Electronic Banking: Impact, Risk and Security Issues

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Abstract
The introduction of electronic banking in the banking sector is to bring customer satisfaction, thereby enhancing the bank’s profitability. Electronic banking is flapping with banking services. It provides enormous benefits to consumers in terms of the ease, simplicity and cost of transactions. E-banking can improve bank’s efficiency and competitiveness, so existing and potential customers can benefit from a greater degree of convenience in effecting transactions. But it also poses new challenges to banking entities and authorities in regulating and supervising the financial system and in designing and implementing macroeconomic policy. The online banking is a demand of today’s customers, but the adoption of e-banking by commercial banks increases security and different types of risks. The increasing popularity of e-banking has attracted the attention of both lawful/legitimate and unlawful/illegitimate banking practices, thereby, exposing customers to fraud, thefts and various other threats of similar nature. The objectives of this study are to study the impact of e-Banking on the banking performance, to know the various risks and security challenges in e-banking that will help bankers to understand the risk and security aspect of various e-banking services where customers have high level of concern. It will help the banks to deliver a secure e-banking system that ultimately, will assist the banks to retain the existing bank customer and to convert the potential users to actual e-banking users.

Keywords--- Banking Customers, E-banking, Risk, Security and Satisfaction.

I. INTRODUCTION

The economy of most developing countries is cash driven; meaning that monetary transactions are basically made through the exchange of bank notes and coins for goods and services. However, this trend is now giving way to a modern and sophisticated payment system where the currency and notes are converted to data, which are in turn transmitted through the telephone lines and satellite transponders. This is as a result of rapid technological progress and development in the financial market (Ozuru et al. 2010; Johnson, 2005). There is faster delivery of information from the customer and service provider, thus differentiating Internet enabled electronic banking system from the traditional banking operation (Singhal and Padmanabhan, 2008; Salawu et al. 2007). This transfer process makes money to be carried in information storage medium such as cheques, credit cards, and electronic means than its pure cash form. Advancements in information and communication technology have seen many banks locally and abroad adopting internet or electronic banking in order to remain relevant in this information age. These sentiments were echoed by Chau and Lai (2003) who establish that, in order to sustain business competitiveness, more and more banks are transforming from their traditional approach of “bricks and mortar” into a “clicks and mortar” one under the recent emergence of electronic commerce and business. The banking industry is using this new communication media to offer its customer value added service and convenience. This system of interaction between the consumers and the banking industries is called the electronic or Internet banking system. Federal Financial Institutions Examination Council (2003) defines e-banking as the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels. E-banking has thus become important channel to sell Products and Services; leading to a paradigm shift in marketing practices, resulting in high performance in the banking industry (Christopher et al. 2006; Brodie et al 2007; Singhal and Padmanabhan, 2008).

II. OBJECTIVES OF THE STUDY

The primary objective of the research paper is to get the conversant of the internet banking and its impact on traditional services. And to know the various risks and security challenges in E-banking.

III. RESEARCH APPROACH

The main source of the information in this research study is the secondary data. An extensive
literature review was conducted to gain a comprehensive understanding of E-Banking. This review covered multiple disciplines from the reputed journals of both National and International level pertaining to E-Banking and its related issues. The literature has also been reviewed from Text Books, Magazines, & Websites.

IV. CONCEPTUAL FRAMEWORK OF E-BANKING

4.1 What is E-Banking?

Banks have used electronic channels to do banking operations with both domestic and international customers. Currently, banks are mostly using electronic channels to receive instructions and deliver their products and services to their customers. Although the range of services provided by banks over the electronic channel varies widely in content, this form of banking is generally referred to as electronic banking (Azouzi, 2009). The definition of electronic banking varies among researchers, because electronic banking refers to several types of services through which bank customers can request information and carry out most retail banking services via computer, television or mobile phone (Daniel, 1999). The definition of electronic banking used in this study is adopted from the Basel committee report which defined it the provision of retail and small value banking products and services through electronic channels as well as a large value electronic payment and other wholesale banking services which are delivered electronically. Such products and services can include deposit taking, lending, account management, the provision of financial device, electronic bill payment, and the provision for other products and services such as electronic money (Basel committee on banking supervision, 2003).

![Figure1. E-banking one component of E-commerce](source)

Source: Saleh M. Nsouli and Andrea Schaechter “Challenges of the "E-Banking Revolution"
The difference between E-money and E-banking is that, with E-money, balances are not kept in financial account with banks

4.2 Why E-Banking?

Electronic banking services have benefits for both banks and customers. For banks, electronic banking is conceded a strategy weapon; help them to achieve competitive advantage and increase their market share. Furthermore, using electronic services can save the cost of resources, which are needed for traditional banking services (Jayawardhena and Foley, 2000). From the customers' point of view, Aladwani, (2001) found that electronic banking provide faster, easier and more reliable services to customers. However, customers are still hesitant to use electronic banking services, because they are concerned with security issues, and they may do not have sufficient ability to deal with the applications of electronic banking (Ayrga, 2011).

4.3 Equipment needed for the functioning of E-Banking

In order for customers to use their banks online services they need to have a personal computer and internet connection. Their personal computer becomes their virtual banker who will assist them in their banking errands. Examples of e-banking services that customers can get online are:

- Attaining information about accounts and loans,
- Conducting transfers amongst different accounts, even between external banks,
- Paying bills,
- Buying and selling stocks and bonds
- Buying and selling fund shares

These services that are offered by e-banking are changing and being improved because of the intense competition between the banks online. Banking industry must adapt to the electronics age, which in its turn is changing all the time.

The banking industry has been undergoing changes since the mid 1990s, in the form of innovative use of information technology and development in electronic commerce (Kalakota and Whinston, 1996). This development made e-banking pose as a threat to the traditional branch operations, despite the fact that electronic commerce is still developing and is rapidly changing (Harris and Spence, 2002; Turbin et al. 2002). According to Ozuru et al. (2010) “The importance of electronic payment system in any country can never be over emphasized, due to the dramatic transformation in technological advancements that is being experienced by the global financial industry”.

V. IMPACT OF E-BANKING ON TRADITIONAL SERVICES

One of the issues currently being addressed is the impact of e-banking on traditional banking players. After all, if there are risks inherent in going into e-banking there are other risks in not doing so. It is too early to have a firm view on this yet. Even to practitioners the future of e-banking and its implications are unclear. It might be convenient nevertheless to outline briefly two views that are prevalent in the market.

Nobody really knows which of these versions will triumph. This is something that the market will determine. However, supervisors will need to pay close attention to the impact of e-banks on the traditional banks, for example by surveillance of:

- strategy
- customer levels
- earnings and costs
- advertising spending
- margins
- funding costs
- Merger opportunities and threats.

The main benefit from the bank customers’ point of view is significant saving of time by the automation of banking services processing and introduction of an easy maintenance tools for managing customer’s money. The main advantages of e-banking for corporate customers are as follows (BankAway 2001; Gurău, 2002):

- Reduced costs in accessing and using the banking services.
- Increased comfort and timesaving transactions can be made 24 hours a day, without requiring the physical interaction with the bank.
- Quick and continuous access to information-Corporations will have easier access to information as, they can check on multiple accounts at the click of a button.
- Better cash management- E-banking facilities speed up cash cycle and increases efficiency of business in over-night, short- and long term deposits, in commercial papers, in bonds and equities, in money market
- Reduced costs- This is in terms of the cost of availing and using the various banking products and services.
- Convenience- All the banking transactions can be performed from the comfort of the home or office or from the place a customer wants to.
- Speed - The response of the medium is very fast; therefore customers can actually wait till the last minute before concluding a fund transfer.
- Funds management- Customers can download their history of different accounts and do a “what-if” analysis on their own PC before affecting any transaction on the web. This will lead to better funds management.

VI. RISKS IN E-BANKING

Akturan and Tezcan (2012) investigated consumers ‘mobile banking adoption through an integration of the technology acceptance model (TAM) with work on perceived benefits and perceived risks.
Data were collected from 435 university students who were non-users but future prospects, and analyzed by structural equation modeling (SEM). It was found that perceived usefulness, perceived social risk, perceived performance risk and perceived benefit directly affect attitudes towards mobile banking, and that attitude is the major determinant of mobile banking adoption intention. In addition, no direct relationship between perceived usefulness and intention to use, perceived ease of use and attitude, financial risk, time risk, security/privacy risk and attitude was detected.

Maditinos et al., (2013) developed an extended technology acceptance model (TAM) model as a tool for examining the factors that have a significant impact on customers’ online banking acceptance. The typical TAM constructs were enhanced with the variables of perceived risk and quality of the internet connection. The proposed conceptual framework of the study (extended TAM), was tested on a sample of Greek internet users. The findings of the study provided overall support for the extended TAM model and confirmed its robustness in predicting customers’ intention of adoption of internet banking. More specifically, results underlined the important impact of perceived usefulness, security risk and performance risk on the intention to use internet banking. On the contrary, the impact of perceived ease of use and quality of the internet connection seemed to have only an indirect effect on internet banking adoption.

6.1 Strategic Risk

A financial institution’s board and management should understand the risks associated with e-banking services and evaluate the resulting risk management costs against the potential return on investment prior to offering e-banking services. Poor e-banking planning and investment decisions can increase a financial institution’s strategic risk. On strategic risk E-banking is relatively new and, as a result, there can be a lack of understanding among senior management about its potential and implications. People with technological, but not banking, skills can end up driving the initiatives. Banks should respond to these risks by having a clear strategy driven from the top and should ensure that this strategy takes account of the effects of e-banking, wherever relevant. Such a strategy should be clearly disseminated across the business, and supported by a clear business plan with an effective means of monitoring performance against it.

6.2 Business risks

Business risks are also significant. Given the newness of e-banking, nobody knows much about whether e-banking customers will have different characteristics from the traditional banking customers. They may well have different characteristics. This could render existing score card models inappropriate, this resulting in either higher rejection rates or inappropriate pricing to cover the risk.

Of course, these are old risks with which banks and supervisors have considerable experience but they need to be watchful of old risks in new guises. In particular risk models and even processes designed for traditional banking may not be appropriate.

6.3 Transaction/operations risk

Transaction/Operations risk arises from fraud, processing errors, system disruptions, or other unanticipated events resulting in the institution’s inability to deliver products or services. This risk exists in each product and service offered. The level of transaction risk is affected by the structure of the institution’s processing environment, including the types of services offered and the complexity of the processes and supporting technology. In most instances, e-banking activities will increase the complexity of the institution’s activities and the quantity of its transaction/operations risk, especially if the institution is offering innovative services that have not been standardized. Since customers expect e-banking services to be available 24 hours a day, 7 days a week, financial institutions should ensure their e-banking infrastructures contain sufficient capacity and redundancy to ensure reliable service availability.

The key to controlling transaction risk lies in adapting effective policies, procedures, and controls to meet the new risk exposures introduced by e-banking. Basic internal controls including segregation of duties, dual controls, and reconciliations remain important. Information security controls, in particular, become more significant requiring additional processes, tools, expertise, and testing. Institutions should determine the appropriate level of security controls based on their assessment of the sensitivity of the information to the customer and to the institution and on the institution’s established risk tolerance level.

6.4 Credit risk

Generally, a financial institution’s credit risk is not increased by the mere fact that a loan is originated through an e-banking channel. However, management should consider additional precautions when originating and approving loans electronically, including assuring management information systems effectively track the performance of portfolios originated through e-banking channels. The following aspects of on-line loan origination and approval tend to make risk management of the lending process more challenging. If not properly managed, these aspects can significantly increase credit risk.

- Verifying the customer’s identity for on-line credit applications and executing an enforceable contract;
- Monitoring and controlling the growth, pricing, underwriting standards, and ongoing credit quality of loans originated through e-banking channels;
- Monitoring and oversight of third-parties doing business as agents or on behalf of the financial institution (for example, an Internet loan origination site or electronic payments processor);
- Valuing collateral and perfecting liens over a potentially wider geographic area;
• Collecting loans from individuals over a potentially wider geographic area;
• Monitoring any increased volume of, and possible concentration in, out-of-area lending.

6.5 Liquidity, interest rate, price/market risks

Funding and investment-related risks could increase with an institution’s e-banking initiatives depending on the volatility and pricing of the acquired deposits. The Internet provides institutions with the ability to market their products and services globally. Internet-based advertising programs can effectively match yield-focused investors with potentially high-yielding deposits.

But Internet-originated deposits have the potential to attract customers who focus exclusively on rates and may provide a funding source with risk characteristics similar to brokered deposits. An institution can control this potential volatility and expanded geographic reach through its deposit contract and account opening practices, which might involve face-to-face meetings or the exchange of paper correspondence.

6.6 Reputational risks

This is considerably heightened for banks using the Internet. For example the Internet allows for the rapid dissemination of information which means that any incident, either good or bad, is common knowledge within a short space of time. The speed of the Internet considerably cuts the optimal response times for both banks and regulators to any incident.

Any problems encountered by one firm in this new environment may affect the business of another, as it may affect confidence in the Internet as a whole. There is therefore a risk that one rogue e-bank could cause significant problems for all banks providing services via the Internet. This is a new type of systemic risk and is causing concern to e-banking providers. Overall, the Internet puts an emphasis on reputational risks. Banks need to be sure those customers’ rights and information needs are adequately safeguarded and provided for.

VII. SECURITY ISSUES IN E-BANKING

Security is one of the most discussed issues around e-banking. Review of various studies has revealed that reliability, ease of use, Personality, accessibility, accuracy, security and efficiency could influence the adoption of e-banking services (Joseph et al., 1999; Meuter et al., 2000; Yang & Jun, 2002; Joseph & Sone, 2003; Long & McMellon, 2004). However, number of studies found that concern for security and privacy is the most important factor.

Influencing the adoption of e-banking (Polatoglu & Kin, 2001; Devlin & Young, 2003, Srivastava, 2007), E-banking increases security risks, potentially exposing hitherto isolated systems to open and risky environments. Security breaches essentially fall into three categories; breaches with serious criminal intent (fraud, theft of commercially sensitive or financial information), breaches by ‘casual hackers’ (defacement of web sites or ‘denial of service’ - causing web sites to crash), and flaws in systems design and/or set up leading to security breaches (genuine users seeing / being able to transact on other users’ accounts). All of these threats have potentially serious financial, legal and reputational implications.

Many banks are finding that their systems are being probed for weaknesses hundreds of times a day but damage/losses arising from security breaches have so far tended to be minor. However some banks could develop more sensitive "burglar alarms", so that they are better aware of the nature and frequency of unsuccessful attempts to break into their system.

It is easy to overemphasise the security risks in e-banking. It must be remembered that the Internet could remove some errors introduced by manual processing (by increasing the degree of straight through processing from the customer through banks’ systems). This reduces risks to the integrity of transaction data (although the risk of customer’s incorrectly inputting data remains). As e-banking advances, focusing general attention on security risks, there could be large security gains.

Financial institutions need as a minimum to have:
• A strategic approach to information security, building best practice security controls into systems and networks as they are developed
• A proactive approach to information security, involving active testing of system security controls (e.g. penetration testing), rapid response to new threats and vulnerabilities and regular review of market place developments
• Sufficient staff with information security expertise
• Active use of system based security management and monitoring tools
• Strong business information security controls.
• These are the issues line supervisors will be raising with their banks as part of their on-going supervision.

VIII. RECOMMENDATION AND CONCLUSION

• Have a clear and widely disseminated strategy that is driven from the top and takes into account the effects of e-banking, together with an effective process for measuring performance against it.
• Take into account the effect that e-provision will have upon their business risk exposures and manage these accordingly.
• Undertake market research, adopt systems with adequate capacity and scalability, undertake proportional advertising campaigns and ensure that they have adequate staff coverage and a suitable business continuity plan.
• Ensure they have adequate management information in a clear and comprehensible format.
• Take a strategic and proactive approach to information security, maintaining adequate staff expertise, building in best practice controls and testing and updating these as the market develops. Make active use of system based security management and monitoring tools.
• Ensure that crisis management processes are able to cope with Internet related incidents.

The banking industry has been a leader in the e-business world in recent years. The e-banking revolution has fundamentally changed the business of banking by scaling borders and bringing about new opportunities. It must be noted, however, that while e-banking provides many benefits to customers and banks, it also aggravates traditional banking risks. Compared to developed countries, developing countries face many impediments that affect the successful implementation of e-banking initiatives. One of the benefits that banks experience when using e-banking is increased customer satisfaction. This due to that customers may access their accounts whenever, from anywhere, and they get involved more, this creating relationships with banks. Banks should provide their customers with convenience, meaning offering service through several distribution channels (ATM, Internet, physical branches) and have more functions available online. Other benefits are expanded product offerings and extended geographic reach. With all these benefits banks can obtain success in financial market.

REFERENCES