Factors Affecting E-Banking Service in Jordanian Commercial Banks

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ABSTRACT

This study aimed to determine the variables influencing electronic banking services in Jordanian commercial banks. The study sample consisted of 13 commercial banks, according to the study’s variables. The descriptive and analytical approach and other statistical techniques were employed, including the fixed effect test and descriptive statistics. No statistically significant impact at the level was found, according to the findings of significance \( p < 0.05 \) for total assets on electronic banking services, and there is no statistically significant impact at the level of significance \( p < 0.05 \) for total capital and provisions, total credit facilities, and total deposits on commercial banks in Jordan that offer electronic banking. The study recommended that the banking sector focuses on all the main elements related to electronic banking services by comparing traditional banking services with electronic banking services, knowing the factors affecting that, and paying attention to them to raise the profitability level.

Keywords: Banking sector, commercial banks, electronic banking services, influencing factors.

1. Introduction

By gathering savings and accepting them in a variety of term deposits and savings vehicles on the one hand and by using a significant portion of these deposits and savings on the one hand, in the form of credit facilities that allow all economic sectors to use the money to finance their various operations, banks play a crucial role in the economies of all nations, the observer of how extending bank credit affects all economic sectors observes that these impacts are intricately interconnected and have an impact on all macroeconomic indicators in the economy both directly and indirectly.

The significance of electronic banking services was made clear by technological advancements that emerged and were connected through various channels, including electronic banking, Internet banks, electronic messages, and ATMs. This made it simpler for customers to complete their transactions more quickly and easily. The banking industry saw several changes due to various causes that increased competition and raised consumer awareness of the products and services offered by foreign banks.

Commercial banks’ ability to forge strong connections with a wide range of economic sectors and the funding they offer are crucial to their growth and the continuation of their various activities. However, this ability also exposes banks to difficulties that make them more susceptible to crises and the potential decline of these sectors. This hurts the performance of these banks, and the other sectors are impacted by the fall in bank performance. These crises prompted the creation of institutions that could handle the effects and fallout of the crisis, necessitating the emergence of big businesses and banks. As a result, the volume of sectoral concentration or, possibly, the volume of deposit or loan concentration, as in the banking system, has increased. The study aimed to pinpoint the variables influencing electronic banking services in Jordanian commercial banks.

1.1. Research Problem

Knowing how different electronic banking services contribute to increasing client loyalty in the banking industry is important, given the dangers to commercial banks’ existence, continuity, growth, and advancement (Chaimaa et al., 2021). The low percentage of deposit facilities, which shows that different economic sectors cannot take advantage of the services provided by Jordanian banks, is one of the factors influencing electronic banking services. Instead, these deposits are sent abroad for a better investment environment, decreasing the economic sectors’ capacity to gain from these institutions’ facilities. The
study problem can be formulated through the following questions:

H1: What aspects impact the electronic banking services offered by commercial banks in Jordan?

This question stems from four subquestions:

H1a: Do the total assets of Jordanian commercial banks affect their electronic banking services?

H1b: Do capital, reserves, and provisions impact electronic banking services in Jordanian commercial banks?

H1c: Is there an impact of credit facilities on electronic banking services in Jordanian commercial banks?

H1d: Is the rate of return on electronic banking services in Jordanian commercial banks affected by total deposits?

1.2. Research Objectives

Due to its strong link to consumer satisfaction, electronic banking services are more diverse than traditional banking services, which aids in maintaining customer satisfaction under control. Total assets are another factor contributing to an institution’s strength; also linked to the institution’s performance is the rate of return on equity. The main objective of this study was to decide what influences Jordanian commercial banks’ electronic banking services. Several subgoals were derived from this objective:

1. The effect of total assets on electronic banking services in Jordanian commercial banks should be determined.

2. The effect of capital, reserves, and provisions on electronic banking services in Jordanian commercial banks should be determined.

3. Identify the impact of credit facilities on electronic banking services in Jordanian commercial banks.

4. Determine the effect of the total deposits in the sector on the electronic banking services provided by Jordanian commercial banks.

1.3. Research Model

A model for the study was built by identifying each variable. Fig. 1 depicts an illustration of this model.

1.3.1. Procedural Definitions

It comprises a definition of every term connected to the study’s variables, and each variable is explained as follows:

1. Electronic Banking Services: All transactions that are concluded, implemented, or promoted by banks and financial institutions through electronic means such as telephones, computers, ATMs, the Internet, digital television, and others.

2. Total Assets: It includes items related to the organization’s property, so it includes all elements of current assets, elements of non-current assets, fixed assets, and investments.

3. Total Credit Facilities: the total sums of money provided to individuals and institutions for investment in production and consumption; thus, the debtor pays these funds with their interest, either in one payment or in installments during a certain period.

4. Total Deposits: The sum of funds placed in banks to be preserved, and these deposits are established for several purposes, namely, a savings account, a money market account, or others.

1.3.2. Research Hypotheses

The study hypotheses were built according to the study model and its variables and according to what was mentioned in the previous questions. The following is an explanation for that:

H0: Total assets have no statistically significant effect on electronic banking services in Jordanian commercial banks.

H1: For capital, reserves, and provisions, there is no statistically significant influence on electronic banking services in Jordanian commercial banks.

H2: The influence of credit facilities on electronic banking services in Jordanian commercial banks is not statistically significant.

H3: There is no statistically significant effect of total deposits on electronic banking services in Jordanian commercial banks.

2. Literature Review

2.1. Electronic Banking Services

Banking services represent many services that the bank provides to its customers, and it is defined as an activity or a group of activities whose essence is intangible. The bank works to provide them to the customer to satisfy his needs and desires. Their production is linked to a physical product and may not be and does not entail any transfer of ownership (Hamadi, 2010).

Banking services are considered a source of satisfaction that seeks to fulfill the customer’s needs and desires. On the bank’s side, they represent a source of profit (Al-Maaitah et al., 2021).

The development of so-called electronic banking services, through which the bank offers its various services based on communication technologies, is the result of the tremendous technological advancement in many means of communication and information technologies as well as the spread of the Internet and its many uses, modern
information technologies and the Internet (Chaimaa et al., 2021).

Electronic banking services can be defined as the service content that commercial banks provide to all their customers, as this content is represented in the many benefits that the customer seeks to achieve, which are represented in the process of withdrawals, deposits, transfers of sums of money and payment of the value of purchases (Anouze & Alamro, 2019). Taha (2017) defined electronic banking services as all that the bank provides in terms of traditional or advanced banking services through electronic communication channels, as it is entered into after fulfilling the membership conditions specified by the bank. Therefore, electronic banking services are all banking services provided by the bank directly to customers in terms of automatic interaction with various electronic channels available to all users around the clock (Rawwash et al., 2020).

In conclusion, electronic banking services are the services the banking system provides. They are characterized by full availability, whether temporal or spatial, through information and communication networks to immediately carry out their financial operations.

2.2. Factors Affecting Electronic Banking Services

By reviewing previous studies, many factors have a clear impact on electronic banking services, and the following is an explanation for each of them:

2.2.1. Total Assets

Total size is used in the literature as a variable that works to achieve economic savings related to size and risk distribution; this variable considers the possibility of varying the size of the bank on its performance (Duraj & Moci, 2015). It was found that the economic savings in the cost of banking services are achieved by increasing the total assets, especially when the financial markets develop, thus leading to high profitability rates. Then, there is a positive relationship between the size of the bank and its profitability (Staikouras & Wood, 2011).

Commercial banks work to achieve the maximum possible return by employing their external and internal resources, guaranteeing this return. Furthermore, banks differ from other companies in achieving the maximum possible return and the optimal level of financial safety. The funds available to commercial banks are the funds of others. Therefore, banks take into account that they are not exposed to risks. For this purpose, the bank takes several measures, including diversifying loans and financial investments, taking into account withdrawals from deposits, and the risks of investing in a portfolio of loans and securities to reach the quality of the required assets (Swamy, 2017).

2.2.2. Capital

A high capital ratio leads to a reduction in the risks related to ownership, which leads to a decrease in the rate of return required by investors; on the one hand, the high capital leads to a decrease in the net profits after taxes because the bank is deprived of the possible tax savings due to the deduction of interest expenses (Agusman et al., 2014).

2.2.3. Total Deposits

Banks do not often obtain desirable deposits free, which incurs certain costs to obtain such deposits. The costs in administrative and service expenses are based on the administrative efficiency of the bank, the technological development that leads to a decrease in the costs of banking services, and interest expenses that the bank pays to depositors. In addition to the changes that occur occasionally in commercial banks and other areas, such as provisions for loan losses and insurance premiums on deposits, which lead to an increase in the deposit cost. Therefore, the acceptance of any deposit by the bank must be contingent on the ability of the bank to employ this deposit and use it profitably and appropriately (Ani et al., 2012).

2.2.4. Return on Equity (ROE)

The rate of return on equity (ROE), which measures the effectiveness of the management in investing the company's funds obtained from internal and external sources, can be defined as the revenue strength of the assets invested in the bank. It is used as an indicator to gauge profitability (Matar, 2010). It shows the value of the return achieved from the investment of shareholders in the bank's activities, and it is calculated through the following equation (Hays et al., 2009):

\[
ROE = \frac{Net \ income}{Total \ equity}
\]

The purpose of Momani and Al-Srouji's (2007) study was to compare the performance of the Jordan Islamic Bank to that of Jordan's regular banks between 1992 and 2001 using some financial ratios. In this study, financial ratios and regression analysis were used together with a descriptive and analytical methodology. The findings revealed that, while Islamic banks can use their resources, the majority of these investments are long-term, as evidenced by the decline in their rapid liquidity ratio, and that there are no statistically significant differences between the performance of the Jordan Islamic Bank and that of conventional banks regarding the ratios that represent profitability. Conventional banks have a larger capacity to dispose of their holdings than Islamic banks.

This could result from the majority of initial investments being short-term. Traditional banks can operate more effectively and efficiently to increase the amount of their deposits and direct them towards the best investments or credit facilities, which results in the best possible use of their cash liquidity and better performance. One way to do this is to encourage resident and non-resident private sectors to obtain credit from them. The study advised Islamic banks to raise the rate of rapid liquidity, but it is important to note that this recommendation does not imply that Islamic banks are less liquid than other conventional banks; rather, it simply implies that they have a lower capacity for doing so.

While Al-Kour's (2011) study concentrated on determining the effects of asset concentration, deposit market share, and the performance of Jordanian commercial banks, the research sample covered 1993 to 2006 and included
fourteen commercial banks. Multiple regression equations were just one of the statistical techniques explored. The findings indicated that commercial banks perform well. It was discovered that the most effective organizations achieve high performance rates and obtain higher profitability and that the market concentration of commercial banks in Jordan is primarily the result of social and political factors. As a result of legislation and laws that aimed to increase and raise the levels of competition, the most concentrated banks did not form alliances to exert their dominance, which suggests.

Almazari’s (2014) study, which attempted to ascertain the effect of internal factors on the profitability of banks listed in Saudi Arabia and Jordan, was conducted between 2005 and 2011 using a sample of 63 observations in the Kingdom of Saudi Arabia and 98 observations in Jordan. A bank’s size has a positive and significant impact on its profitability, enabling it to operate at a high level of profitability according to several statistical methods, including descriptive statistics of averages and standard deviations. In addition, a bank’s debt load strongly correlates to its profitability; as a result, the higher its debt ratio, the less profitable the bank is, and vice versa. Ten publicly traded firms in Zimbabwe made up the study sample, and statistical techniques for testing hypotheses, including multiple regression and Pearson correlation analysis, were used. The effect of dividend policy on earnings per share and the variables influencing earnings per share in companies listed on the Zimbabwe Stock Exchange were discussed by Jakata and Nyamugure (2014). From 2003 through 2011, much research was conducted. It was found that there is a correlation between the share price and the dividend policy but not between the company’s earnings per share and the share price. The results were presented, and it was found that the dividend policy did not affect the value of the shares, reducing their appeal to shareholders and corporate investors.

According to Asad et al. (2016), several criteria emphasize cause-and-effect linkages for elements influencing consumer satisfaction in the Internet banking system. While several important criteria, such as perceived risks and advantages, website accessibility, and e-banking awareness, influence people’s adoption of e-banking services, security and privacy concerns fall short (Ghallab & Zhu, 2022).

By reviewing previous studies, it was found that they focused on discussing important and specific issues related to the issue of profitability and related matters. These studies formed a good basis for benefiting from previous experiences in the same field. These studies helped build the current study tool for collecting data and comparing it with the results of those studies. Therefore, what distinguishes this study is that it is the first that deals with the subject of total assets and its impact on the rate of return on equity. This is in light of an environment characterized by its specificity in terms of the structure of the apparatus and its quality. Therefore, this study contributes to shedding light on the analysis and discussion of the importance of establishing a deposit guarantee system in Jordan, in addition to the size of capital and allocations; it was difficult to find a study directly related to the subject of the study, so the closest studies were adopted, even in one of the variables.

3. Research Methodology

This part focused on the applied study methodology, which included the study methodology used, the study population and sample, data collection sources, regression equation, and statistical analysis methods.

3.1. Study Approach

The analytical descriptive approach was followed in the current study, which indicates the study of a specific phenomenon, so work is done to study existing events and phenomena and measure them as they are without the intervention of the researcher in their course, and then the analytical approach linked to those variables and the appropriate interpretation of them, as it is identical to reality.

3.2. Data Collection

The study used secondary sources mainly in the study, as it included references to many books, specialized scientific journals, refereed and non-referred reports, and documents, in addition to the website of the Amman Stock Exchange, websites relevant to the study’s focus on electronic banking services and understanding the factors influencing them in Jordanian commercial banks.

3.3. Study Population and Sample

The study’s subject matter was information on the variables influencing electronic banking services in Jordanian commercial banks. The study sample consisted of the banking sector in Jordan, so the selection of the sample was based on 13 commercial banks during the period of 2010–2021 by selecting four variables mainly related to the study and according to what was mentioned in a group of studies such as (Chaimaa et al., 2021; Rawwash et al., 2020), as follows:

\[
E\text{-service} = a_0 + \beta_1 TA_{it} + \beta_2 Capital_{it} + \beta_3 Credit_{it} + \beta_4 Deposit_{it} + \varepsilon
\]

Where:
\[\beta\] regression coefficient,  
\[E\text{-service}\] Dependent variable that was measured by identifying the bank’s profitability level by examining the rate of return on equity,  
\[TA = \text{Total assets,} \]
\[Capital = \text{Total capital, reserves, and allocations,} \]
\[Credit = \text{Total credit facilities,} \]
\[\varepsilon = \text{random estimation error.} \]

3.4. Statistical Analysis Methods

In order to analyze the data and evaluate the hypotheses, some of the statistical techniques listed below were utilized in the statistical analysis program E-Views:

1. Descriptive Statistics: Identifying the means, standard deviations, and greatest and lowest values for each variable helps describe every variable in the study.
2. Pearson Test: The independent variables included in the study were investigated using this approach in order to determine the strength of their association with one another.

3. Regression Analysis: Panel data can be estimated using either the Fixed Effect Model, which is calculated using the conventional least squares method, or the Random Effect Model, which is estimated using the Generalised Least Squares method. The random effect method assumes that these factors do not correlate with the independent variables; in contrast, the fixed effect method assumes that the factors’ appearance is random and has no correlation with the independent variables. Therefore, the presence of this correlation renders the random effect method ineffective in estimating the study’s coefficients.

3.5. Study Limitations

The study focused on a set of determinants: (1) The study included the period between 2010 and 2021 (period limitation), and (2) One of the study’s main objectives was to find the variables influencing electronic banking services in Jordanian commercial banks (objective limitation).

4. Results and Discussion

In this section of the study, the variables’ study data were presented and analyzed, and descriptive statistics were then computed by taking the mean and standard deviation as the highest and lowest values, respectively, and evaluating the hypotheses using a regression analysis test.

4.1. Statistical Description of the Variables

This part explained the arithmetic mean, standard deviation, and the highest and lowest values.

Table I shows that the mean of the “e-service” variable was 9.59, while the standard deviation was 0.74. So, this rate is a reflection of how profitable commercial banks are as a result of providing banking services. This ratio expresses net income over total shareholders’ equity, as is done using this ratio to evaluate the performance and work of banks. When the mean of this variable was compared to its minimum and maximum values, it was discovered that there was variation in the levels of profitability in the study sample’s banking sector, which amounted to 11,000 and 8,240,000, respectively.

The mean of the “total assets” variable was 42,544.82, which reflects the total assets owned by the banking sector in Jordan. The extent to which banks and industries can persist, develop their performance, and reach a high level of profitability compatible with their size is reflected partly by the size of the assets, which is inversely correlated with this. This finding was supported by comparing the mean with the maximum value of 29,796.60 and the minimum value of 53,641.70. At the same time, the standard deviation amounted to 7,764.17, which indicates a dispersion between the banking sector’s total assets.

The mean of the “capital and provisions” variable was 9,893.44, which expresses the amount or percentage of provisions and capital owned by the banking sectors annually. The capital and provisions express the degree of dependence of the banking sector on developing plans in order to protect its assets by having a good capital by setting a percentage of the provisions; additionally, by observing the maximum and minimum values, it turns out that they have reached 47,133.20 and 3,803.00, respectively.

While the mean of the “total credit facilities” variable was 19,544.60, and the standard deviation was 11,494.01, the total credit facilities reflect the credit risk assessment of corporate borrowers and securities issuers that have fixed income through the analysis of relevant and available information on the issuers and borrowers, and the economic conditions surrounding this process, through the results of this variable, it became clear that there is an average level of total credit facilities, and it was determined to be average by comparing the mean with this variable’s highest and lowest values, which amounted to 27,079.70 and 1,473.80, respectively.

“Total deposits” averaged 19,544.60 in value. The standard deviation was 14,140.36, indicating that the banking industry has a healthy level of deposits, which reflects the performance of Jordanian banks and leads to high levels of profitability. This was supported by comparing the maximum value, which was 35,305.30, and the minimum value, which was 4,433.40.

4.2. Variable Analysis Results

Tests for the variables must be carried out before testing the main hypotheses of the subject of the study.

4.2.1. Tests for the Time Series Stability of the Study Variables

The designed Dickey Feller test and Phillips test were used to verify the stability of the time series to test it for the study’s variables.

Since Table II demonstrated that one of the variables is unstable at the level, the initial difference must be taken before the variable is retested. Following the first difference, the two tests revealed that the significant value for both tests was less than 5%, rejecting the null hypothesis and accepting the alternative hypothesis that there is no unit root and that the time series of the study variables has stabilized.

4.2.2. Multiple Correlations among Independent Variables

The independent variables were checked using Pearson’s correlation to ensure no significant correlation before performing the multiple regression analysis.

Table III contains the results of the correlation analysis between the independent variables. The correlation ratios between the variables were found to be smaller.
hypotheses because the Hausman evaluation was statistically significant \((p < 0.01)\).

1. **Testing H0: Effect of Total Assets on Electronic Banking Services**

   For the total assets variable, the probability value was statistically significant \((p = 0.522)\), suggesting no statistically significant influence at the significance level of 0.05. The estimation coefficient has a value of \(-5.831\). So, let us say the entire asset level is large. In such a situation, there is no effect on the rate of return on equity, which is connected to electronic banking services from 2010 to 2021, either decreasing or increasing.

   Accordingly, the first main hypothesis is accepted, which states, “There is no statistically significant effect of total assets on electronic banking services in Jordanian commercial banks”.


   The capital, reserves, and allocations variable for the banking industry’s probability value was not statistically significant \((p = 0.823)\), suggesting no significant influence at the significance level of 0.05. The estimation coefficient’s value was 6.194, indicating no relationship between total capital, reserves, and provisions and the rate of return on equity for electronic banking services in the banking sector.

   Accordingly, a high level of total capital, reserves, and provisions does not cause a change in the rate of return on equity for electronic banking services during the period of 2010–2021. As a result, the second primary hypothesis is approved and reads as follows, “There is no statistically significant impact of total capital, reserves, and provisions on electronic banking services in Jordanian commercial banks”.

3. **Testing H2: Effects of Credit Facilities on Electronic Banking Services**

   The “total credit facilities” variable’s probability value was 0.470, which is greater than the statistical level of significance of 0.05. The determination coefficient’s value was 6.093, indicating no positive or negative effect of the
total credit facilities on electronic banking services via the average return on equity over the period (2010–2021). This is true whether there is stability, an increase, or a decrease in annual credit facilities.

As a result, it can be inferred from this that the third key hypothesis argues that “There is no statistically significant impact of the total credit facilities on electronic banking services in the Jordanian commercial banks”.

4. Testing H3: Effects of Total Deposits on Electronic Banking Services

The value of the estimation coefficient for the “total deposits” variable was 0.012, and the p-value was 0.343, indicating that there is no statistically significant effect of total deposits. As a result, if the level of total deposits in the banking sector increased, this would not result in a decrease or increase in electronic banking services, measured by the return on equity during the period of 2010–2021.

The fourth main hypothesis, which asserts, is therefore acceptable, “There is no statistically significant effect of total deposits on electronic banking services in Jordanian commercial banks”.

5. Conclusions

The following conclusions can be derived by looking at the findings of the present investigation in more detail:

1. For the period of 2010–2021, there was no statistically significant influence of total assets on electronic banking services in Jordanian commercial banks.
2. The total capital and provisions had no statistically significant effect on electronic banking services in Jordanian commercial banks from 2010 to 2021.
3. Total credit facilities had no statistically significant effect on electronic banking services in Jordanian commercial banks from 2010 to 2021.
4. Total deposits made using electronic banking services in Jordanian commercial banks between 2010 and 2021 did not show any statistically significant influence on electronic banking services in Jordanian commercial banks from 2010 to 2021.

6. Recommendations

1. Works on comparing credit facilities in commercial banks must be continued in order to ensure that there is a specific percentage to maintain the profitability and performance of the bank, and thus ensure the quality of work through electronic Egyptian services in a way that satisfies management and shareholders.
2. Commercial banks must work to raise the level of their capital in order to improve performance through the use of electronic banking services to achieve returns on their assets or their shareholders.
3. Future studies must focus on researching the factors affecting electronic banking services in Jordanian commercial banks by choosing other factors different from the current study.

Conflict of Interest

The authors declare that they do not have any conflict of interest.

References


