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Effect oF Financial Technology on the Growth of Deposits in Jordan

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Abstract*: This study aimed to know the impact of financial technology on the growth of deposits in Jordanian commercial banks listed on the Amman Stock Exchange during the period (2016-2023). To achieve its goal, this study followed the descriptive and standard approach, and data was collected from the annual reports of the 13 Jordanian commercial banks listed on the Amman Stock Exchange. Fixed Effect Tests were carried out using State 14.0. The results showed that there is a statistically significant effect of each of ATMs, smart payment cards, and branches on growth of deposits, while there was no statistically significant effect of mobile banking on growth of deposits. The results obtained from the fixed effect estimate reveal that total value of automated teller machine negatively and significantly impact on growth of deposits banks while total value of smart cards and branches exert positive influence on growth of deposits banks. Also, the relationship between total value of mobile banking and growth of deposits was also positive but fail the significant test. The study recommended the need for banks to continue their policy of establishing branches throughout the geography, given that they are mainly institutions that contribute to the events of development in the areas on which they are built, as well as continuing the policy of increasing banking awareness among customers regarding the use of smart cards, due to their importance to growth of deposits.*

Keywords: growth of deposits, ATMs, smart payment cards, branches, mobile banking, Amman Stock Exchange.
JEL Classification Code: G21, L25, O31, L86

1. INTRODUCTION

The magic of technological innovation has impacted how individuals do business, carry out daily tasks, and communicate. FinTech is a play on the words "finance" and "IT." Over the past ten years, FinTech has gained more and more attention, and emerging technologies have altered people's expectations of financial institutions and how they handle their money. Most significantly, though, are the ways in which these institutions now function. The financial industry's development has been significantly accelerated by this change, which is defined by its rapid velocity. To effectively compete and manage the development of the global financial system, it is critical that each nation give top priority to implementing financial innovations into the banking and financial sectors.

In Jordan, less than 35% of people use banks, whereas more than 100% of people use mobile phones. Through the deployment of retail payment systems, electronic payments like cash transfers and billing, and creative identity solutions that address the needs of disadvantaged groups in society, especially those living in rural areas, the Central Bank of Jordan has played a significant role in advancing financial inclusion. In order to bolster electronic transactions even further, the Central Bank intends to create legislative frameworks. As a result, the banking industry is in a good position to take advantage of cutting-edge FinTech technologies to reduce expenses, boost flexibility, and draw in deposits.

2. Theoretical Framework and Previous Studies

2.1. Referring to (FinTech)

Fintech companies are those that use cutting-edge technology and business models to allow, enhance, and disrupt the financial services industry (Ernst & Young, 2016). The FinTech industry, according to Abad-Segura et al. (2020), is made up of creative companies that offer financial services primarily through technology. The word "fintech" refers to the amalgamation of the phrases "finance" and "technology." According to Gai et al. (2018), FinTech represents how the financial services industry has adapted to technological advancements. Zaghol et al. (2021) define FinTech as the use of the internet and new technical advancements in the financial services sector. Fintech is expected to revolutionize the financial industry with new products, cycles, uses, and methods.

According to Nurlaela et al. (2020), FinTech also includes computer programs and other technologies that help with banking and financial services. The development of various financial transactions such as cash transfers, ATM/debit cards, e-mone, credit cards, and other payment processors is the result of these advancements. The efficiency of the banks can be significantly impacted by the integrity of the decision-making process for banking operations. That was demonstrated by the 2008 financial catastrophe, which was brought on by manipulations. Therefore, improved risk management skills affect banks' efficiency (Proença, Augusto, and Murteira, 2023; Knight and Wójcik 2020).

2.2. FinTech and Banks

Because FinTech is controversial, governments, regulators, policymakers, and analysts have paid close attention to it (Naz et al. 2022). The elimination of high-interest loans is one of the reasons why FinTech is growing in a nation, according to Fernando and Dharmastuti (2021). FinTech also benefits banks and the general public. They provided additional support for this claim by highlighting how FinTech gives people access to secure money management.

Furthermore, as Petralia et al. (2019) noted, the emergence and expansion of FinTech have a major effect on conventional banking business models.

FinTech gives the banking sector the chance to become more efficient in its operations and improve client services by making them better, more affordable, and more individualized for each individual customer. Nguyen (2022) highlights that FinTech provides advantages in terms of less expensive mobile payments. However, Abdul-Majid et al. (2017) state that there are variations in the technological adoption of Islamic and conventional banks. According to Yudaruddin (2022), Islamic banks are less innovative than normal banks and must pay more for Sharia advisors. Moreover, Panjwani and Shili (2020) note that Islamic financial institutions typically lack innovation. Additionally, compared to traditional banks, Ali et al. (2019) discovered that Islamic banks react to the influence of FinTech more slowly.

2.3 Previous Studies

Chan and Jia (2011) carried out a second descriptive study in China to determine the impact of mobile banking on the financial depth of commercial banks. A ten-year sample survey of forty-five commercial banks was carried out between 2003 and 2012. The findings verified that there was a positive correlation between consumer deposits and mobile banking.

In Nigeria, Abubakar (2014) found that between 2006 and 2013, the expansion of commercial banks was aided by electronic banking. The entire amount of online and mobile banking was utilized to gauge electronic banking, and the complete amount of assets and deposits was employed to gauge growth. Through the application of multiple regression analysis, the results showed that there was a significant positive correlation between total assets and internet banking, as well as between total deposits and mobile banking. However, there was no statistically significant correlation between total assets and total deposits or between internet banking and mobile banking.

Peter and Emenike (2016) state that descriptive and regression analyses were performed on the value of ATM transactions and client deposit series for the sample period spanning from January 2009 to December 2013 in order to evaluate the impact of ATMs on the delivery of banking services in Nigeria. Based on the results of the regression analysis, there is a strong and positive correlation between ATM transactions and private sector demand deposits. On time deposits and savings accounts held by private individuals, it was discovered to be insignificant.

In Jordan, M. Alghadi (2024) evaluated the effect of a few fintech services on the performance of Islamic banks. The use of factors including automated teller machines, crowdfunding, mobile banking, and internet banking significantly impacted JIB's financial success. According to the positive beta value, JIB's financial performance on Fintech services from 2017 to 2021 appears to have been positively correlated.

Jarah, B. A. F., Alghadi, M. Y., Al-Zaqeba, M. A. A., Mugableh, M. I., & Zaqaibeh, B. (2024), examined the influence of Financial Technology (FinTech) on profitability in Jordanian commercial banks. The findings indicated how the profitability of banks was impacted by financial technology, including lending, money transfers, and financing. According to the study's findings, banks' positions and profitability are significantly impacted when they implement FinTech solutions.

In a more recent study, Technology-based banking and bank deposits: The Nigerian commercial banks' experience for a sample of 19 banks from 2006 quarter 1 to 2019 quarter 4 was investigated by Bernard Azolibe, Okonkwo, and Obi-Nwosu (2023). The ARDL-ECM based analysis's findings showed that, over the long and short terms, the quantity of POS transactions and ATMs had a substantial positive association with Nigeria's total bank deposits.The results of the study regarding mobile and internet banking were insignificant and negative, indicating a low level of adoption of these services in Nigeria. The results of the Granger causality test also showed that the number of ATMs has a causal relationship only with bank deposits, indicating that commercial banks' ongoing ATM deployment programs are thought to be the most effective way to increase deposit growth.

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Other researchers, such Baker et al. (2023), looked at the effect of FinTech on banks' financial performance on the Amman Stock Exchange and Abu Dhabi Securities Exchange between 2012 and 2020. A sample of 104 authentic questionnaires was provided to managers and key people of ten Emirati and thirteen Jordanian banks (45 for the UAE and 41 for Jordan). Financial technology, or FinTech, is the independent variable, and financial performance is the dependent variable. The finding was FinTech raises overall deposit, according to the findings.

Based on the aforementioned empirical evaluation, the majority of research has focused on the relationship between the

value of bank deposits made through ATMs, the value of bank deposits made through mobile banking, and, finally, the value of bank deposits made through internet banking. The impact of the quantity of ATMs and the value of smart cards on bank deposits have not been investigated. Our study is distinctive because it closes the gap left by previous research by evaluating the connection between smart card usage and bank deposits as well as the quantity of ATMs. As is the situation in developed countries, such a study needs to be conducted in Jordan because a portion of the country's ATMs are still cash dispensing devices and have not yet developed to the point where they are accepting deposits from customers. It is therefore worthwhile to investigate how more ATMs affect bank deposits.

3. Theoretical Background and Hypothesis Development

3.1 ATMs: An example of a technology-driven banking feature used in bank deposit and withdrawal processes is the automated teller machine (ATM). A magnetically encoded plastic card and code number are required to use an ATM that lets bank customers access their accounts. Automated teller machines (ATMs) are devices that facilitate various banking functions for customers without requiring assistance from a cashier. These functions include cash transfers, bill payment, account statement retrieval, cash withdrawal, and depositing cash. Two varieties of ATMs are available. Only cash withdrawals and account balance reports are possible with the first.

On the other hand, boosting the quantity of ATMs that disburse cash will contribute to a rise in bank deposits. This is because ATMs make it easier for customers to retrieve their deposits whenever they choose, day or night. A bank customer does not have to take out a significant amount of their deposit because there are numerous ATMs nearby that they can use to quickly access their funds if necessary. Because of this, banks are able to keep a far larger percentage of their clients' deposits for use in future loans to the economy's weaker sectors. The majority of clients found it extremely challenging to deposit a sizable amount of their funds in the bank because there weren't many ATMs nearby where they could quickly withdraw their funds in an emergency. There was the problem of lengthy lines as well. However, banks have recently expanded the number of ATMs by installing cash points at a variety of supermarkets, retail establishments such as malls, airports, grocery shops, petrol stations, restaurants, and other public spaces or any location where a big number of people may congregate.

. This leads us to our hypothesis:

H1: A negative relationship between automated teller machine (ATM) and growth of deposit is expected.

3.2 Smart Card: smart card This card, which is about the size of a credit card but contains an electronic chip, that is, it is a small-sized computer equipped with an accompanying memory where it is able to store, retrieve and process data and provides ease and ease, and reduces the chances of fraud and manipulation by including more and more accurate data Specifically for the customer, and this card combines in one card all the roles played by credit cards, debit cards, and prepaid cards (Abdul Khaleq, 2010). This card has been used extensively and in large volumes by individuals and merchants. The card contains a stored cash value that decreases gradually at each purchase and increases by adding a value to it, and that value is loaded on that card through the automatic machine (Ismail et al., 2013).The following hypothesis is tested:

H2: A positive relationship between smart cards and growth of deposit is expected.

3.3 Mobile banking: One of the most crucial modern instruments that has allowed nations to experience substantial social and economic progress is the mobile phone. Since smartphones became widely available, mobile applications have been used in every aspect of life and have significantly increased the GDP (Donald & Remy, 2012). It is defined as "a payment platform that stores money as value in a digital account on a mobile device which can then be used for payments with or without the need to use credit cards." (Musbau & Joseph, 2018). In contrast to ATMs, mobile banking allows deposits to be transferred between bank accounts without the need for debit cards. Consequently, the following is how the third hypothesis is developed:

H3: A positive relationship between mobile banking and growth of deposits is expected.

3.4 Branches: Branch density, or the number of branches a commercial bank has, also affects the amount of deposits held in the bank because more branches mean that banking is more accessible to the general public and will inevitably result in more deposits being taken from them. This is especially true in areas with high business activity and population growth. According to Azolibe (2021), the oldest and most conventional approach for Nigerian commercial banks to mobilize

deposits has been branch network development. There is a favorable correlation between branch density and bank deposit, as verified by Azolibe (2019), Dereje (2017), and Shemsu (2015).Thus, the fourth hypothesis is developed as follows:

H4: A positive relationship between branches and growth of deposits is expected.

1. Research Methodology

4.1. Research Population and Sampling

During 2016–2023, the Amman Stock Exchange (ASE) listed commercial banks were the subject of the study. The composition of the study's sample comprised all 13 Jordanian commercial banks that are listed on the ASE.

4.2. Model Specification

To examine the influence of financial technology on the growth of deposits, the following regression model is employed.

$$GDi_t = \beta o + \beta 1 ATMit + \beta 2 SCi_t + \beta 3 MBi_t + \beta 4 BRN_it + si_t$$

4.3. Measurement of Study Variables

A number of variables in the current study required exact measurements in order to test the hypotheses and produce relevant results. Financial technology (FinTech) was the main independent variable and was measured using four different variables: branches, smart cards, ATMs, and mobile banking. The dependent variables were bank deposit growth as measured by total deposit. Information pertinent to these factors was obtained from the sample commercial banks' 2016–2023 financial reports.

Table 1. Measurement variables.

Variable	*Code*	Measurement
growth of deposit (total deposit)	GD	Term Deposits, Demand Deposits, and Interest and Non-Interest Bearing Deposits.
automated teller machine	ATM	Total value of ATM in Jordan
smart cards	SC	Total value of smart cards in Jordan
mobile banking	MB	Total value of mobile banking in Jordan
Branches	BR	Total value of branches in Jordan

2. EMPIRICAL RESULTS

TABLE 5
REGRESSION RESULTS (N=104)

Variable	**Coe**	**Sig.t**	**VIF**
ATM	-.00377	**0.033	3.55
SC	.60770	**0.026	2.30
MB	.01422	0.729	1.22
BR	.02665	***0.001	2.60
VIF	2.29		
R^2	0.2477		
Autoco.	Prob>f	0.031	
Hausman	chi2 =	0.010	
Hetro.	Prop>chi^2	0.0000	

For each set of independent variables individually. However, at the level of 5%, Table (5) shows that automated teller machine variable has significance given a negative coefficient. The fact that ATMs are a tool that mainly works to provide cash withdrawal services to customers, while most ATMs do not provide deposit services, is perhaps one of the reasons that has a negative impact on the growth of deposits. In addition, customers' confidence in the safety and

security of dealing with ATMs is high when Conducting cash withdrawals, and this confidence decreases with deposit movements in a way that negatively affects deposit growth.

The findings suggest that, at one percent threshold of significance, there's a positive association between the smart card variable with growth of deposits. Because these smart cards work to preserve cash assets within the banking system (banks) and with the privacy of transferring them from one customer's account to another customer's account only, they also reduce the demand for cash for the purposes of settling payments.

The study's findings also show (see Table 5) no statistically significant impact of mobile banking on the growth of deposits in Jordanian commercial banks listed on the Amman Stock Exchange. It is clear from the results that MB does not have a statistically significant impact on the growth of GD deposits, since the use of the GD application Mobile banking is still in its infancy. In addition, there is a weakness among a large group of customers in the process of using these applications, as well as a weakness in security levels from the point of view of many users due to this being related to smart phones and the possibility of data piracy in general.

Finally, the study's findings also show (see Table 5) that there is, at 1% level of significance, a correlation among branches with growth of deposits. As predicted, the branches variable's coefficients is positive, suggesting that branches have a major role to play in improving the level of performance of banking institutions. Increasing the number of branches enables the bank to increase the amount of deposit growth. This indicates an increase in the number of customers and also an increase in the amount of cash flows that enter and exit the bank.

Table 2. Research hypotheses and predicted signs for the independent variables.

Research Hypotheses	**Expected sign**	Decision
H1: automated teller machine	(-)	Supported
H2: smart cards	(+)	Supported
H3: mobile banking	(+)	Not Supported
H4: branches	(+)	Supported

3. CONCLUSION

FinTech has grown in importance in the banking sector in recent years, and banks have to keep up with the trend to avoid falling behind and losing market share to FinTech entrepreneurs. Several scholarly investigations have explored the impact of fintech on bank performance across various global areas (Yan et al., 2022; Li et al., 2022; Dwivedi et al., 2021). Studies on the MENA region are, nevertheless, quite rare. The MENA area, particularly Jordan, has limited access to Fintech data, which is the reason.

In an effort to close this gap in the literature, we examine how Fintech has affected the growth of deposits at 13 different Jordanian commercial banks between 2015 and 2022. In In an effort to close this gap in the literature, we examine how Fintech has affected the growth of deposits at 13 different Jordanian commercial banks between 2015 and 2022. Factors from Jordanian commercial banks listed on the Amman Stock Exchange's annual reports were used to produce an overall FinTech index. Using data from annual reports from Jordanian commercial banks listed on the Amman Stock Exchange, an overall FinTech index was created.

Therefore, in order to improve the findings and offer thorough policy suggestions for banks and policymakers, we advise conducting additional research that covers more nations, banks, and banks' performance measures.

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