



The Impact of Financial Technology on Improving The Performance of The Banking Sector: an Applied Study In Iraq for The Period (2010-2022)

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Abstract: This research aims to determine the impact of financial technology (financial technology, specifically point-of-sale (POS) devices, e-wallets, and the number of ATMs) on improving the performance of the banking sector (return on assets, return on equity, capital adequacy, management efficiency, liquidity ratio, and security ratio) through an applied study in Iraqi banks during the period (2010-2022). A standard model was used to measure the impact of financial technology on the banking sector's performance and its various indicators. To achieve this objective, a standard analysis method was used to illustrate the impact of financial technology on the performance of the Iraqi banking sector, using Eviews 10 software and Amos Graphics software for graphing. The study's findings concluded that financial technology has contributed to improving the productivity of banking operations through the integration of technology and computing techniques, particularly in developed countries.

Keywords: Financial Technology, Banking Sector Performance.

Introduction

The finance sector has witnessed hasty changes and radical revolutions in its operations and overhaul provision over the past two years, driven by significant industrial improvements and the universal alphanumeric revolution (Hannoon et al, 2021). These advances have led to the arrival of what are acknowledged as financial revolutions, which have converted a central focus in evolving banking performance and attractive its competitiveness. Fashionable challenges have forced banking institutions to adopt pecuniary innovations as a essential strategy for survival and growth within increasing global opposition. This has resulted in the occurrence of mobile banking presentations, electronic banking amenities, digital payment machineries, digital exchanges, and other originations that have changed the face of the outmoded banking engineering. In Iraq, since 2014, the banking division has viewed serious attempts to conversion towards modern backing and adopt financial equipment, despite the challenges and complications that have confronted this renovation. This study aims to climax the role of financial machinery in improving the concert of the banking sector.

Methodology

Research Problem

The comprehensive banking division has witnessed noteworthy developments in financial expertise over the past two years. Examples of commercial technologies include digital finance systems, cardinal currencies, and systematized applications of big figures and non-natural intelligence. This equipment has impacted the concert of the banking division in terms of functioning efficiency, lucrativeness, and the facility to meet customer needs. Therefore, adopting innovative business reproductions contributes to improving monetarist and operational show and supports competitiveness in well-lit of the fast-tracking digital revolution. The problem lies in considerate the impact of financial equipment on the performance of the funding sector and the extent to which it can be operated in Iraq, compared to the universal experiences it faced through the period (2010-2022).

Importance of the Research

The reputation of studying the role of pecuniary knowledge (FinTech) in the concert of the banking division lies in its aim to scrutinize the radical revolutions that FinTech has taken about in traditional funding practices and to explore its impact on functioning efficiency, cost-effectiveness, and the eminence of financial amenities. FinTech, such as digital banking, blockchain, artificial intelligence, and electronic payments, institutes a key factor in evolving the structure of the banking sector.

Research Objectives

- To investigate the role of FinTech on the routine of the funding sector.
- To ascertain the challenges finish Iraqi banks in instigating modern FinTech.
- To portion and analyze the economic impact on backing sector indicators.
- To propose stratagems and policies to develop the role of FinTech in improving the productivity and cost-effectiveness of Iraqi banks.

Research Hypothesis

The exploration is based on the foremost hypothesis that economic technology subsidizes positively to civilizing the concert of the banking sector in standings of operational efficiency, cost-effectiveness, and meeting shopper needs. The research adopts that the power of these modernizations varies between kingdoms based on the near of technology approval, the economic location, and regulatory procedures. It also adopts that the Iraqi banking division suffers from a dearth in adopting pecuniary technology, which distresses its affordability, but it can complete tangible perfection if it benefits from efficacious international practices studied.

Theoretical Framework

The Concept of Financial Technology

Several characterizations of financial expertise have been presented, varying bestowing to the perception from which it is regarded (Mapanje et al, 2023). The Financial Firmness Board defines it as: "Technology-enabled pecuniary originations that may outcome in new corporate models, tenders, progressions, or products that obligate a direct impression on pecuniary sooqs and institutions, and the establishment of pecuniary services" (Leong & Sung, 2018). This explanation indicates that economic know-how is financial revolution using expertise, and the resulting harvests materially affect economic markets and societies (Higgins, 2019). It is also definite as "the term used to designate any technology that affords financial amenities through software, such as working banking, portable payment submissions, or uniform cryptocurrency (Biju et al, 2024). It is a extensive category encircling many different machineries, and its principal objectives are to revolution the way regulars and businesses entree their money and to participate with traditional pecuniary services" (Suryono et al, 2020). It is vibrant from the previous classification that economic technology is charity to describe any equipment that provides pecuniary services, and its principal objective is to transformation the way publics access coinage and to compete with old-fashioned financial amenities (Farida et al, 2021). Economic technology (FinTech) is also definite as products and amenities that leverage equipment to improve the eminence of traditional pecuniary services. This know-how is characterized by presence faster, cheaper, and cooler to use, and it is accessible to a higher number of entities. In most cases, these amenities and goods are established by startups (Abad-Segura et al, 2020). This explanation differs from former ones as it climaxes the advantages of FinTech as presence faster, inexpensive, and easier, explicates how its services are settled, and points to the startups that piece a key role in rising this type of service (Jalal et al, 2023).

Characteristics of Financial Technology

The maximum important appearances of financial equipment can be concise as follows:

1. Financial equipment is a combination of monetarist knowledge, skills, methods, and approaches in sponsorship and funding (Suryono et al, 2020).
2. The funding sector is the primary location that fosters pecuniary technology tenders through banking amenities (Nguyen, 2016).
3. Financial institutions rely on it to achieve their objectives.
4. Plasticity and affordability: Fintech startups proposition regulars a wide range of amenities with multiple expense systems (Iman, 2020).
5. Their amenities are carefully considered to align with shopper needs: Fintech concerns focus on user desires after designing goods (Hua et al, 2019).
6. Fintech amenities are characterized by swiftness: Fintech concerns can complete connections in minutes, leveraging algorithms and modern technologies.
7. Financial technology affords innovative machineries for relocating funds across limitations, characterized by productivity, transparency and high profitability equated to the mechanisms of outmoded banks or money

transference companies that rely on newspaperman banking relationships, which supports to mitigate the encounters posed by the disruption of exchange relationships between some kingdoms (Hannoon et al, 2020).

The Concept of Banking Sector Performance

In light of inclusive economic experiments, such as financial predicaments and bazaar volatility, it becomes imperative to continuously evaluate the routine of the banking sector to certify its sustainability and its capability to support the coast-to-coast economy and promote speculation. Banking concert is a complex subject influenced by a assortment of internal and peripheral factors (Demirgüç-Kunt et al, 2021). Improving funding performance involves banking societies to adopt current risk management stratagems, enhance operational proficiency, provide high-quality patron amenities, and leverage industrial advancements (Iqbal& Hayat, 2025). Good bank domination has positive effects on concert and income results, and managing that is "accountable" to its workforces can increase productivity in banking operations (Alkhazaleh, 2017).

Finance performance dramas a vital role in the current budget, acting as an intermediary among savers and insolvents, facilitating expense and financial transfer developments, managing perils, and only if the necessary funding for various economic events (Zeqiraj et al, 2020). Banking concert indicates the effectiveness and efficacy of banking institutions in completing their objectives, whether pecuniary, such as generating returns and growing return on outlay, or else. The banking sector plays a helpful role in the overall pecuniary development of somewhat country (Chortareas et al, 2011). In evolving states, banks are the primary cause of credit in local bazaars due to the paleness and inadequate size of the capital bazaar and the powerlessness to provide sufficient bankrolling for investors. Finance concert is the backbone of the monetarist sector, which plays a crucial role in the change of various economic sectors. It copes and controls the flow of funds, exploits on investment openings, and channels funds towards industrious and profitable missions (Igbiosa et al, 2017).

The concert of the banking division is a fundamental prop of any country's economic structure. The banking part plays a vital person in promoting justifiable development, boosting savings, and supportive financial permanence (Amuakwa-Mensah & Näsström, 2022). The performance of the funding sector comprehends a range of indicators that mirror its efficiency in as long as pecuniary services, working risks, and achieving justifiable growth. This concert is influenced by few factors, comprising local and global pecuniary conditions, regulatory and fiscal dogmas, and technological spreads in the backing field(Oyewole et al, 2024). With the evolving banking location and increasing challenges, it has converted essential for groups to adopt innovative stratagems to improve concert, such as digital conversion, enhancing electronic banking amenities, and implementing wide-ranging domination standards (Kumar & Prakash, 2019). Hence, evaluating the routine of the finance sector is not limited to viability and liquidity dials, but also includes the groups' ability to achieve economic sustainability and strengthen buyer and investor confidence in the banking structure (Basha et al, 2023).

The Importance of Banking Sector Performance

Good funding concert is an gauge of the financial firmness of the banking sector, and accordingly, of the reduced as a unabridged. It is a foundation of successful pecuniary policies in kingdoms by attracting investment, furthering productivity, and smoothing technology transference. This, in turn, primes to increased investment streams, which be contingent on the progress of the finance sector. A developing banking sector limits the saving's ability to benefit from the recompenses of overseas savings and potential incursions (Kulu et al, 2022).

It subsidizes to financing projects and reserves, leading to enlarged production and job occasions. It also facilitates occupation by as long as payment and pecuniary transfer amenities (Olawale & Obinna, 2023). The advance of the funding sector's aptitudes supports its progressive role by conveying funds from remaining units to insufficiency units or borrowers. Surplus units seek substitute investment boulevards to unswerving their funds. The banking sector is a source of long-term financing for mutually the public and sequestered sectors, which trust on long-term subsidy for infrastructure advance and business expansion. This, in turn, develops the economy's allure to applicants and thus lights financing chucks (Kulu et al, 2022).

The banking sector provides loans and credit facilities to individuals and companies, fostering innovation and expansion. It encourages saving and investment by offering diverse financial instruments. The banking sector's performance plays a key and stimulating role in the financial market. Initial public offerings (IPOs) of shares and bonds issued by economic or governmental institutions occur within the banking sector and other financial institutions. Banks participate in the securities market (secondary market) or stock exchange as buyers or sellers of offered securities (Kumar & Prakash, 2019). This represents one of the uses of bank resources to manage the financial portfolio (or account of their clients). Improving quality and reducing financing risks is essential to enhance the performance of Islamic banks and help in economic recovery, and it can function as an alternative financial system that provides relief to society and the business sector during the recovery period (Amuakwa-Mensah & Näsström, 2022).

Measuring And Analyzing The Impact Of Financial Technology On Iraqi Banking Performance For The Period (2010-2022)

Time Series Stationability Test

Before delving into time series analysis, the variables must be identified and the models used described as follows:

ROA = Return on Assets (dependent variable)

ROE = Return on Equity (dependent variable)

CA = Capital Adequacy (dependent variable)

ME = Management Efficiency (dependent variable)

LI = Liquidity Index (dependent variable)

SI = Security Index (dependent variable)

POS = Point of Sale Devices (independent variable)

EW = Electronic Wallets (independent variable)
 ATM = Number of ATMs (independent variable)
 We will estimate the following functions:
 $ROA = F(POS, EW, ATM)$
 $ROE = F(POS, EW, ATM)$
 $CA = F(POS, EW, ATM)$
 $ME = F(POS, EW, ATM)$
 $LI = F(POS, EW, ATM)$
 $SI = F(POS, EW, ATM)$

From Table (1), we note that all of them were unstable at the level, so the first differences were taken and it was found that all the variables stabilized at a significance level of 5% or 10%, whether with a crossover, a crossover and a trend, both, or without them. Therefore, all the variables will be complementary of degree I(1), and this means that the series are free from pseudo-regression.

Table 1. Results of the Extended Dickey-Fuller Stability Test in Iraq

UNIT ROOT TEST RESULTS TABLE (ADF)										
Null Hypothesis: the variable has a unit root										
									At Level	
ATM	EW	POS	SI	LI	ME	CA	ROE	ROA	t-Statistic	With Constant
0.7585	-1.7879	-1.0059	-2.7899	-2.0796	-1.7838	-1.5657	-2.4054	-1.9588	0.9920	0.3809
0.9920	0.3809	0.7421	0.0681	0.2536	0.3832	0.4905	0.1467	0.3032	Prob.	
n0	n0	n0	n0	n0	n0	n0	n0	n0		
-1.2328	-1.7616	-2.4341	-2.7532	-2.8768	-2.3520	-2.0698	-2.8686	-1.9489	t-Statistic	With Constant & Trend
0.8898	0.7044	0.3575	0.2218	0.1796	0.3982	0.5462	0.1830	0.6105	Prob.	
n0	n0	n0	n0	n0	n0	n0	n0	n0		
1.9172	0.1943	0.9001	-0.0270	2.6853	0.9847	-0.8583	1.5946	0.3533	t-Statistic	Without Constant & Trend
0.9853	0.7375	0.8984	-0.0270	2.6853	0.9847	0.3379	0.9708	0.7822	Prob.	
n0	n0	n0	n0	n0	n0	n0	n0	n0		
At First Difference										
d (ATM)	d (EW)	d (POS)	d (SI)	d (LI)	d (ME)	d (CA)	d (ROE)	d(ROA)	t-Statistic	With Constant
-6.1851	-5.9666	-6.4480	-2.6584	-6.2868	-3.5249	-6.1106	-6.6197	-4.9615	0.0000	0.0000
0.0000	0.0000	0.0000	0.0896	0.0000	0.0120	0.0000	0.0000	0.0002	Prob.	
-6.5756	-5.8772	-6.3697	-2.2979	-3.3889	-3.1236	-6.1744	-6.7999	-4.8341	t-Statistic	With Constant & Trend
0.0000	0.0000	0.0000	0.4260	0.0697	0.1142	0.0000	0.0000	0.0019	Prob.	
			n0	n0	n0	n0	n0	n0		
-5.7748	-5.9812	-6.0392	-2.6981	-1.2092	-3.3514	-6.1642	-6.1116	-5.0026	t-Statistic	Without Constant & Trend
0.0000	0.0000	0.0000	0.0081	0.2033	0.0013	0.0000	0.0000	0.0000	Prob.	
n0										

Estimating the relationship between electronic payment methods and some macroeconomic variables

From Table 2, we note that the R-squared value appeared as (0.72), which indicates that the independent variables explain (72%) of the variables in the dependent variable, and the remaining (24%) are for other variables not included in the standard model. As for the adjusted R-squared value, it was (0.72). Regarding the significance of the model, we note

that the calculated F-value was (18.25), which is significant at the 5% significance level. Therefore, we will reject the null hypothesis and accept the alternative hypothesis.

Table 2. Results of the (ARDL) model for the ROA growth function in Iraq

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	6.946602	0.106271	0.738222	ROA(-1)
0.5084	0.668645	0.190010	0.127049	EW
0.0003	4.084904	3.426106	13.99531	POS
0.0001	-4.544382	3.271315	-14.86611	POS (-1)
0.0005	-3.851953	116588.9	-449094.9	ATM
0.0042	3.077188	121683.6	374443.3	ATM (-1)
0.0062	2.925527	22952599	67148441	C
2.41E+08	Mean dependent var		0.767197	R-squared
32029106	S.D. dependent var		0.724869	Adjusted R-squared
36.26931	Akaike info criterion		16800217	S.E. of regression
36.56486	Schwarz criterion		9.31E+15	Sum squared resid
36.37617	Hannan-Quinn criter.		-718.3862	Log likelihood
1.922474	Durbin-Watson stat		18.12508	F-statistic
			0.000000	Prob(F-statistic)

Bounds Test

From Table 3, we note that the value of (F-statistic) appeared with a value of (3.37), which is higher than the value of the lower bound (I0 Bound) of (3.17) at the significance level of (10%), meaning that it falls in the area of indecision. Therefore, we will rely on the existence of a long-term relationship between the model variables, and accordingly, we will reject the null hypothesis and accept the alternative hypothesis.

Table 3. Results of the integration test for the ROA function in Iraq

K	Value	Test Statistic
2	3.370822	F-statistic
Critical Value Bounds		
I1 Bound	I0 Bound	Significance
4.14	3.17	10%
4.85	3.79	5%
5.52	4.41	2.5%
6.36	5.15	1%

Conclusions

The results indicated that financial innovations have improved the efficiency of banking operations through the integration of technology and automation techniques, particularly in developed countries. The main hypothesis, that financial innovations contribute positively to improving the performance of the banking sector in terms of operational efficiency and profitability, was also accepted. Financial innovations, such as digital banking services, have contributed to increased financial inclusion, meaning an expansion of the customer base to include traditionally underserved individuals, especially in developing countries. Furthermore, innovations such as data analytics and artificial intelligence have enabled banks to improve risk management and anticipate financial challenges more accurately. These innovations have also contributed to reducing loan

processing times and project financing, thus stimulating economic growth in the selected countries. Financial innovations have become a key driver for improving investment banking performance by enhancing operational efficiency and increasing profitability. Digital technologies such as e-banking and digital currencies have contributed to reducing transaction costs, expanding the customer base, and improving risk management. Therefore, the banking sector must continuously provide high-quality, low-cost banking services to attract the largest possible number of customers to use these methods, as well as prepare special programs and develop appropriate plans to increase banking awareness in Iraqi society in order to gain customer confidence in modern electronic payment systems and work to reduce the amount of hoarded funds and raise bank deposit rates.

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