdraw cash from these machines (Saunders and Cornett, 2004).

2.2.1.3.2 Telephone Banking

The second alternative introduced was a telephone banking option. Telephone banking requires the customers to phone the bank. It is more cost-effective than an ordinary branch and it is more convenient for the customer (Mols et al., 1999).

By calling a centralized telephone number, consumers could check balances, transfer money, inquire about services and even pay bills either by voice command or by touch-tone telephone.

Adoption of these services has risen slowly, most noticeably after banks increased the around-the-clock availability of live representatives (Sarel and Marmorstein, 2003).

Banks use it as an alternative or a supplement to their traditional way of delivering services through branch networks. The main benefit to banks is a lower cost profile compared to the cost of providing services via branches.

The benefits to customers of using telephone banking are convenience and control. Customers are able to do banking 24 hours a day and seven days a week, at places convenient and private to them such their home. Customers also have added benefits in the form of lower charges on services and higher interest rates for their deposits, which result from the bank's lower cost of operation (Ahmad and Buttle, 2002).

2.2.1.3.3 TV Based Services

Satellite TV is currently being used to deliver account information to the TV screens of customers. Trials have also been undertaken on providing banking services to the home via cable TV. A rapid increase of such services is envisaged with the arrival of digital TV services.

The main advantage of such systems is that they do not require the user to own a PC. This encourages the mass market uptake of such a systems (Daniel and Storey, 1997).

2.2.1.3.4 PC Banking

Personal computer (PC) banking was introduced in the late 1980s. Initially, consumers needed proprietary bank software to connect directly into a bank's system (Sarel and Marmorstein, 2003).

Early versions of PC banking were expensive, complicated and did not achieve a sufficient level of consumer acceptance, but today it is even more cost-effective than telephone banking, and it is also more convenient (Mols et al., 1999).

For the PC private dial-up services proprietary software is distributed to customers by the bank. The customer installs this on his/her PC and accesses the bank via a modem linked directly to the bank. It is this approach that the majority of banks have adopted or undertaking trials on.

The advantage to the supplier of such a system is one of greater control of the service provided to the customer. With private dial up systems the user is not connected to other services and therefore will not need help finding the bank's services, a process which is termed 'navigation'. On non-private networks, the customer may have to rely on a third party to provide an interface with the on-line services, and the bank would have little control over this interface. A direct connection to the bank also allows it to control the speed of access to the service and the reliability of the access. In addition it is perceived as being secure by the user (Daniel and Storey, 1997).

PC banking makes it possible for PC-literate customers who possess a PC and a modem to bank from their homes. Thus, PC banking has the advantage that the customers avoid traveling to and from a bank branch. Hence, PC banking saves them time and money and provides them with convenience and accessibility.

Also PC banking is marketed as being cheaper to use for certain forms of banking operations, for example bill payment. Thus, for certain services PC banking is cheaper for the customers than using the bank branches. All in all, PC banking seems

to be offering the customers more benefits at lower costs. It is therefore closer to the ideal distribution channel for PC-literate bank customers who have access to a PC and a modem, and it can be predicted that these bank customers have experienced or expect PC banking to be significantly more valuable than the alternative distribution channels for bank services (Mols, 1998).

2.2.1.3.5 Internet Banking

The Internet and the World Wide Web (WWW) provide banks with a new channel in reaching their customers. Customers benefit from this new channel of delivery that will be discussed in the following chapter.

CHAPTER THREE
INTERNET BANKING AS A STRATEGIC DISTRIBUTION CHANNEL

Within this chapter, Internet banking will be evaluated from its definition to advantages and disadvantages of using this channel. Also, two important concepts that facilitate adoption of Internet banking, that is quality and security will be examined.

3.1 The Internet and Its Effects on Businesses

Industrial and service sectors have witnessed a rapid shift particularly in the last decade under the pressure of some forces affecting the marketing environment. One of the major forces behind these developments is technology, which is breaching geographical, industrial, and regulatory barriers, creating new products, services, market opportunities, and developing more information and systems-oriented business and management processes (Liao and Cheung, 2002).

The Internet and the World Wide Web (WWW) have made a profound impact on the way the world conducts business today (Pennathur, 2001). Since the Internet operates both as a distribution channel and as an information source, consumers may choose to search for information and purchase wholly online, search for information offline and purchase online or search for information online and purchase offline (Waite, 2006).

The importance of the information revolution is not in information or communication as was intended. The revolution has been through e-commerce, an unforeseen by-product of the information revolution. The Internet has become a major medium for purchasing and selling products, ranging from cars, ideas, and music via peer to-peer file sharing to human capital.

Creation of e-commerce can be seen as very similar in its development as the basic event in the framework of the information revolution. The major importance of accepting this new revolution in technology is what it brings with it as a change agent to all facets of society. Failure to understand the importance of the societal changes that accompany the technological changes may result in a failure to keep up with the global economy and long-term disastrous effects. The information era and e-commerce are essential elements of the business landscape that must be incorporated to maintain a prominent world role, which is just as important as dealing with the multitude of societal changes that accompanies the technological changes of the railroad in terms of connectivity of new markets (Smith and Rupp, 2003).

The growth in the use of and interest in the Internet has lead to the belief among many Internet analysts that it is having or will have profound impacts on the way service firms such as insurance companies, law firms, distributors of, for example, music and news and financial service firms will do business in the future. The Internet is believed to change the way firms interact with their customers and thus the way they initiate, develop and terminate relationships with them. Some see it as a means of tying the customers to the company through the development of detailed customer databases and the use of direct and relationship marketing (Mols, 2000).

The internet presents an excellent opportunity for business communications and transactions. It also fulfills the electronic payment process and facilitates marketing exploration. As corporations explore electronic commerce, the result is a dramatic change in business practices. The Internet provides four distinct opportunities to the business community (Chou and Chou, 2000):

1. The Internet allows companies to establish a direct link to customers, which makes transactions or trade easier.
2. The Internet lets companies bypass others in the value chain.
3. Companies can use the Internet to deliver new products and services for new customers.
4. Companies can become the dominant players within a specific industry or segment by using the Internet.

3.2 Use of the Internet in Financial Institutions

The distribution of financial services today faces new challenges, derived from the spread of new technologies and the greater intensity of competition exercised by new channels for doing business (Flavian et al., 2005).

The internet has taken the financial sector by storm. Given that financial services are informational, thus amenable to digitization, the Internet seems to be inexpensive communication, transaction and delivery channel (Yakhlef, 2001).

Generally Internet use in financial institutions may be distinguished into four classes (Seitz and Stickel, 1998):

- information presentation
- information presentation together with two way (asynchronous) communication (e.g. email to request further information)
- interaction with user(e.g. execution of programs with individual customer data)
- transaction banking (e.g. electronic payments).

Because the Internet is also a prime means of communication, it is assumed to affect bank's relationships with their customers. On this count, the Internet is seen as a viable alternative or supplementary distribution channel (Mols, 1999). In the following part, Internet banking will be discussed with its fundamental dimensions.

3.3 Internet Banking

Globalization, the large number of competitors, and the banks' constant struggle to offer something different in their services to distinguish them from the rest, have led them to explore alternative channels such as the Internet.

With the advent of the Internet, and the tremendous growth in communications technology, retail banks have found it attractive to offer online banking services.

The Internet, therefore, has become a distribution channel that is used by almost all banks in the developed world, in which they offer traditional services as well as services that enable them to show that the Internet is an alternative and convenient channel for their clients.

Thus, the Internet has become a major challenge for the banking business, in which customer perception has become essential for success in banking (Flavian et al., 2004).

The literature on the design of distribution channels has been concerned with understanding efficient channels and from this starting point, normative models for the design of customer-driven distribution channels have been proposed. Because distribution channels have been slow to change, the need to act quickly has been less obvious here than in areas such as new product development, pricing, and advertising. Before the widespread acceptance of home banking, retail banks gained competitive advantage by adding new branches. These branches were expensive and no bank could afford to establish branches in every town. This resulted in differences in coverage and usually those banks which were the first to build a large network in an area gained a strong and lasting lead. Thus, the right investments in distribution channels have traditionally been a long-term protection against competition, and few researchers have been concerned with proposing strategic design principles focusing on feedback mechanisms to continually monitor the design of distribution channels (Mols, 2001).

The emergence of the internet provided banks with the opportunity to switch from proprietary PC banking to internet banking. In the new systems, customers connect through the internet to their bank's website. Additionally, bank specific software is not required and accounts can be accessed remotely from anywhere. In 1995 the first internet-only bank was established (Security First Network Bank). By eschewing a physical presence, internet-only banks hoped to be able to lower their cost structure significantly. This should have enabled Internet-only banks to attract customers by

paying higher interests rates and charging lower fees. The projected explosion of online-only banks has been short lived (Sarel and Marmorstein, 2003). By "Internet bank" in this study it should be understood any bank offering Internet banking, including, but not limited to, "Internet-only" banks.

In relation to online banking, Chou and Chou (2000) have listed some five basic services:

(1) Viewing account balances and transaction histories.
(2) Paying bills.
(3) Transferring funds between accounts.
(4) Requesting credit card advances.
(5) Ordering cheques.

By use of the Internet it is possible for banks to offer a number of home banking services, such as a variety of banking, bill payment, and money management services 24 hours a day. The Internet offers banks and other service firms like insurance companies and software distributors anew distribution channel.

It has been predicted by some that this new technology, along with other means of home banking, will dramatically change the distribution channel structure of retail banks, and industry analysts and banking experts have been arguing that bank branches' offices are "doomed". However, others have argued that for the foreseeable future bank branches will remain the main channel for the retail banks (Mols, 1999).

In a study of online retail banks in the UK, also acceptable for other counties, Daniel and Storey (1997) have found a plethora of reasons why UK banks have opted for the Internet to:

- Protect or enhance the organization's reputation for innovation;
- Provide added value to customers;
- Attract new customers;
- Meet demand from current customers;

- Imitate competitors launching services online;
- Develop mass customized services, etc.

There are four interlinked factors driving the global acceleration of banking on the internet. These are (NOIE et al., 1999):

1. Accelerating customer demand;
2. increased competition between banks and new entrants;
3. the relentless drive by the banks to reduce costs and achieve new levels of efficiency; and
4. world-wide deregulation of the financial services market.

3.3.1 Importance of Internet Banking for Banks and Banks' Managers

Today, because of the Internet's advantages compared to the traditional branch infrastructure, it is suggested that the changes this time are even more significant, and radically different from previous ones. The main argument is that the Internet is "not just another marketing channel; it is not just another advertising medium; it is not just a way to speed up transactions. The Internet is a foundation for a new industrial order", posed to dramatically change the distribution channel structure of retail banks, and to "shake banking medieval foundations" (Yakhlef, 2001).

One of the industries which seem to be most affected by the Internet is retail banking. It holds all the opportunities and threats connected with the Internet for business use. Many retail banks have a dense branch network, close relationships with their customers, and are mostly local businesses operating in one country or part of a country only. However, their core services are perfectly digitalizable and the new technology therefore has the potential for transferring all their business to Internet banks. This problem of new distribution channels is interesting for bank managers for many reasons (Mols, 2001):

- The new electronic channels can offer the customers better service output in the form of a broader and deeper assortment, less waiting time, and a higher market

decentralization. This may attract new customers, increase the revenue of the innovative firms and consequently lead to higher profits over a long period of time.

- The new electronic channels are more cost-effective than telephone and branch-based networks, and lower costs may lead to lower prices for the consumers. In such cases seemingly loyal customers may change to the new distribution channels, and the firms that have invested in the wrong channels may end up with channels that turn out to be useless, i.e. investments which may be difficult to recover.
- The new electronic channels may change the way in which firms interact with their customers and may facilitate direct marketing, relationship marketing and mass customization and thus increase customer loyalty.
- The number of customers demanding the Internet-based channel is likely to increase in the future. With the increase in computer literacy and the availability of computers and the fall in the costs of computers and Internet access, there has been a considerable growth in the segment of consumers preferring Internet banking. This will change the optimal distribution channel structure for most retail banks.

The managers' perceptions and expectations of Internet banking are important for predicting the immediate future of Internet banking. They seem to have a varied view of Internet banking. General tendency is towards the allocation of significant resources to the development of Internet banks and their promotion (Mols, 2000).

Retail banks have long been involved in introducing new distribution channels. The primary goal for the new channels has always been to lower the marginal cost per transaction. Attaining these cost savings, however, required banks to be able to migrate customers to the new channels (Sarel and Marmorstein, 2003).

However, a few key managers in the largest banks perceive Internet banking as a threat to the banks' close relationships with their customers. Some of these managers will probably try to keep the customers in the branches, charge fees for and be reluctant in their promotion of Internet banking. These banks will be reactive and slow down the development towards more widespread Internet banking (Mols, 2000).

3.3.2 Pros and Cons of the Internet Banking

3.3.2.1 Advantages of the Internet Banking

One major advantage of banks going online is the potential savings in the cost of maintaining a traditional branch network. Difference between online banks and brick-and-mortar banks is the interest rates paid by the two institutions. Online banks do not have the expenses and overhead of traditional banks' physical branches, so they can offer better interest rates on all their products.

Although Internet banking may help banks to reduce costs, there are important benefits other then cost reduction, such as, providence of mass customization, marketing and communication or sales increase. These considerations are very important to the practitioners who plan to set this new form of banking structure in the current competitive market.

Most common benefits to use the Internet banking will be analyzed from the view of both bank manager and customer.

3.3.2.1.1 Cost Reduction

In discussions of the Internet's impact on the financial services sector, the emphasis has often been placed on the direct cost-saving effects of using the Internet to provide transaction services.

Internet delivery is cheaper than physical channels. The cost savings come about through the combined effects of reduction and better utilization of the workforce, equipment, more economic usage of space and operational savings (Jayawardhena and Foley, 2000).

Cost reduction is generated from lower transaction costs and from lower physical-distribution costs due to the fact that transaction processing is eased, thereby reducing paperwork, human error, and subsequent customer disputes. Consequently,

electronic banking is considered to be a "cheap" distribution channel for the banks and in the long term may lead to creation of value.

Table 3.1: Comparative transaction costs in retail banking

Cost per transaction	USD
Traditional branch network	1.070
Telephone call centre	0.540
ATM	0.270
PC banking	0.015
Internet banking	0.010

Source: Internet Magazine, 1996

The pressures to take advantages of cost reduction in retail banking were highlighted in Table 3.1.

3.3.2.1.2 Enable Mass Customization

Internet delivery has the capability to customize information to suit the needs and the likes of each user (Dannesnberg and Kellner, 1998). Mass customization refers to the notion that each individual user perceives that the service they receive is personalized or customized to their needs and uses. Such features are becoming more and more important in a world saturated with mass automation and homogenized products and services.

3.3.2.1.3 Marketing and Communication

The World Wide Web has the capability to host advertisements and other marketing campaigns without facing incremental charges for prolonged exposure like those found in the traditional media (Quelch and Klein, 1996).

Once a Web page is designed and hosted on a server it serves its purpose 24 hours a day as long as it is active on the server. Costs are limited to initial development costs and maintenance costs that are less in comparison to traditional media. Additionally, the interactive nature of the Internet facilitates a system whereby a customer can be guided through a catalogue of products and services that is most suited for them depending on their socio-economic profile. It is cheaper than traditional mail shots and far more effective since it is customized. Further, the Internet can be used very effectively to collect customer data with minimum effort. Achieving more operational usage from customer databases is also made easier (Jayawardhena and Foley, 2000).

3.3.2.1.4 Innovator's Advantage

It has been supported that the retail banks' competitive advantage will be determined by their ability to be among the first to master the Internet based distribution and communication channel.

It also facilitates the delivery of products and services in an innovative manner to customers (Jayawardhena and Foley, 2000).

3.3.2.1.5 Queue Minimization

According to Trethowan and Scullion (1997), the percentage of customers that visit bank branches is expected to fall while the number of alternative delivery channels will increase. This will probably have as a result the minimization of queues in branches.

Consequently, banks will have the opportunity to focus their branch activities on specific customer groupings and introduce essentially proactive policies with the intention of attracting these customers into branches (Howcroft and Beckett, 1996).

3.3.2.1.6 Increase Sales

Developing alternative distribution channels is important not only in terms of reducing costs and improving competitiveness but also in terms of a financial institution's ability to retain the existing customer base and to attract new customers.

More specifically, Geyskens et al. (2002) believe that the Internet can increase sales in three ways: market expansion, brand switching, and relationship building.

Ghosh (1998) describes how the Internet, combined with a customer database, may be used for identifying and recommending new items to complement what the customers have previously purchased or to offer price discounts to customers that have shown a special interest in particular services or products but have not yet made an actual purchase.

3.3.2.1.7 Customers' Alienation

Traditionally, in the context of retail banking, customer service is "the long-term person-to person relationship between a financial institution, its distributors and its customer".

Nowadays, the Internet is believed to change the way firms interact with their customers and thus the way they initiate, develop and terminate relationships with them (Mols, 2000).

E-literate consumers will be able to change banks at the press of a button, in the comfort of their own homes. They will have access to online "intelligent agents", which will give them the ability to compare products for the best terms and conditions (Daniel, 1999).

Improve customer service and satisfaction if a financial institution wishes to attract or retain convenience, technology, or change oriented customers they may find that greatly reducing their relatively expensive branch network and increasing availability and accessibility of more self-service distribution channels may improve customer satisfaction and the institution's bottom line (Thornton and White, 2001).

Mols (1998) found that compared to non-users, e-banking users are more satisfied with their bank, have higher intentions of repurchasing, provide more positive word-of-mouth communication and have a lower propensity to switch to another bank.

3.3.2.1.8 Decrease Number of Employees

Financial institutions are also looking at ways of cutting costs. It is widely recognized that one of the largest expenses incurred by financial institutions is the branch network and its associated staff and overhead costs (Thornton and White, 2001).

3.3.2.1.9 Foreign Competition

Mols et al. (1999) suggested that in the multinational version of the Internet banking strategy no further branches are needed. However, a centrally-situated branch in each country might be necessary to attract local expertise, to assist the customers in case of unexpected problems and to handle the contact with the national authorities.

3.3.2.1.10 Price Competition

The Internet increases the power of the consumer, compared to traditional channels of distribution, as price comparison across suppliers can be performed quickly and easily. Consequently, prices and margins are expected to be pushed down (Daniel and Storey, 1997).

3.3.2.1.11 Service Differentiation

Differentiation of distribution channels provides an alternative route to successful differentiation in financial services.

Innovations in financial services products are easily copied and as a result it is difficult for organizations to maintain a competitive advantage through product differentiation. With the emergence of more heterogeneous consumer preferences regarding delivery of retail banking services, the issue of distribution of the service offering has become increasingly important to the competitive process (Devlin, 1995).

3.3.2.1.12 Market Transparency

One of the most important trends in the financial services industry that has been accelerated by the emergence of the Internet is the improved price transparency as the Internet makes it easier for the consumers to search and compare the offerings of competing firms.

Clemons and Hitt (2000), argue that price transparency potentially increases competition and reduces profit margins. Evidence from other industries that make extensive use of the Internet however, suggests that there are limits to this process. It appears that transaction costs of search remain sufficiently high.

Table 3.2: The advantages of Internet banking

Advantages	
The bank	• Improved market image-perceived as leaders in new technologies implementation • Reduced transaction costs • Better and quicker response to the market evolution • Increased market penetration-the online banking service can be accessed all over the world • The us of the Internet site to advertise/sell new financial products
The individual client	• Reduced costs in accessing and using the banking services • Increased comfort and time-saving-transactions can be made 24 hours a day, without requiring the physical interaction with the bank • Speed of transaction • Better administration of funds-the history of a transaction is registered on digital support and can be analyzed before a new transaction is initiated
The institutional client	• Reduced costs in accessing and using the banking services • Quick and continuous access to information • Increased comfort and time saving-transactions can be made 24 hours a day, without requiring the physical interaction with the bank • Speed of transaction • Better administration of funds-the history of a transaction is registered on digital support and can be analyzed before a new transaction is initiated

Source: Gurău, 2002.

Online banking offers multiple advantages to banks, individual clients, as well as institutional clients as can be seen in the Table 3.2.

3.3.2.2 Disadvantages of the Internet Banking

Prior studies frequently focus on positive aspects of Internet banking. However, many customers are not highly enthusiastic about Internet banking.

In the study of Maniraj Singh (2004) the 254 respondents who did not bank online offered the following reasons:

- transactions unsafe (47 per cent);
- do not have the knowledge to bank online (33 per cent);
- time consuming (10 per cent); and
- more costly (10 per cent).

There are some obstacles of online banks that can't replace local banks entirely:

- *No friendly banker:* without branches, many online banks lack a concrete place for customers to resolve problems. Although getting things done at traditional banks can indeed take a long time, customers want something tangible; namely they want to know someone is there if they need them (Mescon et al., 2002).

- *Complex web sites:* many customers find banking Web sites complicated and time consuming. Few sites provide adequate customer service, forcing customers to be their own bank clerks (Mescon et al., 2002).

- *Security:* many customers believe that the Internet is an open technology with easy accessibility, and thus, is not secure.

- *Dissatisfaction with the low speed of Internet banking response:* deficiencies in infrastructure for the Internet communication network causes slow feedback and slow transaction response. Slow physical response to transactions is perceived as even more inconvenient (Rotchanakitumnuai and Speece, 2003).

- *Decrease of cross*-selling: At a branch, tellers and bank staff can cross-sell other services to customers through face-to-face interaction. With the introduction of virtual banking, customers can now perform transactions by themselves. Consequently, tellers/ bank staff do not interact with customers and the chance of cross-selling is thus reduced (Liao, 1999).

3.3.3 Security of the Internet Banking

Demand for online banking services is growing at a tremendous rate, and, unfortunately, so is the threat of fraud. This threat is frightening online customers and so the need for secure online authentication has become a real priority.

The lack of physical presence of the bank branch and the lack of physical interaction between the bank personnel and the customer render internet banking a unique environment, in which trust is of paramount importance (Mukherjee and Nath, 2003).

Security can be seen as a major obstacle to Internet banking. Banks were concerned about unauthorized access to their systems, and customers were concerned about the safety of their personal data and the risk of fraudulent transactions. Banks have been able to manage security with minimal repercussions.

According to the article of Hutchinson and Warren (2003), there are three main areas of security that are involved in Internet banking:

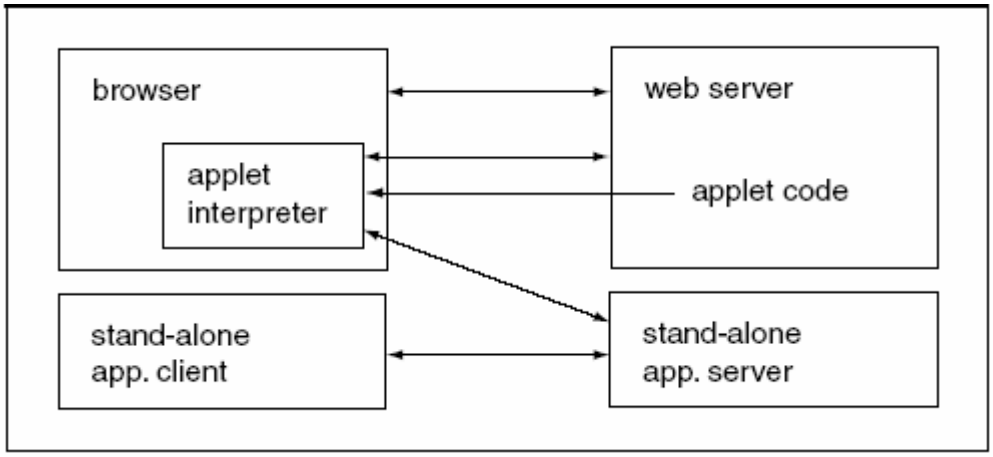
1. The bank
2. The Internet
3. The user's (customer) computer

The user's computer includes both a home customer and an organizational customer using Internet banking facilities.

Figure 3.1 shows the basic architecture of an Internet electronic banking system. There are two participating entities: the user and the bank. When the user has a PC

with a network connection, the most common way to communicate with the bank is via a Web browser, hence banking through the World Wide Web or Web banking. The standard protocol for communication between the browser and the bank's Web server is then used (Claessens, 2002).

It is often referred to as https, which is the http protocol on top of a security layer. Http is the communication language of the WWW. A bank will mostly require more security functionality than an ordinary browser is able to provide.



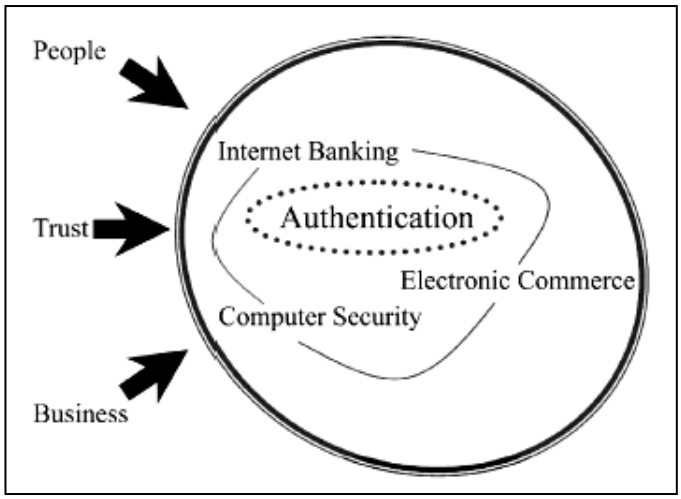
Source: Claessens, 2002.

Figure 3.1: Internet banking structure

A dedicated standalone client/server application is an alternative way to realize communication between the user and the bank. The same protocol as used by the Web browser/ server can be used here to provide security. However, the bank must provide the user with the necessary software, as the electronic banking system does not rely on the browser that is already installed on the user's computer. A big advantage of this approach is that the applet technology allows the bank to easily maintain and update the client software (Claessens, 2002).

According to the Pennathur (2001), external and internal security issues pose perhaps the greatest threat to the growth of online banking. Security can be compromised via both internal and external networks. Internally, security is risked by an authorized use of the computer by a bank employee who can then manipulate data to alter account balances, to misappropriate funds, or to perhaps wipe out a friend's loan account. A bank can also be hacked into externally and account information stolen. Banks also face the threat of viruses that can be placed in the bank network.

The content of security draws a correlation between the concepts depicted in Figure 3.2, by presenting a framework that when applied to certain Internet banking scenarios can offer the customer guidelines regarding the implementation of appropriate authentication mechanisms to ensure an adequate level of trust between the parties conducting the transaction (Hutchinson and Warren, 2003).



Source: Hutchinson and Warren, 2003.

Figure 3.2: Security issues of Internet banking

The security protections offered by banks and which customers anticipate should include (NOIE et al., 1999):

- Careful reference to their authorized Web sites in their publications;
- Verification via the use of a digital certificate;
- Evidence of security protection displayed on the screen;
- Protection of PINs and passwords;
- On-screen and mouse-operated keypads for sensitive information;
- Virus protection;
- At least 128-bit encryption;
- Firewall implementation;
- Stated limits to customer liability for unauthorized use of access codes.

However, according to Hickman and Katkov (2001), banks are exploring alternate security measures such as electronic signatures, digital certificates, smart cards and biometrics. A major problem with most of these measures is their complexity and cost to adopt and maintain.

Furthermore, in many countries, electronic signatures are not enforceable by law. It is evident that banks are trying to ensure secure payment on the Internet. However, optimal solutions continue to elude them.

3.3.4 Service Quality of the Internet Banking

Service can be defined as "any primary or complementary activity that does not directly produce a physical product – that is, the non-goods part of the transaction between buyer (customer) and seller (provider)."

A broad range of literature over the last 25 years has examined the concept of service and identified the intangibility of services as one of the problems associated with measurement. Because, many bank services are simply pieces of information stored

in a computer, advances in electronics and telecommunications have helped extend their availability.

In addition, because services are both simultaneously produced and consumed, measuring the fundamental characteristics of services is also problematic. Thus, inseparability often means that direct sale is the only feasible channel of distribution.

Consumer goods are stamped out on the production line, one after other, and are all the same. In contrast, although all bank operations may be the same operationally, are all different in terms of the way customers experience them. Heterogeneity of services causes further performance variation across different providers, from the same provider and from the same service deliverer. The advantage of electronic channels of distribution is that the distribution of the service is more homogeneous and standardized.

As other services, bank services can not be inventoried, so they are perishable. This inability to inventory means that there is a limited capacity for business, and this can cause difficulties in times of excessively high demand. This problem also limits the alternatives available to the bank marketer and necessitates the use of direct channels.

Definitions of service, often consider the outcome of a service encounter as part of its measurement. Since service is generally measured in terms of the degree of satisfaction rendered, repeat customer patronage allows researchers the opportunity to focus on the outcome rather than the process.

The degree of involvement between the transacting parties is dependent on whether the service is “equipment-based” or “people-based”. Essentially, if the service being provided is human based (as opposed to say, an ATM machine), the encounter will inevitably vary between each service delivery.

Although there have been existed a number of different definitions of quality, these definitions indicate that quality is a complicated and indistinct concept. However, for the purpose of Internet banking study, Wyckoff's (1992) quality definition:
"Quality is the degree of excellence intended and the control of variability in achieving that excellence, in meeting the customer's requirements".

Service quality differs from material goods quality. The difficulty with technology in services is that it tends to make the 'moment of truth' a mechanical experience, lacking in emotion.

In the banking context it is essential that communication exists between operational staff in branches and those responsible for marketing services so that unrealistic expectations do not result from advertising promises that cannot be met subsequently. High expectations that are not met create perceptions of a lower quality of service. If, however, expectations are exceeded, long term customer loyalty and repurchase are likely to occur.

By ensuring long term customer loyalty through positive perceptions, service providers can acquire commercial advantage (Curry and Penman, 2004).

In an era when intense competition is being greatly facilitated by technology, the need to provide adequate product/service quality will require banks to focus their attention on issues of improving, measuring, and controlling their product/service quality and efficiency. Efficiency can be defined as the lack of waste of resources and time, and the optimization of efficiency elements in line with high quality (Zineldin, 2002).

A more recent study undertaken by Patricio et al. (2003) focused on satisfaction with bank service offerings for differing delivery channels. They argue that "customers will use different service delivery systems" dependent on their assessment of each channel and how it contributes to the "overall service offering". Hence service

satisfaction will not merely be based on isolated service encounters and experiences but rather on the overall feelings of satisfaction.

If customers are thus using channels in a complementary manner how are the banks taking account of the service experience in each channel to ensure overall satisfaction. One element of dissatisfaction could potentially harm current and potential usage of other delivery channels in the banking sector (Joseph et al., 2005).

Joseph et al. (1999) investigated the influence of technology, such as the ATM, telephone, and Internet, on the delivery of banking service. Their study identified six underlying dimensions of electronic banking service quality:
1. convenience/accuracy;
2. feedback/complaint management;
3. efficiency;
4. queue management;
5. accessibility; and
6. customization.

As for Internet banking, relatively little empirical research has addressed the issue of the key underlying dimensions of Internet banking service quality.

Jun and Cai (2001), in a critical incident analysis of retailing banking bulletin board postings by Internet bank customers, identified six dimensions of system quality:
(1) accuracy;
(2) ease of use;
(3) timelines;
(4) aesthetics;
(5) security; and
(6) contents.
However, there are three dimensions that are not task-neutral:
(1) accuracy of transactions;
(2) timeliness of information; and
(3) information contents.

Rose (2000) evaluated the service quality of 23 US Internet banks, including 12 Internet-only banks, in terms of seven service categories:

1. opening an account
2. deposits and withdrawals
3. rates and fees
4. navigation and ease of use
5. bill paying
6. security and
7. customer service

She found that most of the sampled banks showed an unsatisfactory level of service quality. To survive in the highly competitive Internet banking industry, it is apparent that the banks need to provide customers with high quality services.

3.3.5 Measuring the Service Quality of Internet Banking

Service quality has been identified as a key determinant of the intention to use a service, and has therefore been extensively studied (Brown et al., 1994). The increased use of the Internet as a delivery channel has prompted the development of Internet banking service quality measures.

Parasuraman et al. (1988) developed SERVQUAL, the most widely used measure of service quality. This scale is comprised of five sub-dimensions:
(1) tangibles;
(2) reliability;
(3) responsiveness;
(4) assurance; and
(5) empathy.
However, SERVQUAL has been mostly associated with person-to-person interaction, and different tools are needed to understand quality evaluation of technology-enabled service delivery systems. New measures of service quality that

are suited to the Web environment include SiteQual (Yoo and Donthu, 2001) and e-Servqual (Zeithaml et al., 2002).

Accordingly, various researchers have recently attempted to identify key service quality attributes that best fit the online business environment. Zeithaml et al. (2000) have found 11 dimensions of online service quality in a series of focus group interviews:
(1) access;
(2) ease of navigation;
(3) efficiency;
(4) flexibility;
(5) reliability;
(6) personalization;
(7) security/privacy;
(8) responsiveness;
(9) assurance/trust;
(10) site aesthetics; and
(11) price knowledge.

Yoo and Donthu (2001) developed a measurement instrument of online service quality, SITEQUAL, which consists of four dimensions: ease of use, aesthetic design, processing speed, and security.

Jayawardhena (2004) transformed the original SERVQUAL scale to the internet context and develops a battery of 21 items to assess service quality in e-banking. By means of an exploratory (EFA) and confirmatory factor analysis (CFA), these 21 items are condensed to five quality dimensions: access, web site interface, trust, attention and credibility.

In addition, other studies have attempted to identify key dimensions of service quality in the context of narrowly defined online businesses, especially Internet banking.

As for Internet banking, Sathye (1999), with respect to the adoption of Internet banking by Australian consumers, found that two factors such as “difficulty in use” and “security concern” are important reasons that consumers do not want to use the service.

Jayawardhena and Foley (2000) suggested that the features of Internet banking Web sites, such as:

- The speed to download;
- Content;
- Design;
- Interactivity;
- Navigation; and
- Security;

are critical to enhancing customer satisfaction.

In Internet banking, usefulness, ease of use, security and privacy have been identified as key drivers of customer satisfaction in the context of service quality. These dimensions will be evaluated in the next part as factors influencing Internet banking adoption.

To sum up, the studies discussed above provide important insights into the dimensions and characteristics of service quality in general as well as service quality in the Internet banking in particular.

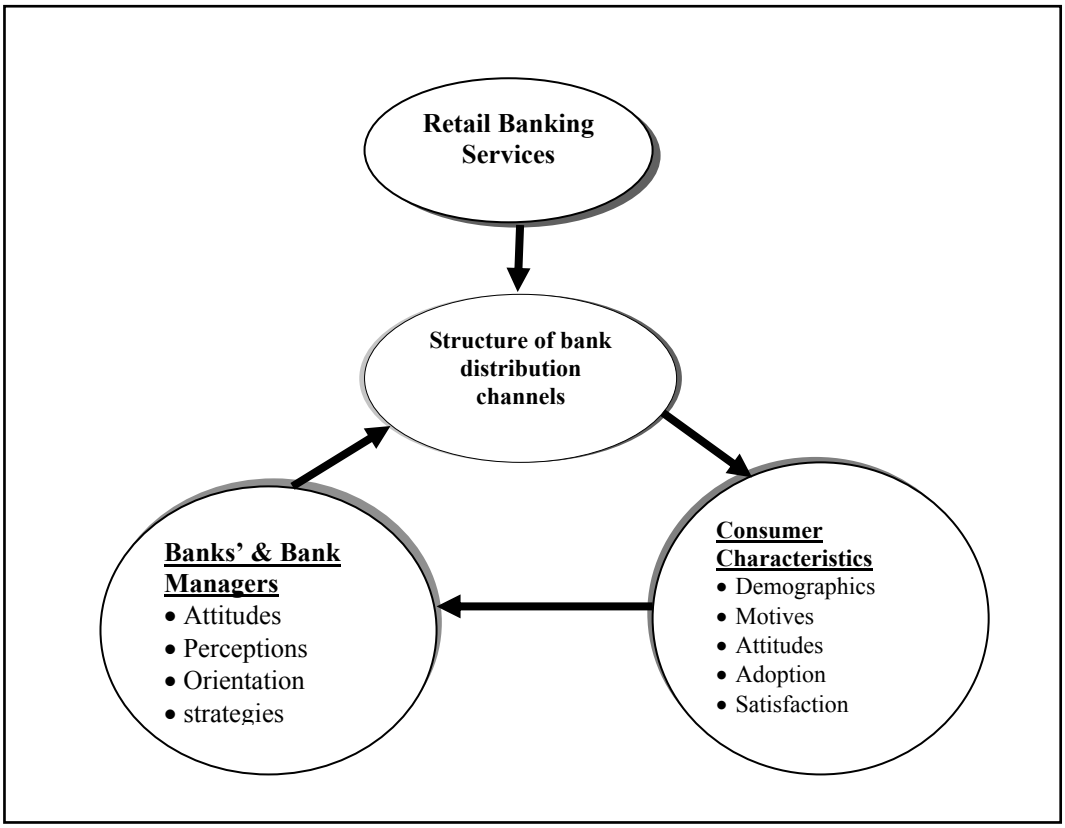
CHAPTER FOUR
ADOPTION OF INTERNET BANKING

Online banking acceptance has gained special attention in academic studies during the past decade. Studies have observed banks moving to an online mode for a number of reasons. So, attitudes and adoption of Internet banking is the subject of this part. Some important factors in the literature affecting the adoption of Internet banking will be explained. These measures could have influence in rapid migration of customers to Internet banking.

4.1 Literature Review on Internet Banking and Adoption

Reviewing the recent literature on Internet banking, four inter-related areas can be identified: retail banking services, distribution channels for these services, consumers' attitudes towards and adoption of Internet banking, and banks' and bank managers' perception of and approach to Internet banking (see Figure 4.1).

Prior studies on internet banking range from Sathye's (1999) study in Australia, Wang et al.'s (2003) study of internet banking in Taiwan, Liao's (1999) study in Hong Kong to Polatoglu and Ekin's (2001) study in Turkey, among others (see Table 4.1). These prior studies on internet banking adoption factors have produced mixed results, which have culminated to the difficulty in articulating the internet banking adoption drivers.



Source: Akinci et al., 2004.

Figure 4.1: A schematic categorization of the issues related to Internet banking

Online banking acceptance has gained special attention in academic studies during the past five years as, for instance, banking journals have devoted special issues on the topic.

Results from previous research revealed that the success of internet banking is determined not only by banks or government support but also by customers' acceptance of it.

Table 4.1: Some of recent studies related to Internet banking

Author (s)	Domain of Study	Study Type	Sample Size	Data Collection	Country
Mols et al. (1999)	Distribution channels	Empirical	42	Mail Survey	Denmark
Chou and Chou (2000)	Retail banking services	Theoretical	-	-	-
Thornton, and White (2001)	Financial distribution channels	Empirical	801	Mail Survey	Australia
Gurau (2002)	Distribution Channels	Empirical	14	Interview	Romania
Liao et al. (1999)	Adoption of virtual banking	Empirical	118	Mail Survey	Hong Kong
Gerrard and Cunningham (2003)	Consumers' attitudes and adoption	Empirical	240	Administered survey	Singapore
Sathye (1999)	Adoption of Internet banking	Empirical	589	Mail Survey	Australia
Moutinho and Smith (2000)	Customers'attitudes	Empirical	250	Administered survey	UK
Polatoglu and Ekin (2001)	Consumers' acceptance of Internet banking services	Empirical	114	E-mail survey	Turkey
Karjaluoto et al. (2002)	Consumers' attitudes	Empirical	1167	Mail Survey	Finland
Rotchanakitu mnuai and Speece (2003)	Barriers to Internet banking adoption	Empirical	15	In-depth qualitative Interview	Thailand
Wang et al. (2003)	User acceptance of Internet banking	Empirical	123	Telephone Interview	Taiwan
Mukherjee and Nath (2003)	Trust in online relationship banking	Empirical	510	E-mail survey	India
Daniel (1999)	Adopt of electronic banking by bank managers	Empirical	25	E-mail survey	UK and the Republic of Ireland
Eriksson (2004)	Customer acceptance of internet banking	Empirical	1831	Mail survey	Estonia
Ndubisi and Sinti (2006)	Consumers' attitudes and adoption	Empirical	126	E-mail survey	Malaysia

Consumer adoption of internet banking has been researched from several perspectives:

- from the consumer perceptions and expectations of service quality to measuring consumer satisfaction/dissatisfaction using SERVQUAL
- consumer motives and acceptance of techno-based banking services and
- consumers' usage, attitudes and behaviors towards online and mobile banking focusing on the socio-economic/demographic factors, benefits sought and consumers' attitudes towards online banking.

Academics also take a different stance in the theories they adopt when exploring consumer adoption of electronic banking. Consumer behavior, innovation and acceptance of new innovations as well as relationship marketing were used. Researchers also focused upon the adopters versus non-adopters and systematically categorized adopters/non-adopters into active users, light and non-users, or into two groups of "will never adopt" to "already have" (Laforet and Li, 2005).

4.2 Banks' and Bank Managers' Attitudes and Approaches

Undoubtedly, many banks are trying to reduce the resources needed by branch banking. Several studies on bank managers' view of technology-oriented distribution channels exist in the related literature.

The cost of branch banking is quite high compared to other banking channels. Furthermore, branch banking appears to be the least profitable market segment.

Pikkarrainen et al. (2004) find two fundamental reasons underlying online banking development and diffusion. First, banks get notable cost savings by offering online banking services. It has been proved that online banking channel is the cheapest delivery channel for banking products once established. Second, banks have reduced their branch networks and downsized the number of service staff, which has paved

the way to self-service channels as quite many customers felt that branch banking took too much time and effort.

Therefore, time and cost savings and freedom from place have been found the main reasons underlying online banking acceptance. In the article of Mols (2001), responses from 60 key managers in the largest retail banks in Denmark indicate that bank size, expected advantages for the customers, attention to the future, senior management support, and willingness to cannibalize existing channels may be important factors in explaining the successful introduction of the electronic channels.

Also, Mols et al. (1999) emphasized that three strategic clusters could be defined with respect to the similarities between the bank managers in terms of expectations and perceptions; these were branch, home banking, and dual strategy clusters.

In another study, Mols (2000) grouped the Danish bank managers according to their attitudes towards IB: the "nervous", "positive", "sceptics", and "reluctant" groups. He also thinks that the managers' perceptions and expectations of Internet banking are important for predicting the immediate future of Internet banking.

Similarly, faster, easier, and more reliable service to customers, and improvement of the competitive position were highlighted to be the most important drivers of online banking among the bank and Information Technology managers in Kuwait. Majority of the sampled banks, or 50 percent of the sample, indicated that the idea of introducing online banking came from senior management (Aladwani, 2001).

Daniel (1999), in the context of UK and Ireland, added that there were three important factors considered by bank managers in determining provision of electronic banking services; these were vision of the future, prediction of customer acceptance, and organizational culture of innovation.

Yavas and Shemwell (1996) considered these channels as strategic tools for banks to separate themselves from competitors by, for example, being first in introducing new channels such as telephone banking.

Lastly, Jayawardhena and Foley (2000) pointed out satisfying the consumer needs, increasing competition, the demands placed upon on the supply chain, and invention of new products and services.

4.3 Consumer Acceptance of Internet Banking

Consumers' use of internet banking requires acceptance of the technology, which can be complicated because it involves the changing of behavioral patterns. Online banking acceptance that is the subject of this pert, has gained special attention in academic studies during the past five years as, for instance, banking journals have devoted special issues on the topic.

4.3.1 Consumers' Attitudes and Adoption

4.3.1.1 Attitude

The Attitude construct received its first serious attention from Darwin in 1872. Darwin defined attitude as a motor concept, or the physical expression of an emotion. In 1975, Fishbein and Ajzen published belief, attitude, intention and behavior: an introduction to theory and research, arguing that attitude towards behavior is made up of beliefs about engaging in the behavior and the associated evaluation of the belief.

According to Fishbein and Ajzen (1975), attitude is defined as an individual's positive and negative feelings (evaluative affect) about performing the target behavior. Attitude toward behavior refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question.

Taylor and Todd (1995) suggested that the different dimensions of attitudinal belief toward an innovation could be measured using the five perceived attributes (relative

advantage, compatibility, complexity, trialability and observability) of the innovation.

Attitudes and motives are among the fundamental factors influencing consumers' buying behavior and have, therefore, attracted considerable attention from researchers probing the behavior of bank customers and their relationship with these institutions.

In the context of technologically based distribution channels, attitudes and motives have generally been used as segmentation variables to define distinct customer groups whose attitudinal profiles showed similarities within the group (Akinci et al., 2004).

4.3.1.2 Adoption

Adoption is the acceptance and continued use of a product, service or idea. The adoption or rejection of an innovation begins when "the consumer becomes aware of the Product".

For adoption of Internet banking, it is necessary that the banks offering this service make the consumers aware about the availability of such a product and explain how it adds value relative to other products of its own or that of the competitors. The added value in electronic banking, according to Trethowan and Scullion (1997), was convenience, sales orientation and lower costs.

An important characteristic for any adoption of innovative service or product is creating awareness among the consumers about the service/product.

4.3.2 Factors Influencing the Adoption of Internet Banking

In the current part, some important factors that influence attitude towards Internet banking will be explored.

Research on consumer attitude and adoption of electronic banking showed there are several factors predetermining a consumer's attitude towards online and mobile banking such as a person's demographic, motivation and behavior towards different banking technologies and individual acceptance of new technology. Similarly, it has been found that attitudes towards online banking and actual behaviors were both influenced by prior experience of computers and new technology and, other possible factors (Li and Laforet, 2005).

4.3.2.1 Demographic Factors

Demographic factors have also been found to be associated with adoption of different banking channels, especially internet banking.

Generally, more males than females tend to use internet banking. Akinci et al.'s (2004) findings in Turkey show that mid-aged consumers are more likely than younger or older consumers to use internet banking.

Customers who are younger, more educated, and wealthier are more likely to use internet banking.

Karjaluoto et al. (2002) found a typical user of online banking in Finnish market highly educated, relatively young and wealthy person with good knowledge of computers and, especially, the internet. The results of their study proposed that, demographic factors have an impact on online banking behavior.

Those who belong to the upper middle class and have high-level occupations are more likely to use internet banking (Jayawardhena and Foley, 2000; Karjaluoto et al., 2002).

According to the research findings of Howcroft et al. (2002), educational levels of respondents did not seem particularly important in encouraging or discouraging the use of Internet banking. However, those with fewer educational qualifications considered access to the necessary equipment more important than those with degrees. Namely, consumers with lower educational qualifications have less opportunity to access the Internet at work. Also, they found that younger consumers regarded the lack of face-to-face contact as less important than older consumers. With Internet banking, younger consumers were attracted more than older respondents by the possibility of improved levels of service.

4.3.2.2 Perceived Ease of Use

Perceived ease of use refers to how clear and understandable interaction with the system is, ease of getting the system to do what is required, mental effort required to interact with the system, and ease of use of the system (Davis et al., 1989).

Extensive research over the past decade provides evidence of the significant effect of perceived ease of use on usage intention, either directly or indirectly through its effect on perceived usefulness. In order to prevent the "under-used" useful system problem, Internet banking systems need to be both easy to learn and easy to use. ITs that are easy to use will be less threatening to the individual. This implies that perceived ease of use is expected to have a positive influence on users' perception of credibility in their interaction with the Internet banking systems.

4.3.2.3 Security and Privacy

Security refers to the protection of information or systems from unsanctioned intrusions or outflows. Fear of the lack of security is one of the factors that have been

identified in most studies as affecting the growth and development of e-commerce. Thus, the perception of users as to the extent to which Internet banking systems ensure that their transactions are conducted without any breach of security is a very important consideration that will affect Internet banking use.

Privacy, on the other hand, refers to the protection of various types of data that are collected (with or without the knowledge of the users) during users' interactions with the Internet banking system. Also, the perception by the users of the privacy policy and rules followed by Internet banking systems may affect the usage of the systems (Wang et al., 2003).

Banks have to publicize their improvements through the media in order to increase consumer confidence. Banks use digital certificates to assure customers that the site they are visiting is a bona fide site, and that transactions are secure. Similarly, banks need to be assured that the person on the other side is their customer. Therefore, customers should be able to append a digital signature as a measure over and above the use of a password (Singh, 2004).

4.3.2.4 Prior Experience of Computers and Technology

The literature suggested that previous experience with computer and new technology as well as previous positive banking experience had an effect on online banking adoption.

Karjaluoto et al. (2002) showed that prior experience with computers and technologies and attitudes towards computers influence both attitudes towards online banking and actual behaviors. Their study revealed among these factors, prior computer experience had a significant impact on online banking usage while positive personal banking experience seemed to have had an effect on both attitudes and usage and satisfied customers tent to keep up with their current delivery channel.

4.3.2.5 Perceived Usefulness

Perceived usefulness is defined as the extent to which a person believes that using a particular technology would enhance her/his job performance while perceived ease of use is the degree to which using IT is free of effort for the user (Davis et al., 1989). Perceived usefulness is strongly associated with productivity. It suggests that using computer in the workplace would increase user's productivity, improve job performance, enhance job effectiveness, and be useful in the job.

4.3.2.6 Computer Self-Efficacy

Computer self-efficacy is defined as the judgment of one's ability to use computer (Compeau and Higgins, 1995). Prior studies have shown that there is a positive relationship between experience with computing technology, perceived outcome and usage. Computer self-efficacy construct has been examined in the information systems literature. Continuing research work on computer self-efficacy could be observed in recent information systems studies. These studies confirm the important effect of computer self-efficacy in understanding individual responses to information technology.

4.3.2.7 Personal Banking Experience

According to the consumer behavior literature, beliefs and attitudes are principally created on the basis of a person's personal experience of a given object. Personal banking experience refers to customer satisfaction/dissatisfaction of the delivery channel in use, on the one hand, and intention to change banking behavior, on the other, personal banking experience impacts on attitudes and behavior in several ways (Karjaluoto et al., 2002).

4.3.2.8 Reference Group Influence

Karjaluoto et al. (2002) showed that reference groups have equally affected attitudes and behaviours towards online banking. Measuring attitudes with the Fishbein and Ajzen model (1975), they also suggested that the overall strongly positive attitudes towards online banking are faster, cheaper, easier and more service-oriented.

Consumer behavior literature suggests that reference group often impacts on consumer behavior. However, banking is claimed to be extremely personal in the sense that it is seen as independent from other people's example or influence. Although family influences on the adoption of online banking tend to be strong, the impact of other reference groups is relatively an uncharted territory (Karjaluoto et al., 2002).

4.3.2.9 Relative Advantage

Relative advantage refers to the degree to which an innovation provides benefits which supersede those of its precursor and may incorporate factors such as economic benefits, image, enhancement, convenience and satisfaction.

Relative advantages should be positively related to an innovation's rate of adoption (Tan and Teo, 2000). As noted, Internet banking allow customers to access their banking accounts from any location, at any time of the day and so provides tremendous advantage and convenience to users.

4.3.2.10 The Attitude-Behavior Relationship

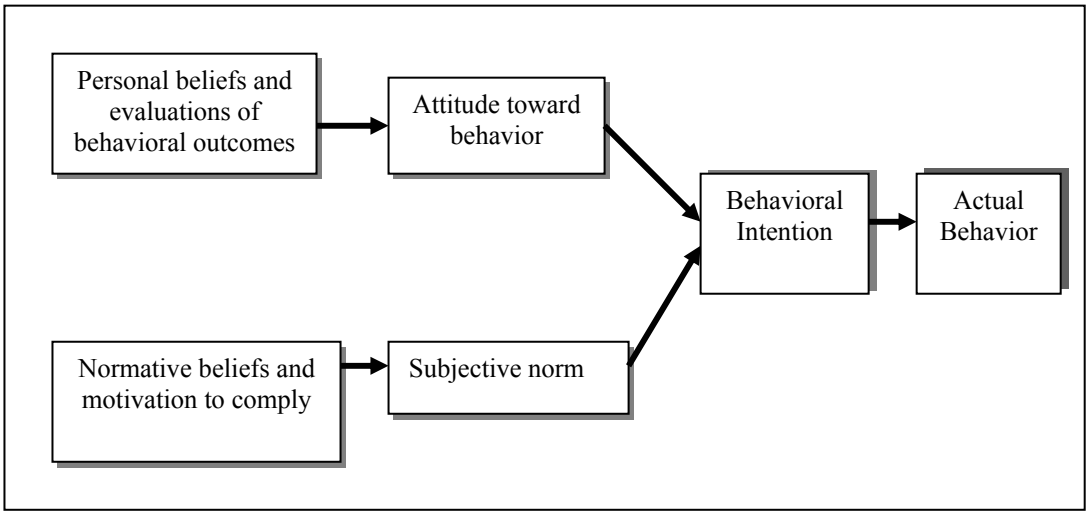
The attitude theory suggests that the more favorable attitude a person towards a given product/service, the more likely that person is to buy or use that product/service. Laforet and Li (2005) have looked at how attitudes, motivations and behaviors influenced electronic banking adoption mainly in a Western and non-Chinese context. They look at the drivers of attitudes and motives towards online and mobile banking in China as well as the influence of Chinese culture on behavior.

4.4 Technology Acceptance Model and Related Studies

The Technology Acceptance Model (TAM) is a theoretically and empirically valid model used to explain and predict acceptance of information technology. The TAM is an adaptation of Fishbein & Ajzen's (1975) Theory of Reasoned Action.

The Theory of Reasoned Action (TRA) is based on the assumption that humans arrive at behavioral decisions by systematically utilizing and processing available information in a rational way. Additionally, TRA assumes that people also take into account the effects of their possible actions and based on this reasoning make decision whether or not to take action.

This theory postulates behavioral intention as a weighted calculation of personal (attitude) and social influences (subjective norm) resulting in an immediate determinant of actual behavior (see Figure 4.2). This theory supports using behavioral intention as a measure of actual behavior.

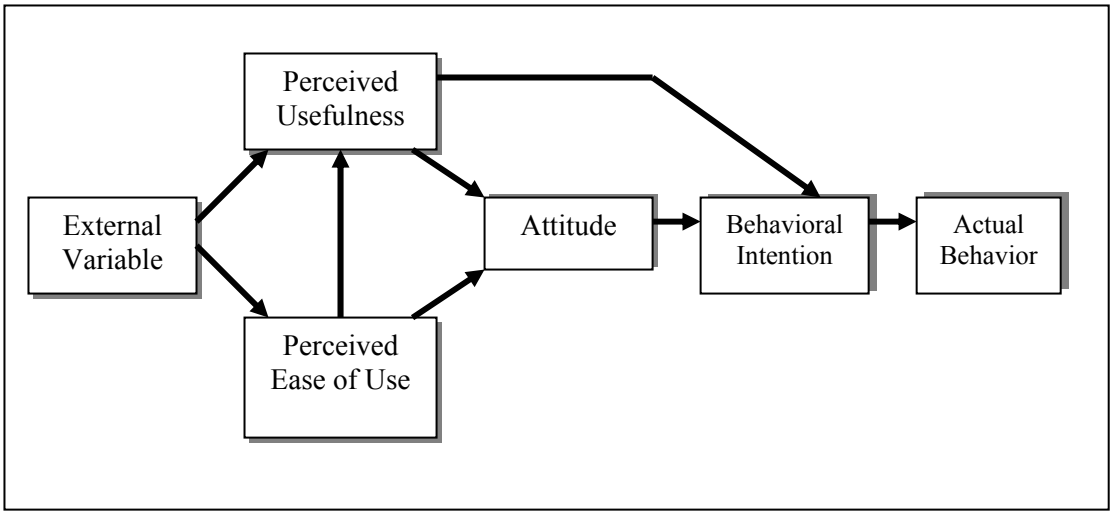


Source: Fishbein and Ajzen (1975)

Figure 4.2: Theory of Reasoned Action

The TAM is an adaptation of the TRA specifically targeted toward information technology. The objective of the TAM is to predict technology usage using 'perceived usefulness' and 'perceived ease of use' as determinants of user acceptance.

Similar to TRA, the TAM postulated behavioral intention as a determinant of actual behavior, however; antecedent of behavioral intention are identified differently. Social influences (subjective norms) were not included in the TAM as a determinant of behavioral intention. This resulted from theoretical uncertainty concerning the effects of subjective norms on behavioral intention. In other words, subjective norms may have indirect effects on behavioral intention through attitude. Another reason for the exclusion of subjective norms concerns the nature of technology usage. In a work environment, individuals may use software applications to comply with company policy regardless of feelings or personal beliefs toward the technology. The TAM theorizes an individual's behavioral is determined by attitudes toward using a technology and perceived usefulness (see Figure 4.3). Perceived ease of use has an indirect effect on attitude through perceived usefulness and a direct effect on attitude (Davis, 1989). In other words, perceived usefulness and perceives ease of use are two distinct but related constructs.

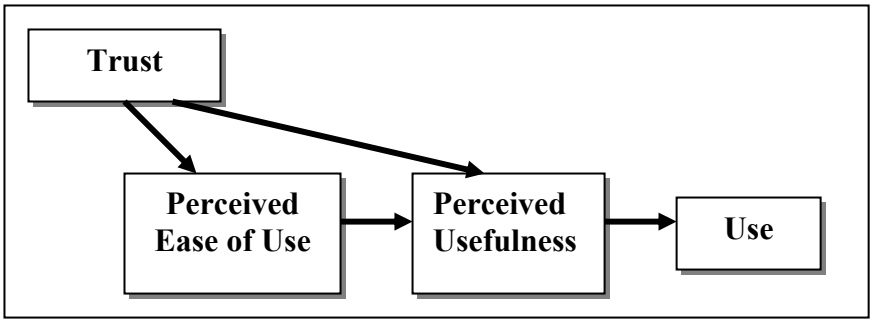


Source: Davis et al. (1989)

Figure 4.3: Original Technology Acceptance Model

The adoption of Information Technology, such as internet banking, has been studied through the use of various models (see Table 4.1). Recently, Pikkarainen et al. (2004) applied the traditional Technology Acceptance Model (TAM) in Finland and found that perceived usefulness and information were the main factors influencing customer acceptance of online banking. Also, security and privacy were found to have a relatively weak relationship with the acceptance in contrary to many banking studies conducted. However, their questions related with security and privacy will be used in our study in order to explain effect of them in the use of Internet banking for Turkish customers.

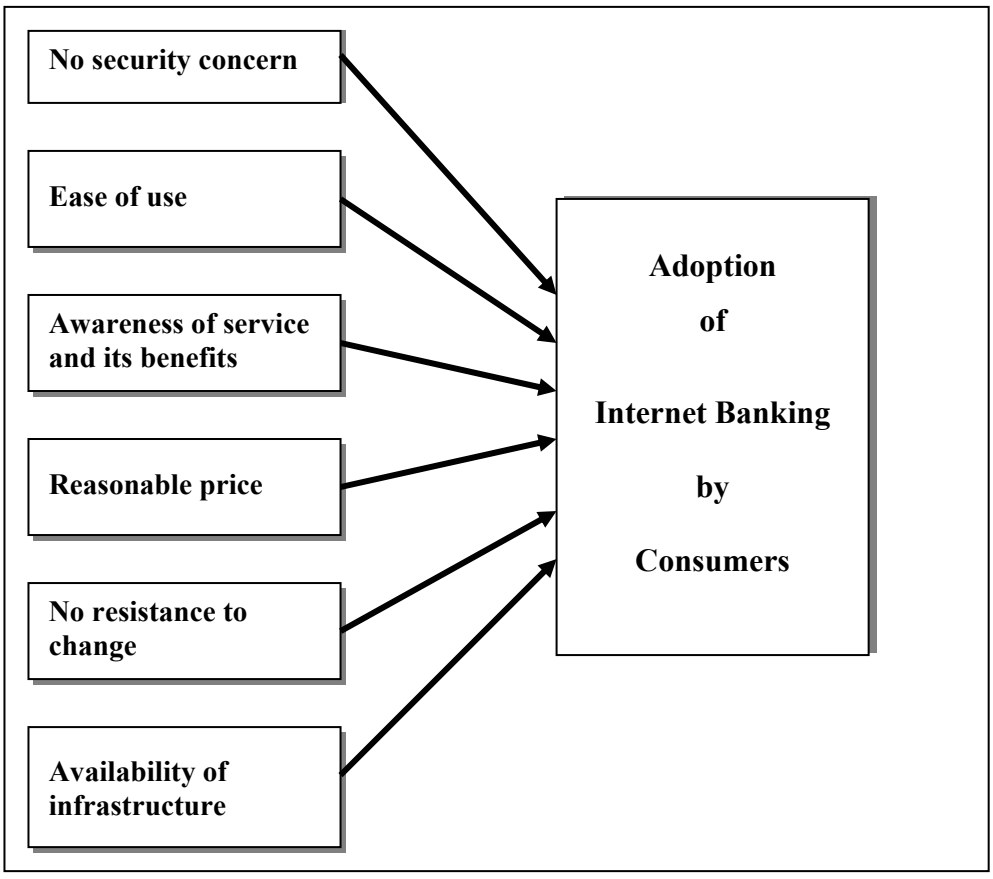
Recently, Shih and Fang (2004) attempted to understand how an individual's belief, embracing attitude, subjective norm and perceived behavioral control, can influence intention by testing the usefulness of a number of IT adoption models to internet banking adoption in Taiwan. These models were the theory of planned behavior (TPB), both in pure and decomposed form, and the Theory of Reasoned Action (TRA). They concluded that both TPB and TRA produce a good fit to the data. But the most important finding of their study is the being the relative advantage significantly related to attitude which will be used in our analysis.



Source: Eriksson et al., 2005.

Figure 4.4: Technology acceptance model redefined to encompass internet banking in Estonia

Eriksson et al. (2005) modified the technology acceptance model and applies it to bank customers in Estonia and concluded that the perceived usefulness of internet banking is, for banks, a key construct for promoting customer use (see Table 4.4). They also suggested that models of technology acceptance should be re-formulated to focus more on the key role of the perceived usefulness of the service embedded in the technology. They suggested that the TAM should be redefined, to take account of their findings, and to include trust, in order to put a greater emphasis on the social exchange processes that are central to technology adoption.



Source: Sathye, 1999.

Figure 4.5: Sathye's model for adoption of Internet banking

Sathye (1999) showed that security concerns and lack of awareness about Internet banking and its benefits stand out as being the obstacles to the adoption of Internet banking in Australia. Six hypotheses developed by him and their relation to adoption of Internet banking can be seen in Figure 4.5.

With the help of given these predispositions, this study will look at Turkish consumers' behavior and attitudes towards the Internet banking.

CHAPTER FIVE
EMPIRICAL STUDY: ATTITUDES OF TURKISH CUSTOMERS TOWARDS INTERNET BANKING

In the previous chapters, advantages of using Internet banking have discussed in details. Unfortunately, given all these advantages, many bank customers of Turkey have not embraced this new form of banking. Internet banking faces many problems associated with its adoption. Since the success or failure of this technology will depend on the rate at which it is adopted. So there is a need to examine which factors influence customers' adoption of Internet banking. This study attempted to answer this and related questions.

5.1 General Overview of the Turkish Banking Sector

In Turkey, a majority of financial flows go through the banking sector. Although there has been an increase in the size and number of non-bank financial institutions in recent years, the banking sector accounts for about 75% of the assets of the total financial sector assets.

Banking concept was seen first for financing of Ottoman State Treasury in 19th century. The Bank of Istanbul (Banque de Constantinople) was the first bank founded in 1847 by two bankers named J. Alleon and Thedor Baltazzi operated until 1852. Ottoman Bank founded as a commercial bank in 1856 by English and French capital. Ziraat Bank, the oldest national bank, was founded in 1863 in order to improve agriculture of the country. National banking developed after the foundation of Turkish Republic to support development and growth (Parasiz, 1994).

The majority of the commercial banks in Turkey undertake retail as well as corporate banking activities. However, the sector's retail banking activities are much larger in scale and account for the vast majority of sector employment, since Turkey's banking sector has low lending volumes compared to foreign markets, and the

relatively unsophisticated investment banking and other corporate banking activities translate into low employment in these areas (McKinsey Global Institute, 2003).

There are three main banking segments providing retail banking activities: private banks, state banks, and foreign banks.

Retail banking with limited branches increased in 1980s. Since the early 1990s, until the financial crisis in early 2001, retail banking in Turkey has been characterized by two distinctive attributes: high growth, driven to a large extent by new products and services, and exceptional profitability.

The rapid growth of consumer banking is a defining feature of Turkish banking in the early 1990s. Banks are increasing putting emphasis on service quality because individual and retail banking are becoming the most rapidly developing sectors of their business. It also reflects the heightened competition among Turkish banks as they seek to develop high quality services aimed to satisfy client needs better (Euro Info Centre Working Group Market Access, 2002).

Retail banking in Turkey has experienced strong growth in the past 15 to 20 years. The growth in retail banking was heavily fueled by the emergence and acceptance of new retail banking products such as automated payments, and mutual funds. Some products have seen explosive volume growth – e.g., credit cards have achieved a volume growth of 40 percent per annum in outstanding credit, from US $0.8 billion in 1991 to US $16.4 billion in 2000. To match the growing demand, the sector has increased its geographical presence, and the number of branches grew (McKinsey Global Institute, 2003).

Specifically, the sector employed 125,000 staff in 6,200 branches in 1981, 154,000 staff in 6,500 branches in 1990. The numbers peaked in 2000 with 170,000 staff and 7,800 branches, and then declined rapidly. Bank failures since 2000 have resulted in a decline in the number of banks operating in Turkey. The number had fallen to 36 at end-2004, from 62 at end-1999. The productivity gains were achieved in the post-crisis 2001-2003 period during which personnel numbers declined by 28% and

branch numbers by 24% (Steinherr et al., 2004). Many of the failed banks were closed or taken over by the Savings Deposit Insurance Fund (SDIF).

Since the 2001 crisis substantial improvements have been achieved:

- stricter supervision by an independent regulatory and supervisory board for the sector (the Banking Regulatory and Supervisory Authority, BRSA),
- tighter regulation,
- the closure or sale of failed private banks,
- the start of a process of banking consolidation, and
- corporate-bank debt restructuring with the backing of the IMF and World Bank.

At the end of 2005 there were 33 commercial banks (three state-owned; 13 controlled by majority-foreign shareholders; and 17 owned by the domestic private sector, of which one was being administered by the Savings Deposit Insurance Fund SDIF), and 13 development and investment banks (three owned by the state; eight by the private sector; and two by majority-foreign shareholders). Also, Turkish banking sector now employs 123,000 staff in 6,289 branches (Banks Association of Turkey, 2006).

Table 5.1: Number of banks and its branches in Turkey (from 2003 to 2005)*****

Year	2003		2004		2005	
	Bank	**Branch**	**Bank**	**Branch**	**Bank**	**Branch**
Commercial Banks	**34**	**5.774**	**34**	**6.087**	**33**	**6.227**
State Banks	3	1.971	3	2.149	3	2.035
Private Banks	18	3.594	18	3,729	17	3.799
Foreign Banks	13	209	13	209	13	393

*****Branches in foreign countries are included.

Source: Banks Association of Turkey, 2006

When we look at the Turkish banking sector from historical perspective, it can be seen that the total number of banks decreased. All in all, total number of branches in the system declined from 7,370 in 1998 to 6,227 in 2005.

5.2 Alternative Distribution Channels of Turkish Banks

Turkish banks are benefiting from a stronger Turkish economy and banking regulators' recent efforts to streamline and clean up the nation's banking industry. Until 1987, banking activities in Turkey were mainly conducted in branches. New opportunities are emerging in banking from ATM services to telephone banking to Internet banking. According to the Turkish newspaper, Vatan (2003), nearly 50 per cent of all transactions in the banking sector are made outside the branch.

Retail banks have made large investments in Information Technology infrastructure and exploited the efficiency gains offered by alternative distribution channels. Internet-based and telephone banking have become standard options, with an increasing proportion of transactions moving to these channels from the traditional branch network.

At this new era where the banking products and services are supplied to the clients with untraditional channels, ATMs are observed as the first and the most commonly used alternative distribution channels.

Besides, the clients are supplied with a vast scope from telephone banking, home and office banking to Internet banking for the use of banking products and services apart from the branch offices themselves. These banking distribution channels, referred as alternative banking distribution channels discussed in the second chapter.

Table 5.2: Pioneers of the alternative distribution channels in Turkey

Alternative Distribution Channel	***Pioneer***
Electronic Fund Transfer (EFT)	1992 Central Bank of Turkey
Automated Teller Machine (ATM)	1987 Isbank
PC Banking	1990, Yapi Kredi
Telephone Banking	1991, Yapi Kredi
Internet Banking	1997, Isbank

Turkish banks started issuing credit cards in August 1988. Of these cards, VISA and MasterCard dominate the sector with a 99 percent share, whereas the rest consists of AMEX, DINERS and other credit cards. When the credit cards are classified as national and international cards, the latter gets a high proportion of 80 percent in total (Euro Info Centre Working Group Market Access, 2002).

Alternative banking channels via telephone, PC/terminal/Internet, and POS were in place by various banks starting in 1996. In late 1997, telephone banking service had become popular among Turkish customers since it allows customers to do all their transactions other than cash withdrawal anywhere, although it does not provide visual verification to the customers. By 2005, the number of ATMs reached over 14,000 and the number of POS reached about 1.140.000 in Turkey (Banks Association of Turkey, 2006).

The Turkish banking sector moved to alternative delivery channels relatively early, with private banks taking the lead (see Table 5.2). Despite this early positive move, a number of banks – both private and state – do not make use of telephone banking and/or Internet banking widespread to their customers (McKinsey Global Institute, 2003).

5.3 Internet Usage of Turkey

The internet is increasingly accepted as a communication/information medium in Turkey since the entrance into the market in 1993. Uses of the internet include email, research, chatting on line, personal banking, and computer games on the net, job searches, and a growing number of electronic commerce transactions.

The first activities to establish an IP-based network started in 1989. The group of network managers of TÜVAKA nodes first proposed such a network instead of BITNET during an Istanbul meeting. In 1993, the Middle East Technical University (METU) and Turkish Scientific and Technical Research Council (TÜBITAK)

established a dedicated 64 Kbps Internet connection between METU and the U.S (Wolcott and Goodman, 2000).

To meet ever increasing demand, Turk Telecom has been improving the internet infrastructure. TTNET, working in conjunction with Global One, Inc., was the previous backbone service provider for all in-country internet service providers (ISPs). This service arrangement was dissolved. Turk Telecom established Turnet, with a wider backbone capacity, as the new backbone service provider for all Turkish ISPs. This new investment has resolved the capacity and speed issues hampering internet growth in Turkey (TDA, 1999). During the first two years of TURNET operation the number of ISPs increased by 600 percent.

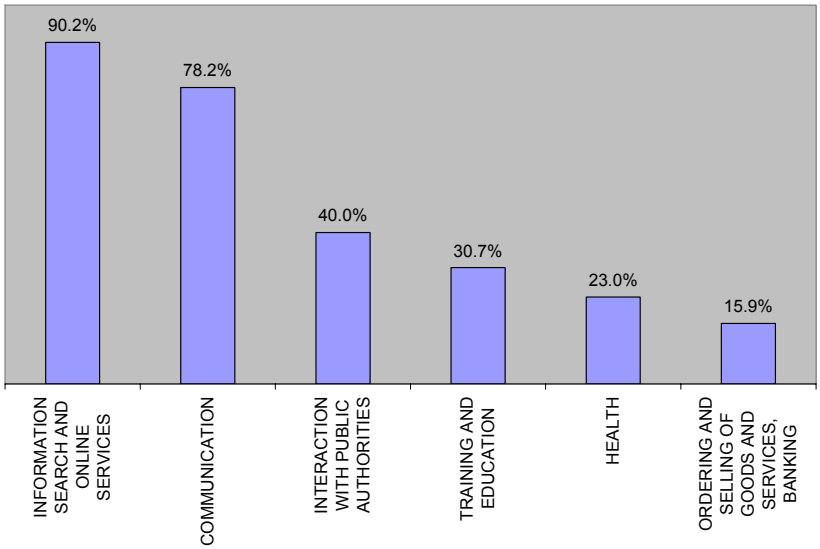
Between 1996 and 1999, the number of Internet users in Turkey grew by approximately 800 percent, reaching over 1 percent of the population by 1999. The rollout of an ATM network called TTNet in 1999–2000 has dramatically increased domestic and international bandwidth capacity and supported continued expansion of the Internet. In 2000, 3–4 percent of Turkish citizens were Internet users (Wolcott and Goodman, 2000). As we can see from the Table 5.3, Internet users in Turkey have increased about 8 times between 2000 and 2005.

Table 5.3: Number of Internet Users in Turkey

Year	Internet User (x1000)
1998	293
1999	580
2000	1.785
2001	3.500
2002	6.050
2003	7.500
2004	10.000
2005	14.000

Source: Mestci, 2005

According to the Turkish Statistics Institute (2005) the most popular Internet activities were identified as information search and online services and communication (see Figure 5.1) in Turkey. In addition to these activities, people are also conducting financial transactions online.



Source: Turkish Statistics Institute, 2005

Figure 5.1: Activities of individuals over the Internet.

User demographics dictate that most of the products and services offered on the internet in Turkey target young professionals. Low-income and low-educated people might also be less comfortable with alternative delivery channels; therefore, they prefer going to a branch and handling their transactions with cash.

To reach their customers of banks, the Internet has also provided a new channel. Previously, Turkish customers could perform banking transactions only at a bank branch, by ATM or telephone, but the Internet has opened new opportunities for banks to introduce online banking to their customers.

The increase in the adoption of Internet banking services and the increase in the number of banks offering Internet banking services in Turkey are basically due to the fact that Turkish consumers are becoming increasingly computer literate and have access to the Internet in larger numbers.

5.4 Internet Banking in Turkey

Many companies are selling information, rather than goods on the net. Commercial banks in Turkey are at the vanguard of the trend. Most of the banks have web sites containing information on their products and services. More than fifteen banks are providing sophisticated Internet banking services, with functions such as account information, buy and sell stock, exchange currency, money transfers, bill payment services, mutual funds trading and use other bank products.

Despite the low penetration of PC and Internet among businesses and consumers, Internet banking is a very fast growing sector. The rate of Internet banking users among the Internet users was 20 per cent in Turkey in 2002, while this was 22 per cent in France and Greece (NTVMSNBC, 2002). Analysts believe that any increase in the PC and Internet penetration will further fuel Internet banking usage.

As Internet banking expands in importance, policy-makers will have to address a number of questions arising from possible conflicts between traditional notions of "place" and the new concept of "cyberspace." (Carlson et al., 2000).

A recent report by McKinsey Global Institute (2003) highlighted that Countries such as the Netherlands and the US have demonstrated clearly that a legal framework more supportive of alternative delivery channels is well within the power of the industry to develop. But in Turkey, a branch receipt is still the only legally accepted proof of transaction, and receipts for transactions through alternative delivery channels are not accepted as legal documents.

In addition, policy makers are now struggling with adapting existing regulations and integrating new laws to the world of Internet banking.

They must determine the appropriate balance between meeting regulatory objectives, and avoiding unnecessary costs and distortions that will harm the development of Internet banking and electronic commerce.

Some banks have successfully increased their customer portfolios through internet banking. Turkiye Is Bankasi, Turkey's largest private bank, laid the foundation for electronic banking in Turkey in 1987 by introducing automatic teller machines (ATMs) to Turkish consumers.

Internet banking was first introduced as a new distribution channel in Turkey by Isbank in 1997, followed by Garanti Bank the same year. The total number of Isbank Internet banking users reached 712,401 in 2000.

Garanti Bankasi, Osmanli Bankasi, Pamukbank, Yapi ve Kredi Bankasi and Is Bankasi are the more successful implementers of this new internet banking trend. These banks have invested large sums in internet resources allowing the firms to act as ISPs for their customers (TDA, 1999).

These banks set up their Web sites, and offered services to their customers over the Internet, which had been emerging as a key competitive tool among the banks in Turkey. These larger banks with their strength in brand name, size, and technology infrastructure were well placed to be the first movers. With their Internet banking services, they tended to offer convenience, flexibility of doing banking transactions at any time, customized services, privacy, and free transactions to their customers (Polatoglu and Ekin, 2001).

The share of Internet banking in all transactions except money withdrawal is 42 per cent which is well beyond those of ATMs (35 per cent) and telephone banking (5 per cent) (Vatan, 2003).

Akbank, introduced its first Internet banking branch for retail customers in 1999, allowing them to access accounts, buy/sell foreign exchange, transfer money, perform securities, and trade on the Istanbul stock exchange. In 2005 with 477,000 registered, 360,000 active Internet banking customers, Akbank has been successful in this new form of distribution channel (Akbank, 2005).

According to an annual survey conducted by Global Finance (Rombel, 2005), Akbank holds the leadership in the Internet banking transactions in Turkey. Winning banks were selected based on the following criteria:

- Strength of strategy for attracting and servicing online customers,
- Success in getting clients to use Internet offerings,
- Growth of online customers,
- Breadth of product offerings,
- Evidence of tangible benefits gained from Internet initiatives,
- Website design and functionality and
- Strength of the bank's security initiatives.

The initial reason for several Turkish banks to transfer their services to the Web as an alternative distribution channel was to reduce the heavy workload of the branches. Thus, in order to canalize bank customers from traditional "bricks-and-mortar" branches to the virtual world, banks applied "no cost" strategy for their clients who made their transactions over the Internet.

While some of these banks offered limited services on the Web, some others expanded their services ranging from EFT, money transfers, stock, and mutual fund transactions to all non-cash banking services.

Depending on the rapid increase in the Internet access and growing popularity of virtual banking among consumers, other banks have gradually followed the first movers. Today, Isbank, Garanti Bank, Akbank, Vakifbank, Denizbank, Kocbank, HSBC, and several others provide a rich spectrum of Internet banking services in Turkish financial markets.

5.5 Empirical Study

5.5.1 Research Objectives

As the literature review has clearly indicated that consumer attitudes, and acceptance were the key factors in the development of distribution channel structure for bank services (Mols et al., 1999), the research objectives were primarily directed at consumer characteristics, behavior, and attitudes. Furthermore, the statistical data suggests that security and privacy, perceived usefulness, perceived ease of use, quality and relative advantage are among the main prerequisites of Internet banking development in a society. Based on these points, the research objectives in this study were set as follows:

- to understand the demographic characteristics of the users and non-users of Internet banking services;
- to describe the preferences for various delivery channels;
- to determine the relationship between the usage of Internet banking and some characteristics of respondents;
- to identify the individuals as adopters (current online banking users), prospective adopters, and persistent non-adopters;
- to extract the Internet banking services more used;
- to quantify the factors such as perceived usefulness, security and privacy, ease of use, quality, relative advantages etc. affecting the usage of Internet banking by Turkish consumers;
- To find out the bank that the Internet services most used in Turkey.

Also, when we reach objectives above, we will be able to get some important clues about Internet banking phenomenon in Turkey.

5.5.2 Methodology

The aim is to study acceptance of Internet banking in Turkey, and to do this, we have mentioned about Davis' Technology Acceptance Model (TAM). Therefore, we use perceive usefulness, perceived ease of use, to study the technology acceptance, specifically Internet banking.

The model developed proposed that online banking adoption can be modeled with the variables derived from the TAM (Perceived Usefulness and Perceived Ease of Use) and three other variables referring to security and privacy, quality and relative advantage of the Internet banking.

Since many researchers have found that security and privacy, quality and relative advantage influences consumer behavior, I decided to add these variables to the TAM.

A personally administered questionnaire was used to collect data from a sample of 166 Yapi Kredi Bank customers in June 2006 in Turkey.

Questionnaire items were adapted from prior studies. Items for the perceived ease of use and perceived usefulness were adapted from Technology Acceptance Model. One advantage of using the TAM to examine Internet banking acceptance was that it had a well-validated measurement inventory (Davis, 1989). Items for relative advantage were adapted from Shih and Fang (2004). Items for security and privacy were adapted from Pikkarainen et al. (2004). The two items measuring quality of service were taken from the study of Cai and Jun (2003) about online retailers.

A five-point Likert-type scale, ranking from "strongly disagree" (1) to "strongly agree" (5) were used for the questions which measure attitudes on Internet banking. The anchors of the items measuring Internet banking usage ranged from "never use" (1) to "always use" (5).

The questionnaire included three sections that took less than five minutes for all of the respondents to complete. The first section recorded demographic information including gender, age, monthly household income and educational level. The second section examined the user, non-user and prospective users. The third section focuses on the factors effecting adoption of Internet banking by user.

5.5.3 Research Findings

5.5.3.1 Descriptive Statistics

The demographic characteristics of the sample are:

- 49 percent male, 51 percent female;

- 5 percent aged less than 20 years, 20 percent aged 20-29 years, 32 percent aged 30-39 years, 28 percent aged 40-49 and 14 percent aged 50 and over years;

- 6 percent graduated from primary school, 15 percent graduated from secondary school, 31 percent graduated from high school, 36 percent graduated from undergraduate and 13 percent graduated from graduate and afterwards.

- 2 percent earn less than 500 YTL, 17 percent earn 500-999 YTL, 29 percent earn 1000-1999 YTL, 35 percent earn 2000-2999 YTL and 17 percent earn 3000-3999 YTL.

- 64 percent has internet availability,

- 67 percent were Internet banking users;

The descriptive statistics of the respondents are summarized according to user and non-user status in Table 5.4.

Table 5.4: Demographic characteristics of user and non user population surveyed

Demographics		User		Non User		Total	
		n	%	n	%	n	%
GENDER	Female	51	45.5	33	61.1	84	50.6
	Male	61	54.4	21	38.9	82	49.4
AGE	Less than 20	5	4.4	4	7.41	9	5.4
	20-29	22	19.6	11	20.4	33	19.8
	30-39	36	32.1	17	31.5	53	31.9
	40-49	32	28.5	15	27.8	47	28.3
	50 and over	17	15.1	7	13	24	14.4
EDUCATION	Primary	3	2.6	7	13	10	6
	Secondary	13	11.6	12	22.2	25	15
	High School	26	23.2	25	46.3	51	30.7
	Undergraduate	49	43.7	10	18.5	59	35.5
	Post Diploma	21	18.7	0	0	21	12.6
INCOME	Under 500 YTL	0	0	4	7.41	4	2.4
	500-999YTL	10	8.9	18	33.3	28	16.8
	1000-1999YTL	28	25	20	37	48	28.9
	2000-2999YTL	49	43.7	9	16.7	58	34.9
	3000-3999YTL	25	22.3	3	5.56	28	16.8
INTERNET AVAILABILITY	Available	86	76.7	20	37	106	63.8
	Non available	26	23.2	34	63	60	36.1

If we analyze three alternative delivery channels of banks, ATM was the most preferred delivery channel while Internet banking was the second and telephone banking was third preferences (see Figure 5.2).

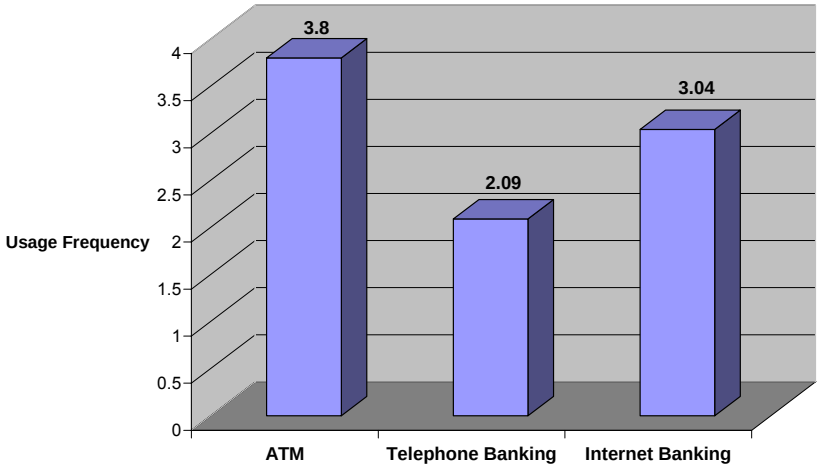


Figure 5.2: Usage of the alternative delivery channels

Almost 93 percent of the sample reported that they have been using ATMs, followed by Internet banks (67 percent) and phone banking (58 percent) as well (see Table 5.5).

Table 5.5: Frequency of the usage of the alternative delivery channels

Usage	Frequency	ATM		Internet Banking		Telephone Banking	
		n	%	N	%	n	%
Non-user	*Never*	11	6.6	54	32.5	70	42.2
User	*Rarely*	18	10.8	6	3.6	45	27.1
	Sometimes	25	15.1	22	13.3	26	15.7
	Frequently	50	30.1	47	28.3	15	9
	Always	62	37.3	37	22.3	10	6

Another important finding of the study was related to the categorization of the respondents as current internet banking users, prospective users and persistent non users of internet banking. The following question was asked to respondents who currently do not have internet banking account: "Do you think of opening an internet bank account within the next 12 months?"

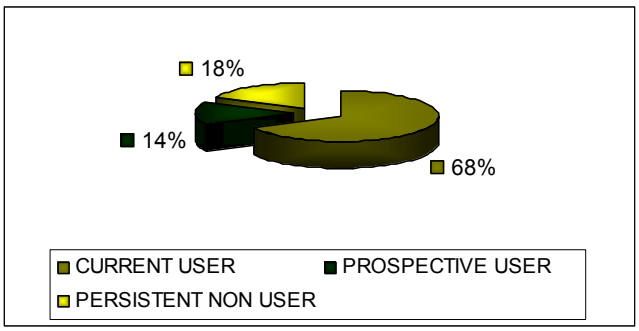


Figure 5.3: Rate of current users, prospective users and persistent non users of internet banking

As a result, 67.5 per cent of the respondents were current users, 18.1 per cent were persistent non users, and 14.5 were prospective users (see Figure 5.3). It can be understood that there is a potential of using Internet banking by Turkish bank customers. Application of recommendations given in this study may be effective to increases this usage.

One important finding is about the reasons for not using Internet banking. In the questionnaire, six states have presented to analyze the reasons for not using Internet banking by non users. These six states are ranked from "most important" (1) to "most unimportant" (6). Results are exhibited in Table 5.6.

Table 5.6: The reasons for not using Internet banking

	Degree of Importance					
Reasons for not using Internet banking	***1***	***2***	***3***	***4***	***5***	***6***
No computer knowledge	10	8	4	9	7	16
No Internet knowledge	2	9	5	17	16	5
Unawareness of Internet banking	11	11	14	6	5	7
Preference of branch banking	12	10	12	3	7	10
Finding transactions insecure over Internet	17	13	6	8	6	4
Finding Internet banking hard to use	2	3	13	11	13	12

According to the 17 respondents within non Internet banking users, as the most important factor for not using Internet banking, "insecurity of transactions over Internet" ranks first. The most unimportant factor that ranks sixth is "no computer knowledge". So, we can say that, respondents who are non users of Internet banking avoid this distribution channel especially because of insecurity; in spite of they may be computer literate.

Chi-square tests were conducted to determine the relationship between the usage of Internet banking by respondents and the five characteristics of respondents. The analysis is shown in Table 5.7.

Table 5.7: The relationship between the usage of Internet banking and the five characteristics

Demographics	Chi-square value	Sig.
Gender	3.536	0.06
Age	0.729	0.948
Education	32.092	0.000
Income	36.707	0.000
Internet Availability	24.941	0.000

No correlation was found between the factors like gender and age in Internet banking usage. With the significance values that are well below the alpha level of 0.05, there was found a relationship between income, education and internet availability in Internet banking usage (see Table 5.7).

In the present research, various Internet banking services offered to bank customers were evaluated with view to their usage of Internet banking services (see Table 13). Customers were asked to mark their Internet banking services that they use.

Of the 112 respondents who banked online, 67 per cent requests credit card advances, 44.6 per cent used the service for viewing account balances and transaction histories, 43.8 per cent transfer funds between accounts. Other Internet banking services and their usages are given in the Table 5.8.

Table 5.8: Usage of services via Internet banking

	Used		Non Used	
Services	***n***	***%***	***n***	***%***
Viewing account balances and transaction histories	50	44.6	62	55.4
Paying bills	46	41.1	66	58.9
Transferring funds between accounts	49	43.8	63	56.3
Requesting credit card advances	75	67	37	33
Ordering cheques	13	11.6	99	88.4
Communicating with bank	39	34.8	73	65.2
Using daily services such as getting information about sectors and shares	47	42	65	58
Selling/buying stock, bond or foreign currency	38	33.9	74	66.1
Others	32	28.6	80	71.4

In order to give some clues about banking sector of Turkey in the context of Internet banking, we asked the respondents which institutions' Internet banking facilities used.

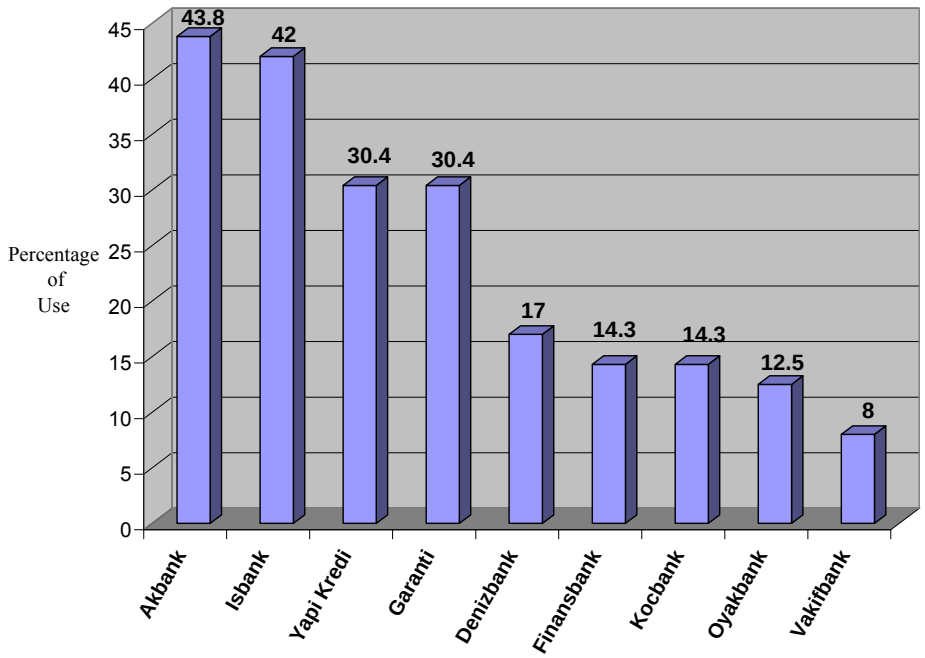


Figure 5.4: Percentages of institutions' Internet banking facilities used

The findings were surprising, since Isbank was the first bank that Internet banking services have been founded, Akbank is appeared as most used bank for its Internet banking services. In figure 5.4, usage percentage of institutions' Internet banking facilities exhibited. With the rate of 43.8, Akbank's Internet banking services are much more used according to the respondents.

5.5.3.2 Statistical Analysis

5.5.3.2.1 Reliability Analysis

In order to assess the "goodness" of our measures and to indicate consistency, reliability analysis has been used.

Reliability of the questionnaires has to be tested by using Cronbach's Alpha that indicates how well the items in a set are positively correlated to one another. This set of questionnaires was adapted from the previous researches that have already established their validity.

In order to test the reliability of the questionnaire items, SPSS used. The Cronbach's alpha coefficients for the factors are:

* Alpha(EU) = 0.8733
* Alpha(SEC)= 0.8470
* Alpha(PU) = 0.7405
* Alpha(QUAL) = 0.7921
* Alpha(RA) = 0.8028

Since all of the alphas well above the acceptable level of 0.7, these five factors may be used for our analysis.

The Kaiser-Meyer-Oklin-value reached 0.759, which is more than the recommended minimum of 0.6. Barlett's test of spericity reached statistical significance (0.000), supporting the factorability of the correlation matrix. Thereby, the factor analysis would be appropriate. The five factors identified were chosen in terms of eigenvalue larger than 1.0.

5.5.3.2.2 Factor Analysis

As a data reduction technique, factor analysis is used to reduce our variables to a smaller and meaningful set of underlying dimensions.

The factor analysis made use of eighteen questions concerning the customer attitudes of internet banking. The eighteen questions were subjected to principal component analysis (PCA) using as software statistical package for social sciences (SPSS).

PCA revealed the presence of five components that together explained 70.065 per cent of the variance. From the screeplot we can see that five components are above eigenvalue of 1 (see Appendix-III); that explains also why we chose to retain these five components for further investigations.

After reducing the analysis to five components, those components appeared to form a clear structure. The factor analysis was conducted using principal axis factoring with varimax rotation as an extraction method to receive a better overview of the five factors. The varimax rotated matrix presented in Table 5.9 revealed the presence of a structure in which all components showed strong loadings, and all variables load to five components.

The five components have been used to further evaluate customers' attitudes in the usage of internet banking. The first component illustrates customer apprehension of "ease of use" (EU) including four questions. The second component illustrates the customers' "perceived usefulness" (PU) of internet banking measured with three

questions. The third component illustrates the customers' attitudes in the internet banks "security and privacy" (SEC) including four questions. The fourth component illustrates customer evaluation of "relative advantage" (RA) including five questions and the fifth component illustrates customers' evaluation of "quality" (QUAL) including two questions. Factor analysis was conducted on the items comprising PU, EU, SEC, RA, and QUAL.

Table 5.9: Rotated Factor Matrix

Factor					
	1	2	3	4	5
EU2	.882				
EU4	.789				
EU3	.775				
EU1	.683				
SEC3		.850			
SEC2		.744			
SEC1		.717			
SEC4		.657			
RA1			.732		
RA3			.700		
RA2			.643		
RA4			.636		
RA5			.634		
PU2				.686	
PU3				.681	
PU1		.325		.649	
QUAL1					.817
QUAL2					.796

Extraction Method: Principal Axis Factoring. **Rotation Method:** Varimax with Kaiser Normalization. Rotation converged in 5 iterations.

5.5.3.2.3 Regression Analysis

The regression analysis was conducted to reveal how different factors affect the use of online banking. To conduct regression analysis, mean of each item has calculated referring the factor. The dependent variable, usage of Internet banking was deduced from the question that measures usage frequency of Internet banking.

When stepwise regression analysis runs, entered variables were Perceived Ease of Use, Perceived Usefulness and Security and Privacy in the model. Thus, from the model the factors referring to quality and relative advantage did not suite in the model.

Table 5.10: Summary table of regression analysis

Model summary

	R	R^2	Adjusted R^2	Std. error of the estimate
Model	0.556	0.309	0.290	0.7283

ANOVA model

	Sum of squares	Df	Mean square	F	Sig.
Regression	25.631	3	8.544	16.107	0.000
Residual	57.288	108	0.530		
Total	82.920	111			

Coefficients

	Unstandardized coefficients		Standardized Coefficients		
	β	Std. error	Beta	t	Sig.
(Constant)	0.314	0.626		0.501	0.618
Perceived ease of use	0.334	0.085	0.333	3.927	0.000
Perceived usefulness	0.367	0.143	0.221	2.566	0.012
Security and Privacy	0.213	0.090	0.207	2.370	0.020

Note: Dependent variable is "usage of the Internet banking"

The results of the regression analysis in Table 5.10 shows that Perceived Ease of Use, Perceived Usefulness and Security and Privacy contribute significantly (F = 16.107) and predict 30.9 per cent of the variations in internet banking adoption.

R^2 is not high, but it is rare to find a model for social behavior that has a high explanatory power. Details of the results show that all factors are significantly

positively associated with usage of the Internet banking. The beta values in the table confirm that perceiver ease of use is the best predictor of usage of the Internet banking. These results indicate that bank customers' adoption of internet banking depends on the perceived ease of use, perceived usefulness and security and privacy.

5.5.4 Discussion and Recommendations

The findings of this study support the appropriateness of using TAM to understand the intention of people to adopt Internet banking services. Also, the influence of security and privacy on the usage of Internet banking by Turkish customers should be emphasized as another factor.

The findings of this study point to the perceived ease of use of internet banking as the primary reason that Turkish bank customers use Internet banking. As a secondary reason, perceived usefulness has found which also Davis (1989) supported that has a stronger influence on usage. Davis's study shows that users are driven to adopt a technology primarily because of the functions it provides them, and secondarily because of the easiness of benefiting from those functions. Customers are often willing to overlook some difficulties of usage if the service provides critically needed functions: no amount of ease of use can compensate for a system that does not perform a useful function (Davis, 1989).

Our findings might differ from Davis's in that we study technology adoption in a special setting: Internet banking in Turkey. Perhaps the TAM is put to a challenging test in this unique environment, resulting in perceived ease of use being a mediating variable, with ease of use as antecedent, and use as outcome. Because the model that we found support for is more universally applicable, and because Davis found that perceived usefulness has a stronger relation to use than perceived ease of use, we suggest that the TAM should be redefined, to take account of our findings, and to include security and privacy, in order to put a greater emphasis on the social exchange processes that are central to technology adoption and because Daniel

(1999) predicted security to be one of the determinants of customer acceptance of Internet banking.

Based on such a redefinition, we identify a model of technology acceptance that is valid for Internet banking in Turkey. We speculate that such a model is generally applicable to internet banking in all sorts of countries, and perhaps also generally applicable to technology acceptance of other service industries.

Service-related technology via the Internet, personal computer and/or telephone banking allows many banks to provide many services at arm's length that can be translated into the reduction of bank overheads, resulting in lower costs for their customers. Banks can save considerable operating and marketing costs by encouraging their customers to use Internet banking.

Undoubtedly, many banks are trying to reduce the resources needed by branch banking. However, it is still premature to talk about the operation of an entirely Internet-based bank in Turkey. Physical bank branches with human tellers and service providers are still indispensable because this channel is needed for:

* first-time bank customers who need to open accounts;
* complicated services, such as mortgages or making remittances; and
* face-to-face service encounters where personal identification is essential.

The cost of branch banking is quite high compared to other banking channels. Furthermore, branch banking appears to be the least profitable market segment.

There are some tactics for successful implementation of Internet banking for managers:

* From the bank's point of view it is necessary to know the relationship between perceived usefulness and ease of use.
* It is clear that Internet users are hesitant to bank online unless they can rely on their bank's site. Banks have to constantly improve their online security.

* Information about internet banking should be provided by bank tellers and bank assistants at branches to access more potential adopters,
* Effective presentations using all forms of media advertising such as leaflets, brochures, web pages, etc., will be useful to introduce the services to a wider audience and educate potential customers about the benefits of Internet banking, i.e. time saving, low cost services, convenience and information availability;
* Provide demonstrations in public places. This could be implemented by providing personal computers at bank branches or department stores accompanied by good documentation and bank assistance.
* Regularly survey customers' responses to internet banking procedures and further develop the web site.
* Offer incentives such as free internet access dial-up, frequent user benefits, member rewards and provide free access to banks' networks in bank branches or public places, e.g. shopping centers, etc.
* Support from the government and industry regulator should be effective to increase the growth of internet banking services. The Turkish government should be encouraged to initiate suitable steps to remove legal and regulatory barriers to internet banking in particular. In addition to lobbying the Turkish government and the Banking Regulatory and Supervisory Authority, banks should also proactively participate in improving internet services in order to increase online banking.
* Banks could allocate a portion of the savings they enjoy from customers using Internet banking and award them as incentives.
* All banks should have online help in the form of frequently asked questions (FAQ) pages or a call centre that could respond to e-mail queries from customers. The fact that someone is listening and holding the customer's hand through transactions at any time of the day, is very reassuring.
* Creating a balance between aesthetics and functionality of the bank web site.
* provide a well-designed and user-friendly web site;
* provide information in both Turkish and English languages;
* provide both electronic and documentary demonstrations of online services;

CONCLUSION

Changes in the banking industry such as those resulting from deregulation, rapid global networking, and the rise in personal wealth have thus made the implementation of sophisticated delivery systems.

Nowadays, customers can access their bank and account when they use the Internet. An increasing trend of electronic financial transactions over the Internet has shown in the literature. This trend can also be found in Turkey since its application by Isbank in 1997. However, Internet banking among Turkish customers is not as advanced when compared to their counterparts in other countries when we look at the literature. To find the reason of this, we should have to find out factors influence their acceptance.

In line with all the reasons mentioned above, the objective of this study was to identify factors that influence an individual's attitude towards using Internet banking in Turkey. Perhaps, it can be claimed that this thesis is a unique serious study that evaluates many dimensions of Internet banking in Turkey, especially the attitudes towards usage.

The study was carried out in a systematic manner by the explanations of five chapters. First chapter includes banking concept and changes in the banking sector globally. Distribution of the bank services is examined in the second chapter. Specifically, Internet banking and related issues such as security and service quality of Internet banking are the subjects of the third chapter. We have focused on the adoption of Internet banking in the fourth chapter. Lastly, in the fifth chapter, after general information about Turkish banking structure and usage of Internet by Turkish people, an empirical analysis on attitudes of Turkish customers towards Internet banking was conducted.

The foundation of this study was Technology Acceptance Model (TAM), proposed by Davis (1989). In addition, we modified the TAM by incorporating additional factors and examined them in the context of Internet banking in Turkey.

Technology Acceptance Model (TAM) includes two factors (i.e., perceived ease of use and perceived usefulness), which affect one's attitude to adopt a new technology. We modified the theory by adding security and privacy, relative advantage and quality into the model and examined its influence on behavior, namely usage of Internet banking. Five items for relative advantage were adapted from Shih and Fang (2004). Four items for security and privacy were adapted from Pikkarainen et al. (2004). The two items measuring quality of service were taken from the study of Cai and Jun (2003) about online retailers.

Questionnaire that includes most of the issues related with Internet banking has been designed by searching previous studies in this area. With the satisfactory level of content exceeding previous studies, questionnaire has been delivered to the customers of YapiKredi bank in Turkey.

In our analysis, five factors, namely perceived ease of use, perceived usefulness, security and privacy, quality, and relative advantage are selected from the literature. After testing the reliability of the factors, factor analysis was used to see whether the set of questions form or not these factors. It has seen that five factors are predominant. Regression analysis has been conducted to see the factors more effective for the use of Internet banking of Turkish bank customers'. As a result, three of the factors, namely perceived ease of use, perceived usefulness and security and privacy are determined as more valid reasons for influencing Turkish bank customers' usage of Internet banking.

In addition to these analyses, we have reached some important findings. The first finding of the study was related to usage of three alternative delivery channels of banks, ATM was the most preferred delivery channel while Internet banking was the second and telephone banking was third preferences. The second finding was the categorization of the respondents as current internet banking users, prospective users

and persistent non users of internet banking. As a result, 67.5 per cent of the respondents were current users, 18.1 per cent were persistent non users, and 14.5 were prospective users. The third finding was the being “insecurity of transactions over Internet” as the most important factor for not using Internet banking by non Internet banking users. Another important finding we have found that there was no correlation between the factors like gender and age in Internet banking usage, but there was found a relationship between income, education and internet availability in Internet banking usage. Lastly, requesting credit card advances was the most used service via Internet banking and Internet services of Akbank was the most used one among others.

In the literature, there are numerous studies that examine the issue in the context of technology acceptance. Because of being limited comprehensive researches in the area of Internet banking, additional insights on this topic are needed.

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APPENDICES

APPENDIX-I

Anket: Internet Bankacılığı

Bu anket, Türkiye'de Internet Bankacılığının kullanımı ile ilgili bir yüksek lisans tezinde kullanılmak üzere hazırlanmıştır. Verilen cevaplar kesinlikle gizli tutulacaktır. Katılımınız icin teşekkür ederim.

Kalender Özcan ATILGAN

Cinsiyetiniz:

Kadın……❑

Erkek……❑

Yaşınız:

20 yaş altı……..…❑

20-29 yaş……..….❑

30-39 yaş……...❑

40-49 yaş……...❑

50 yaş ve üstü……❑

Eğitim Durumunuz:

Ilkokul……❑

Ortaokul……..❑

Lise…….❑

Üniversite……...❑

Yüksek Lisans ve üstü ...……...❑

Ailenizin Aylık Toplam Geliri

500 YTL altı……❑

500-999 YTL……...❑

1000-1999 YTL……...❑

2000-2999 YTL……...❑

3000-3999 YTL……...❑

4000 YTL ve üzerinde…….❑

Elektronik bankacılık türlerinden;

	Hiçbir zaman				**Çok sık olarak**
	1	**2**	**3**	**4**	**5**
ATM kullanıyorum					
Telefon bankacılığını kullanıyorum					
Internet bankacılığını kullanıyorum					

Internet bankacılığını kullanmıyorsanız nedeni nedir? (En önemli neden 1 olacak şekilde, 1'den 6'ya kadar sıralayınız)

Bilgisayar kullanmayı bilmiyorum…….....❑

Internet kullanmayı bilmiyorum…….....❑

Internet bankacılığı hakkında bilgim yok….....❑

Banka şubesinde işlemlerimi yapmayı tercih ediyorum...….....….❑

Internet üzerinden işlem yapmayı güvenli bulmuyorum..... ❑

Internet bankacılığının kullanımının zor olduğunu düşünüyorum..... ❑

Gelecek 12 ay içerisinde Internet bankasında hesap açmayı düşünür müsünüz?

Düşünebilirim.....❑

Kesinlikle düşünmüyorum….....❑

Işyerinde ve evde her zaman internet erişim imkanı var

Evet..... ❑

Hayır..... ❑

Aşağıdaki soruları Internet bankacılıgı hizmetlerinden yararlananlar yanıtlayacaklardır.

Hangi Internet bankacılık hizmetlerinden faydalanıyorsunuz? (Birden fazla kutu işaretlenebilir)

Hesap dengeleri ve geçmişteki işlemleri görüntüleme…….....❑

Hesap Ödeme…….....….❑

Hesaplararası fon transferi…….....❑

Kredi kartı detaylarını öğrenmek…….....❑

Çek çıkarma…….....❑

Banka ile iletişim kurmak…….....❑

Banka Internet sitesinin günlük hizmetlerinden yararlanmak
(Kur ve hisse senetleri bilgileri, sektörel haberler, vs.).....❑

Hisse senedi, tahvil ve döviz gibi yatırım aracları alım/satımı.....❑

Diğer…….....❑

Hangi banka(lar)nin Internet hizmetlerinden faydalanıyorsunuz?

1-..... 3-.....

2-..... 4-.....

Aşağıdaki sorularda Internet bankacılığına olan uyumun ölçülmesi amaçlanmış olup, 1 kesinlikle katılmıyorum, 5 ise kesinlikle katılıyorum ifadesine karşılık gelmektedir. Lütfen her soru ile ilgili olarak kutucuğu işaretleyiniz.

		Kesinlikle Katılmıyorum				Kesinlikle Katılıyorum
		1	**2**	**3**	**4**	**5**
1	Işlemlerimi Internet bankacılığında yapmayı kolay buluyorum					
2	Internet bankacılıgının kullanımı yeterince acık ve anlaşılır					
3	Benim icin Internet bankacılığını öğrenmek kolay					
4	Bankanin Internet sitesinin kullanımı kolay					
5	Bir Internet bankasının kullandığı teknolojiye güvenirim					
6	Bir Internet bankasının kişisel bilgilerimi gizli tutabileceğine inanırım					
7	Bir Internet bankasının güvenliği hakkında endişelenmem					
8	Internet bankacılığında bilgi alış verişinin guvenli olduğuna eminim					
9	Online bankayı kullanmak banka hizmetlerinden faydalanmayı kolaylaştırır					
10	Online bankayı kullanmak banka hizmetlerinden daha hızlı olarak faydalanmamı sağlar					
11	Genel olarak, online bankacılık, banka hizmetlerinden faydalanmak için yararlıdır					
12	Genel olarak, internet bankamın hizmet kalitesi mükemmel					
13	Genel olarak, internet bankam beklentilerimi karşılıyor					
14	Internet bankacılığında işlem maliyeti düşüktür					
15	Zaman tasarrufu sağlar					
16	Işlemlerimi kendim yapabilmekteyim					
17	24 saat işlem yapabilmekteyim					
18	Her yerden işlem yapabilmekteyim					

APPENDIX-II

SPSS Output of Reliability Analysis

****** Method 1 (space saver) will be used for this analysis ******

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
EU1	11,9643	7,2960	,6315	,8758
EU2	12,3125	6,1807	,8116	,8031
EU3	12,2500	7,0000	,7170	,8423
EU4	12,0893	7,2893	,7724	,8252

Reliability Coefficients

N of Cases = 112,0 N of Items = 4

Alpha = ,8733

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
SEC1	10,2768	6,3281	,6760	,8112
SEC2	10,0536	6,8259	,7066	,7977
SEC3	10,1786	6,1840	,7820	,7620
SEC4	10,0179	7,2069	,5839	,8465

Reliability Coefficients

N of Cases = 112,0 N of Items = 4

Alpha = ,8470

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
PU1	9,0089	1,1260	,5769	,6446
PU2	8,9554	1,1241	,5885	,6291
PU3	8,8036	1,4205	,5490	,6849

Reliability Coefficients

N of Cases = 112,0 N of Items = 3

Alpha = ,7405

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
QUAL1	3,8393	1,0370	,6570	.
QUAL2	3,7321	,9186	,6570	.

Reliability Coefficients

N of Cases = 112,0 N of Items = 2

Alpha = ,7921

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
RA1	18,0179	4,7564	,6243	,7542
RA2	17,9911	5,1260	,5544	,7760
RA3	18,1518	4,3641	,5992	,7631
RA4	18,1696	4,5385	,5938	,7630
RA5	18,0268	4,7831	,5771	,7678

Reliability Coefficients

N of Cases = 112,0 N of Items = 5

Alpha = ,8028

APPENDIX-III

SPSS Output of Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.759
Bartlett's Test of Sphericity	Approx. Chi-Square	896.861
	df	153
	Sig.	.000

Communalities

	Initial	Extraction
EU1	.525	.491
EU2	.722	.819
EU3	.642	.624
EU4	.684	.715
SEC1	.607	.618
SEC2	.614	.649
SEC3	.677	.770
SEC4	.496	.450
PU1	.499	.590
PU2	.449	.548
PU3	.350	.475
QUAL1	.544	.691
QUAL2	.533	.674
RA1	.527	.555
RA2	.493	.509
RA3	.517	.565
RA4	.431	.448
RA5	.372	.433

Extraction Method: Principal Axis Factoring.

Correlation Matrix

		EU1	EU2	EU3	EU4	SEC1	SEC2	SEC3	SEC4	PU1	PU2	PU3	QUAL1	QUAL2	RA1	RA2	RA3	RA4	RA5
Correla	EU1	1.000	.662	.473	.557	.159	.127	.164	-.020	.152	.109	-.043	.103	-.032	.126	-.002	.243	.206	.175
	EU2	.662	1.000	.693	.714	.381	.228	.263	.150	.256	.182	.104	.118	-.015	.023	-.038	.206	.271	.185
	EU3	.473	.693	1.000	.722	.321	.163	.102	.050	.233	.146	.145	.090	-.007	.105	-.015	.080	.131	.165
	EU4	.557	.714	.722	1.000	.414	.287	.320	.130	.324	.242	.155	.089	.030	.144	.136	.179	.193	.227
	SEC	.159	.381	.321	.414	1.000	.646	.656	.425	.328	.132	.119	.103	.147	.064	.142	.264	.220	.171
	SEC	.127	.228	.163	.287	.646	1.000	.650	.486	.400	.295	.198	.264	.244	-.031	.195	.150	.159	.032
	SEC	.164	.263	.102	.320	.656	.650	1.000	.628	.360	.170	.153	.173	.250	.064	.186	.195	.157	.141
	SEC	-.020	.150	.050	.130	.425	.486	.628	1.000	.328	.074	.153	.065	.044	.022	.169	.034	.158	.054
	PU1	.152	.256	.233	.324	.328	.400	.360	.328	1.000	.521	.471	.072	.035	.216	.192	.125	.215	.196
	PU2	.109	.182	.146	.242	.132	.295	.170	.074	.521	1.000	.487	.247	.256	.091	.246	.033	.120	.114
	PU3	-.043	.104	.145	.155	.119	.198	.153	.153	.471	.487	1.000	.059	.120	.070	.193	-.050	.059	.081
	QUAL	.103	.118	.090	.089	.103	.264	.173	.065	.072	.247	.059	1.000	.657	.087	.092	-.162	.032	.052
	QUAL	-.032	-.015	-.007	.030	.147	.244	.250	.044	.035	.256	.120	.657	1.000	.097	.244	-.012	.089	.116
	RA1	.126	.023	.105	.144	.064	-.031	.064	.022	.216	.091	.070	.087	.097	1.000	.550	.471	.414	.486
	RA2	-.002	-.038	-.015	.136	.142	.195	.186	.169	.192	.246	.193	.092	.244	.550	1.000	.364	.430	.391
	RA3	.243	.206	.080	.179	.264	.150	.195	.034	.125	.033	-.050	-.162	-.012	.471	.364	1.000	.527	.459
	RA4	.206	.271	.131	.193	.220	.159	.157	.158	.215	.120	.059	.032	.089	.414	.430	.527	1.000	.439
	RA5	.175	.185	.165	.227	.171	.032	.141	.054	.196	.114	.081	.052	.116	.486	.391	.459	.439	1.000

Anti-image Matrices

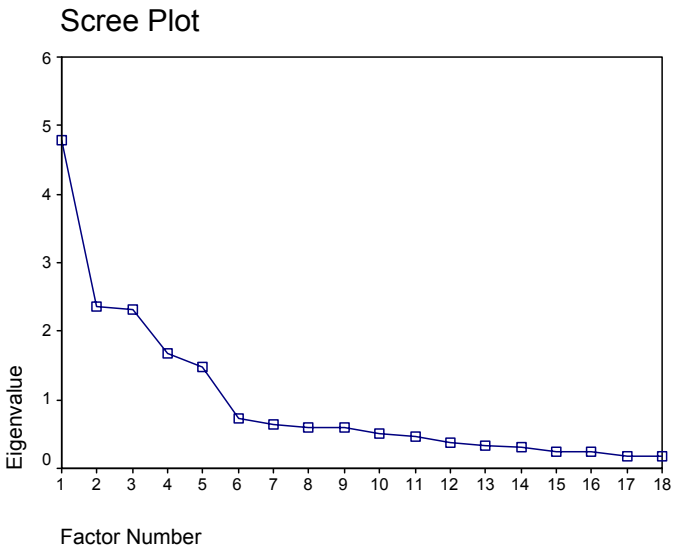
		EU1	EU2	EU3	EU4	SEC1	SEC2	SEC3	SEC4	PU1	PU2	PU3	QUAL1	QUAL2	RA1	RA2	RA3	RA4	RA5
Anti-image Covaria	EU1	.475	-.154	282E-03	5.29E-02	985E-02	3.04E-02	4.84E-02	620E-02	3.29E-03	1.29E-03	343E-02	3.67E-02	.798E-02	3.78E-02	094E-02	5.05E-02	131E-03	328E-03
	EU2	-.154	.278	-.107	3.08E-02	4.24E-02	285E-02	5.50E-03	4.41E-02	.767E-03	2.46E-02	2.44E-02	4.89E-02	.150E-02	436E-02	130E-02	4.18E-02	3.55E-02	3.07E-03
	EU3	282E-03	-.107	.358	-.151	5.53E-02	1.82E-02	.966E-02	1.70E-02	3.12E-03	.926E-02	4.17E-02	026E-03	2.07E-02	3.23E-02	477E-02	.269E-02	694E-02	1.62E-02
	EU4	5.29E-02	3.08E-02	-.151	.316	2.15E-02	2.93E-03	5.80E-02	002E-02	2.42E-02	3.01E-02	683E-02	458E-02	.002E-02	5.26E-03	7.47E-02	617E-02	319E-02	1.83E-02
	SEC1	985E-02	4.24E-02	5.53E-02	2.15E-02	.393	-.147	-.122	978E-02	1.27E-02	.375E-02	933E-02	611E-02	1.00E-02	750E-04	909E-02	4.64E-02	1.44E-02	2.40E-02
	SEC2	3.04E-02	285E-02	1.82E-02	2.93E-03	-.147	.386	7.94E-02	5.84E-02	3.45E-02	5.26E-02	064E-04	9.42E-02	.768E-02	898E-02	5.17E-02	5.96E-02	1.10E-02	539E-02
	SEC3	4.84E-02	5.50E-03	966E-02	5.80E-02	-.122	7.94E-02	.323	-.192	2.31E-02	.996E-02	9.55E-03	269E-02	3.58E-02	1.26E-02	060E-02	2.50E-02	160E-02	2.06E-02
	SEC4	620E-02	4.41E-02	1.70E-02	002E-02	978E-02	5.84E-02	-.192	.504	3.70E-02	.547E-02	5.27E-03	3.05E-03	.396E-02	447E-03	5.41E-02	931E-02	3.00E-02	089E-03
	PU1	3.29E-03	767E-03	3.12E-03	2.42E-02	1.27E-02	3.45E-02	2.31E-02	3.70E-02	.501	-.197	-.153	984E-02	.975E-02	-.102	899E-02	133E-02	3.99E-02	3.40E-02
	PU2	1.29E-03	2.46E-02	926E-02	3.01E-02	375E-02	5.26E-02	.996E-02	547E-02	-.197	.551	-.173	4.94E-02	5.45E-02	988E-02	7.93E-02	1.02E-02	415E-02	296E-03
	PU3	343E-02	2.44E-02	4.17E-02	683E-02	933E-02	064E-04	9.55E-03	5.27E-03	-.153	-.173	.650	644E-02	3.77E-02	168E-03	5.89E-02	845E-02	668E-02	1.16E-02
	QUAL1	3.67E-02	4.89E-02	026E-03	458E-02	611E-02	9.42E-02	269E-02	3.05E-03	984E-02	4.94E-02	644E-02	.456	-.287	-.104	015E-02	.141	4.82E-03	2.17E-02
	QUAL2	798E-02	150E-02	2.07E-02	002E-02	1.00E-02	768E-02	5.58E-02	396E-02	975E-02	5.45E-02	3.77E-02	-.287	.467	486E-02	3.07E-02	2.62E-02	1.97E-02	2.16E-02
	RA1	3.78E-02	436E-02	3.23E-02	5.26E-03	750E-04	898E-02	1.28E-02	447E-03	-.102	.968E-02	168E-03	-.104	.486E-02	.473	-.191	-.141	3.74E-02	9.53E-02
	RA2	094E-02	130E-02	477E-02	7.47E-02	909E-02	6.17E-02	.060E-02	5.41E-02	899E-02	7.93E-02	5.89E-02	015E-02	3.07E-02	-.191	.507	1.93E-02	-.115	5.71E-02
	RA3	5.05E-02	4.18E-02	269E-02	617E-02	4.64E-02	5.96E-02	2.50E-02	931E-02	133E-02	1.02E-02	845E-02	.141	2.62E-02	-.141	1.93E-02	.483	-.149	-.110
	RA4	131E-03	3.55E-02	694E-02	319E-02	1.44E-02	1.10E-02	.160E-02	3.00E-02	3.99E-02	.415E-02	668E-02	4.82E-03	1.97E-02	3.74E-02	-.115	-.149	.589	3.99E-02
	RA5	328E-03	3.07E-03	1.62E-02	1.83E-02	2.40E-02	539E-02	2.06E-02	089E-03	3.40E-02	.296E-03	1.16E-02	2.17E-02	2.16E-02	9.53E-02	5.71E-02	-.110	3.99E-02	.628
Anti-image Correlat	EU1	.782[a]	-.425	281E-02	-.162	.208	7.09E-02	-.124	.156	1.70E-02	2.53E-03	.132	7.89E-02	.066E-02	7.96E-02	266E-02	-.105	099E-03	092E-03
	EU2	-.425	.777[a]	-.340	-.273	-.128	.131	2.17E-02	-.118	278E-02	6.30E-02	5.75E-02	-.137	.750E-02	.205	.137	-.114	-.215	7.35E-03
	EU3	281E-02	-.340	.763[a]	-.450	-.147	4.89E-02	.264	4.01E-02	7.37E-03	.592E-02	3.65E-02	739E-02	5.07E-02	-.151	.105	.103	969E-02	3.43E-02
	EU4	-.162	-.273	-.450	.832[a]	3.10E-02	3.38E-03	-.181	.125	3.08E-02	7.21E-02	712E-02	471E-02	.608E-02	1.36E-02	-.187	691E-02	822E-02	4.11E-02
	SEC1	.208	-.128	-.147	3.10E-02	.827[a]	-.377	-.344	446E-02	2.86E-02	.406E-02	826E-02	168E-02	2.34E-02	377E-04	277E-02	-.107	3.04E-02	4.83E-02
	SEC2	7.09E-02	.131	4.89E-02	3.38E-03	-.377	.801[a]	-.225	-.132	-.147	-.114	120E-04	-.225	.166E-02	.232	-.139	-.138	2.35E-02	.153
	SEC3	-.124	2.17E-02	.264	-.181	-.344	-.225	.757[a]	-.475	5.75E-02	.734E-02	2.09E-02	914E-02	-.221	3.28E-02	092E-02	5.34E-02	.120	4.57E-02
	SEC4	.156	-.118	4.01E-02	.125	446E-02	-.132	-.475	.718[a]	-.133	.124	9.22E-03	1.68E-02	.152	104E-03	-.127	.161	-.112	260E-02
	PU1	1.70E-02	278E-02	7.37E-03	3.08E-02	2.86E-02	-.147	5.75E-02	-.133	.803[a]	-.375	-.268	150E-02	.124	-.209	.137	367E-02	7.48E-02	3.05E-02
	PU2	2.53E-03	6.30E-02	592E-02	7.21E-02	406E-02	-.114	.734E-02	.124	-.375	.751[a]	-.289	9.85E-02	-.107	769E-02	-.150	1.98E-02	528E-02	303E-03
	PU3	.132	5.75E-02	3.65E-02	.712E-02	826E-02	120E-04	2.09E-02	9.22E-03	-.268	-.289	.754[a]	.104	5.84E-02	320E-03	-.103	.104	744E-02	1.82E-02
	QUAL1	7.89E-02	-.137	739E-02	.471E-02	168E-02	-.225	.914E-02	1.68E-02	150E-02	9.85E-02	.104	.520[a]	-.622	-.224	.104	.299	9.46E-03	4.06E-02
	QUAL2	066E-02	750E-02	5.07E-02	.608E-02	2.34E-02	166E-02	-.221	.152	.124	-.107	5.84E-02	-.622	.576[a]	541E-02	-.166	5.52E-02	3.82E-02	3.98E-02
	RA1	7.96E-02	.205	-.151	1.36E-02	377E-04	.232	3.28E-02	104E-03	-.209	.769E-02	320E-03	-.224	.541E-02	.674[a]	-.391	-.296	7.20E-02	-.175
	RA2	266E-02	.137	.105	-.187	277E-02	-.139	.092E-02	-.127	.137	-.150	-.103	.104	-.166	-.391	.733[a]	3.91E-02	-.214	-.101
	RA3	-.105	-.114	.103	.691E-02	-.107	-.138	5.34E-02	.161	367E-02	1.98E-02	.104	.299	5.52E-02	-.296	3.91E-02	.735[a]	-.284	-.200
	RA4	099E-03	-.215	969E-02	.822E-02	3.04E-02	2.35E-02	.120	-.112	7.48E-02	.528E-02	744E-02	9.46E-03	3.82E-02	7.20E-02	-.214	-.284	.828[a]	-.150
	RA5	092E-03	7.35E-03	3.43E-02	4.11E-02	4.83E-02	.153	4.57E-02	260E-02	3.05E-02	.303E-03	1.82E-02	4.06E-02	3.98E-02	-.175	-.101	-.200	-.150	.882[a]

a.Measures of Sampling Adequacy(MSA)

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.791	26.615	26.615	4.410	24.503	24.503	2.717	15.092	15.092
2	2.353	13.074	39.689	1.954	10.854	35.357	2.501	13.893	28.986
3	2.312	12.843	52.531	1.895	10.527	45.884	2.377	13.204	42.190
4	1.684	9.355	61.887	1.304	7.242	53.126	1.569	8.717	50.906
5	1.472	8.179	70.065	1.061	5.895	59.022	1.461	8.115	59.022
6	.726	4.034	74.099						
7	.647	3.593	77.692						
8	.603	3.348	81.040						
9	.589	3.270	84.310						
10	.503	2.796	87.107						
11	.462	2.569	89.676						
12	.371	2.062	91.737						
13	.336	1.864	93.601						
14	.303	1.683	95.284						
15	.249	1.383	96.667						
16	.241	1.342	98.009						
17	.184	1.020	99.029						
18	.175	.971	100.000						

Extraction Method: Principal Axis Factoring.



Factor Matrix[a]

	Factor				
	1	2	3	4	5
EU4	.692	-.450			
SEC1	.658			-.320	
EU2	.657	-.574			
SEC3	.650	.346		-.359	
SEC2	.616	.351	-.314		
PU1	.578				-.475
EU3	.536	-.523			
PU2	.430			.362	-.420
SEC4	.423	.311		-.365	
EU1	.460	-.498			
RA1	.347		.652		
RA3	.412		.564		
RA2	.393		.514		
RA5	.413		.509		
RA4	.461		.477		
QUAL1		.324		.583	.380
QUAL2		.465		.504	.367
PU3	.322				-.528

Extraction Method: Principal Axis Factoring.

a. 5 factors extracted. 10 iterations required.

Rotated Factor Matrix[a]

	Factor				
	1	2	3	4	5
EU2	.882				
EU4	.789				
EU3	.775				
EU1	.683				
SEC3		.850			
SEC2		.744			
SEC1		.717			
SEC4		.657			
RA1			.732		
RA3			.700		
RA2			.643		
RA4			.636		
RA5			.634		
PU2				.686	
PU3				.681	
PU1		.325		.649	
QUAL1					.817
QUAL2					.796

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Factor Transformation Matrix

Factor	1	2	3	4	5
1	.570	.572	.441	.349	.178
2	-.759	.411	.064	.271	.421
3	-.225	-.366	.890	-.096	-.122
4	.197	-.580	-.055	.336	.713
5	.098	.183	.082	-.826	.517

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.

APPENDIX-IV

SPSS Output of Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.446[a]	.199	.192	.7769
2	.523[b]	.273	.260	.7436
3	.556[c]	.309	.290	.7283

a. Predictors: (Constant), EUORT

b. Predictors: (Constant), EUORT, PUORT

c. Predictors: (Constant), EUORT, PUORT, SECORT

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.528	1	16.528	27.384	.000[a]
	Residual	66.392	110	.604		
	Total	82.920	111			
2	Regression	22.651	2	11.326	20.483	.000[b]
	Residual	60.268	109	.553		
	Total	82.920	111			
3	Regression	25.631	3	8.544	16.107	.000[c]
	Residual	57.288	108	.530		
	Total	82.920	111			

a. Predictors: (Constant), EUORT

b. Predictors: (Constant), EUORT, PUORT

c. Predictors: (Constant), EUORT, PUORT, SECORT

d. Dependent Variable: IB

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.210	.355		6.225	.000
	EUORT	.449	.086	.446	5.233	.000
2	(Constant)	.412	.638		.646	.520
	EUORT	.380	.085	.378	4.485	.000
	PUORT	.466	.140	.280	3.328	.001
3	(Constant)	.314	.626		.501	.618
	EUORT	.334	.085	.333	3.927	.000
	PUORT	.367	.143	.221	2.566	.012
	SECORT	.213	.090	.207	2.370	.020

a. Dependent Variable: IB