The Impact of Electronic Banking Services Development on Financial Inclusion in Jordan

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Abstract

This study examined the impact of the development of electronic banking services on financial inclusion, and the study population consisted of operating banks in Jordan. The sample of the study relied on a comprehensive survey due to the small size of the sample; its data were extracted for the period from (2015) to (2022). The study examined the impact of the development of electronic banking services in its various dimensions (diversity of electronic banking services, electronic banking services provided by ATMs, mobile financial services, and the Internet) on financial inclusion in Jordan in its dimensions (access to banking services, use of banking services, availability of banking services).The study followed the descriptive analytical approach using E-Views program in order to describe the data and estimate the study model to test the hypotheses of the study. The study found that there is a statistically significant positive impact of the development of electronic banking services in its various dimensions on financial inclusion in Jordan in its various dimensions.The researcher recommended the need to support research and innovation in the field of financial technology and develop new and innovative electronic banking services to meet the needs of customers and enhance financial inclusion, and recommended enhancing the diversity of services Banking, the access to banking services, and the financial literacy, and recommended to conduct future studies related to the role of the of electronic banking services development on financial inclusion.

Keywords: *Electronic Banking Services, Financial Inclusion, Banks Operating in Jordan.*

Introduction

Financial inclusion has received considerable attention from academic and practitioner circles. Monetary policy makers in many countries have embraced financial inclusion as a key to economic empowerment. Economic development is achieved as a result of three essential pillars: financial inclusion, financial integrity, and consumer protection.

In confirmation of what the World Bank has stated that financial inclusion is one of the main drivers of economic development, especially in developing countries, it enables all individuals and businesses to access a variety of financial products, through which they can make financial decisions such as lending, saving, investing, insurance, or dealing with other parties (Moataq, et al., 2021).

Financial inclusion is classified into four main categories: youth, women, small and medium-sized enterprises, the elderly, and people with disabilities. The entry of these categories into the formal financial sector benefits them, as they will have access to a wide range of financial products and packages that benefit them in making financial decisions (World Bank, 2022).

The Central Bank of Jordan launched the National Financial Inclusion Strategy (2018-2020) in late 2017. It was defined in five key areas: promoting financial literacy, protecting financial consumers, financing small and medium-sized enterprises, microfinance services, and digital financial services. It was supported by a database to ensure the accuracy of the implementation of goals and clarity of vision for each axis. The main two objectives of the National Financial Inclusion Strategy were to increase the financial inclusion rate, measured by the number of adults with accounts in banking and financial institutions, and the second objective was to reduce the gap in access to financial services provided between genders (Al-Shammari and Al-Waeli, 2022).

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The rise in demand for financial technology in the Jordanian market, which was due to its possession of an investment environment that supports innovation and progress, made the Central Bank of Jordan present in supporting it in promoting access to digital services with ease and security. The rapid development that the Jordanian banking sector is witnessing in the levels of the financial consumer, his needs, in addition to the development of modern technologies, and the emergence of competitors in providing what meets the needs of customers with ease and low costs.

A study was conducted by the World Bank on financial inclusion in 2017. This study included 140 countries, including Jordan. The most important results of this study were that the financial inclusion rate ranged from 14% in Middle Eastern countries to 69% in Asian countries. As for Jordan, the percentage of individuals who have bank accounts for those over the age of 15 was 24%.

From here, the current study came to know the impact of the development of electronic banking services on financial inclusion in Jordan.

Literature Review

Despite the development in the Jordanian banking sector, and the ease and security that electronic banking services provide to users of official channels, there are statistical reports provided by the Central Bank of Jordan that indicate that Jordan is one of the countries with a low financial inclusion rate of 41.7%, which means that the population is not keeping up with banking services, meaning that they are excluded from the Jordanian financial system despite the availability of financial services to them (Central Bank of Jordan, 2022).

According to a study by (Al-Qadi, 2018), the obstacles that stand in the way of implementing financial inclusion strategies are weak financial literacy and dealing with banking technology, which makes it difficult to reach all individuals, especially marginalized communities. Providing a competitive economic system that can give a boost to institutions in the field of financial technology is one of the factors that help develop financial inclusion. Based on the recommendations of the study by (Al-Quraan, 2022); (Zardani, 2020); (Luzahri, 2021) on the importance of electronic banking services in improving the profitability of banks and the need to adopt developmental strategies in financial inclusion, this study came to measure the impact of the development of electronic banking services on financial inclusion in Jordan.

The study by (Zardani, 2020) aimed to measure the impact of information and communication technology (ICT) on financial inclusion. The data of (100) countries for the year (2017) were used using the ordinary least squares regression model for the dependent variable of financial inclusion. It was measured using sub-indicators (adults with bank accounts, commercial bank branches, ATM machines, local credit provided by the financial sector, and deposits held by commercial banks) and the independent variable of ICT. The most important results were the existence of a positive and significant relationship between financial inclusion and ICT.

(Luzahri, 2021) has focused on the reality of financial inclusion in Arab countries and mechanisms to enhance it concluded by showing the indicators of financial inclusion through its analysis. It showed a significant decline in its level in many Arab countries due to the weak provision of financial services to different segments of society, and the weakness of financial transactions through official channels. This study was conducted on a sample of segments of society in several Arab countries, excluding the Gulf countries. The descriptive and analytical methods were used for financial inclusion indicators (mechanisms to enhance financial inclusion, microfinance index, lending index, savings index, and official bank account ownership index). The most important results were the integration of the largest possible segment of society into the formal financial sector in a fair manner, digital transformation, and the adoption of technological innovations in banking operations to enhance productivity, raise profitability levels and reduce costs.

Neaime and Gaysset (2018) researching the relationship between financial inclusion and economic growth in eight Middle Eastern and North African countries. Using the generalized method of moments (GMM) on annual data from 2002-2015, they analyzed financial inclusion indicators covering access to financing for households and businesses (bank accounts, branches, ATMs, company bank loan usage). Their findings: financial inclusion positively impacts per capita GDP growth in these countries. This correlation arises from increased access to financial products and services for households and businesses, enabling them to save, invest, and grow. Importantly, the study also found that financial inclusion can improve financial stability by spreading investment risk across a wider pool of individuals and companies. These findings suggest that financial inclusion can be a valuable tool for promoting both economic growth and financial stability.

Based on what was mentioned in the previous studies, the

study hypotheses can be formulated as follows:

(HO1) There is no statistically significant effect at the level of (a≤0.05) of the development of electronic banking in its dimensions (the diversity of electronic banking services, electronic banking services provided by ATMs, financial services via mobile phone and the Internet) on financial inclusion in Jordan in its dimensions (access to electronic banking services, use of electronic banking services, availability of electronic banking services).

This main hypothesis is branched into a group of sub-hypotheses which are as follows:

(HO1.1) There is no statistically significant effect at the level of (a ≤ 0.05) of the development of electronic banking in its dimensions on access to electronic banking services.

(HO1.2) There is no statistically significant effect at the level of (a ≤ 0.05) of the development of electronic banking in its dimensions on the use of electronic banking services.

(HO1.3) There is no statistically significant effect at the level of (a ≤ 0.05) of the development of electronic banking in its dimensions on the availability of electronic banking services.

Method

The research in this part describes the method and procedures followed in its implementation, including a description of the study population, the research methodology followed, the data collection method, and the statistical processing that was used to analyze the data and draw conclusions.

The study adopted the descriptive and analytical approach to deal with the data and classify it, so that it describes the phenomenon and the study population, and the analytical part of it to obtain the results of testing the study hypotheses and reach conclusions about the impact of the development of electronic banking services on financial inclusion in Jordan.

A study by (Shnibi and Ben Lakhdar, 2019) provided concepts about financial inclusion, its goals, importance, and role in development. The descriptive and analytical approach was adopted, and the survey study was used for some sources and references related to the research topic related to the Arab Republic of Egypt. The researcher used financial inclusion indicators (access to financial services, use of financial services, quality of financial services). The results of this study were that financial inclusion provides the provision of advanced financial services and products at reasonable prices in a sustainable and responsible manner.

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quality of financial services). The results of this study were that financial inclusion provides the provision of advanced financial services and products at reasonable prices in a sustainable and responsible manner.

The study population consisted of operating banks in Jordan, and sample of the study relied on a comprehensive survey due to the small size of the sample; its data were extracted for the period from (2015) to (2022). The study examined the impact of the development of electronic banking services in its various dimensions (diversity of electronic banking services, electronic banking services provided by ATMs, mobile financial services, and the Internet) on financial inclusion in Jordan in its dimensions (access to banking services, use of banking services, availability of banking services).

The study followed the descriptive analytical approach using E-Views program in order to describe the data and estimate the study model to test the hypotheses of the study.

Results

This chapter presents the results of data analysis and hypothesis testing. Initially, descriptive statistics like measures of central tendency and dispersion will be employed to characterize the study variables. Subsequently, principal component analysis will be undertaken to form the study variables. Following this, the study model will be estimated. The dependent variable is financial inclusion with its three dimensions: access to banking services, availability of banking services, and utilization of banking services. Meanwhile, the independent variables are those representing the development of banking services, encompassing diverse electronic banking services, ATM-based electronic banking services, and financial services offered through mobile phones and the internet. These independent variables will be reduced to one expressive variable through principal component analysis. Finally, the results of model estimations and hypothesis tests will be presented.

To identify the likelihood of affirmative action and acceptance of this hypothesis, the researcher used multiple regression analysis to test this hypothesis, analyzing the variability of regression as shown in the following table:

The results of Table (1) summarizes the descriptive statistics of the study variables, including the mean, minimum, maximum, standard deviation, and normality test for each study variable.

The results of Tables (2), (3), (4), (5) were based on one of the factor analysis techniques, namely the principal component analysis (PCA) method. The idea of PCA was first proposed by the British scientist Spearman in the early 20th century, and it was later developed by many other scientists. PCA focuses on simplifying raw data tables, which often contain a large number of variables and statistical units. Raw data tables that contain a large number of variables and units can be difficult to read and interpret, and it can be difficult to understand the structure of the data. PCA can be used to simplify the presentation and representation of the phenomenon without compromising the important information. PCA aims to find the eigenvalues and eigenvectors of the variance-covariance matrix.

In the context of the passage you provided, PCA was used to analyze the data for a study on financial inclusion. The study used a large number of variables to measure financial inclusion. PCA was used to reduce the number of variables to three principal components. These principal components were then used to analyze the data and test hypotheses about the relationship between financial inclusion and other variables.

Based on the results of the table (1), it is clear that all study variables follow a normal distribution, as the p-values of the Jarque-Bera test for all variables are greater than 0.69, This indicates that all study variables follow a normal distribution.

Analysis of Table (2) reveals that the first three principal components (PCs) cumulatively explain 95.9% of the total variance, exceeding the 70% threshold conventionally accepted for adequate phenomenon

representation. This signifies that the first three PCs sufficiently capture the majority of information within the data.

Therefore, we conclude that the application of principal component analysis (PCA) effectively explains 95.9% of the total information associated with the dimensions of electronic service development, as represented by eigenvalues. Notably, PC1 accounts for 91.2% of the variance, followed by PC2 with 4.7% and PC3 with 3.7%. The remaining components contribute a negligible percentage of variance, and their influence diminishes substantially beyond PC3.

Eigenvectors, reflecting the correlations within each PC, provide insights into the weightings of individual variables. For instance, NSYB and NFTYB exhibit high positive correlations in PC1, while VCC displays a negative correlation. This suggests that PC1 captures some of the variance related to the relationship between the number of electronic check clearances and the volume of financial transactions on digital bill payment platforms.

In essence, PCA results indicate that the data consists of three primary components adequately encompassing the bulk of information present. These components represent a composite of the original six variables and can be interpreted as relating to transaction volume, growth, and profitability.

These findings can be leveraged to comprehend broader trends in Jordanian banking service utilization. As exemplified by the results, a rise in digital banking adoption and commercial activity growth is evident.

Furthermore, the observed strong correlation between NFTYB and NFWOM implies that an increase in either variable's value tends to induce growth in the other. This finding highlights the intertwined nature of specific electronic banking services within the Jordanian marketplace.

Analysis of Table (3) reveals that the first two principal components explain 93.12% of the total explained variance, which exceeds 70% for phenomenon interpretation. This is an acceptable percentage, indicating that the first two principal components are sufficient to represent most of the information in the data.

Therefore, we conclude that the application of factor analysis (principal component method) explains 93.12% of the total information that explains the dimensions of access to electronic services. The first component explains 83.22% of the variance, followed by the second component with 9.9%. The third component explains a small percentage of the variance, and its contribution significantly decreases after the third component.

Eigenvectors (correlations): Eigenvectors represent the weights of each variable in the principal components. For example, the three variables NPOS, NPC, and NEW have high positive correlations in PC1. The positive relationship between the variables NEW and NPOS can be interpreted as reflecting the fact that an increase in the number of electronic wallets, the number of payment cards issued by banks operating in the Kingdom of various types, and the number of points of sale indicates an increase in access to electronic services, and consequently an increase in financial inclusion.

In general, the results of principal component analysis can be interpreted as indicating that the data is composed of two main components. These two main components are sufficient to represent most of the information in the data.

The three principal components represent a combination of the three original variables. These components can be interpreted as relating to the degree of financial inclusion, the degree of digital transformation, and an unknown element.

These findings can be used to understand the general trends in financial inclusion and digital transformation in the Hashemite Kingdom of Jordan.

It can be noted that the variables NEW, NPC, and NPOS are closely correlated. This means that an increase in the value of one of these variables leads to an increase in the value of the other variables.

Analysis of Table (4) reveals that Results of Principal Component Analysis (PCA) of a dataset of 8 observations and 2 variables.

The eigenvalues of the two principal components indicate that the first principal component explains 91.85% of the variance in the data. This means that the first principal component is sufficient to represent most of the information in the data.

The first principal component is positively correlated with the variables PSMEBBFI and PFGSMEOTBF. This component can be interpreted as representing a combination of variables that relate to the degree of support for small and medium-sized enterprises (SMEs).

The positive relationship between the variables PSMEBBFI and PFGSMEOTBF can be interpreted as reflecting the fact that an increase in the percentage of SMEs that have borrowed from formal financial institutions and an increase in the percentage of facilities granted to the SME sector from the total banking facilities indicate an increase in support for SMEs and an increase in the use of electronic banking services.

In general, the results of principal component analysis can be interpreted as indicating that the data is composed of a single principal component. This principal component is sufficient to represent most of the information in the data.

The first principal component represents a combination of the original variables. This component can be interpreted as relating to the degree of support for SMEs.

These results can be used to understand the general trends in support for SMEs in the Hashemite Kingdom of Jordan. For example, the results indicate that there is an increase in support for SMEs in the Hashemite Kingdom of Jordan.

Analysis of Table (5) reveals that Results of Principal Component Analysis (PCA) of a dataset of 8 observations and 2 variables. The eigenvalues of the two principal components indicate that the first principal component explains 97.65% of the variance in the data. This means that the first principal component is sufficient to represent most of the information in the data. The first principal component is positively correlated with the variables NOA and NOB. This component can be interpreted as representing a combination of the variables that relate to the size of the bank. The positive relationship between the variables NOA and NOB can be interpreted as reflecting the fact that an increase in the number of ATMs and an increase in the number of bank branches indicate an increase in the size of the bank and, consequently, the availability of banking services.

In general, the results of principal component analysis can be interpreted as indicating that the data is composed of a single principal component. This principal component is sufficient to represent most of the information in the data. The first principal component represents a combination of the original variables. This component can be interpreted as relating to the size of the bank.

Analysis of Table (6) reveals that Description of the mathematical form of the proposed model to measure the impact of the development of electronic banking services on financial inclusion in its dimensions is represented in three main models represented in the following figure:

Model 1: Impact of the development of electronic banking services on access to banking services

$$ABS = \alpha + \beta_1 * SFDEV + \mu$$

Model 2: Impact of the development of electronic banking services on the use of banking services

$$UBS = \alpha + \beta_1 * SFDEV + \mu$$

Model 3: Impact of the development of electronic banking services on the availability of banking services

$$AVBS = \alpha + \beta_1 * SFDEV + \mu$$

Where:

ABS: abbreviation for Access to banking services refers to access to banking services.

UBS: abbreviation for Use of banking services refers to the use of banking services.

AVBS: abbreviation for Availability of banking services refers to the availability of banking services.

SFDEV: represents the variable expressing the development of electronic banking services obtained through the analysis of the main components formed after the development of banking services.

Estimating the Regression Equations:

$$ABS = -0.0000000000000389 + 0.643976 * SFDEV$$

$$UBS = -0.0000000000000404 + 0.57712 * SFDEV$$

$$AVBS = -0.0000000000000355 + 0.57712 * SFDEV$$

Lagrange Multiplier (LM) Test

The results of Table 6 show that the p-values of the LM tests for the three models are equal to 0.61, 0.97, and 0.45. These p-values are all greater than 5%, which indicates that the null hypothesis of no autocorrelation cannot be rejected.

Heteroskedasticity Test

The results of Table 6 show that the p-values of the White tests for the three models are equal to 0.16, 0.14, and 0.49. These p-values are all greater than 5%, which indicates that the null hypothesis of homoskedasticity cannot be rejected.

Normality Distribution Test

The results of Table 6 show that the p-values of the Shapiro-Wilk tests for the three models are equal to 0.68, 0.72, and 0.72. These p-values are all greater than 5%, which indicates that the null hypothesis of normality cannot be rejected.

Table 1. The Study Variable Descriptors

	ABS01	UBS	AVBS	FSDEV
Mean	5.55E-16	-1.67E-16	8.16E-15	6.88E-15
Median	-0.299784	0.168981	0.355185	-0.011728
Maximum	2.963029	2.111644	1.686409	3.592385
Minimum	-2.034046	-1.989475	-2.499338	-3.73928
Std. Dev.	1.689162	1.448932	1.494017	2.500033
Skewness	0.588834	0.087389	-0.478031	-0.064528
Kurtosis	2.300616	1.797327	1.889229	1.894715
Jarque-Bera	0.625347	0.492323	0.715956	0.41277
Probability	0.731489	0.781796	0.699088	0.81352
Sum	4.88E-15	-1.33E-15	6.48E-14	5.60E-14
Sum Sq. Dev.	19.97287	14.69583	15.6246	43.75114
Observations	8	8	8	8

Table 2. Eigenvalues and Cumulative Variable Loadings of the E-service Development Component

Number	Eigenvalues	Difference	Proportion	Cumulative Value	Cumulative Proportion	
1	5.469	5.185	0.912	5.469	0.912	
2	0.284	0.061	0.047	5.753	0.959	
3	0.223	0.205	0.037	5.976	0.996	
4	0.018	0.013	0.003	5.994	0.999	
5	0.005	0.003	0.001	5.998	1.000	
6	0.0018	---	0.0003	6	1	
Eigenvectors (loadings)						
Variable	PC 1	PC 2	PC 3	PC 4	PC 5	PC 6
VCC	-0.384	0.375	0.824	0.106	0.085	0.116
NPT	0.410	-0.469	0.257	0.192	0.511	0.498
NFTA	0.406	-0.381	0.503	-0.292	-0.360	-0.472
NFTWOM	0.412	0.497	-0.016	-0.170	0.611	-0.424
NFTYB	0.416	0.421	0.015	-0.446	-0.347	0.575
NSYB	0.421	0.265	0.018	0.799	-0.329	-0.077
Ordinary correlations						
	VCC	NPT	NFTA	NFTWOM	NFTYB	NSYB
VCC	1					
NPT	-0.865	1				
NFTA	-0.802	0.987	1			
NFTWOM	-0.816	0.857	0.858	1		
NFTYB	-0.827	0.875	0.881	0.995	1	
NSYB	-0.852	0.912	0.903	0.982	0.982	1

Table 3. Eigenvalues and Cumulative Variable Loadings for the Banking Service Access Component

Number	Eigenvalues	Proportion	Cumulative Proportion
1	2.49661	0.8322	0.8322
2	0.29692	0.099	0.9312
3	0.20647	0.0688	1
Eigenvectors (loadings)			
Variable	PC 1	PC 2	PC 3
NEW	0.57031	0.733364	0.370027
NPC	0.57301	-0.677952	0.460474
NPOS	0.58856	-0.050583	-0.806873
Ordinary correlations			
	NEW	NPC	NPOS
NEW	1		
NPC	0.70344	1	
NPOS	0.76536	0.775454	1

Table 4. Eigenvalues and Cumulative Variable Loadings for the Banking Service Usage Component

Number	Eigenvalues	Proportion	Cumulative Proportion
1	1.836979	0.9185	0.9185
2	0.163021	0.0815	1
Eigenvectors (loadings)			
Variable	PC 1		PC 2
PSMEBBFI	0.707107		-0.70711
PFGSMEOTBF	0.707107		0.707107
Ordinary correlations			
Variable	PSMEBBFI		PFGSMEOTBF
PSMEBBFI	1		
PFGSMEOTBF	0.836979		1

Table 5. Eigenvalues and Cumulative Variable Loadings for the Banking Service Availability Component

Number	Eigenvalues	Proportion	Cumulative Proportion
1	1.953075	0.9765	0.9765
2	0.046925	0.0235	1
Eigenvectors (loadings)			
Variable	PC 1		PC 2
NOA	0.707107		-0.70711
NOB	0.707107		0.707107
Ordinary correlations			
Variable	NOA		NOB
NOA	1		
NOB	0.953075		1

Table 6. Regression Model Estimation Using Ordinary Least Squares (OLS)

R-Squared	Prob. Of T	Coefficient	Variables
Estimating the Impact of Electronic Banking Service Development on Access to Banking Services ABS = -0.0000000000000389 + 0.643976 * SFDEV			
R^2=0.90842	1.0000	-3.89E-15	α
	0.0002	0.643976	**SFDEV**
Prob.of JB = 0.676754		**B.P.G. = 0.16**	**LM = 0.61**
Estimating the Impact of Electronic Banking Service Development on Use to Banking Services UBS = -0.0000000000000404 + 0.57712 * SFDEV			
R^2=0.93264	1.000	4.04E-15	α
	0.0001	0.57712	**SFDEV**
Prob.of JB = 0.718729		**B.P.G. = 0.14**	**LM = 0.969**
Estimating the Impact of Electronic Banking Service Development on Availability to Banking Services AVBS = -0.0000000000000355 + 0.57712 * SFDEV			
R^2=0.74195	1.000	-3.55E-15	α
	0.006	0.499219	**SFDEV**
Prob.of JB = 0.723176		**B.P.G. = 0.49**	**LM = 0.4575**

The evaluation of the model from a statistical and economic perspective shows the following:

The estimated coefficient of electronic banking development is positive (0.64397), indicating a positive relationship between electronic banking development and access to banking services. This is consistent with the assumptions of economic theory. This relationship is statistically significant, with a p-value of 0.0002, which is less than the significance level of 0.05. This indicates that there is a positive and statistically significant relationship between electronic banking development and access to banking services.

The estimated coefficient of electronic banking development is positive (0.57712), indicating a positive relationship between electronic banking development and use of banking services. This relationship is also statistically significant, with a p-value of 0.0001, which is less than the significance level of 0.05. This indicates that there is a positive and statistically significant relationship between electronic banking development and the use of banking services.

The estimated coefficient of electronic banking development is positive (0.499219), indicating a positive relationship between electronic banking development and availability of banking services. This relationship is also statistically significant, with a p-value of 0.006, which is less than the significant level of 0.05. This indicates that there is a positive and statistically significant relationship between electronic banking development and availability of banking services.

Evaluating the Explanatory Power of the Model

The results of the coefficient of determination for the estimated models show that electronic banking development explains 91% of the reasons for improvement in access to banking services, 93% of the reasons for use of banking services, and 74% of the reasons for availability of banking services. These are high values that indicate the good fit of the study models.

Discussion

This paper sought to determine the impact of electronic banking services development on financial inclusion in Jordan.

Based on the results of the study, the following conclusions can be drawn regarding the three hypotheses:

Hypothesis 1.1: There is no statistically significant effect at the (a≤0.05) level of development of electronic banking services in its dimensions on access to banking services.

The study found that there is a positive and statistically significant relationship between the development of electronic banking services and access to banking services. The coefficient of the development of electronic banking services was 0.64397, which is significant at the 5% level. This means that an increase in the development of electronic banking services is associated with an increase in access to banking services. This finding is consistent with the findings of other studies, such as the study by Zardani (2020), which found that an increase in the use of information and communication technology (ICT) is associated with an increase in financial inclusion.

Therefore, the first hypothesis is rejected.

Hypothesis 1.2: There is no statistically significant effect at the (a≤0.05) level of development of electronic banking services in its dimensions on the use of banking services.

The study found that there is a positive and statistically significant relationship between the development of electronic banking services and the use of banking services. The coefficient of the development of electronic banking services was 0.57712, which is significant at the 5% level. This means that an increase in the development of electronic banking services is associated with an increase in the use of banking services. This finding is consistent with the findings of other studies, such as the study by Yaseen and El Qirem (2018), which found that the use of electronic banking services is associated with an increase in financial inclusion.

Therefore, the second hypothesis is rejected.

Hypothesis 1.3: There is no statistically significant effect at the (a≤0.05) level of development of electronic banking services in its dimensions on the availability of electronic banking services.

The study found that there is a positive and statistically significant relationship between the development of electronic banking services and the availability of electronic banking services. The coefficient of the development of electronic banking services was 0.499219, which is significant at the 5% level. This means that an increase in the development of electronic banking services is associated with an increase in the availability of electronic banking services. This finding is consistent with the findings of other studies, such as the study by Shamir (2022), which found that the development of electronic banking services is associated with an increase in financial inclusion.

Therefore, the third hypothesis is rejected.

Conclusions

The study found that there is a positive and statistically significant relationship between the development of electronic banking services and financial inclusion in Jordan. This means that the development of electronic banking services can be a valuable tool for promoting financial inclusion.

There is a positive and statistically significant relationship between the diversity of banking services and access to banking services. This means that an increase in the volume of checks circulating in the electronic check clearing system and an increase in the number of payment transactions performed using payment cards issued by banks operating in the Kingdom of various types contribute to increasing access to banking services.

There is a positive and statistically significant relationship between ATM banking services and access to banking services. This means that an increase in the number of financial transactions performed through ATMs contributes to increasing access to banking services.

There is a positive and statistically significant relationship between the increase in financial services through mobile and internet and enhancing access to banking services. This means that an increase in the number of financial transactions for electronic wallets that were opened from mobile phones and an increase in the number of financial transactions and the number of services for "eFAWATEERCOM" contribute to increasing access to banking services.

There is a positive and statistically significant relationship between the diversity of banking services and the use of banking services, represented by the percentage of companies borrowed from official financial institutions. This means that an increase in the volume of checks circulating in the electronic check clearing system and an increase in the number of payment transactions performed using payment cards issued by banks operating in the Kingdom of various types contribute to an increase in the percentage of companies borrowed from official financial institutions.

There is a positive and statistically significant relationship between ATM banking services and the use of banking services, represented by the percentage of companies borrowed from official financial institutions. This means that an increase in the number of financial transactions through ATMs contributes to an increase in the percentage of companies borrowed from official financial institutions.

There is a positive and statistically significant relationship between the increase in financial services through mobile and internet and the enhancement and use of banking services, represented by the percentage of companies borrowed from official financial institutions. This means that an increase in the number of financial transactions for electronic wallets that were opened from mobile phones and an increase in the number of financial transactions and the number of services for "eFAWATEERCOM borrowed from official financial institutions.

There is a positive and statistically significant relationship between the diversity of banking services and the availability of banking services (measured by the number of ATMs and the number of bank branches). This means that an increase in the volume of checks circulating in the electronic check clearing system and an increase in the number of payment transactions performed using payment cards issued by banks operating in the Kingdom of various types contribute to an increase in the number of ATMs and the number of bank branches.

There is a positive and statistically significant relationship between ATM banking services and the availability of banking services (measured by the number of ATMs and the number of bank branches). This means that an increase in the number of financial transactions through ATMs contributes to an increase in the number of ATMs and the number of bank branches.

There is a positive and statistically significant relationship between the increase in financial services through mobile and internet and the availability of banking services (measured by the number of ATMs and the number of bank branches). This means that an increase in the number of financial transactions for electronic wallets that were opened from mobile phones and an increase in the number of financial transactions and the number of services for "eFAWATEERCOM" contribute to an increase in the number of ATMs and the number of bank branches.

There is a positive and statistically significant relationship between the development of electronic banking services and financial inclusion in Jordan. This means that promoting the development of electronic banking services contributes to promoting financial inclusion in Jordan.

Recommendations of the Study

- The study recommends that the government and the private sector support research and innovation in the field of financial technology and the development of new and innovative electronic banking services to meet the needs of customers and promote financial inclusion. The

study also recommends the promotion of the diversity of banking services, the promotion of access to banking services, and the dissemination of financial literacy.

- The study recommends that banks should enhance the diversity of their services to meet the needs of different customer segments, and that they should provide multiple banking services that include electronic transfers, online payments, and mobile banking applications in easy ways.

- The researcher recommends that banks should increase the number of ATMs, taking into account the appropriate geographical distribution and the number of electronic services provided by ATMs.

- The researcher recommends that awareness campaigns should be carried out for members of society about the importance of financial inclusion and the dissemination of correct awareness about the financial products and services available.

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