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THE ROLE OF ELECTRONIC-PAYMENT SERVICE PROVIDERS IN THE DEVELOPMENT OF E-BANKING IN IRAQ - AN APPLIED RESEARCH IN CENTRAL BANK OF IRAQ

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ABSTRACT

Since 2003, Iraq has faced many serious challenges to develop and reform its banking sector. As a major step to improve this sector, the Central Bank of Iraq (CBI), responded by taking many measures, amongthem, issued many legislations and regulations relating to electronic payments systems to adapt the global advances in that systems and to reduce the use of cash payment transactions dominating the payment transactions in Iraq. This applied research is aimed atdetermining the challenges facing the application of electronic banking in general and electronic payments services in particular, andto investigate the role of the Electronic Payment Services Providers (EPSP)companies recently licensed in Iraq to improve the electronic payment services.The information/data for this research gathered from the related available published literatures, direct interviews with key managers of Electronic Payment Services Providers (EPSP) companies and questionnaires. Such information and data were tabulated and analyzed in accordance to the methods and procedures of (SPSS) statistic program.Theresearcher usedthese data to test the main hypothesisstating :**(**there is no positive effect /relation of a statistical significant, between the new technological services provided by (EPSP)companies and the development of electronic-banking system in Iraq),but the outcome of the analysis rejected this hypothesis and approved that there is a related direct effect and relation, of statistical significant, between them at aSignificant Level(Sig) of □ □ □ □ □ □ □

Despite the considerable efforts made by (CBI) to applying a new technologies of banking and payment services, Iraq is still lagging behind other developing countries in the region .The analysis of the survey also showeda considerable poor performance of the (EPSP)companies dueto its lag of experience as new comers,but with a significant indication that some respondents particularly the educated class (aged between 29-49), prefer to use their smart mobile phones and their PC computers to make their payments transactions, instead of dealing with cash in the banks.

To improve the electronic banking and payment systems in Iraq, the researcher recommended the following immediate measures:

(EPSP) companiesneed to improve their performance and services by adapting, proper apps, technologies ,employ professional staff, andpromote the sales campaigns to encourage the majority of the people to use the electronic payments system in their transactions instead of using cash.

The infrastructure for the electronic banking and payment in Iraq, such as the internet services, must be significantly improved in terms of coverage, speed of services and cost.

Central Bank of Iraq CBI need to formulate and adapt a short term Technical and Digital Strategy appropriate to Iraqi socio-economic environment by help of international FinTech companies to secure its smooth entrance to digital banking age.

Key Words: E-banking, E-Payment, Internet, Mobile phone, E-Commerce, Digital economy, Central Bank of Iraq (CBI),Electronic Payment Services Providers (EPSP)

1. INTRODUCTION

The fast steps madein recent years on the Information and Communication Technology (ICT) has deeply affected and changed theeconomic,trade and financial operations throughout the globe, especially in the banking and payments systems. Consequently, a new concepts and expressions such as: Electronic Trade, ElectronicBanking,ElectronicPayments,FinTech, Sandbox, Block chain...etc.,have been emerging and widely used in the banking services and payment systemsthroughout the globenowadays .These developments hasput a tremendous challenges on banks to adapt these changes. Thesechallenges, among other developing countries, arefacing the banking sector in Iraq. Although, the financial organizations in Iraq (especially the Central Bank of IraqCBI) aretrying to administer and adapta new electronictechnologies servicesin banking sector, but it is still lagging behind other developed and developing countries .

Before 8th of March,2003[1],due to thelong economicsanctionimposed on Iraq (since 1990), there were no any significant digital or electronic payment system applicable in Iraq.All payment transactions between banks (mainlyby cheques)were madeand finalized manually intheclearing and settlement house of the Central Bank of Iraq(CBI). These manual operationsproved by experienceinconvenient, because it was time consuming, error porn, and involve some fraud actions. Since 2003, CBI as a leading entity responsible for the monetary management, has been trying to implement some banking measures and reformsin the banking sector, to increase its services efficiency and achieve financial stability for Iraq.These measures includedissuing several payment regulations (such as Electronic Payment Services Regulation No.3 for Year 2014) to manage and encourage electronic payments and to decrease the use of paper (cash) payments. Since 2016, ten(EPSP)companies has been granted a license by CBI to provide electronic payment services in accordance to the terms of that regulation.

In thisstudy,the researcher explorethe present global progress in ICTin regard to banking services compared with existing similar services in Iraq, to evaluatethe role of licensed (EPSP) companies practicesin utilizingthe new technologiesto develop the electronic payment services in Iraq.

2. GENERAL FRAMEWORK OF THE RESEARCH

2.1 This research addresses the following questions:

- What is the gap between the present global advances in electronic banking /electronic payment services and the existing similar services in Iraq? **Problem of the research**
- What arethe roles of existing banking / payment systems, financial institutes and services provided by electronic payment services providers (EPSP)companies todevelop the banking sector in Iraq, to achieve the main target to transferto digital economy and to satisfy consumer demands?**Objectives of the research**
- Is there any significant statistical correlation, at a (Sig) of (0.05) between the technological services provided by (EPSP) companies and

[1]The date of occupation of Iraq by United States of America and its allies

the development of electronic payments services in Iraq? **Hypothesis of the research**

2.2 Methodology of the research: The information/datafor this research gathered from the related available published literatures, direct interviewswith key managers of Electronic Payment Services Providers (EPSP) companies and questionnaires. Such information and data were tabulated and analyzed in accordance to the methods and procedures of (SPSS) statistic program.

3. RELATED LITERATURE REVIEW

The researcher reviewed the available thesis's, books, periodicals and articles issued in Iraq and abroad relevant to the research subject which provideda good basis for the research procedure and methodology.As following:

3.1 The role of the Information and Communication Technologies (ICT) to the development of e-banking and digital payment:ICT playing a very important role in the advancements in banking because they are enabling banks to make big changes to the way they operate .Due to the fast advancing in global information infrastructure (computer networks, internet and mobile phone)enabled the emerging of what is called electroniccommerce (E-commerce)at global level. According to (Shah&Clarke-2009-12): these developments have created a new type of economy, which many call it the 'Digital economy'. This fast emerging economy is bringing with it rapidly changing technologies, increasing knowledge intensity in all areas of business, and creating virtual supply chains and new forms of businesses and service delivery channels such as electronic banking.

What is the electronic banking?In its very basic form, electronic banking can mean the provision of information about a bank and its services via the World Wide Web (WWW). More sophisticated electronic banking services provide customer access to accounts, the ability to move their money between different accounts, and making payments or applying for loans via electronic channels.With the development of the internet network in the latter half of the 1990s, and because of the speed of transforming the information and transactions, openness and global accessibility provided by the internet, banks are increasingly using electronic channels for receiving instructions and delivering their products and services to their customers. As per (Gupta, Rao, and Upadhyaya- 2008-119),on-line's connection makes use of the bank's ATM network for transactions at a real-time bill payment.The structure of banking is changing, customer expectations are evolving and banks are looking for new ways to attract and satisfy profitable customers. Mobile payment and electronic wallets services preceded electronic banking and were widely accepted by consumers.

According to (Cleveland -2016-7),mobile payments are either person-to-person paymentsfrom a phone or person-to-merchant point of sale (POS) payments from a phone. Over time theevolution of internet services and telephone company technology, including thedeployment of fiber-optic cables and wireless technology, ensured a more robustexpansion of this services.

3.2 Payment systems and instruments:What is electronic payment systems?They are systems that facilitate businesses and consumers to transfer funds from one to another. While cash is still as an important payment instrument that people use in their daily lives to purchase goods and servicesespecially for small transactions,a new payment instrumentssuch as ATM, electronic paymentcards, electronic wallets .etc. are now widely used and dominating the global monetary transactions.

3.3Classifications of electronic payment systems: many classifications are used for the payment systems,but the authors of the article: "Comparative study among new payment systems and anew future trends in mobile payments "by (Liebana, Lieva and Fernandez- 2014-5)provided a comprehensive analysis for Classification of payment systems, as following:

- **According to the business model:** This approach refers to the moment when the due payment is completed. Three differentmoments are established:prepayment (payment in advance), debit (instantpayment) and credit (future payment).The prepayment systems (pay before) are characterized by storing the customer's money in afinancial instrument in order to allow future payments (such as wallet cards). The debitpayment systems (pay now) are

the ones where the direct payment is performed at the moment ofthe purchase transaction. The credit payment systems (pay later) charge the amount of thetransaction after the purchase is performed (such as credit cards).

- **According to the transaction amount:** Depending on the transaction amount, different protocols are applied. Mainly two operationtypes are established according to the amount: micro-payments and macro-payments. The classification threshold between the twocriteria varies according to the regulation of different authorities and countries (e.g. Euro Zone).
- **According to the type of payment validation:** This refers to the validation usually performed by the financial entity in the moment of atransaction carried out with a card or a mobile phone. Under this standard, we have two classifications making a distinction between offline and online payment systems.
- **According to the type of device:** The device employed to complete the payment can be connected to a physical network (e.g. POS-Point of sales- in any establishment) or to a mobile network (wirelessPOS in some establishments) .The difference between these twolies in the mobility provided by a terminal that can be displaced without the need to beconnected to a pre-established network (e.g. the payment system in the cab fleet,e.g. Uber), as well as in the security perceived by the users for not losing sight of their cards, thus avoiding eventualfraud (e.g. in restaurants).
- **According to the transfer method:**Electronic payment systems can be classified in: systemsbased on token or electronic money and systems based on a bank account or on credit/debit.

3.4AdvancedFinancial Technologies:

Financial technology, means the use of technologyto deliver financialsolutions. Many advanced financial technologies are recently emerging and globally developing such as:

- **FinTech.**What is FinTech and what its aim? according toDorfleitner (Dorfleitner-2017-5): The term "FinTech," which is the short form of the phrase financial technology,denotes companies or representatives of companies that combine financial serviceswith modern, innovative technologies. As a rule, new participants in the marketoffer internet-based and application-oriented products. FinTechs generally aim toattract customers with products and services that are more user-friendly, efficient,transparent and automated ,than those currently available.

  The development of FinTech has evolved in three periods, summarized according toArner, Barberis and Buckly(Arner, Barberis and Buckly-2017-4), as follows: first period, FinTech 1.0, occurred from 1866 to 1967, when the financial servicesindustry remained largely analogue despite being heavily interlinked with technology. The next period, FinTech 2.0, extended from 1968 to 2008, an era characterized by the development of digital technology for communications and transactions and thusthe growing digitization of finance. Since 2009,in the period ofFinTech 3.0, new startups and established technology, e-commerce, and social media companies havebegun to deliver financial products and services directly to the public as well as to businesses, including banks.Essentially, the recent growth of FinTech is attributable to a bottom-up movement driven by tech firms and startups .FinTech firms operate in many areas, for example: digital and mobile payments, personal finance, personal loans, traditional deposits/saving accounts,wealth management, bitcoin and cryptocurrency.
- **RegTech.**Refers to technological solutions that streamline and improve regulatory processes. Like FinTech, RegTech has developed in three stages. The first stage, RegTech 1.0, was led by large financial institutions that integrated technology into their internal processes to combat rising compliance costs and complexity, as mentioned in the Basel II Capital Accord. The second stage, RegTech 2.0, has been driven by new regulatory requirements and the costs

to the financial industry of their implementation. At the same time, regulators are seeking to mirror the increasingly digitized nature of the markets they monitor and to enhance their capacity to analyze the rising volumes of data generated reporting obligations. In the future, RegTech will exhibit its greatest potential in the third stage of its developmentRegTech 3.0, the regulatory framework for finance is in need of rethinking.According to (Arner, Barberis and Buckly-2017-9), the primary barrier to RegTech's development is not technological limitations butrather the ability of regulators to process the large volumes of data that the technology itself generates. Regulators need to adopt a coordinated approach that seeks to harmonize financial regulations and support the continued development of RegTech.

- **SubTech** (or RegTech for supervisors),SupTech is starting to tackle challenges faced by supervisory agencies. As in RegTech, solutions are automating and streamlining administrative and operational procedures, digitizing data and working tools, and improving data analytics. Some financial authorities are also exploring opportunities to automate the regulatory process. Increasingly, innovations rely on an emerging revamping of financial supervision itself, a shift away from currentapproaches based on past data, lengthy on-site inspections and often delayed supervisory action, towards a pro-active, forward-looking supervision that relies on better data collection and sophisticated data analytics, and greater storage and mobility capacity such as by using cloud computing (Toronto Leadership Centre-2017-10).
- **Regulatory Sandboxes.**What is regulatory sandboxes? There is no standard definition of what are regulatory sandboxes,their stated objectives vary, and can include: enabling innovation; encouraging innovation; improving the regulatory framework; improving licensing procedures; informing policymaking; being a channel for engagement with FinTech firms; and contributing to economic growth. These objectives can be interrelated and overlapping (Toronto Center-2017-4).And according to United Nations Secretary-General's Special Advocate-UNSGSA: A regulatory sandbox is a regulatory approach that allows live, time-bound testing of innovations under a regulator's oversight. Novel financial productstechnologies, and business models can be tested under a set of rules, supervision requirements, andappropriate safeguards. A sandbox creates a conducive and contained spacewhere incumbents and challengers experiment withinnovations at the edge or even outside of the existingregulatory framework. A regulatory sandbox brings the cost of innovationdown, reduces barriers to entry, and allows regulatorsto collect important insights before deciding if furtherregulatory action is necessary. A successful test may result in several outcomes,including full-fledged or tailored authorization of theinnovation, changes in regulation, or a cease-and-desist order (United Nations Secretary-General's Special Advocate-UNSGSA-2017-1).Andaccording toArner, Barberis and Buckly:regulatory sandboxes are virtual environments used to test and examine the impacts of innovative new processes or technologies in isolation.. Access to the sandbox will occur in phases.Regulatory sandboxes are shaping up to be fundamental to the development of new regulatory approaches. The fragmentation of the financial services industry and the pace of innovation support the use of sandboxes, which may be used not only for the trial of novel products generated by industry but also for the testing of new and more flexible approaches by regulators (Arner, Barberis and Buckly-2017-16).

3.5Risks, Challenges and future of Electronic Banking:

This changing in financial services brings with it new risks and challenges for bank management and regulatory and supervisory authorities. The major ones generated from the increased cross-border transactions

resulting from lower transaction costs and the greater ease of banking activities, and from the reliance on technology to provide banking services with the necessary security. According to the study published by International Monetary FundIMF (IMF, 2003, 4-6).these risks could be classified as follows:

- **Regulatory risk,** because the Internet allows services to be provided from anywhere in the world, there is a danger that banks will try to avoid local control measures, regulation and supervision. They regulators require even banks that provide their services from a remote location through the internet to be licensed. Licensing would be particularly appropriate where supervision is weak and cooperation between a virtual bank and the home supervisor is not adequate.
- **Legal risk,** electronic banking carries legal risks for banks. Banks can potentially expand the geographical scope of their services faster through electronic banking than through traditional banks. In some cases, however, they might not have enough knowledge about local laws and regulations. As a consequence, virtual banks could intentionally or unknowingly violate customer protection laws, including on data collection and privacy. Money laundering is a criminal activity that has been greatly facilitated by electronic banking, and to combat money laundering, many countries have issued specific guidelines on identifying customers.
- **Operational risk,**security threats can come from inside or outside the system, so banking regulators and supervisors must ensure that banks have appropriate practices to guarantee the confidentiality of data, as well as the integrity of the system and the data.
- **Reputational risk,** breaches of security and disruptions to the system's availability can damage a bank's reputation. The more a bank relies on electronic delivery channels, the greater the potential for reputational risks. If one electronic bank encounters problems that cause customers to lose confidence in electronic delivery channels as a whole or to view bank failures as system wide supervisory deficiencies, these problems can potentially affect other providers of electronic banking services. Reputational risks also come from customer misuse of security precautions or ignorance about the need for such precautions. Security risks can be amplified and may result in a loss of confidence in electronic delivery channels. The solution is consumer education, a process in which regulators and supervisors can assist.

3.6Future Trends in electronic banking and payments:

In February-March 2018 ,The Economist Magazine (The Economist Magazine –Intelligence Unit -2018),on behalf of Temenos,the Banking software company ,surveyed 400 global banking executives about the challenges retail banks expect to face between 2018 and 2020, and the strategies they are deploying in response. According to TheEconomist Magazine, the main conclusion ofthis surveyis,"The future of banking is digital, but the human touch will remain essential in attracting new customersfor loans and complex investment products. Stakeholders must co-operate like never before to deliverthe user experience customers want while keeping their money and data safe".

The main findings of this survey as following:

- Technology and digital are now bigger—and more important—trends than regulation.
- No single digital strategy suits every bank in every market
- Banks must become more agile.
- The impact of open banking and tighter security and data rules—and the conflicts between themdo not appear to be fully understood.
- Customer and regulator concerns about data security may limit some of the big banks'ambitions.
- Artificial intelligence (AI) and chatbots (chat – robots) have a role in customer services, authentication and fraud, but banks are taking a cautious line as they do not want to lose their customers' trust.

4. ELECTRONIC BANKING AND ELECTRONIC PAYMENTS SYSTEMS IN IRAQ

4.1 The major developmentsof bankingservicesinIraq: The banking system in Iraq has undergone several changes since it wasestablished in the late 19th century. The successive governmentstried to assign a significant role in the process ofeconomic development financial and banking operations. In July 1964, 10 banks were nationalized with the objectiveof extending credit facilities to all segments of the economy and also to mitigateseasonal imbalance in their availability. Thereafter, all the nationalized banks weremanaged under the control of Rafidain Bank, the largest state-owned commercialbank in the country. It was the sole commercial bank till 1988, when the secondlargest commercial state-owned bank (Rasheed Bank) was established by splitting218 branches of the Rafidain Bank. After 28 years of prohibition, the private sectorbanks were allowed to run business (Khalaf-2012-49).

By March 2003, after the long economic sanctions (started in 1990), two wars and poor ICT, had left the Iraqi banking sector in complete decay. At that time,aftermath of 2003 war against Iraq ,the Ministry of Finance, the Central Bank, the Baghdad Stock Exchange and the two key state banks, (Rafidain and Rashid banks), were systematically looted, as were a number of the 21 smaller state-owned and private banks. The situation was so serious that, even a year later, there was no proper banking sector to speak of.

4.2 The role Central Bank of Iraq (CBI): CBI is one of the oldestcentral banks in the arab region establishedon November 1947.CBI is fully independent, and not subject to any other party (only responsible in front of the Iraqi parliament in accordance to the Article (103) of the Constitution),hence it has full authority in designing & implementing its monetary policy and fulfilling its other functions like other international developed central banks.

Up to date the following fundamental payment systemshas been issued and supervised by CBI (https://cbi.iq/static/uploads/up/file-152326652419124.pdf) are:

- Real Time Grosse Settlement (RTGS)
- Check Automated Clearing House(C-ACH)
- Inter Bank Clearing System (IBCS)
- Central Securities Depository (CSD)
- Retail Payment System Infrastructure(RPSI)

The most importantsystems operating in the Central Bank are the RTGS, which wasimplemented in 2006, and the C-ACH clearing system that was implemented in 2011, which provides a comprehensive databaseof all transfers for the settlement of electronic instruments andinterbank payment orders. CBI issued a set ofinstructions and precautions for banks to limit the risk ofexchanging instruments through the system. CBIdirected to the establishment of the Iraqi National Payments Council, which includes members from within and outside theCentral Bank, which contributes to the development of payment and settlement systems,follow-up implementation, and the promotion of bestpractices.

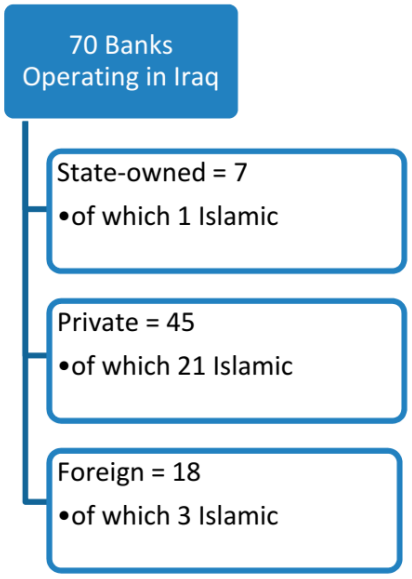
The CBI implemented many othermeasures, includingthe implementation of International Bank Account Number (IBAN), which aims atunifying the bank accountnumbers of all banks operating in Iraq, allowing banks to verifythe validity of the transferred account number. Among the important projects that CBI hasimplemented,the retail payment infrastructure project, whichconsists of the National Switch which supports inter-bank clearingfor transfers made by customers and transactions through the use of ATMs and points of sale (POS) through the credit cards linked to the bankaccount,and the mobile payment system, where the funds will betransferred through electronic -wallets without the need for a bank account,and can also make transfers for payment of bills and shopping.

Recently, the project of settling the salaries of governmental employees,based on the decisions of the General Secretariat of the Council ofMinisters No. 313 and 281, to pay the salaries of governmental employees through electronic payment system, shall include manybenefits to the employees as well as for the banks and electronic payment systems,through the opening ofbank accounts for employees in banks (government and privateand branches of foreign banks) and the issuance of debit cardslinked to the account to withdraw the salary through ATMs orthrough the process of buying from points of sale at the

lowestpossible costs, as well as benefit from other banking services(such as loans, Online purchases, savings accounts, etc.). As thisproject contributed to the provision of liquidity within the bankingsector and the optimum use of financial and banking services.

4.3 Financial inclusion in Iraq: According to the International Monetary Fund Report (IMF, July 2019, 33-34):Iraqi financial sector is small, underdeveloped, and dominated by public sector. The private banking sector comprises 63 (2018) generally small banks that account for a modest share of assets and play a minor role in financial intermediation (see figure 1) below.

Figure 1. Iraq: Banking Sector[1]



Source: Central Bank of Iraq.
[1] As of December 2018.

The financial inclusion[2] of the households and Small – and Medium sized – Enterprises (SMEs) can play an important role in Iraq by channeling funds to the profitable projects and helping the process to transfer the economy from oil dependent economy to versify economy. As many other developing countries, financial developing and financial inclusion can offer a considerable benefits to Iraq. Iraqi authorities have therefore identified these issues as policy priorities[3]. However, the country is starting from the base (after 2003) and further would help authorities drive full benefits while maintaining financial stability.

Financial inclusion of households: Access to financial services in Iraq is considered in underdevelopmentlevel, hereunder some indicators:

[2]Financial inclusion means the access and use of financial services (such as payment systems, credits and insurance) by households and firms.

[3]The Central Bank of Iraq has taken several initiatives to promote financial inclusion (CBI-Financial Stability Report -2017)

Account ownership:according to IMF study (IMF –July 2019-36) only a quarter of adults have opened accounts in financial institutions, this considered as the lowest in the region (as shown in the figure 2).

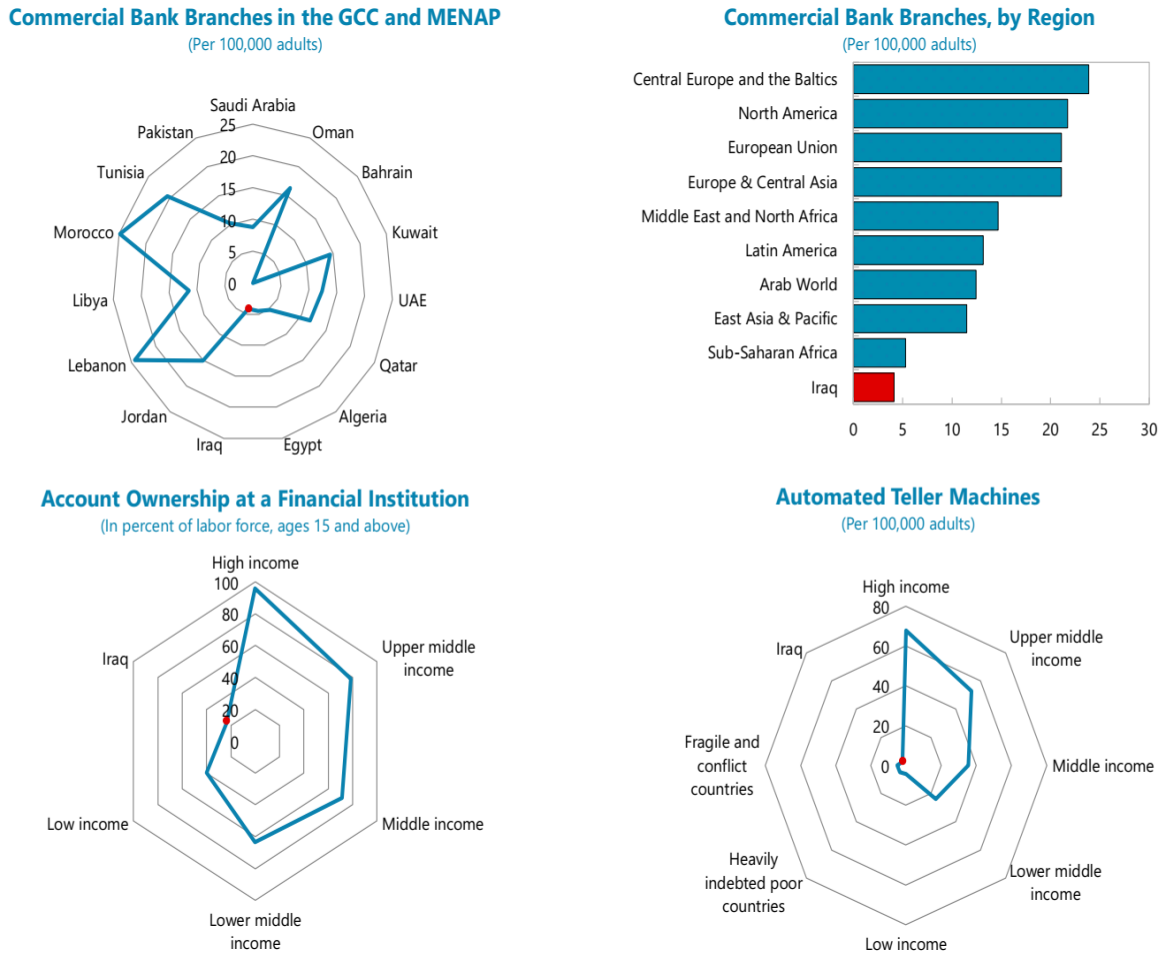


Figure 2 Reference - IMF –July 2019-36

Banking branch network: There are only four per 100000 adults, which is well below the (MENAP)4average (which is around 12 per 100000 adults).

ATM (Automated Teller Machines): there are only three ATMs per 100000 adults, much lower than (MENAP) average (12 per 100000 adults).

Some other indicators which highlight the low utilization of financial services (especially the instruments of payments): Only 6% of adult with an account at financial institutions said they had made an ATM withdrawal within 12 months, far below regional average.

The usage of debit and credit cards as a means of payment is much lower than in other countries in the region, only 2% of adults possess a credit card, a reflection of dominate role of cash in Iraq.

[4]MENAP – IMF-Middle East, North Africa, Afghanistan, and Pakistan

Moreover, the share of adult of using digital technology to make payments (e.g. through mobile money, mobile phone or internet to pay bills, make purchases or transfer) remains lower in Iraq than in other countries in the region, despite some increase over time.

Financial inclusion of Small and –Medium-Sized Enterprises (SMEs):

SMEs are also underdeveloped in Iraq. SMEs density (measured by the number of SMEs per 1000 of people) is substantially lower than both MENA region (see figure 3 below)

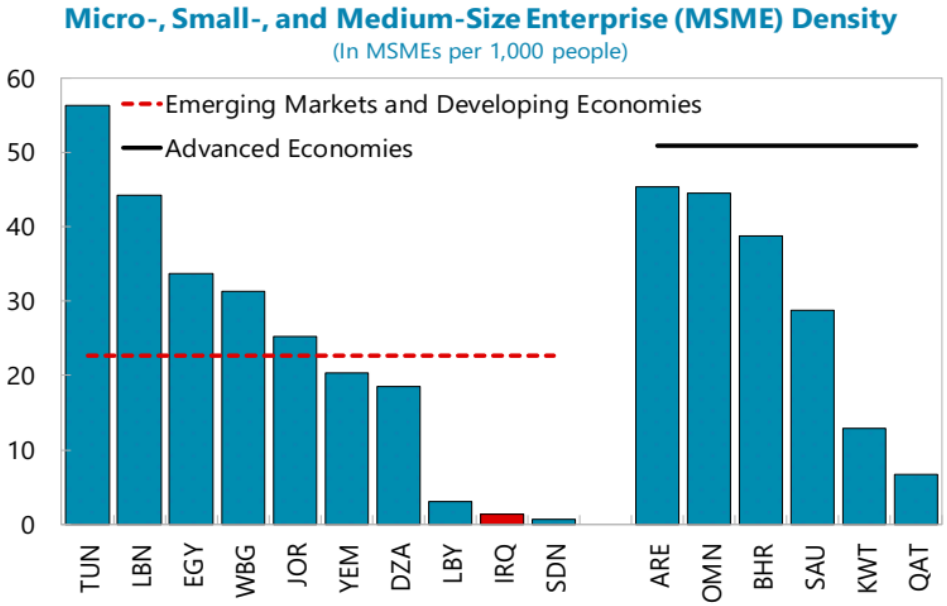


Figure 3 Reference - IMF –July 2019-38

4.4 Electronic Payment Services Providers (EPSP) Companies: In accordance with(Iraqi RegulationNo.3 year 2014),and since 2016, CBI has granted ten licenses to the some national and international Electronic Payment Services Providers (EPSP) companies allowing it perform the following functions:to issue payment instruments, manage the consumers deposits through ATMs and POS (Point of Sales), implement the debit and credit transactions through the communication means (e.g. PC or mobile). All in comply with current payment system (such as RTGS …etc.) and under the supervision of CBI.

According to the interviews with managers of EPSPs by the researcher, despite their newexperience, they are trying toadapt and apply advanced payment technology in Iraq. Therefore, the mainobjective of this research is to investigate and evaluate the role of these companies in the development of electronic banking /payment in Iraq.

5. METHODOLOGY OVERVIEW AND ANALYSIS:

5.1 Research methodology: The data used for this research are combination of information collected by the researcher and through a personal questionnaires. The researcher first interviewed some senior managers from the Iraqi financial institutes such as CBI and the licensed (EPSP) companies, following answers to the messages requesting information received from these electronic payment companies,reviewing Iraqi current laws and regulations related to the banking and financial sector, and from the published thesis, researches ,and specialized financial magazines reports relevant to the subject available on-line (internet).

By using personally administered questionnaires, data were collected from the tenlicensed Electronic Payment Services Providers (EPSP) companiesstationed in Iraq by a request message from the researcher, followed by a direct interview

with their executivemanagers .And also data collected from a sample of 100permanent customersdealing with thesecompanies, 16 out of 100 questionnaires werenon-usable due to the vast amount of missing information. Thus, the final sample size comprised of 86 respondents. A structured, paper-based questionnaire and a convenience sampling technique wereused for data collection. The questionnaire had three sections:first,general information (personal information:gender -education status- professionand age, second, financial institutes dealing with and payment instrument used: bank, paymentcompany, PC, mobile phone, POS etc.), and the third ,questions related to the level of services provided by (EPSP) companies.: technical aspects ,infrastructure and the quality of services provided by these companies.

5.2 The analysis and interpretation of data: All the received information /data were tabulated, tested and analyzed in accordance with (SPSS) Statistical Program.

The main findingsof the analysis are summarized as follows:

Quality of the sample, the final sample comprised of:

Gender: 62 males (73.81%), and 22 females(26.19%).

Education: 61 (72.62%) BSc. 5(5.95%) Master degree, and 18 (21.43%) others.

Occupation /work: 56 (66.67%) public sector, 25(29, 76%) private sector, and 3(3.57%) others.

Age: between (29-49) 70 (83.34%) and 14 (16.66%) others.

Financial institutes dealing with: Banks, governmental: 43(51.19%), private 39(46.43%) and 2 foreign banks (2.38%).

Payment company: Iraqi 71(84.52%), and foreign 13 (15.48%).

Payment instrument: mobile phone 22(26.20%), 13 PC (15.50%) and 20 (23.80%) POS.

Digital paymentmeans: ATM 44(52.40%), debit card 29 (34.50%), debit card 12(14.30%) and prepaid card 31(36.90%).

The hypothesis test : (F-Test)[5] and (T-Test)[6]and ANOVA (Analysis of Variance) are used to test the relationbetween the dependent variables and independent variablesin the (Linear Regression) model ,hereinafter the main findings :

The correlation rate between the (technical factors) as dependent variables and (electronic-banking) as independent variables is found (0.41), which is accepted and indicates a positive relation between these twovariables. AlsoANOVA used to test the effect of technical variables (infrastructure) on the electronic banking variables ,which showed that the calculated F is (16.90) bigger than the tabulated value of F (3.96) at a significant level (Sig) of (0.00) less than Sig of (0.05),which indicates that the Linear Regression Model is suitable to test the relation between the two variables, and proof the rejection of the hypothesis stating :that there is no relation between those two variables at Sig of (0,05),as shown in the following table:

ANOVA Analysis

model	Sum of squares	Degree of freedom(df)	Mean square	F	Significant level(Sig)
Regression	5.33	1.00	5.33	16.90	0.00
Residual	25.89	82.00	0.32		
Total	31.21	83.00			

[5]F-test is used to test the hypothesis of the equality of two population variances

[6]A **t-test** is a type of inferential **statistic** used to determine if there is a significant difference between the means of two groups, which may be related in certain features. The **t-test** is one of many **tests** used for the purpose of hypothesis **testing in statistics**.

6. CONCLUSIONS AND RECOMMENDATIONS:

The main conclusion of this study is the licensed electronic payment services providers (EPSP) companies in Iraq are able and required to contribute more effectively towardsthe development of theelectronic banking and payments.

Also the findings from this research (based on literature review, surveyanalysis and interviews) indicated thatthe adoption of the newelectronic banking and electronic paymentstechnologies in Iraq should consider the following factorsrelated to banks customers and to banking system / institutions:

6.1 Factors related to the banking customers, the results indicated that themain factors which influence the acceptance of banking consumers touse the electronic banking and electronic payments advanced systemsare: the expectedbenefits of electronic banking, socio-cultural factors, , ease of use, ICT knowledge base of the customers and the cost of its devices. The use of creditcards, debit cards and ATM in the country for payments is at its early stage,almost all salespoints (POSs) accept onlycash, and do not deal with electronic cards yet. Although some respondents to the survey (e.g. the educated class of age between 29-49) confirmed that they prefer to useelectronic banking services, agreed that ATMs were easy to use, and hinted that e-banking services were not difficult to understand, but there is a general mistrust among Iraqis with regard to electronic payments. Furthermore, the results of the researchindicated that the cost of ICT devices (e.g. mobile smart phone) and quality of the services (e.g. internet services)considered as themain challenge to the majority customer to use of electronic banking in Iraq. Therefore, managers of the banks and (EPSP)companies intheir planes to promotetheir electronic banking services should take into consideration these factors and concentrate on increasing the overall awareness of the service among customers.

Over the past decade. Retail banks have adapted to changing consumer demands and expectations, new technologies (e.g.Fintech , artificial intelligence (AI), block chain and the Internet of Things), new competitors (e.g., neo-banks, payment players and tech giants) and new regulations (e.g., open banking) while reducing costs and creating value. These combined factors have resulted in retail banks adjusting their business models, rethinking their innovation strategies and investment focus, and altering their product offerings and how they are delivered. Hence, the researcher.

6.2 Factors related to the banking system /institutions, based on the findings of this research, the costumers will always evaluate the benefits of electronic banking and electronic payment services against issues related to trust, security, privacy and cost of services .These issues are mainly related to the duties and responsibility of the governmental financial and banking institutions in Iraq. Government and financial institutions policies are key factors in the development of efficient electronic banking to facilitate customer satisfaction. These financial institutions (e.g. CBI) must therefore continue to pass laws on issues concerning ICT security and its administration in order to protect Iraqi banking customers. Furthermore, governmental related agencies must intervene to lower the costs on ICT products such as smart phone, computers and internet services to make them more viable, reliable and affordable to the Iraqis.

On the banks and EPSPs companies, they should employ enough and efficient staff on ICT professionals, well trained, able to manage the electronic banking and payment systems to ensure its smooth running on a continuous basis by adapting the updated knowledge of ICT. This will help their customers to be more familiar with the electronic banking services as per the developed countries and in surrounding countries.

According to Economic Magazine in its survey (The Economist Magazine –Intelligence Unit-2019, 4): the globally retail banking has changed considerably over the past decade. Retail banks have adapted to changing consumer demands and expectations, new technologies (e.g. Fintech , artificial intelligence (AI), block chain and the Internet of Things), new competitors (e.g., neo-banks, payment players and tech giants) and new regulations (e.g., open banking) while reducing costs and creating value. These combined factors have resulted in retail banks adjusting their business models, rethinking their innovation strategies and investment focus, and altering their product offerings and how they are delivered. Therefore the researcher recommends, that the Government of Iraq through its Central Bank

of Iraq (CBI) should consider all these factors and developments to formulate and design an electronicbanking short term strategy trailer-made for Iraq, with assistanceand support of the International Financial Institutes and (FinTech) companiesto face the future challenges of ICT's developments and to ensure a smooth transforming process to a digital commercial agein Iraq.

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