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Article

The Role of Financial Digitalization in Achieving Efficient Financial Performance Applied Research into Some Banks Listed on the Iraqi Stock Exchange

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Abstract: The primary objective of the study is to find or study the impact of digital finance, represented by the following dimensions (electronic bank branches, automated teller machines, electronic payment cards, and open banking services), on achieving efficient financial performance (capital adequacy, profitability, credit risk, liquidity) in commercial banks listed on the Iraqi Stock Exchange for the period (2015-2021). In order to achieve the goal of this study, statistical methods models were relied upon, using the least squares method, as the results of the study concluded that the relationship between financial digitalization and the efficiency of financial performance constitutes A positive linear relationship, meaning that the greater the financial digitization, the more efficient the financial performance. The research also presented a set of recommendations that relevant authorities can use.

Keywords: digital finance, efficient financial performance, commercial banks

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1. Introduction

The mainstreaming of digital technology has significantly impacted our daily work, lifestyles, and personal interactions. The number of new actors entering the financial services industry, including telecommunications companies, technology companies, fintech start-ups, and post offices, is becoming increasingly evident as the business competition in the provision of financial services changes. The majority of participants share the capacity to utilize data analytics to align business strategy, product and service offerings, and customer requirements, experiences, and expectations in a manner that surpasses the capabilities of conventional financial services. The availability of emergent economies is one of the primary factors driving fundamental change in the operating and business environment, which has created opportunities for new entrants to provide finance [1].

In the era of Industry 4.0, information and knowledge, IT is the most critical resource for preserving a competitive edge in emerging knowledge-based economies. The intangible assets, or intellectual capital (IC), are currently the primary focus of the attention of the majority of companies, including banks, as they are regarded as potent instruments for sustaining the organization's performance. The generation of prosperity in the post-industrial economy is more dependent on intangible assets than on physical assets. The banking industry has increased its investment in information technology, research development,

and related human resources to ensure its competitiveness and sustainability in response to the knowledge-based economy's growth.

Nevertheless, the evaluation of bank performance has historically been centered on financial metrics, including financial leverage, return on assets (ROA), and return on equity (ROE). Traditional financial metrics are insufficient and insufficiently comprehensive to evaluate the performance of organizations in the current economy, which is characterized by the widespread use of knowledge management. The primary resources of banks are ethereal assets, and their operations are primarily connected to the work of technology, making them knowledge-intensive organizations. Information technology is utilized extensively by banks to create and distribute products and services. At the same time, human resources are employed to create sophisticated products and engage with customers in a personal manner. Consequently, the successful implementation and investment in digital technologies are the determinants of banks' positive performance in a competitive environment [2].

The present research serves as a significant scientific contribution to the investigation of the relationship between the efficiency of financial performance in Iraqi commercial banks and digital technologies. The research was divided into four fundamental sections: the first section addressed the research methodology, the second section addressed the theoretical framework of the research, and the third section addressed the practical aspect and testing. The hypotheses of the study were addressed in the fourth section, which also addressed the conclusions and recommendations.

Research Methodology

The research problem

As a result of the great development in the digital fields that the world has witnessed today, which has cast its shadow on various fields, especially the field of banking, the problem of the current research has emerged, which can be expressed through the following questions:

1. Do the commercial banks studied follow digital financial methods?
2. Were the financial performance efficiency indicators of the studied banks high during the study period?
3. Is there a correlation between financial digitalization and financial performance efficiency?
4. Is there a significant effect of financial digitalization on the efficiency of financial performance?

The importance of research

The importance of the study is highlighted in two directions: the theoretical side and the practical side:

1. The theoretical side:

The research dealt with topics considered to be modern, characterized by modernity and objective originality, and of great importance in the financial and banking fields, as banks urgently need to develop their business models, especially in harmony with the aspirations of customers and in response to competitive capabilities in a rapidly changing environment. Therefore, the research dealt with digital Finance and its indicators, in addition to the efficiency of financial performance.

2. Practical aspect:

Based on the practical aspect of the research, the importance of the research is highlighted in the results it reached related to the bank’s financial performance and efficiency

and the extent of adopting digital models in banking operations. The research also addressed the impact of financial digital indicators on the efficiency of financial performance and the recommendations and conclusions that the research reached that are in the interest of the research and researchers.

Research objectives

The current research aims to:

1. Know the extent to which digital financial methods and strategies are applied in the commercial banks studied.
2. Identify the levels of financial performance efficiency of the commercial banks studied.
3. Know the extent of the impact of financial digitalization on the efficiency of financial performance.
4. Know the extent of the impact of digital finance on financial performance indicators.
5. Reaching the most important practical conclusions regarding a variable Are you studying.

Research hypotheses

After reviewing the problem of the study and its questions and after defining the objectives of the study, the research addressed four main hypotheses, which were as follows:

1. The first hypothesis: There is a statistically significant effect of financial digitalization on capital adequacy.
2. The second hypothesis: There is a statistically significant effect of financial digitization on profitability.
3. The third hypothesis: There is a statistically significant effect of financial digitization on credit risk.
4. Fourth hypothesis: There is a statistically significant effect of financial digitization on liquidity.

The hypothetical outline of the research

Based on the research variables and for the purpose of clarifying the influence relationships between the research variables, a hypothetical research plan was developed as follows:

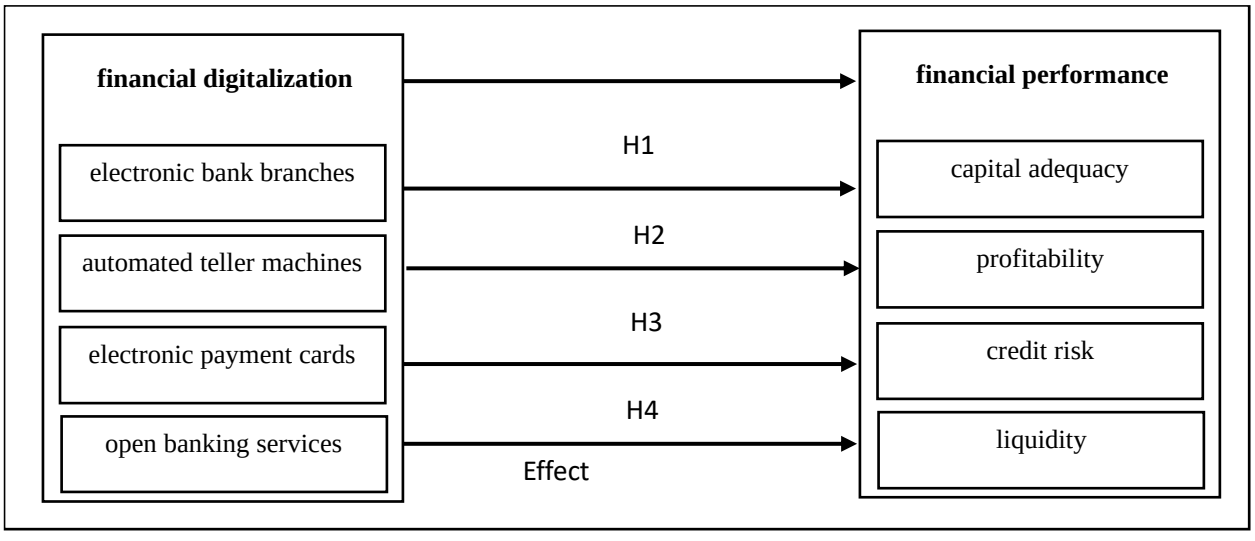

Figure 1. Hypothetical diagram of the study

Source: Prepared by the researcher

Scope of search

The current researcher focuses on the commercial banks listed on the Iraq Stock Exchange. Therefore, the study population represents the commercial banks listed on the Iraq Stock Exchange. The study sample was a group of Islamic banks that have complete data that contributes to achieving the purpose of the research, which is as in the following table:

Table 1. Commercial banks, study sample

The Bank	The Site
Commercial Bank of Iraq	Iraq / Baghdad, Al-Saadoun Street
Gulf Commercial Bank	Iraq / Baghdad, Al-Saadoun Street
Erbil Investment Bank	Iraq / Baghdad Karrada
Middle East Investment Bank	Iraq / Baghdad, Al-Arsat
Iraqi Investment Bank	Iraq / Baghdad, adjacent to Al-Alawiya Hospital
International Development Bank	Iraq / Baghdad, Karrada
Al-Mansour Investment Bank	Iraq / Baghdad, Al Wahda District
North Bank for Finance	Iraq / Baghdad, Karrada

Source: constructed by the analyst using information obtained from the website of the Iraq Stock Exchange

The theoretical framework for the research

The concept of digital finance:

Technology is transforming the financial sector at an accelerated pace. Banks, in particular, are experiencing a transition from conventional person-to-person service models to digital financial services. This digital technology is becoming increasingly prevalent in the banking sector today; it presents banks with opportunities to capitalize on it and challenges conventional business models. Banks are striving to create insights that elucidate how they can utilize strategies and tactics associated with financial digitalization to achieve superior performance in the digital era, based on the concept of entrepreneurial orientation (EO) [3]. The investigation of globally integrated indicators is necessary due to the diverse levels of development in finance and technology and the continuous innovations that occur worldwide. It will facilitate a comprehensive evaluation of the digitization of financial services and facilitate comparative analyses between countries. The authors suggested that the extent of financial services digitization (DFSI) be evaluated using three components: digital inclusion, financial inclusion, and digital financial services.

The attainment of all sustainable development objectives is contingent upon the expansion of development financing, as per the World Bank and International Monetary Fund. The correlation between technological advancements and financial prosperity has been extensively investigated. The primary objectives of financial management include the eradication of poverty, the promotion of economic growth and respectable work, responsible consumption and production, and the establishment of a work-friendly environment. These objectives facilitate the integration of digital technologies into financial management, thereby facilitating the attainment of sustainable finance and digital finance. At present, there is a growing interest in the digital technologies of Industry 4.0 as a means of attaining digitalization and sustainability in a variety of sectors. In essence, financial management in a company fosters the efficiency, growth, and quality of money [4].

By allocating finite financial resources, banks are a critical component of the finance industry as traditional financial intermediaries. The existing literature has commenced an examination of the impact of financial technology development on banks. According to certain studies, the financial industry has experienced an increase in competition as a result of the development of financial technology, which may have a negative impact on the performance of institutions. Initially, fintech start-ups are capable of more effectively and conveniently accommodating the diverse financial requirements of their consumers. Secondly, the banking industry will be challenged by a more intense level of competition as fintech subsidiaries that are derived from Internet giants are able to create more comprehensive financial service solutions that are based on extant technology foundations and platform application scenarios. Third, mature IT enterprises are progressively integrating financial services and rely on a robust technology foundation to be able to adapt to the advancements in financial technology.

Furthermore, certain studies have examined the significance of the banking industry's involvement in the development of financial technology to improve performance. Initially, banks enhance operational processes and shape digital products by utilizing financial technology to facilitate quicker and more cost-effective transaction processing for their customers. Secondly, in order to enhance the administration of online banking risks, banks can employ big data to detect fraud and improve network security [5].

2. Materials and Methods

Dimensions of financial digitalization:

[6] identified the following dimensions of financial digitalization:

1. Electronic bank branches:

The emphasis on electronic financial services is due to their apparent irrefutable appeal. Retail banks and financial service providers are rapidly expanding their utilization of technology to engage and serve their customers. These companies have made investments in interactive information systems with the expectation that they will enhance their overall profitability and market share. Similarly, consumers are encountering products and services that are becoming more sophisticated from a technological perspective. Nevertheless, these investments will yield minimal returns if customers do not completely utilize or accept their capabilities [7].

Electronic banking technology (electronic banking) encompasses a diverse array of services, including automated teller machines (ATMs) and direct deposit services, as well as computer banking (online banking), electronic funds transfers (EFTs), and automatic bill payment (ABPs). In the United States, the utilization of certain electronic financial technologies has expanded rapidly, while others have been implemented at a slower pace. Assume that the banking industry's commitment to enhanced efficiency and the consumer's desire for improved convenience and service are to be fulfilled. In that scenario, companies can establish a climate in which technological advancements are embraced with genuine benefits by the majority rather than a small number of technology-savvy consumers by comprehending the factors that influence the adoption of new products [8].

2. Automated teller machines:

Banks and depositors may derive substantial advantages from ATMs. The machines can allow depositors to extract cash at a time and location that is more convenient than the hours of branch banking. Simultaneously, ATMs can mitigate the expenses associated with fulfilling certain depositor requests by automating services that were previously executed manually. Banks can multiply these potential advantages by sharing their ATMs, which enables depositors of other banks to access their accounts through the bank's ATMs. The

parameters under which banks will participate partially determine their decision to share their ATMs. In specific, the three primary parties involved in an ATM transaction—the cardholder, the cardholder's bank, and the machine owner—may impose or impose a variety of rates. Automated teller machine [9].

3. Electronic payment cards:

In general, parties engaged in electronic commerce do not engage in face-to-face interactions, exchange currency, or manually print copies of documents. Accuracy and security are indispensable when transactions are executed via a communications network, such as the Internet. Additionally, the choice of alternative systems must be influenced by other factors, including their potential adoption by consumers and merchants, their ability to evolve, and their applicable environments. Currently, there are four primary categories of electronic payment systems: (1) online credit card payment, (2) electronic currency, (3) electronic checks, and (4) micropayments. Each of these systems has its own set of advantages and disadvantages [10].

4. Open banking services:

The significance of electronic banking products is steadily increasing. There is no question that electronic banking provides low-cost, high-return, and relatively low-risk benefits. It is possible to assert that numerous studies have examined the influence of performance on the profitability of institutions that offer electronic banking products. The level of development in the countries can be used to categorize these investigations into two groups. Certain studies examine the impact of electronic and online banking applications on the performance of banks. These studies demonstrated that the overall profitability of banks in the United States and European countries is enhanced by the use of advanced technology in electronic banking applications. It is acknowledged that Internet banking has a substantial positive impact on the performance of banks and the development of competition in the banking sector.

Consequently, online banking applications enable the bank to establish a technological innovation trend. It has been noted that the operational hazards of banks are reduced by technology-based banking products, particularly online banking products. The asset quality of banks is directly influenced by online banking applications, which in turn enhances operational profitability and ROE performance [11].

The concept of efficient financial performance:

The financial sector is a significant source of financing for the majority of companies. Much of the research and discussion on financial performance is predicated on the common assumption that organizations will experience enhanced functions and activities as a result of improved financial performance. The disciplines of finance and management have made significant progress in the study of financial performance and its measurement. It can be said that there are some key factors to improve the financial performance of financial institutions: the size of the bank, its asset management, leverage ratio, operational efficiency ratio, composition of its portfolio, and credit risk. The motivation behind conducting this research stems from the fact that few studies have examined this issue or attempted to explain the performance of Palestinian commercial banks better. These studies tend to use traditional financial ratio analysis and benchmark comparisons to measure bank performance. Therefore, a comprehensive framework for performance analysis must be developed that involves Profitability and risk to go beyond traditional ratio analysis [12].

The financial sector is a significant source of financing for the majority of companies. Much of the research and discussion on financial performance is predicated on the common assumption that organizations will experience enhanced functions and activities as a

result of improved financial performance. The disciplines of finance and management have made significant progress in the study of financial performance and its measurement. The financial performance of financial institutions can be enhanced by focusing on three primary factors: the scale of the organization, its operational efficiency, and its asset management. Few published studies have examined the influence of these factors on financial performance, particularly in commercial institutions [13].

In the disciplines of finance and management, the concept of financial performance and research into its measurement are well-developed. In recent years, the performance of financial institutions, particularly banks, has been extensively assessed using a well-judged methodology known as CAMELS rating. The Central Bank, a regulatory body, has, thus far, determined this classification. The efficacy of the banking sector in the CAMELS framework encompasses the analysis and evaluation of the six critical dimensions of banking operations. Consequently, CAMELS is a collection of performance metrics that provide a comprehensive assessment of banks by means of the following metrics: capital adequacy, asset quality, management, liquidity, and risk sensitivity [14].

Dimensions of the efficiency of financial performance in banks:

[15] identified the dimensions of financial performance efficiency in banks, which are:

1. Capital adequacy

Commercial banks are required to maintain their integrity and perform well in response to any changes in the economy at both the national and international levels, as they play a critical role in the country's economic growth and development. Nevertheless, the financial system requires policies and regulations from the government to facilitate this process. Dao (2020) [16] posits that the principles of minimum capital are among the most significant regulations that determine the safety of banks from the risks of bankruptcy and a lack of capital. Banks must take capital into account. The viability of a bank is contingent upon the adequate level of capital that can motivate banking operations. The capital adequacy ratio is one of the ratios that the bank employs to assess the minimum capital requirements. This ratio is a comparison between total capital and risk-weighted assets (RWA). Profitability is positively affected by capital adequacy. The bank's profitability will increase as a result of its ability to finance assets that involve hazards. Total property rights can be quantified by dividing them by total assets [17].

2. Profitability

The dynamic character of bank profitability is widely recognized in the existing empirical literature. Specifically, profitability is a factor that tends to support the longevity of institutions. It is also feasible that bank profitability is endogenous as a result of omitted variables or a causality issue between dependent and independent variables. It is simpler for profitable banks to expand their operations, acquire additional tangible assets, and allocate additional funds to advertising, which may ultimately result in increased profitability.

Additionally, the model does not account for certain fixed effects that are unique to each bank and may have an impact on bank profitability. For instance, the profitability of a bank may be influenced by its location, which is presumed to remain constant over time. The dynamic nature of bank profitability can be quantified by dividing net income by equity [18].

3. Credit risk

The significance of comprehending and simulating bank default risk has been underscored by the distress that numerous institutions have encountered during the most

recent financial crisis. It is crucial to evaluate the risk of banks defaulting on their debt from the perspective of not only investors but also risk managers who analyze counterparty risk and regulators who measure the risk of bank failure. Additionally, it is imperative to create precise models of the risks associated with banks defaulting on their debts in order to assess the advantages that banks derive from implicit and explicit government guarantees. Credit risk can be quantified by dividing the loan impairment provision by the total number of loans [19].

4. Liquidity

According to banking theory, one of the primary responsibilities of banks is to adjust maturities in order to finance their illiquid, hazardous assets with liquid liabilities. This is especially crucial when banks are faced with the premature liquidation of their assets to meet their financial obligations for a variety of reasons, such as a bank stampede. Although liquidity risks in these circumstances may result in the premature liquidation of productive investments, which could lead to the discontinuation of the economy, they may also result in bank defaults and failures. The global financial crisis of 2007-2009 has reaffirmed the critical significance of measuring, predicting, and understanding liquidity risk and its determinants, despite the fact that liquidity risk has been a consistent source of concern for fund providers and managers. It is quantified by dividing liquid assets by total assets [20].

3. Results and Discussion

The practical aspect

Financial analysis of the study variables

The financial analysis of the variables of the current study dealt with some financial indicators that describe the levels and ratios of the time series of the banks in the research sample. The research dealt with the indicators of the mean and standard deviation and the upper and lower limits of the time series for the scope of the current research. The ratios that reflect the levels of class variables in the banks are as follows:

Table 2. Level of variables applied in the commercial banks of the study sample

Variable	**Banks**	**Banks**							
		Iraqi commercial	Commercial gulf	Erbil Investment	The Middle East	Iraqi investment	International development	Al Mansour Investment	Al Shamal Finance
Digital Finance	x1	0.005	0.004	0.005	0.006	0.004	0.006	0.005	0.005
	x2	0.005	0.003	0.004	0.005	0.006	0.005	0.006	0.004
	x3	0.005	0.004	0.003	0.006	0.005	0.006	0.005	0.006
	x4	0.005	0.005	0.005	0.006	0.007	0.004	0.007	0.006
	General Average	0.005	0.004	0.004	0.006	0.006	0.005	0.006	0.005
Efficient financial performance	y1	0.812	0.750	0.891	0.908	0.995	0.891	0.937	0.812
	y2	0.039	0.036	0.030	0.023	0.020	0.014	0.038	0.023
	y3	0.078	0.089	0.105	0.099	0.105	0.111	0.162	0.135
	y4	0.479	0.467	0.470	0.452	0.423	0.434	0.481	0.474

	General Average	0.352	0.336	0.374	0.371	0.386	0.363	0.405	0.361

Developed by the analyst using Excel reports as the source of information

Table 3. Description of the electronic bank branches variable

The Years	Average	Deviation	The Highest	The Least	Ranks
2015	0.0060	0.0027	0.0086	0.0014	1
2016	0.0048	0.0030	0.0086	0.0014	5
2017	0.0053	0.0019	0.0086	0.0028	2
2018	0.0045	0.0024	0.0086	0.0019	6
2019	0.0053	0.0025	0.0089	0.0016	2
2020	0.0042	0.0028	0.0095	0.0017	7
2021	0.0049	0.0029	0.0091	0.0005	4
General Average	0.0050	0.0006	0.0095	0.0005	

Developed by the analyst using Excel reports as the source of information

The financial analysis of the electronic bank branches variable, as shown in Table 3, showed that the highest statistic in the time series extending from (2015 to 2021) the year for the banks included in the study sample (2015), reaching (0.006), while the second highest statistic is the year (2017). And (2019), when it reached (0.0053), while the lowest statistic for the electronic bank branches was in the year (2020), when it reached (0.0042), noting that the general average was (0.005).

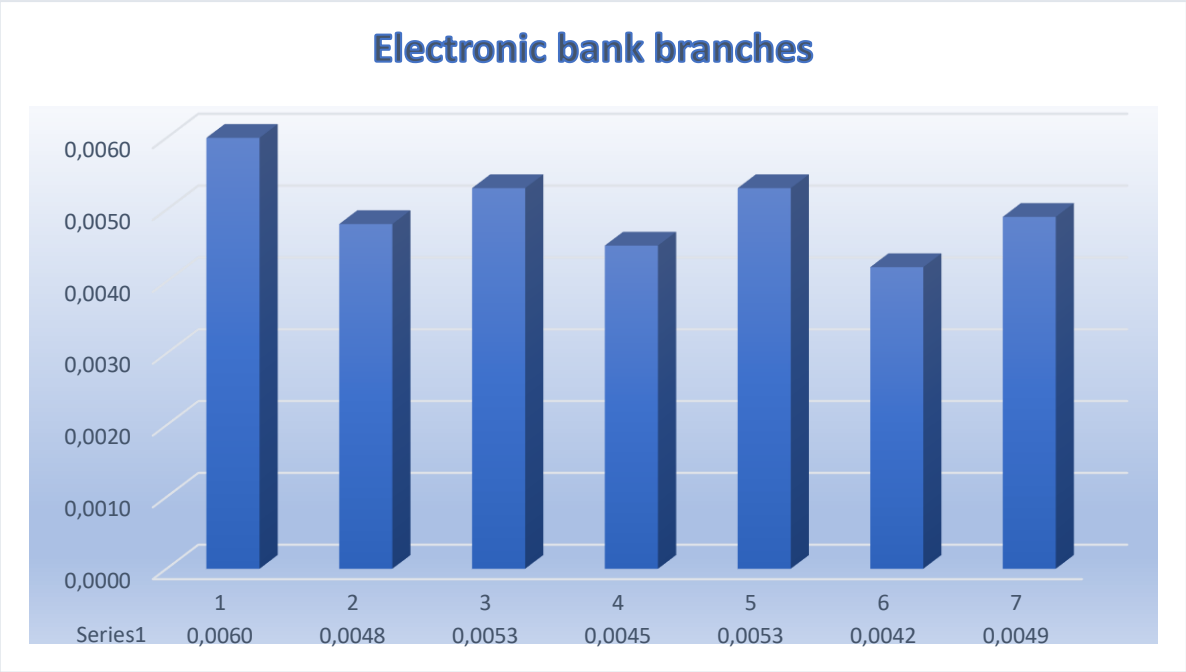

Figure 2. Time series for the variable Search for branches of electronic banks

Table 4. Description of the ATM variable

The Years	Average	Deviation	The High-est	The Least	Ranks
2015	0.0052	0.0027	0.0080	0.0010	2
2016	0.0068	0.0031	0.0100	0.0010	1
2017	0.0042	0.0029	0.0090	0.0000	5
2018	0.0036	0.0029	0.0070	0.0000	7
2019	0.0043	0.0020	0.0070	0.0020	4
2020	0.0040	0.0028	0.0090	0.0010	6
2021	0.0051	0.0032	0.0090	0.0000	3
General Average	0.0047	0.0011	0.0100	0.0000	

Developed by the analyst using Excel reports as the source of information

The financial analysis of the ATM variable, as shown in Table (4), showed that the highest statistic in the time series extending from (2015 to 2021) the year for the banks included in the study sample (2016), reaching (0.0068), while the second highest statistic is the year (2015). It reached (0.0052), while the lowest statistic for the electronic bank branches was in the year (2018), when it reached (0.0036), noting that the general average reached (0.0047).

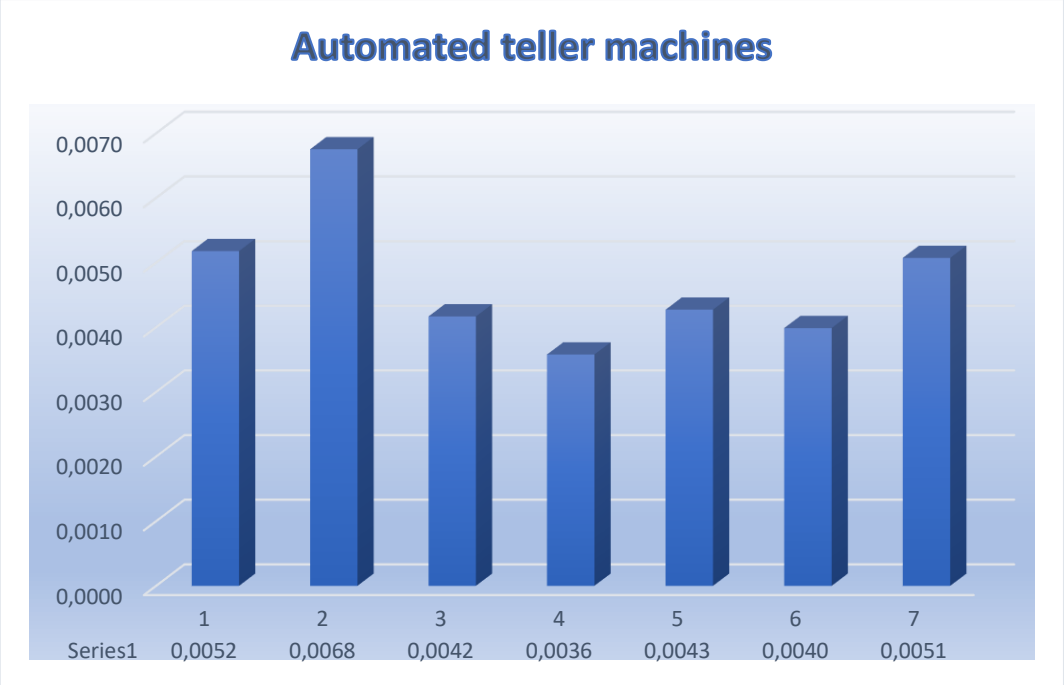

Figure 3. Time series for the search variable ATMs

Table 5. Description of the electronic payment cards variable

The Years	Average	Deviation	The High-est	The Least	Ranks

2015	0.0047	0.003	0.009	0.0005	5
2016	0.0053	0.0024	0.0087	0.0013	3
2017	0.004	0.0028	0.0074	0.0001	7
2018	0.0055	0.0034	0.0098	0.0012	2
2019	0.0059	0.0027	0.0093	0.0023	1
2020	0.0053	0.003	0.0094	0.0006	3
2021	0.0047	0.003	0.0096	0.0013	5
General Average	0.0051	0.0006	0.0098	0.0001	

Developed by the analyst using Excel reports as the source of information

The financial analysis of the electronic payment cards variable, as shown in Table 5, showed that the highest statistic in the time series extending from (2015 to 2021) the year for the banks included in the study sample (2019), reaching (0.0056), while the second highest statistic is the year (2018). It reached (0.0055), while the lowest statistic for electronic payment cards was in the year (2017), when it reached (0.004), noting that the general average reached (0.0051).

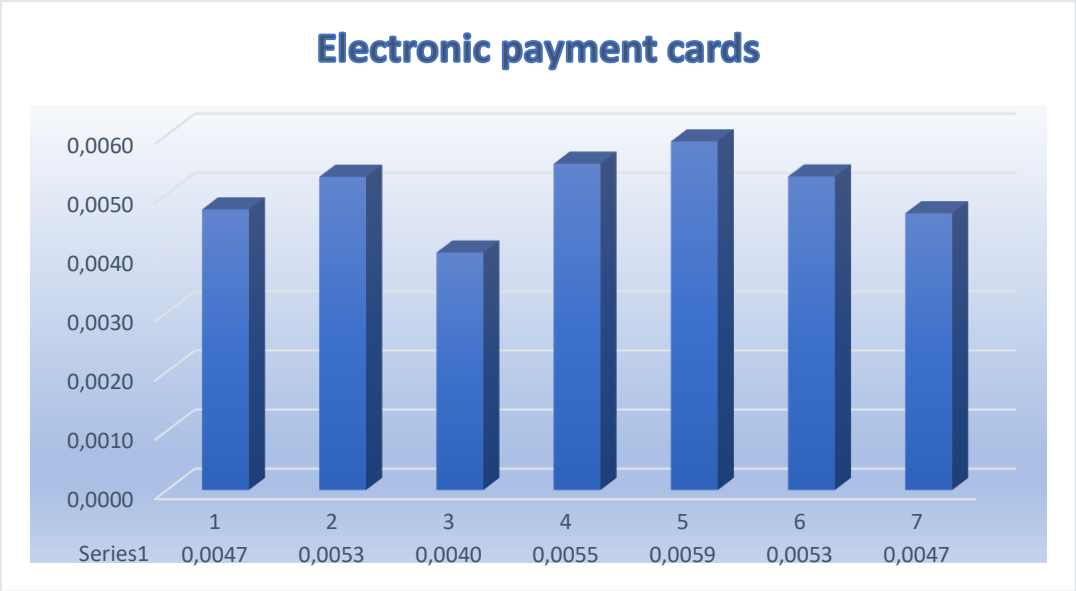

Figure 4. Time series for the variable Search for electronic payment cards

Table 6. Description of the open banking services variable

The Years	Average	Deviation	The Highest	The Least	Ranks
2015	0.0053	0.0028	0.0093	0.0019	3
2016	0.0045	0.0028	0.0078	0.0004	6
2017	0.0052	0.0032	0.0099	0.0002	4
2018	0.0039	0.0028	0.0087	0.0012	7
2019	0.0051	0.0026	0.009	0.0012	5
2020	0.0064	0.0031	0.0098	0.0016	2
2021	0.0075	0.0012	0.0098	0.0054	1

General Average	0.005414	0.001198	0.0099	0.0002

Developed by the analyst using Excel reports as the source of information

The financial analysis of the open banking services variable, as shown in Table 6, showed that the highest statistic in the time series extending from (2015 to 2021) the year for the banks included in the study sample (2021), reaching (0.0057), while the second highest statistic is the year (2020). It reached (0.0064), while the lowest statistic for open banking services was in the year (2018), when it reached (0.0039), noting that the general average reached (0.0054).

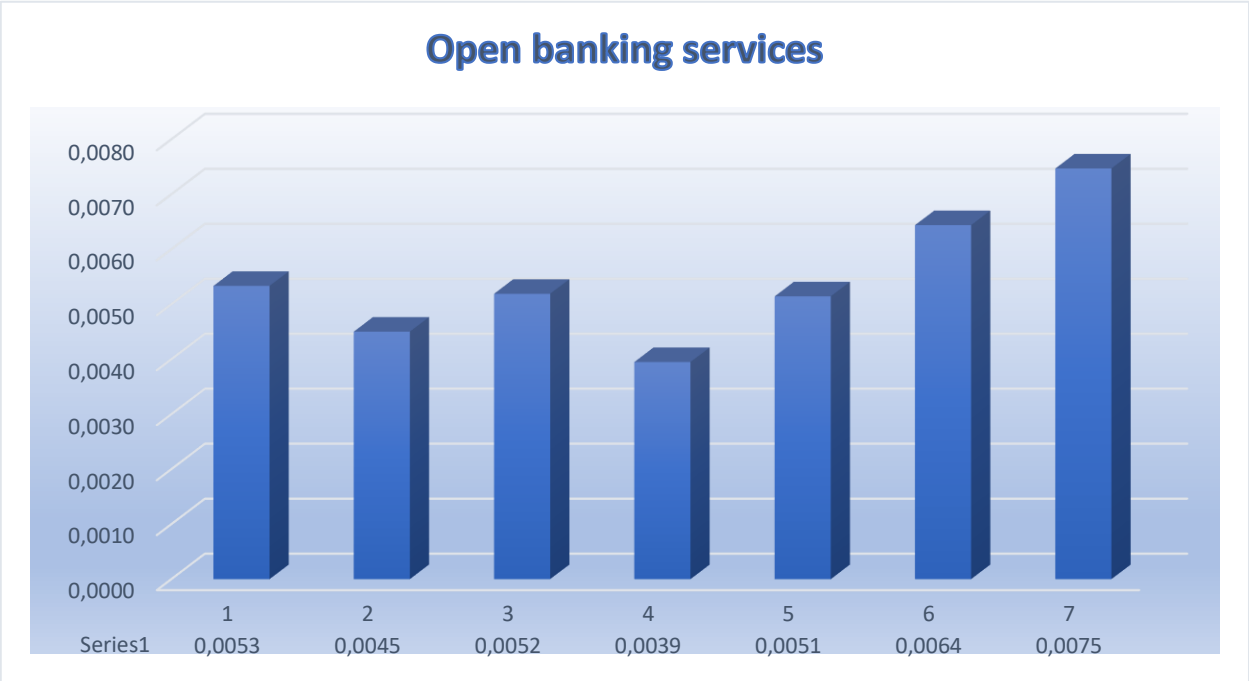

Figure 5. Time series for the variable Open banking services Search

Table 7. Description of the capital adequacy variable

The Years	Average	Deviation	The Highest	The Least	Ranks
2015	0.8130	0.0501	0.9210	0.7720	5
2016	0.9780	0.1307	1.1380	0.7500	2
2017	0.8980	0.2208	1.0930	0.4120	3
2018	0.5660	0.1080	0.6950	0.3880	7
2019	0.8510	0.3618	1.4520	0.3450	4
2020	1.4490	0.3513	2.0590	0.9610	1
2021	0.5670	0.0629	0.6740	0.4840	6
General Average	0.8746	0.2987	2.0590	0.3450	

Developed by the analyst using Excel reports as the source of information

The financial analysis of the capital adequacy variable, as shown in Table 7, showed that the highest statistic in the time series extending from (2015 to 2021) the year for the banks included in the study sample (2020), reaching (1.4490), while the second highest statistic is the year (2016). It reached (0.978), and the lowest capital adequacy statistic was in the year (2018), when it reached (0.5660), noting that the general average reached (0.8746).

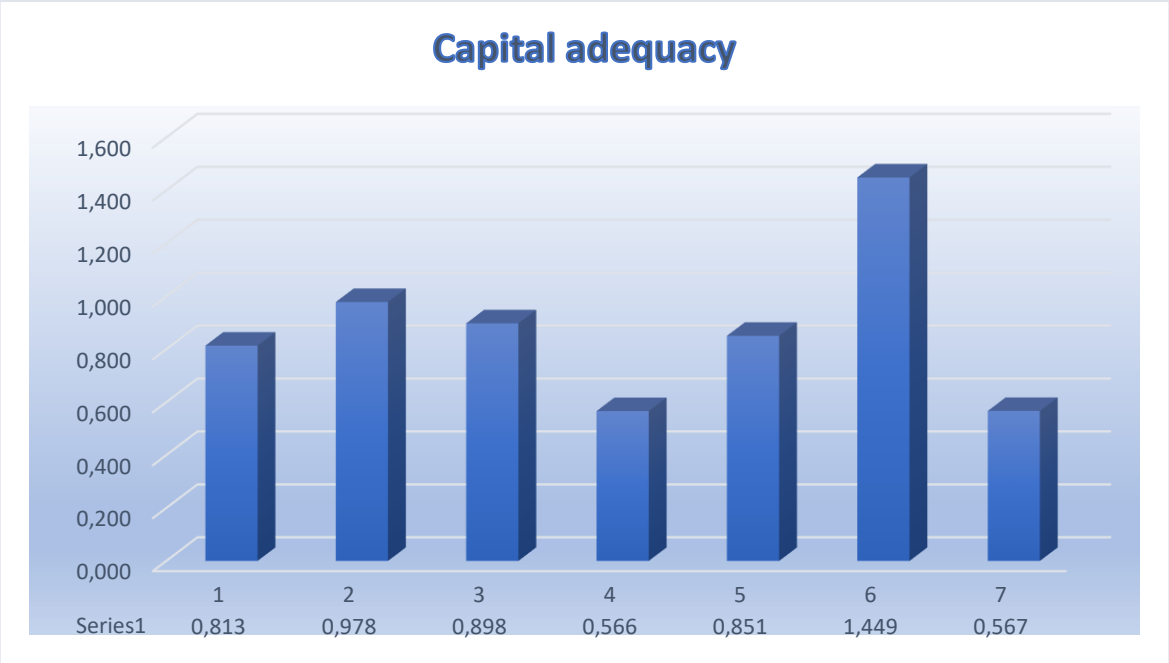

Figure 6. Time series for the research variable capital adequacy

Table 8. Description of the profitability variable

The Years	Average	Deviation	The Highest	The Least	Ranks
2015	0.0134	0.0078	0.0230	0.0020	6
2016	0.0534	0.0250	0.1020	0.0190	1
2017	0.0291	0.0133	0.0490	0.0080	3
2018	0.0119	0.0142	0.0430	0.0000	7
2019	0.0229	0.0272	0.0900	0.0100	5
2020	0.0379	0.0151	0.0580	0.0180	2
2021	0.0253	0.0282	0.0620	0.0000	4
General Average	0.0277	0.0144	0.1020	0.0000	

Developed by the analyst using Excel reports as the source of information

The financial analysis of the profitability variable, as shown in Table 8, showed that the highest statistic in the time series extending from (2015 to 2021) the year for the banks included in the study sample (2016), reached (0.0534), while the second highest statistic is the year (2020), as it reached (0.0379), while the lowest profitability statistic was in the year (2018), when it reached (0.0119), noting that the general average reached (0.0277).

Figure 7. Time series for the profitability search variable

Table 9. Description of the credit risk variable

The Years	Average	Deviation	The Highest	The Least	Ranks
2015	0.2745	0.0666	0.4160	0.2020	1
2016	0.0248	0.0095	0.0400	0.0120	7
2017	0.0493	0.0489	0.1300	0.0100	5
2018	0.0461	0.0164	0.0730	0.0340	6
2019	0.1050	0.0680	0.2000	0.0360	3
2020	0.0636	0.0318	0.1040	0.0260	4
2021	0.2101	0.0572	0.2770	0.1180	2
General Average	0.1105	0.0951	0.4160	0.0100	

Developed by the analyst using Excel reports as the source of information

The financial analysis of the credit risk variable, as shown in Table 9, showed that the highest statistic in the time series extending from (2015 to 2021) the year for the banks included in the study sample (2015), reaching (0.2745), while the second highest statistic is the year (2021). It reached (0.2101), while the lowest statistic for credit risk was in the year (2016), when it reached (0.0248), noting that the general rate reached (0.1105).

Figure 8. Time series for the research variable credit risk

Table 10. Description of the liquidity variable

The Years	Average	Deviation	The Highest	The Least	Ranks
2015	0.0983	0.0425	0.171	0.055	7
2016	0.4734	0.0489	0.53	0.411	4
2017	0.6699	0.115	0.84	0.485	2
2018	0.5403	0.0337	0.597	0.498	3
2019	0.4669	0.1039	0.714	0.383	5
2020	0.8641	0.0507	0.92	0.78	1
2021	0.1059	0.0742	0.211	0.018	6
General Average	0.459829	0.279953	0.92	0.018	

Developed by the analyst using Excel reports as the source of information

The financial analysis of the liquidity variable, as shown in Table 10, showed that the highest statistic in the time series extending from (2015 to 2021) the year for the banks included in the study sample (2020), as it reached (0.8641), while the second highest statistic is the year (2017), as It reached (0.6699), while the lowest liquidity statistic was in the year (2015), when it reached (0.0983), noting that the general average reached (0.459).

Figure 9. Time series for the liquidity research variable

Statistical analysis of the variables of the current study:

The most prominent findings of the researcher were through regression analysis of the study variables and testing of hypotheses by using a set of statistical models (such as the multiple regression model). The study used the coefficient of determination, which shows the extent to which the independent variable explains changes in the dependent variable. Using the regression coefficient (Beta) and the calculated (F) value of the regression coefficient to indicate the significance of the regression model.

Table 11. Testing the first hypothesis

Variables	Estimates	Standard error	T-test	The significance
Constant	0.786998	0.125455	6.273138	0.0000
Electronic bank branches	-2.642896	12.34053	-0.214164	0.8316
Automated teller machines	-10.53849	12.2121	-0.862955	0.3936
Electronic payment cards	17.91007	11.48987	1.55877	0.1273
Open banking services	11.31307	12.98368	0.87133	0.389
Dependent variable: capital adequacy.				
R-squared	0.720493	F-statistic	5.761971	
Adjusted R-squared	0.59545	Prob	0.000004	

Designed by the scientist utilizing the Eviews-12 software as the basis for the study.

- The first hypothesis:

There is a significant influence relationship between financial digital through its indicators mentioned in Table 11, and the capital adequacy ratio in the banks studied. The value of the constant in the multiple regression model was (0.786), and some variables were affected positively, while others affected the other negatively. As for the significance of the model, it is significant because it is less than (0.05), and the (T) statistic is also significant because it is less than (0.05), and therefore the first hypothesis is accepted.

Table 12. Testing the second hypothesis

Variables	Estimates	Standard error	T-test	The significance
Constant	0.024594	0.010905	2.255188	0.0300
Electronic bank branches	-0.14055	1.072725	-0.13102	0.8964
Automated teller machines	-0.38188	1.061561	-0.35974	0.721
Electronic payment cards	1.796129	0.99878	1.798322	0.0801
Open banking services	-0.63116	1.128633	-0.55923	0.5793
Dependent variable: profitability				
R-squared	0.528738	F-statistic	2.507912	
Adjusted R-squared	0.31791	Prob	0.009225	

Designed by the scientist utilizing the Eviews-12 software as the basis for the study.

- The second hypothesis:

There is a significant relationship of influence between financial digital through its indicators mentioned in Table 12 and the profitability ratio in the banks studied. The value of the constant in the multiple regression model was (0.024), and some variables were affected positively while others were affected negatively. Negative. As for the significance of the model, it is significant because it is less than (0.05), and the (T) statistic is also significant because it is less than (0.05). Therefore, the second hypothesis is accepted.

Table 13. Testing the third hypothesis

Variables	Estimates	Standard error	T-test	The significance
Constant	0.079204-	0.024645	3.213717	0.0027
Electronic bank branches	4.099114-	2.424278	1.69086	0.0991
Automated teller machines	1.288213-	2.399047	0.536969	0.5944
Electronic payment cards	0.083127-	2.257168	0.036828	0.9708
Open banking services	0.746768-	2.550625	0.292778	0.7713
Dependent variable: credit risk				
R-squared	0.868876	F-statistic	14.81193	
Adjusted R-squared	0.810216	Prob	0.0000	

Designed by the scientist utilizing the Eviews-12 software as the basis for the study.

- The third hypothesis:

There is a significant influence relationship between financial digital through its indicators mentioned in Table 13 and the credit risk ratio in the studied banks. The amount of the constant in the multiple regression model was (-0.079). The variables affect negatively, but the significance of the model is significant because it is less than (0.05), and the (T) statistic is also significant because it is less than (0.05). Therefore, the third hypothesis is accepted.

Table 14. Testing the fourth hypothesis

Variables	Estimates	Standard error	T-test	The significance
Constant	0.453822	0.042027	10.79834	0.0000
Electronic bank branches	-3.94138	4.134031	-0.9534	0.3464
Automated teller machines	5.098367	4.091006	1.246238	0.2203
Electronic payment cards	6.425406	3.849064	1.669342	0.1033
Open banking services	-5.66667	4.349485	-1.30284	0.2005
Dependent variable: liquidity				
R-squared	0.948163	F-statistic	40.88626	
Adjusted R-squared	0.924973	Prob	0.0000	

Designed by the scientist utilizing the Eviews-12 software as the basis for the study.

- Fourth hypothesis

There is a significant influence relationship between financial digital through its indicators mentioned in Table 14 and the liquidity ratio in the studied banks. The value of the constant in the multiple regression model was (0.453822), and some variables were affected positively while others were affected negatively. Negative. As for the significance of the model, it is significant because it is less than (0.05), and the (T) statistic is also significant because it is less than (0.05), and therefore the fourth hypothesis is accepted.

4. Conclusion

1. The results showed that there is an impact of financial digitalization on the capital adequacy ratio, as the capital adequacy ratio can be increased by adopting the dimensions of financial digitalization.
2. Financial digitalization affects the profitability rates of the commercial banks studied, which means that profits can be expanded by adopting financial digital fields.
3. The increase and digital transformation in banking operations contribute to reducing credit risks, so the commercial banks in the research sample can expand digital fields.
4. Adopting digitalization in banking operations can contribute to enhancing banking liquidity, as shown by the results of the current research.
5. By adopting digital methods in banking, it can contribute to enhancing the efficiency of banking performance by enhancing financial performance efficiency ratios.

5. Conclusion

1. We recommend that commercial banks operating in Iraq adopt the dimensions of financial digitalization in banking operations because it effectively contributes to enhancing financial performance efficiency rates.
2. We recommend the necessity of enhancing liquidity and profitability ratios by adopting digital dimensions in banking because it contributes to enhancing these ratios.
3. We recommend that commercial banks operating in Iraq improve their capital adequacy ratio, especially by adopting digital aspects in banking operations.
4. Financial and banking preparedness through contemporary digital methods to reduce credit risks and thus reduce the rates of bad or deteriorating debts.

5. The necessity of strengthening and motivating banking personnel through the use of digital technologies in banking operations, as this will contribute to enhancing the efficiency of the bank's financial performance.

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