ASJP Algerian Scientific Journal Platform

Afak For Sciences Journal

Issn: 2507-7228 – Eissn: 2602-5345

https://www.asjp.cerist.dz/en/PresentationRevue/351

Volume: 08/ N°: 03 (2023), P 417-428

E-Banking Risks Management

DEGHNOUCHE Latra*

Faculty of Economic, Commercial and Management, Sciences University of Algiers3 (Algeria)

latradeghnouche@gmail.com

MEZGHICHE Djamel

Faculty of Economic, Commercial and Management, Sciences University of Boumerdes (Algeria)

d.mezghiche@univ-boumerdes.dz

Abstract ;

Risk management has become the focus of many countries' attention, owing to its impact on banking in general and on electronic banking in particular, especially since the banking sector is considered to be one of the most vulnerable financial sectors owing to technological developments and changes in the sector, as well as the emergence of many contemporary financial instruments that have hit most countries in the world.

In this paper, we review the challenges facing these electronic banks by discussing two main parts: the first risks facing electronic banks, and the other discusses the constraints that limit their launch.

Article info

Received 15 March 2023

Accepted 20 April 2023

Keyword:

- ✓ risk management:
- ✓ electronic banking:
- ✓ contemporary financial instruments:

* Corresponding author

1. ***Introduction***

Currently, the exchange of digital knowledge is not confined to a place or time. Knowledge is being shared among peoples all over the world regardless of the geographical and political boundaries. Technology, from the time of its existence, has contributed in changing many people's rooted concepts that they have been accustomed to in their lives. While technology has positively contributed in shortening the time and distances among nations, it has also created some negative consequences such as the difficulty of protecting the individual's privacy. In the era of widespread technology, new types of money thefts have emerged.

These thefts do not include breaking into houses and banks but rather, Internet piracy. This is one of the modern types of thefts, which is represented in many forms such as identity theft, transferring money from one bank account into another, and the thefts of sensitive and confidential information. Therefore, information technology has an important role to play in our life, and it became one of our priorities. This research study focuses on assessing the risks related to the theft of the information of the clients of the commercial banks and even considering the level of security and theft prevention of such information as one of the key factors of quality that most banks show as one of their competitive advantages which they are trying to maintain. (Ghamri, 2017, p. 311)

The rapid spread of Internet banking all over the world is its acceptance as an extremely cost effective delivery channel of banking services as compared to other existing channels.

However, internet is not an unmixed blessing to the banking sector. Along with reduction in cost of transactions, it has also brought about a new orientation to risks and even new forms of risks to which banks conducting I-banking expose themselves. Regulators and supervisors all over the world are concerned that while banks should remain efficient and cost effective, they must be conscious of different types of risks this form of banking entails and have systems in place to manage the same. An important and distinctive feature is that technology plays a significant part both as source and tool for control of risks. Because of rapid changes in information technology, there is no finality either in the types of risks or their control measures. Both evolve continuously. The thrust of regulatory action in risk control has been to identify risks in broad terms and to ensure that banks have minimum systems in place to

address the same and that such systems are reviewed on a continuous basis in keeping with changes in technology. (SOLANKI, VIRENDER SINGH, 2012, p. 164)

Electronic banking face greater risks, these risks include not only the traditional financial risk, such as credit crisis of electronic currency in the bank, the property loss or overdraw of consumer, the risk of information technology based on the application of information technology such as the system failure, external attack or fraud, and the legal risks,policy risk and moral hazard brought by the changes of business mode. Electronic banking business risks and potential safety problems will inevitably have negative influence on the development of banking. Although there are many risks, electronic banking as a new distribution of commercial banking, has become an important part of the commercial Banks. how to correctly understand the business risk of he electronic banking and take effective measures to control it has become the key in the sustainable development of the electronic banking. the risk management and control is studied in the paper, three main steps and methods are represented namely: the market access control, risk management system and risk control measures, aim to ensure the safety of electronic banking business y effective identification, detect with clear risk management framework, perfect regulations and strict risk control measures. (LU, 2010, p. 39)

Hence the following problematic: **How banking risks are managed to achieve effective protection for both the customer and the bank?**

To answer this problematic the following plan has been divided:

1. **Advantages and Drawbacks of Internet Banking**
2. **E-Banking Risk Assessment and Analysis of current solutions**

To address this problem, the analytical descriptive approach has been relied upon due to its relevance to this topic.

2. *Advantages and Drawbacks of Internet Banking*

The effect of electronic banks (e-banks) was huge on our daily life style. Electronic banks enabled individuals to benefit from the provided unlimited features. In addition, e-banks enabled their customers and small entrepreneurs to benefit from the provided electronic services with all possible and convenient means for accessing the service. In the e-banking era, customers neither need to queue up in front of the traditional banks to open their doors in order to withdraw money from their accounts, nor do they need to rush the time to make a transaction before the banks close. The electronic services time, as they enable customers and small entrepreneurs to process transactions anywhere are not associated with a particular place or in the world and at any time quickly surpassing every human imagination.

Furthermore, the association between mobile phones and the Internet became the most wonderful aspects of the digital age, and it became extremely difficult to stop the use of computers and the Internet in the present time. (Ghamri, 2017, p. 313)

2.1 Advantages of Internet Banking:

Saving money and time are the most crucial advantages for both banks and the users. Besides, electronic banking removes geographical limitations for small and medium size banks, thereby international operations without limits can be operated. No or few time limitations for banking transactions are valid as users can perform most of the banking transactions throughout the day, week and from any place they can have access to Internet. Following and managing the cash position for individuals and firms for interest optimization is possible via e- banking. It provides convenience in terms of the capital, labour, time and all the resources needed to make a transaction

E-banking has enabled banks to increase their data collection, and management, efficient financial engineering that have improved the ability of assessing potential creditors, measuring the creditworthiness of potential borrowers and to price the risk associated with those borrowers through standardized mechanisms such as credit scoring. (Ziqi, L., Michael, T. C, 2003)

Taking advantage of integrated banking services bank, clients may compete in new markets, gain access to new customers and grow in their market share. Technological developments in banking make it much easier and cheaper for customers to compare and contrast products and to establish multiple banking connections, which could alter the purchasing, decision making process of the customer. (Carlson, J., Furst, K., Lang, W.W., and Nolle, D. E, 2000)

In addition, there are other advantages to banking online. You may also be able to: (American Express, 2020)

- ***Pay bills online***

This might be one of the top advantages of online banking because we don't have to take time out of our day to go to the bank. we can simply log into our account and pay our bill online right away. For increased efficiency, we may also set up automated bill payments, which helps we manage our cash flow when we have monthly payments to and from vendors.

- ***Transfer money***

we may need to do a rapid money transfer to a client or vendor, or we may need to transfer money from one account to another. Instead of sending a registered cheque and waiting for it to clear, we may securely transfer the money online.

- ***Deposit cheques online:***

Rather than driving to a bank branch and waiting in line, we may be able to deposit cheques online in minutes. And because most financial institutions have an app that replicates its services from our phone, we have the ability to always bank on the go. Plus, some banks offer 24/7 customer service, so we can speak to a customer service representative at any time.

- ***Lower our overhead fees:***

If we business banks online, we banking fees may be lower, as online banks may not have to pay for the cost and upkeep of branches, and those savings may be transferred to as. Plus, they may have more no-fee options that add to our savings.

2.2 *Drawbacks of Internet Banking:*

One of the main important disadvantages of electronic banking applications internationally is the lack of governmental policies that guides Internet banking operations across international borders. While electronic banking can provide a number of benefits for customers and new business opportunities for banks, it exacerbates traditional banking risks. Even though considerable work has been done in some countries in adapting banking and supervision regulations, continuous vigilance and revisions will be essential as the scope of E-banking increases. In particular, there is still a need to establish greater harmonization and coordination at the international level. To understand the

AFAK for Sciences Journal
مجلة آفاق للعلوم
EISSN: 2602-5345 ISSN: 2507-7228

impact of E-banking on the conduct of economic policy, policymakers need a solid analytical foundation. Without one, the markets will provide the answer, possibly at a high economic cost. Further research on policy-related issues in the period ahead is therefore critical. (Adel, 2001)

Customers need access to a computer with internet which signifies that the access to a customer's account is solely dependent in technology in the case of online banking. A third party services is required by the bank to run the online banking services to their clients. (SAS Institute AB Newsletter, 2000)

The growth of electronic banking has created a new basis with regard to the degree of exposure to the risk and therefore consequently the need of not only a differentiated regulating frame, but also mechanisms of monitoring to be formed, which has already begun to be shaped in the fields of Basle Committee of Banking Supervision. (SOLANKI, 2012, p. 164)

While online banking is always improving, there are some disadvantages for business owners reliant on immediate and constant access to their banking services.

- *Technology disruptions*

Online banking relies on a strong internet connection. If our internet is disrupted by a power outage, server issues at our bank, or if we're in a remote location, our ability to access our accounts might be affected. Scheduled site maintenance also means we can't access your accounts and may have to seek an alternative.

- *Lack of a personal relationship*

A personal relationship with our bank may be able to offer an advantage over online banking. If we need a business loan, a new line of credit, a waived fee or to make changes to our current banking needs, having that relationship can help.

In-person banking relationships can also help we craft a business account tailored to our specific needs. They can also make notes in our files about cheques, cash deposits and international payments so we can avoid extended holds on our money.

An ideal relationship would be a blend of online banking for our day-to-day transactions and a personal relationship with our banker to assist with bigger needs. That way, we have multiple options to support our business.

3. E-Banking Risk Assessment and Analysis of current solutions

Online banking, or electronic banking, involves the use of computers (as opposed to human interaction) to conduct monetary transactions. Inevitably, there are risks associated with transferring money online and it's important to know what those risks are ahead of time.

Online banking capabilities, while a huge innovation, has increased the exposure of banks and consumers alike. As consumer trends shift and technology advances.

A risk assessment, a process that analyzes the specifics of various risks, is a fundamental process within any ERM program. An ebanking risk assessment is a risk assessment that analyzes the risks involved with conducting banking online.

3.1 Risk Management in Online Banking:

Following is a review of some of the risks that are inherent in online banking: (ASLI YÜKSEL MERMOD, s.d.)

- **Strategic risk:**

Strategic risk is one of the current and prospective risks which affect earnings and capital arising from adverse business decisions mainly associated with Board and management decisions. Many senior managers do not fully understand the strategic and technical aspects of Internet banking. Encouraged by competitive pressures, banks may seek to introduce or expand Internet banking without an adequate cost-benefit analysis when the management doesn't plan for, manage and monitor the performance of technology related products, services, processes and delivery channels. Poor e-banking planning and investment decisions can increase a financial institution's strategic risk.

- ***Operational-Transactional risk:***

Transactional risk is the current and prospective risk which is known also as security or IT risk usually affects earnings and capital arising from fraud, error, negligence and the inability to maintain expected service levels. A high level of transaction risk may exist with Internet banking products, because of the need to have sophisticated internal controls and constant availability. One of the key challenges encountered by banks in the Internet environment is how to predict and manage the volume of customers that the banks want to obtain. The structure and complexity of banking products, bank's processing environment, different types of services offered, the difficulty of understanding and implementing the new technologies increase the level of operational risk, especially when the institutions propose innovative services that are not yet standardized.

- ***Compliance risk:***

E-banking is a new delivery channel where the laws and rules governing the electronic delivery of certain financial institution products or services may be ambiguous. Compliance risk is the risk that has an effect on earnings or capital arising from violations of, or non-conformance with, laws, rules, regulations and ethical standards. Compliance risk may lead to diminished reputation, actual monetary losses and reduced business opportunities. Banks need to carefully understand and interpret existing laws as they apply Internet banking and guarantee stability with other channels such as branch banking. This risk is amplified when the transactions are made internationally. In case of cross-border transactions the compliance function becomes more complicated due to the lack of jurisdictional clarity. Conflicting laws, tax procedures and reporting requirements across different authorities add new risks. The need to keep customer data private and seek customers' approval before sharing the data also considered as compliance risk.

- ***Reputational risk**:*

Reputational risk affects on earnings and capital arising from negative public opinion, which can include specific actions that may cause negative public image of overall bank operations. A bank's reputation can be damaged by poorly executed Internet banking services such as limited availability, buggy software, hacked or modified institutional websites and other security problems. Customers may change their bank according to their experiences and move to the bank which provides the simplest but safest internet services. Customers should be well educated against the risks involved in internet transactions before they start to realise their banking transactions online.

- ***Information security risk**:*

Information security risk is the risk that has negative effect on earnings and capital arising out of lax information security processes, thus exposing the institution to malicious hacker or insider attacks, viruses, denial-of-service attacks, data theft, data destruction and fraud. The most sensitive computer systems, such as those used for high value payments or those storing highly confidential information, tend to be the most comprehensively secured. However, while banks tend to have reasonable perimeter security, there is sometimes insufficient segregation between internal systems and poor internal security. The programmes and especially the virus and security systems must be up-to-date all times.

- ***Credit risk:***

A customer's failure to meet his financial obligations is called as credit risk. Internet banking enables customers to apply for credit from anywhere in the world. Banks will find it extremely difficult to verify the identity of the customer, if they intend to offer instant credit through the Internet. Verifying collateral and if the customer is in another country in case of conflict different jurisdiction procedures may cause difficulties. Different accounting standards, inflation accounting techniques, lower standards of transparency, not developed credit reporting bureaus and non existing credit histories , absence of bankruptcy laws, different currency rates may cause difficulties in international banking transaction in terms of credit evaluation . (Hughes J. And S. Macdonald, 2001)

- ***Interest rate risk:***

Interest rate risk is the risk arising from fluctuations in interest rates. Differences between interest rates paid on deposits and gained from credits may cause enormous effects depending on banks' being assets or liability sensitive. An asset sensitive bank will be positively affected from rising interest rates and a liability sensitive bank will be negatively affected from rising interest rates.

Several studies indicated that there were some obstacles to the application of electronic banking and could be summarized as follows: (BENDJIMA Omar, BENLAKHDAR Mohamed Larbi, 2020, p. 29)

- ***Security problems***: problems related to network violations and the possibility for others to steal funds from depositors, as well as the possibility of wire fraud.

- ***Technical problems**:*

Difficulties in obtaining advanced computer equipment, weak communication networks and electronic coverage, as well as lack of maintenance and upgrading centres.

- ***Problems related to poor technical knowledge of individuals**:*

These problems are linked to poor electronic efficiency in handling devices and equipment, customers' fear and reluctance to deal with this method, as well as their lack of certainty in accessing the required banking services.

- ***Legislative and legal problems**:*

These are associated with weak legal systems, and the lack of legislations that limit abuse of the network and preserve the rights to security and safety of customers.

These risks occur in the event that laws, rules and controls established by the authorities are violated or may occur as a result of a lack of clear definition of legal rights and obligations arising from electronic banking transactions and a lack of associated disclosure requirements and these risks are also the result of failure to provide the required confidentiality of customers' transactions or the improper use of data and information, These risks are reinforced by the lack of banking legislation on contracts, electronic transactions and legal tools to regulate such contracts and transactions as financial fraud becomes more possible owing to the absence of effective principles and standards on which to verify and verify the identity of customers in the open-ended nature of the Internet.

- ***Administrative and organizational problems****:*

Associated with the weak engineering of the banking business and its adaptation to modern work styles, as well as the resistance of bank employees to adopt the electronic method in marketing added to the scarcity of specialists in this type of banking the aforementioned banks.

- ***Financial problems****:*

It refers to the weak financial allocations to cover the purchase of electronic devices and equipment, in addition to shortage in financial allocations to implement training and development programs for associates to facilitate the provision of the banking service.

3.2. Analysis of current solutions:

There have been numerous attempts to reduce the security risks of online payments so far. Unfortunately, many attempts have been more reactive than proactive, as they do not take into account the root of the problem. Therefore, some might offer a base for using credit/debit cards as unique physical and remote tools for all our payment needs (i.e. not only e-commerce but also e-banking), however, our security practices in this regard are not mature enough to handle these transaction. (Omar A. Herrera Reyna, 2005)

To prevent and stop online banking fraud, it is essential to integrate multiple advanced detection mechanisms with the right processes, and tools.

Moreover, advanced threat intelligence insights, tailored to a specific business and industry, have become crucial for staying ahead of all relevant threats, and for avoiding getting caught off-guard by the most advanced cyber-attacks. (Online banking fraud: what it is and how to prevent it, 2022)

- ***Taking Precautions*** (George N)

As there's such a difference between internal threats and external threats, you also need different tactics to protect against them. Handling internal threats is in some ways simpler: You know the potential players and you have authority over them:

- Know who has access to what data.
- If an employee leaves, change passwords immediately to cut off their access.
- Train employees not to share passwords.
- Train employees to meet at least minimum security requirements.
- Do not allow anyone unrestricted access to sensitive information.
- Use systems that can monitor your employees' cyber activity.

One key difference between internal threats and external threats is that you have no such control over hackers. The best you can do is make your security as good as possible. If this isn't your area of expertise, don't hesitate to talk to a professional about whatever computer security topics you're worried about.

Learn the basic cybersecurity measures and apply them. That includes antiviral programs and an intelligent firewall system. everyone on your team should follow basic security practices, such as not using public Wi-Fi.

It's also important to practice physical security, Data Sunrise says. A firewall won't help if it's easy for someone unauthorized to sit down at a terminal in our office building and log on without any supervision.

- ***Secure channels***

This solution is consider to be more of a patch than a real attempt to stop credit/card fraud considering the current implementations and on-line shopping and banking. they work well but are simply not enough of a security solution to limit credit/card fraud.

Phishing, spyware, trojan horses and other sophisticated targeted attacks made many customers realize that is not a panacea. They only cover the communications channel between the customer computer and e-banking/e-commerce servers. They do not provide security for information that is being processed or stored, and they reach the credit/debit card at the other point. Â That is why phishing and spyware attacks are able to circumvent security provided by these channels.

Simply put, spyware installed at the customer computer by social engineering can easily capture and transfer credit/debit card information without having to deal with the cryptographic issues of secure channels. On the other hand, hackers can also steel the information from servers where it exists in clear text format. Circumventing these security controls can occur almost as easily.

- ***Additional codes and secrets***

Another solution is to add some kind of secret to the use of the card. Because we don't want to only use readily available information on the card (i.e. printed information), it seems pretty obvious that this solution should overcome the some of the security issues outlined before.

Security under this scheme rests then on the secrecy of that additional piece of information, be it a pin, a password or whatever you would like to call it.

Both Visa and Mastercard have implemented security solutions that work in this way, called Verified by Visa and Secure respectively. In this case, the customer may register a password with their card issuer, and they are asked for it during online-purchases. That way, the customer is identified with the customary information (e.g. name, address) and then authenticated with the password.

The advantage with this scheme is that, in general, it can be used for other purposes, such as online banking. If customers use this secret to make purchases, they can use it as well for access control and also to authenticate transactions (e.g. tax payments or fund transfers) that involve the use of their card. Another advantage is that it is very easy to use for the customer and it does not require any technical expertise. (Omar A. Herrera Reyna, 2005)

Hence, we can provide a number of preventive measures that banks need to work on to reduce the operational risks resulting from the use of these services in order to provide banking services safely: (nabil Chehali)

Banks and financial institutions must pre-establish acceptable risk limits that they must accept for providing these

AFAK for Sciences Journal مجلة آفاق للعلوم EISSN: 2602-5345 ISSN: 2507-7228

services (Risk Appetite) in order not to aggrieve a service employee or to force banks to suspend the service.

It must have control systems to monitor suspicious financial transactions and must document events, fill gaps, cover gaps and learn from lessons and errors continuously to avoid them in the future.

Banks must apply the 2FA bilateral authentication (Two-Factor Authentication) in all their banking services to access the account by users in order to protect users' accounts and must not waive security factors under the pressures of facilitating the use of the banking service.

Customers should be continuously educated about security aspects, urged not to share account entry variables and not to keep them in one place, not to respond to spambots, and be sensitized through educational bulletins, through branch service providers, through social media, through SMS messages and others.

Banks should monitor technological advances and use the best means of security in banking services, train and qualify cadres to be followers of each new service and reflect it on these services.

This is what banks must do to maintain the reliability of banking among customers and also to protect customers and to advance the banking market

4. *CONCLUSION*

Interest in developing and improving banking services has become one of the priorities of raising banks' competitiveness in a globalizing era, by receiving different policies and approaches that enable them to meet the needs and desires of their customers in various forms. Banking marketing is one of the most important pillars on which banks rely to perform their functions and deliver services to their customers.

Banks have also faced significant challenges, especially in the latter part of the century, where globalization and financial liberalization have accelerated in an economic environment with many high risks and highly harmful competition. Banks are moving towards modern trends in banking services through the formation of giant banking entities through merger to ensure their growth, survival, continuity, transition towards inclusive banks and gradual transition from traditional banks with physical presence in the form of branches and transactions to virtual banks that rely on ICTs such as electronic payment and payment methods such as bank cards, electronic cheques and low-cost electronic money.

Risks arise when there is a probability of more than one final product and although all business enterprises are active in a field characterized by uncertainty, The financial sector, especially banking, remains the most vulnerable economic sector. ", regardless of the future risks and this is due to the nature of its specialization, which is attracted to a large degree by the challenges of increasing the rates of change in economic life and high rates of interdependence between units of the same sector as well as overlap between economic sectors, So banks face the most dangerous outcome of their movements that are not in their favor. s economic needs and shifts in the economic environment, The more intertwined between different domestic sectors and even at the international level calculated on the manifestations of globalization With humanity now witnessing a world of economic interdependence among its parts to an

AFAK for Sciences Journal مجلة آفاق للعلوم EISSN: 2602-5345 ISSN: 2507-7228

unprecedented level, The banking sector is known to be more than compact and frictional.

This also makes it more prone than others to crises and to be influenced by the disruptions that can occur in markets other than its own. and in the evolution of financial liberalization and banking innovations and the growing use of new financial instruments helped to create enormous technological advances in the banking industry, Hence, the issue of risk management retrospectively has gained increasing interest in banks. as listed by the Basel Committee as an important focus for determining bank solvency, In line with global trends in this regard, credit banks in general and electronic banks in particular have recently begun to pursue risk management and review policies and develop specialized departments with the aim of controlling the degree of risk to which the bank's business is exposed to diversity.

5. *Bibliography List* :

A- Books:

- Carlson, J., Furst, K., Lang, W.W, and Nolle, D. E. (2000). “Internet Banking: Market Developments and Regulatory Issues” “The New Economy: What Has Changed, and the Challenges for Economic Policy, Washington, DC.

- Hughes J. And S. Macdonald , (2001) International Banking: Text and Cases, Addison Wesley, US Ed, Pearson College Div.

B - *Newspaper articles:*

- Nayef Salah Ghamri, (2017) Positive and Negative Effects of Using Electronic Banking on Customers and Small Entrepreneurs: An Exploratory Study in the Western Region of Saudi Arabia, Business and Economic Research, ISSN 2162-4860, Vol. 7, No.2

- VIRENDER SINGH SOLANKI, (2012). Risks in E-Banking and Their Management, International Journal of Marketing, Financial Services & Management Research, Vol.1 Issue 9.

- Aladwani Adel M. (2001). “Online banking: a field study of drivers, development challenges, and expectations”, International Journal of Information Management, Vol 21.

- BENDJIMA Omar, BENLAKHDAR Mohamed Larbi,(2020). E-marketing for banking services in Algeria and Their Relationship with Customer Satisfaction - An Applied Study on a Sample of Banks -, Economic Sciences, Management and Commercial Sciences Review, Volume: 13/ N°: 02

- نبيل الشهالي، (2022) مخاطر الخدمات المصرفية الإلكترونية التي على البنوك السيطرة عليها في الفترات القادمة!!، جمعية البنوك اليمنية - صنعاء بتاريخ: 2022/06/15.

C - Seminar papers:

- Xia LU, (2010). On the Risk Control of Electronic Banking, International Conference on Network and Finance Development, School of Management, Hubei University of Technology, Hubei Wuhan, China, NFD

- Ziqi, L., Michael, T. C. (2003) “Challenges to Internet e-banking”. Communications of the ACM archive: Mobile

AFAK for Sciences Journal مجلة آفاق للعلوم EISSN: 2602-5345 ISSN: 2507-7228

computing opportunities and challenges, Vol. 46, Issue 12.

- SAS Institute AB. (2000) "SAS helps Sweden's biggest bank to improve IT governance", SAS Institute AB Newsletter.

D - Websites:

-Advantages and Disadvantages of Online Banking, American Express, December 04, 2020: https://www.americanexpress.com/en-ca/business/trends-and-insights/articles/advantages-and-disadvantages-of-online-banking/ (consulted on 12/02/2023).

- **ASLI YÜKSEL MERMOD,** Customer's Perspectives and Risk Issues on E-Banking in Turkey; Should We Still be Online? Journal of Internet Banking and Commerce, https://www.icommercecentral.com/open-access/customers-perspectives-and-risk-issues-on-ebanking-in-turkey-should-we-still-be-online.php?aid=38152 (consulted on 16/02/2023).

- Omar A. Herrera Reyna, (2005) Security solutions for e-banking and e-commerce with credit/debit cards,- Part 1: Analyzing the Security Issues, BankInfoSecurity.com - November 8.: https://www.bankinfosecurity.com/security-solutions-for-e-banking-e-commerce-creditdebit-cards-part-1-analyzing-a-26 (consulted on 22/02/2023).

- Online banking fraud: what it is and how to prevent it, Published: 12/4/2022: https://www.cleafy.com/insights/what-is-online-banking-fraud-and-how-to-prevent-it (consulted on 22/02/2023).

- George N. Root III, The Risks & Advantages of Online Banking, https://smallbusiness.chron.com/ach-fraud-regulations-businesses-81061.html (consulted on 22/02/2023).