

## The COVID-19 pandemic and its impact on consumer's interaction on mobile banking application: Evidence from Jordan

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### ABSTRACT

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Since COVID-19 became a pandemic, the global economy has been dramatically affected. Not just that, the consumer behavior in the retail market has also changed. This paper aims to examine the effect of the coronavirus crisis on consumer behavior in retail services. The paper will focus on retail banking services, especially the Jordanian banking sector. The goal of the study was achieved by conducting a survey among Jordanian consumers in the retail banking sector, which was done using questionnaires, a sample of 240 retail customers from 14 valid participants. The paper brings new insight into how the pandemic affected retail banking services and proves the acceptance of online and banking in the conceptual model. The results show that the variables around attitudes toward the internet and mobile banking were directly and positively affected by the variables related to the perception of the pandemic's impact on the consumer's lifestyle. Other variables such as the safety of using online and mobile banking services and phones also contributed to this rise in a positive attitude. The Trust in Mobile and internet banking has several administrative and social implications, which were also discussed. Because new consumption behavior models are being developed, mobile and internet services could prevail even after the later stages of the epidemic. Initiatives to provide online educational programs, especially financial courses, should be intensified by the banks in Jordan to enable their customers to be familiar with the use of the banks' online banking services. They should enhance their communication with their customers and offer new products and services while also showing flexibility while negotiating to refinance and loaning terms.

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## 1. Introduction

Technology has undergone dramatic changes over time in developed and developing countries. The development of information technology and innovation as a developing country in Jordan has brought significant changes in various areas of human life. At this time, the development of information technology saw revolutionary and exciting progress and helped encourage the way of life in Jordan towards information technology. All social, cultural, defense, financial, and educational sectors were affected, as was the payment system. Significant changes are taking place in financial technology or known as Fintech. Financial technology is a phenomenon that combines information technology and economic systems into different business models. The essential Fintech benefits within the community are payment system services, including tools, administrators,

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mechanisms, and infrastructure to make processing and payment processes faster, easier, and secure. Strict lockdowns, implemented to aid in curbing the spread of the Covid-19 virus, have in its wake left the daily lives of people, the banking sector, and the global economy severely affected. In the hopes of assisting their cash-strapped citizens, many governments have introduced general guarantees on bank loans that have agreed to withdraw the loans. Due to COVID, the banking sector has also been affected. The industry has seen; a rapid rise in digital money transfer, cashless payments, changes in consumer behavior, the loosening of many regulatory provisions. They are bringing new challenges to the sector regarding operational flexibility and increased non-performing loans.

The growth and development in technology have caused the banking industry to change drastically. Networking technology has enabled banks to electronically deliver their services (Gordon et al., 2008). This has allowed banks to lower their costs and increase the quality of their services while communicating with their customers and stakeholders reliably (Eisingerich and Bell, 2006). Technology has enabled the banking industry to combine conventional banking, the internet, and social computing into its electronic banking services, which play a crucial role in today's financial world (Al-Ajam and Nor, 2013; Sikdar et al., 2015). However, commercial banks still use traditional channels to conduct their transactions in Jordan, even though many want to provide internet banking services to their customers (Aldiabat et al., 2019; Dajani and Yaseen, 2016). However, their clients have not adapted to the new technology.

Recent studies suggest that most banking users in the Arab world adapt to mobile and internet banking slowly (Alsamydai et al., 2014). Some research has found that cultural and social reasons have made many Arab people reluctant to use e-banking services. These studies have helped understand the factors that influence the electronic banking services offered by the banks in Jordan (Salhieh et al., 2011). However, due to the limited and restricted research on electronic banking services adoption in this region, knowing the fundamental factors is complex (Yaseen and Al Omoush, 2013). This research aims to investigate these factors and get a clear picture of the integration of e-banking services in Jordanian banks through the customer's point of view.

Another recent study on TAMs in the Arabian region shows that many banking users in the Arab world adopt internet and mobile banking services rather slowly (Alsamydai et al., 2014). Other studies have found that many Arab people are reluctant to use electronic banking services (Riffai et al., 2012). These studies have helped understand the factors that influence the electronic banking services offered by Jordanian banks (Yaseen and Al Omoush, 2013). However, due to the limited and restricted research on electronic banking services adoption in this region, knowing the fundamental factors is complex (Salhieh et al., 2011). This research aims to investigate these factors and get a clear picture of the adoption of internet and mobile banking services in Jordanian banks through the customer's point of view.

The changing business and customer interaction due to COVID-19 has become a great concern for financial institutions worldwide. They have to act to keep up with change and rethink strategies for dealing with it now and in the long term. This is in line with our hypothesis, "COVID-19 has changed the consumer behavior in retail banking in Jordan". The study's consumer engagement factors with mobile banking apps during COVID-19 are based on theoretical assumptions. In the Acceptance Model of Technology (TAM), some variables were used to validate the study's objectives (Davis et al., 1989). Therefore, the relationship between the independent variables: ease of use, Trust and safety, quality of services, perceived benefits to use, and dependent variables: customer interaction.

## 2. Literature review

The investigation of customer intent and the adoption of mobile banking has attracted the attention of many researchers. At the same time, the case witnessed a dizzying growth in the literature related to online and internet banking channels (Zhou, 2012). The researchers used various methods to describe how consumers express their opinions, attitudes, intentions, and behaviors towards mobile banking services (Alalwan et al., 2016). Although these studies provide a better understanding of factors important to predicting consumer intentions and mobile banking services, the study also has more essential aspects. Buehler et al. (2020), in their study of the retail consumer, encourage banks to reduce their reliance on physical locations and suggest that they use remote services. Banks are also reminded to consider all the different types of customers while implementing these digital changes. This is because their customers, mainly the older generations, are reluctant to adopt digital services but at the highest risk of being exposed to COVID-19. Therefore, banks should educate their customers on using non-branch avenues to access their banking services. Also, the online interfaces to these services should be simplified to make their use and adoption smoother (eMarketer, 2020). Customers can also be educated by using webinars and customized teachings. An excellent example of this is digital channels used by Singapore's DBS Bank, which adopted this after the coronavirus outbreak. (Finextra, 2020). Cornelli, and Frost's (2020) work on the impact of COVID-19 on payments and cash, shows how the digital shift of payments can negatively impact the old consumer. They also explore how money behaved and the measures the central banks and the government took during this period. Some nations encouraged cashless payment while others sterilized their banknotes and stored them like the federal reserve. Other banks like the Bundesbank boosted confidence in cash by declaring the low chance of transmission it had. According to the world bank, low-income countries have also taken measures against COVID-19 by promoting digital payments. They have done this by simplifying the digital identity processes, exempting fees, and reducing transaction fees (Mora, 2020). Envisioning successful strategies to help banks adapt to the new

changes has become vital for strategists, bankers, and consultants as the new environment is characteristically uncertain. Organizations are finding themselves in a rapidly changing environment that requires flexibility in marketing and strategic approaches (Pop, 2020). Vessey et al. (2020) state that although financial institutions adopt the digital age, they should also develop ways to maintain human interactions while supporting their customers. During this period, the chat channels' significance to banks is emphasized by McCarty (2020) to keep in touch with their customers.

Trust has become a significant factor in the adoption of digital economic transactions. Because Trust relates to one's attitude, it was initially studied in psychology. However, with time this has become a study in various disciplines. According to Mayer and Davis (1995), a person's ability, integrity, and benevolence help make others trust them. Beyari and Abareshi (2018) state that Trust constitutes a perceived risk. This risk perception arises in online banking because the bank and customer have different physical relationships. This distance makes monitoring transactions very difficult, coupled with the fact that cyber laws are still unclear in that field. This causes the customer to have a higher risk perception which affects their Trust in the online banking system. The customers' technological orientation can show how willing they trust internet banking. A bank's reputation is also of great importance to a customer's Trust. The overall quality and character of the bank play a role in whether a customer can trust the banks' internet banking services. From this literature, we can see how Trust can explain a customer's willingness to use and accept technology in using internet banking and mobile banking. (Featherman & Pavlou, 2003). McKnight et al. (2002) suggested that Trust impacted a customer's intentions to use online services. A customer's uncertainty was significantly reduced if they had Trust in the company or bank they were using the online service with, or the customer had Trust in the internet service they were using. Zhang et al. (2010) found that Trust also impacted society's behavioral intentions and social influences. It affected individuals' expectancy, performance effort expansion, and risk perception. Therefore, it is hypothesized that the overall attitude that a potential user has towards a given system dramatically determines whether the user will use it or not. The philosophy of using it is, in turn, determined by the beliefs of how beneficial to the user the system is and in what case the user can use the system. According to TAM, predicted technology acceptance among potential users can be explained by the user's intention-behavior, attitude, and beliefs (Davies et al. 1989).

Based on the above literature, the current study will contribute to the existing literature by examining how the COVID-19 pandemic has affected merchandising and banking services performance, especially in developing economies like Jordan.

### 3. Theoretical Framework

Recent Technology Acceptance Model (TAM) studies on technology acceptance models suggest that most banking users in the Arab world are slow at adopting the internet and its banking applications (Alsamydai et al., 2014). Other studies have found that many Arab people are reluctant to use electronic banking services (Riffai et al., 2012). These studies have helped understand the factors that influence the electronic banking services offered by the banks in Jordan (Salhieh et al., 2011). However, due to the limited and restricted research on e-banking services adoption in this region, knowing the fundamental factors is complex (Sathiyavany and Shivany, 2018). This research aims to investigate these factors and get a clear picture of the adoption of e-banking services in Jordanian banks through the customer's point of view. (Yaseen and Al Omoush, 2013).

This study presents research models and hypotheses based on theoretical assumptions. Now, researchers are also examining factors of consumer interaction on mobile banking applications during COVID-19. Some of the Technology Acceptance Model (TAM) variables were used as a basis for validating the study objectives (Davis et al., 1989). Therefore, the relationships between the independent variable: ease of use, Trust and security, services quality, Perceived Usefulness of use, and between the dependent variable: customer's interaction, are hypothesized as the following. The ease of use is the complexity, simplicity, or comfort in service in which the user finds a specific system or technology (Venkatesh and Davis, 1996). This factor is varied by the perceived ease of use and the complexity (Moore & Benbasat, 1991). However, (Venkatesh et al., 1996) note that the ease of use is more noticeable in women users than men. Kleijnen et al. (2004) also noticed that older people found applying technology was more complicated than young people. Therefore, the behavior intention that is impacted by the ease of use is expressed in the following hypothesis:

**H<sub>1</sub>:** *During the coronavirus pandemic, the ease of using internet banking services in Jordan positively impacted the customer's interaction.*

However, the increased crime perpetrated through the internet, such as bank accounts being hacked, has made many potential customers lose their Trust in mobile banking services. Trust is usually a basic foundation of business and is also the same when introducing new technology. Therefore, it is a critical aspect of adopting online banking. This is because the more people trust the efficiency and safety of the system, the more willing they will be to adopt it (Alalwan, al., 2017). The research considers that security and Trust are relevant constructs to the situation in Jordan, where Trust remains a significant obstacle in adopting electronic banking.

**H<sub>2</sub>:** *During the coronavirus epidemic, the Trust of the Jordanian people and the security of mobile banking apps have had a positive impact on customer interaction.*

In an electronic context, the quality has a critical effect on the behavior intentions, Naik et al. (2010) found that the consumer's behavior intention and satisfaction were majorly and directly affected by the quality of the services they were offered. Researchers have emphasized the customer's consumer behavior intentions and the resultant attitudes from comparing their perceptions of performance even though some researchers like Parasuraman et al. (1988) have also suggested a multi-dimensional concept of service quality. Other researchers have identified other service features that may affect consumer behavior, such as the level of customer support, how fast the services were offered, and how reliable the benefits were (Bekhet & Al-alak, 2011). Hence the proposal of the following hypothesis:

**H3:** *During the COVID-19 pandemic, the service quality of mobile banking apps has had a positive impact on mobile banking.*

The level at which the consumer expects the technology will benefit them is called performance expectation (Venkatesh et al., 2012). Venkatesh et al. explain that "it is the extent a consumer believes that a system will help them to benefit in acting". Additionally, Suyono et al. (2019) view performance expectation as the consumer's belief that certain technologies improve overall performance. Performance expectation can be measured through the perceived Usefulness of the item or system, job-fit, extrinsic motivation, and relative advantage of the item or system. Martin and Herrero further simplify this into Usefulness, productivity, performance increase, efficiency increase, and speed. In mobile banking, performance expectation is measured by the benefits it has brought. These include transaction speed, time efficiency, and system innovation. This previous research shows how the intention to use internet banking services is related to performance expectancy (Baabdullah et al., 2019).

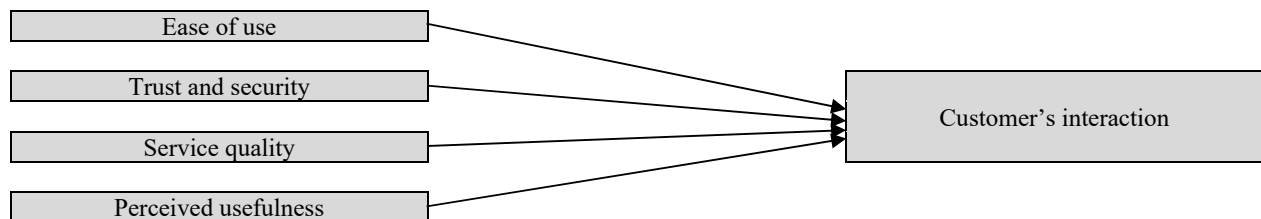
**H4:** *The Perceived Usefulness of using Jordan's mobile banking apps positively impacts customer interaction during COVID-19.*

#### 4. Methodology of the Study

The descriptive-analytical approach was used to complete the study of the main objective of this research, which was identifying the influence of covid-19 on consumer's interaction on mobile banking applications, using the following sources to collect data;

- A. The researchers collected data through questionnaires. There were two kinds: one contained the respondent's personal information, and the other was used to answer questions that would collect data relating to the research.
- B. The research used books, studies, peer-reviewed articles, regulations, and instructions from relevant professional bodies.

Fig. 1 shows the study model, which contains the independent and dependent variables.



**Fig. 1.** Description of the study model

##### 4.1 Community and Sample of the Study

The sample for the research includes all 22 Jordanian bank customers; it consists of customers from both the public and private sectors and the retirees. The research used a random sample of 240 customers from 14 banks to answer the questionnaires. While reviewing the data, it was found out that 12 questionnaires were invalid for analysis. Therefore, the survey only had 227 valid questionnaires. The sample distributions were as follows according to age. The samples had the highest distribution being the age group 40-50, with 39.6%. In comparison, the lowest distribution sample was the age group above 45, with a distribution of 7.8%. The gender distribution was 54.3% for females and 45.7% for males. According to education level, the highest allocation of the study sample was (33.2%) for bachelors, while the lowest percentage was (4.5%) for Ph.D. According to the work-study sample, the highest distribution was (36.4%) for private institution benefits while the lowest was (11.3%) for retired.

#### 5. Results and Discussion

This part includes the extract of the correlation coefficient from the study variables. The verification of the validity and reliability of the data was done through statistical analysis through Cronbach Alpha Test. The arithmetic means were extracted for the answers of the study sample individuals on the study axes. To validate the study hypotheses; A simple linear regression

test was applied, which aims to identify “The influence COVID-19 on consumer’s interaction on mobile banking applications” and includes this section:

### 5.1 Validity and Reliability

More tests were carried out to assess the reliability and validity of results given by the tools used in this study. Reliability concerns are tested regularly by inner variables, “Cronbach Alpha” is mainly used to test and evaluate the reliability. Each value should exceed 0.70 for each variable (Saleh & Castet, 2014).

**Table 1**

Instruments reliability cornbach alpha

Stability coefficient	Cronbach Alpha
Ease of use	0.73
Trust and security	0.82
Services quality	0.78
Perceived Usefulness of use	0.74
Customer's interaction	0.73
Overall Reliability	0.77

### 5.2 Correlation coefficient between study variables

The study validity variables were ensured by extracting and measuring the correlation coefficient between the study variables in the questionnaire. Table 2 shows that all the coefficients’ correlations between the study variables were statistically significant.

**Table 2**

Correlation coefficient between study variables

		Ease of use	Trust and security	Services quality	Perceived Usefulness of use	Customer's interaction
Ease of use	Pearson Correlation Sig. (2-tailed)					
Trust and security	Pearson Correlation Sig. (2-tailed)	0.94 0.00				
Services quality	Pearson Correlation Sig. (2-tailed)	0.82 0.00	0.84 0.00			
Perceived Usefulness of use	Pearson Correlation Sig. (2-tailed)	0.36 0.00	0.35 0.00	0.31 0.00		
Customer's interaction	Pearson Correlation Sig. (2-tailed)	0.94 0.00	0.94 0.00	0.77 0.00	0.31 0.00	

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### 5.3 Hypothesis testing

This section presents the results of “influence of covid-19 on consumer's interaction on mobile banking applications”. This was done by applying a simple linear regression test to verify the acceptance of the hypotheses.

First: The study has shown the application of simple linear regression test Hypothesis “The ease of use of Jordan's mobile banking apps has a positive impact on customer's interaction during COVID-19”.

Table 3 shows a close correlation between the ease of use of Jordan's mobile banking apps and the customer's interaction during COVID-19. The relationship value was 0.734, with R squares; 53.9% of the variance in the customer interaction variable explains the ease of access. Since the value of F is equal to 114.409 at the statistical significance of 0.000, the importance of regression was at  $\alpha$  (0.05). and the value of t was (10.696), and the statistical significance was (0.00), which means the importance of the coefficient at the level of significance ( $\alpha \leq 0.05$ ); from this result, the findings suggest that there is a significant impact of the use of Jordan's mobile banking apps and the customer's interaction during COVID-19.

**Table 3**

The application of the analysis of variance ANOVA for measuring the effect of ease of use

Independent variable	Mean	$\beta$	t-value	R	R <sup>2</sup>	F-value	Sig
Ease of use	4.10	0.734	10.696	0.734	0.539	114.409	0.000

Second: The study shows the application of simple linear regression test of Hypothesis “The Trust and security of Jordan's mobile banking apps has a positive impact on customer's interaction during COVID-19”.

Table 4 shows a close correlation between the Trust and security of Jordan's mobile banking apps and the customer's interaction during COVID-19. The value of this relationship was 0.760, with the value of R square; Trust and security are explained by 57.7% of the variance in the customer interaction variable. Since the value of F is equal to 99.601 at the statistical significance of 0.000, it means that the significance of the regression at  $\alpha$  (0.05) and the value of t was (9.980), and the statistical significance was (0.00). This illustrates that the implication of the coefficient at the level of significance ( $\alpha \leq 0.05$ ) shows that there is a statistically substantial effect of Trust and security of Jordan's mobile banking apps and the customer's interaction during COVID-19.

**Table 4**

The results of ANOVA test for the effect of trust and security

Independent variable	Mean	$\beta$	t-value	R	R <sup>2</sup>	F-value	Sig
Trust and security	3.92	0.760	9.980	0.760	0.577	99.601	0.000

Third: the study describes the application of a simple linear regression test of Hypothesis "The service quality of Jordan's mobile banking apps has a positive impact on customer's interaction during COVID-19".

Table 5 shows a strong relationship between the service quality of Jordan's mobile banking apps and the customer's interaction during COVID-19. The value of this relationship was 0.755, with the value of R square; services quality is explained by 75.5% of the variance in the customer interaction variable. Since the value of F is equal to 96.938 at the statistical significance of 0.000, it means that the significance of the regression was at  $\alpha$  (0.05), and the value of t was (9.846), and the statistical significance was (0.00). This means the significance of the coefficient at the level of significance ( $\alpha \leq 0.05$ ). There is a statistically significant effect on the service quality of Jordan's mobile banking apps and the customer's interaction during COVID-19.

**Table 5**

The results of ANOVA test for the effect of Service quality

Independent variable	Mean	$\beta$	t-value	R	R <sup>2</sup>	F-value	Sig
Service quality	3.97	0.755	9.846	0.755	0.570	96.938	0.000

Fourthly: The study describes the application of a simple linear regression test of Hypothesis "The Perceived Usefulness of use of Jordan's

Table 6 shows the prior interrelation between the Perceived Usefulness of using Jordan's mobile banking apps and the customer's interaction during COVID-19. The relationship value was 0.727, with the value of R square; Perceived Usefulness of use is explained by 52.9% of the variance in the variable for customer interaction. Since the value of F is equal to 82.026 at the statistical significance of 0.000, the regression significance at  $\alpha$  (0.05), and the value of t was (9.057), and the statistical implication was (0.00), which means the implication of the coefficient at the level of significance ( $\alpha \leq 0.05$ ). It can be illustrated that there is a statistically significant effect of Perceived Usefulness of use of Jordan's mobile banking apps and the customer's interaction during COVID-19.

**Table 6**

The results of ANOVA test for the effect of perceived usefulness

Independent variable	Mean	$\beta$	t-value	R	R <sup>2</sup>	F-value	Sig
Perceived usefulness	3.98	0.727	9.057	0.727	0.529	82.026	0.000

## 6. Conclusion

This study has shown that Jordan's online and mobile banking use increased during the pandemic compared to before the pandemic. During the post-pandemic phase of the epidemic, bank managers should carefully monitor customer needs and perceptions. Large numbers of people will likely use the interface. The results have indicated that there are efforts by the Jordan banks to intensify the effort to provide financial courses to all types and groups of customers. Due to the epidemic, the banks' step in educating their customers has helped them gain new ground, as most of their business should be carried out online. This was also meant to enhance users' digital skills, particularly those without any skills and who are reluctant to use internet banking or mobile banking services. Since the study results show that Jordanian retail banking customers still prefer cash withdrawals, the banks should develop ways to market and promote internet and mobile banking services. For example, a partnership with Fintech would give Jordan banks ample opportunities to provide digital solutions that meet the Jordanian retail consumer behavior in the banking service.

Banks can also increase confidence in online banking services by improving communications with their customers. By doing so, they can advertise the benefits their services have while still raising awareness to their customers of increasing the security of their online transactions and reducing potential risks. Banks in Jordan should also introduce new innovative products that

make the saving process more lucrative given the current low-interest rates. With the rise in uncertainties due to COVID-19, the banks should be more flexible and show support to their customers. This exploratory research aimed to examine previously undiscovered phenomena, with no available predictive or records of consumer interactions. The adoption mechanism for new technology as a feature of mass consumption needs to be investigated. Our research only measured a handful of individuals could experience; hence future investigations should incorporate a qualitative and quantitative approach with a far richer sample representation. The research should study the long-term impact of new technology on consumer behavior in mobile and online banking services. It should also explore other services or products that rely on digital channels easily integrated with electronic banking services.

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