

## **E-Banking: An Empirical Study on the Jordanian Commercial Banks**

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*Abstract.* E-finance has the potential to be more than just another incremental change in ways of doing business; it could be a real revolution. E-finance have a unique synergies: It offers convenience, price transparency, broader access to information and lower cost; financial services are information – intensive and generally require no physical delivery. E-finance has the potential, not only to take business away from traditional delivery systems but also to introduce new business models.

To enhance our understanding about E-finance practices of the Jordanian commercial banks we constructed a questionnaire, based on a theoretical ground, these questionnaire were distributed to all the 24 licensed banks operating in Jordan which represented the sample of study. The respondent rate was high thus, we can outline some tendencies on E-finance through this material

During this research we have come to the conclusions that; there is a positive statistical relation between: Electronic services and reduction of cost and efforts, the use of E-finance and profits, E-finance institutions perform their jobs more faster and less costly than the traditional ones, access to the internet has vastly changed the opportunities for the use of electronic payment systems, electronic services improve the relation between the bankers and customers.

### **Introduction**

The banking services sector has been rapidly transformed worldwide as a result of the impact of competitive forces, technological innovation and deregulation.

Media approach from different directions, rapidly evolving wireless technologies and the rapid spread widely of the internet have opened up strategic business opportunities in the financial sector. In order to survive this competition, and to leverage the new opportunities of online banking facilities, many Jordanian traditional banks have adopted new technological methods to help these banks increase their profitability while reducing transaction costs.

E-finance is defined as "The provision of financial services and markets using electronic communication and computation (Boot, Arnould and Thakor, 2000). As the growth of Internet broadens its scope, e-finance grows accordingly. As part of e-commerce, e-finance has its own unique characteristics. On the one hand, the Internet offers convenience, price transparency, broader access to information and lower costs; on the other hand, financial services are data intensive and do not generally need physical delivery of products. The combination of the two seems to give unique advantages to help e-financial services grow faster than other e-commerce sectors. The impact of Internet on traditional financial services can be categorized into price transparency, differential pricing, and bypass and disintermediation (Allen and Gale, 1997).

Financial services technologies have been introduced for many years in the form of electronic banking and home banking services (Nieto, 2001). Indeed, financial services are being forced to implement new technologies and make technological changes.

Currently, financial services institutions are able to gain their reputation, not only from their strong financial status, but also from adoption of new technologies. Thus, financial services are under pressure to adopt new technologies and make changes in existing technologies. Bank managers, according to (Lunsford, 1994), consider that numerous advantages are to be gained from technological investment and development of integrated technological infrastructure in order to prevent themselves from losing their position to other institutions that recognize the importance of technology.

Financial services technologies have been initially employed for the purpose of providing increased benefit to customers, as the success or failure of technological investment is contingent upon customer demand. At present, customers require extensive services from a banking system, such as time and location convenience, ease of use, protection against

fraud and invasion of privacy and better access to financial information and payment transactions through a variety of customer electronic devices (Zairi and Alwabel, 2005).

### **The Problem of Study**

Electronic finance make distances shrink. When providing services electronically a bank doesn't need to establish branches all over the country to reach its customers. This together with the automation given electronically could be advantageous from the bank's point of view. Banks offering electronic services that are to a high extent technologically automated will probably need fewer employees. This makes it easier for small and midsize banks, like Jordanian commercial banks, to compete for customers even if they have small organizations and few branches.

At the same time E-Finance also increases the distance between the costumer and the bank since the customer cannot meet the bank personnel. The contact between the bank and the customer becomes more impersonal, which might make it easier for customers to switch to another bank.

The E-finance also increases the transparency, offering the customer a possibility to get a total view over different banks available in the market. It enables the customer to obtain information on various competing services, which gives the possibility to compare them and select the best among them. Today there are several Jordanian banks offering electronical information that makes it easy to compare for example interest rates on loans and deposits, fees, facilities, and other services. Even guidelines for those who want to change banks can be found on the Internet.

### **The Importance of study**

The way people use banks and their services have changed. A few years ago, almost all service encounters in Jordan were in the form of personal meetings between a service provider and a customer. Today E-finance, with less interpersonal contact between the service provider and the customer, have for many Jordanian people become the most important way to interact with their banks.

This study is important because it raises the issue of E-finance as a channel suitable for providing financial services since it enables two-way communication in real-time as well as distribution and transaction of financial services at the same time.

From the banks point of view, E-finance offers opportunities to create service processes that demand few internal resources, and therefore lowers the costs. Since E-finance through internet has no restrictions in location or hours of operations it also provides wider availability and a possibility to reach more customers.

Jordanian commercial banks need more than any other time to activate, develop, and innovate new techniques on international level to enhance the relationship between themselves and the customers. Therefore, it is important for these banks that offering services electronically to differentiate themselves from competitors. They need to provide information for customers on various competing services, which makes it possible to compare them and then select the one that best meets their requirements.

### **Objectives**

The main objectives of this study are:

1. To develop an understanding of the significance of the Jordanian commercial banks electronic services within and across business lines.
2. To assess the current and potential impact of electronic banking activities on the Jordanian commercial banks financial profile and condition.
3. To determine the impact of electronic finance on the performance of the commercial banks of Jordan.
4. To determine the relation between the use of electronic finance and its cost.
5. To assess the relation between the use of electronic services by the Jordanian commercial banks and the customers.

### **Literature Review**

In fact, the use of electronic communication in finance, goes back much further than the 1970s. As long ago as 1918, the payments between banks used to be settled electronically over the telegraph. This use of

electronic communications in payments systems has steadily increased over time. Now virtually all large payments between banks and corporations are done electronically. Financial services industry has removed the boundaries between different financial institutions, enabling new financial products and services to appear and making the existing ones available in different packages.

According to (Zairi, 2003) Electronic banking refers to the use of the Internet as a remote delivery channel for providing services, such as opening a deposit account, transferring funds among different accounts and electronic bill presentment and payment. This can be offered in two main ways. First, an existing bank with physical offices can establish a Website and offer these services to its customers in addition to its traditional delivery channels. Second, is to establish a virtual bank, where the computer server is housed in an office that serves as the legal address of such a bank. Virtual banks offer their customers the ability to make deposits and withdraw funds via ATMs (Automated Teller Machines) or other remote delivery channels owned by other institutions, for which a service fee is incurred.

(Distr, 2003) indicated in his study that, Electronic Funds Transfer (EFT) was introduced in the late 1970s. ATM, telephone banking and the acceptance and growth of credit cards were introduced in the 1980s. According to (Moon and Fre, 2000), it costs just two cents for an Internet transaction, compared with 36 for an ATM transaction and \$ 1.15 for a teller-assisted service. Despite that, consumers have still given their orders to transfer money in traditional ways. The main reasoning for that, according to (Doyle and Melanson, 2001), is that since no Internet security firewall can be guaranteed perfect, both sellers and buyers may be concerned that competitors will be able to extract sensitive or proprietary information, or a virus might spread from one participant in the exchange to others.

(Rose, 2000) noted that, one of the major factors affecting the banks is the changing need and perceptions of the consumer. Increasingly, consumers expect online services from their financial institutions and electronic delivery of services is becoming a necessity. According to (Dial,1995), consumers are demanding and expecting more than just one set of banking products from their forays online and off-line.

(Stamoulis, 2000) stated that, banks are using the Internet as a strategic weapon, leveraging it as a distribution channel to offer complex products at the same quality they can provide from their physical branches, at a lower cost, to more potential customers, without boundaries. (Fan, 2002) proposed that, banks can become technology providers by spinning off technology resources to start up new business streams, they can become content providers for information regarding products, indices *etc*, they can become context providers for setting-up e-market spaces, and also enablers by providing back bone systems to support multiple payment system alternatives.

According to (Hawkins, 2001), the online channel enables banks to offer low-cost, high value-added financial services and also benefit from the promotional opportunity to cross-sell products such as credit cards and loans.

(Turban, 2002) indicated in his study that, online transaction costs can be as low as 1% of an equivalent off-line transaction, rapidly increasing the popularity of the online option with consumers, as well as banks. In saving time and money for users, banks offer online banking as a less expensive alternative to branch banking. In addition, on-line banking enables banks to acquire information on consumer habits and preferences, for later marketing purposes. An expanding customer base and transaction cost savings are major benefits for banks.

Another study was conducted by (Petersen and Rajan, 2001) indicated that, the widespread use of the information technologies have made it increasingly easy for banks to remain at "arm's length" from their borrowers. Over the past two decades, for example, the probability that a bank communicates with its small business borrower in person rather than with the phone or mail has declined from 59 percent in 1973 to 36 percent in 1993 in U.S.A. Moreover, the average geographical distance from a bank to its typical small business borrower has increased from 16 miles during the 1973-79 period to 68 miles during the 1990-93 period.

### **Theoretical Framework of the Study**

Banks as financial institutions naturally react very quickly to any change in the economic and technological environment. The case of electronic banking is not an exception. Just few years ago, no one ever heard of electronic banking in Jordan. Today, all Jordanian banks issue

electronic cards such as credit cards, ATMs, and direct deposit as well as they offer Internet and telephone banking.

In transition countries, banks are the most important financial intermediaries and sometimes the only ones. And yet, the general public is quite resilient to keep their savings. Therefore, banks are trying to attract customers in different ways because they are the most important for the banks. The most usual way is raising interest rates. In fact, this way did not prove to be efficient because of growing costs and an unstable clientage in search of higher interest rates on deposits.

There are also some other ways to attract customers. Nowadays, the most popular way is in making financial innovations and introduction of new products to the market. Electronic banking is becoming the way for development of banking system.

Furthermore, the role of electronic banking is increasing in many countries. There are several reasons for that. First of all, this is due to increasing role of electronic money as a main instrument of electronic banking. Secondly, transition to electronic money is only possible through a wide implementation of electronic banking in the sense that issuing institutions have been developing simultaneously with institutions accepting e-money.

In this study we are concentrating on the most efficient tools used by commercial banks in E-finance.

### **Financial services and the Internet**

Financial services as well as other services, are characterized by intangibility, inseparability, perishability and heterogeneity. They are intangible in comparison to goods, and it is difficult to separate production from consumption since the customer is part in the process of both producing and consuming. The perishability lies in that the service cannot be stored for use later. To customers, financial services look alike, and the reason for using one before another is primarily due to convenience, for example branch location (Rust and Lemon, 2001).

When offering financial services three types of channels are needed (Peterson; Balsubramanian; Bronnenberg, 1997). These are: Communication channels for exchanging information between the service provider and the customer, distribution channels for the physical

exchange of the service and transaction channels generating the sales activity.

The Internet can be referred to as "a type of global information infrastructure consisting of computer hardware and software that is characterized as both general and open". (Peterson; Balsubramanian; Bronnenberg, 1997).

The Internet makes it possible to gather, organize, analyze and exchange large amounts of complex information. This can be done quicker and at a lower cost than before, since the Internet offers communication options with virtually no variable costs. (Neal, 2000).

From the banks point of view, the bank cannot differentiate the character of the branch from those of competitors. Instead it will be important to differentiate the service, concentrating on things like security, design and user friendliness of the Internet bank as well as creating of sustainable personal relationships with their customers. The absence of face-to-face contact might give customers a feeling of uncertainty and risk (Reichheld and Schefter, 2000) and a lot of reassurance might be needed before they will hand over personal details and preferences. Therefore it is important for the bank to show that it deserves the customers trust (Cappelli and Clancy, 1999), by using secure transaction software, providing clear explanations of the level of security and delivering one's promises.

For the customer Internet enhances the possibility to take more part in the process of service production and consumption and to affect the performance of the financial service (Rust and Lemon, 2001). This is because the customer to a great extent carries out services on the Internet, instead of the branch personnel. Since Internet is not constrained by either location or time, it is possible to make use of services provided on the Internet from off-site locations at any time. Thereby the customer does not need to travel to the bank to consume a service. Another feature of the Internet is that it increases the transparency because it offers the customer a possibility of getting a total view of banks available in the market. Therefore, creating loyalty among customers might be even more important in online banking than in conventional banking. (Muphy, 2000).

### **Financial Services and the ATM**

Although most banks still allow cash to be withdrawn from a bank teller, ATMs have become an increasingly important way to access cash. The number of ATMs in Jordan has risen steadily in the recent years. ATMs have been widely recognized as a convenient way to obtain cash. With the majority of ATMs connected to regional or national networks, cardholders can withdraw cash from most institutions in the country. At the same time, banks have regarded ATMs as a way to lower their costs, as customers substitute ATM transactions for costly live tellers, some financial institutions impose fees for teller use or reduce monthly charges to depositors who use only ATMs (Stavins, 1999).

However, the cost of an ATM transaction to a cardholder's bank is higher when the cardholder uses another bank's ATM instead of his own. For each such transaction, a cardholder's bank pays two different fees: a switch fee to the ATM network organization and an interchange fee to the bank that owns the ATM. To recover those costs, banks have been charging their cardholders a user (foreign) fee (Mc and Rwes, 1997).

### **Loyalty of Customers Toward the Banks**

(Oliver, 1999) states that loyalty is "a deeply held commitment to re-buy or re-patronize a preferred product/service consistently in the future, thereby causing repetitive same bank-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior".

Loyalty cannot be bought or forced on customers and a person does not automatically become loyal because they are satisfied with the services offered by a company (Reichheld, 1993). Becoming loyal is more like a process. A positive apprehension of service quality might lead to satisfaction, but for a relation to develop, interaction between the customer and the bank, rather than just a feeling of satisfaction from the customer's side, will be required. A continuous dialogue and feedback to the customers questions and complaints might lead to a sustained and perhaps strengthened relation. When a customer feels satisfied by an experience and develop a positive attitude towards a bank, it might also lead to intentions of reusing its services.

According to (Stratigos, 1999) customers likelihood to use and reuse a service and likelihood to contribute and recommend a company and its services are measures of loyalty.

## **Service Quality**

The perceived quality of a service encounter has two dimensions; the technological dimension, which refers to what is delivered, and the functional dimension, which refers to how the service is delivered. Speed of response, offer updates, site effectiveness and so forth, refers to the technical quality (Rust and Lemon, 2001). Interactive communication, personalization of the communication and of the service, as well as new forms of customer access refers to the functional aspect of quality. The package given to the customer must contain both technical and functional quality to be competitive. A bank providing services electronically should for example always respond to invitations to interact, such as e-mails, as quickly as possible (at least quickly as the customer considers acceptable) and try to provide useful answers. (Gronroos, 2000) With slow or no responses, interaction will not develop, and thereby the interest of the customer might be lost. The bank can save information on each customer in order to personalize the dialogue and make the customers feel "special" in the contact with the bank, and this is the further potential of using bank services.

## **Satisfaction**

Satisfaction can be described as an "evaluation of the perceived discrepancy between prior expectation and the actual performance of the product" (Oliver, 1999). Satisfaction is closely related to service quality and consist of both a behavioral dimension created by experience, as well as a mental dimension, created by worked up attitudes (Oliver, 1999).

## **Dissatisfaction**

Dissatisfaction among customers using electronic services of the banks might occur because of technological failure, which results in a negative perception of the functional quality of the service.

Dissatisfaction might also arise from technology design problems or service design problems. This could include systems being too slow, difficulties for the user to navigate the system or problems to figure out how to log off the service. (Meuter, Ostrom, Roundtree and Bitner, 2000).

## **The creation of relations**

In order to create sustainable relations with customers, service providers should make realistic promises, they should keep them and

they must enable the employees to deliver and also have the right services systems. (Bitner, 1995) Each encounter gives the bank an opportunity to exhibit itself for the customer, and a series of positive encounters will build the base on which relations can be formed. The electronic services can facilitate these encounter because of the ability to interact with the bank any time although the lack of personal contact with bank personnel might obstruct the forming of relations. Also, there may sometimes be technological problems that restrain the customer from using the service. This could infect relations between the parties. Therefore we think it is important both to provide several channels for communication, for example telephone banking as a complementary channel of service, as well as to create stronger relationships, so that a failure doesn't affect the relation in a negative way.

### **Resistance to change**

The foremost outcome of resistance to change is loyalty. A free choice increases the feeling of personal responsibility and when a customer has made a free choice, he is likely to be committed to the product and stay with the decision. There is also a psychological cost for customers to rethink what was known, which makes it more likely that the customer stays with the decision (Pritchard, Havitz ad Howard, 1999). The resistance to change should not be caused by fatigue, though, but of active resistance to switch service provider, otherwise it is not considered "true" loyalty.

### **Hypothesis of the Study**

With reference to the previous data, this study aims at testing the following hypothesis:

1. There is a stronger relation between the electronic services offered by the commercial banks of Jordan and reduction of cost and efforts of these banks.
2. The higher the use of electronic finance by the banks, the more profits they gain.
3. Electronic financial institutions perform their jobs faster and less costly than the traditional financial institutions.
4. Electronic service improves the relation between the bankers and customers.

5. Electronic finance technology effect positively the financial services.
6. Resistance to change by the customers hinders the use of electronic finance technology as well as the new technology changes.
7. Access to the internet has vastly changed the opportunities for the use of electronic payment systems.
8. The extreme use of ATM brought a qualitative change in the interaction ways between banks and customers.

### **Methodology of the Study**

The framework of the study was developed utilizing considerable references and specialized journals. In order to collect the necessary data to achieve the main purpose of the study, the researchers collected data through a questionnaire as a primary of data which was distributed to all Jordanian commercial banks operating in the country which represent the sample of study. In order to maintain a homogenous selection and an accuracy with satisfactory results, the researchers referred to international studies and journals as a secondary data which has a close relation with this study.

Through the information used in this study with respect to analytical and descriptive methodology, the data will be introduced and analyzed in order to acquire indicators which will be evaluated and interpreted in accordance with this type of studies.

#### ***Methods of Data Collection***

Primary data were in the form of a questionnaire consisted of 25 questions. The questionnaire was developed accordingly within the theoretical framework, and was distributed to all 24 commercial banks operating in Jordan. 120 subjects responded to the questionnaire which was received by hand.

Some questions aimed at collecting data from the subjects regarding: the importance of the use of e-finance in banking transactions, the use of internet – Websites and the use of ATM. Some other questions aimed at identifying the advantages and disadvantages of the use of e-finance in banking system. Finally, some questions aimed at indicating the cost effect and efforts spent by bankers that are less using e-finance. Questions regarding relation and trust between bankers and customers that use e-finance were also involved.

To investigate the questionnaire's result reliability and the coherence between its questions, Cronbach Alpha was used to test the reliability of questionnaire and it was found that  $\alpha=0.8738$  which is good because it is greater than the accepted percent 0.60. Thus, the conclusions of the questionnaire are considered reliable as regards the realization of the study objectives.

### ***T-Test***

**Table 1. One-Sample Statistics.**

	N	Mean	Std. Deviation	Std. Error Mean
H1	120	3.8483	0.48576	0.04434
H2	120	4.3917	0.78103	0.07130
H3	120	4.3625	0.51841	0.04732
H4	120	4.3771	0.57522	0.05251
H5	120	4.4417	0.46374	0.04233
H6	120	4.4667	0.66019	0.06027
H7	120	4.4450	0.44568	0.04068
H8	120	4.4750	0.59356	0.05418

**Table 2. One-Sample Test.**

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence interval of the Difference	
					Lower	Upper
H1	19.131	119	0.000	.8483	.7605	.9361
H2	19.519	119	0.000	1.3917	1.2505	1.5328
H3	28.791	119	0.000	1.3625	1.2688	1.4562
H4	26.225	119	0.000	1.3771	1.2731	1.4811
H5	34.055	119	0.000	1.4417	1.3578	1.5255
H6	24.336	119	0.000	1.4667	1.3473	1.5860
H7	35.517	119	0.000	1.4450	1.3644	1.5256
H8	27.222	119	0.000	1.4750	1.3677	1.5823

### **Data Analysis Methods**

In order to achieve the objectives of the study and testing its hypothesis, the analytical descriptive approach was used to show how the bankers recognize the importance of using E-finance in their operations, and to identify the constraints facing the spread of this usage.

**Descriptive Analysis:** Mean and standard deviation were used to test attitudes toward the following questions:

**Table 3. Descriptive Statistics.**

	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Q1	1.00	5.00	4.8500	0.55986
Q2	2.00	5.00	4.5500	0.63312
Q3	2.00	5.00	4.4917	0.62168
Q4	3.00	5.00	4.4750	0.59356
Q5	2.00	5.00	4.3000	0.62979
Q6	1.00	5.00	4.3083	0.76472
Q7	1.00	5.00	4.2583	0.85500
Q8	1.00	5.00	4.3000	0.78430
Q9	2.00	5.00	4.3333	0.78144
Q10	1.0	5.00	4.2833	0.97173
Q11	2.00	5.00	4.3917	0.78103
Q12	1.00	5.00	4.3917	0.71356
Q13	2.00	5.00	4.3167	0.75574
Q14	2.00	5.00	4.1750	0.84677
Q15	1.00	5.00	4.2833	0.83196
Q16	2.00	5.00	4.4833	0.70987
Q17	2.00	5.00	4.4833	0.69794
Q18	2.00	5.00	4.5000	0.68599
Q19	2.00	5.00	4.5667	0.63157
Q20	2/00	5.00	4.5750	0.63063
Q21	1.00	5.00	4.5083	0.71002
Q22	3.00	5.00	4.4667	0.66019
Q23	3.00	5.00	4.2333	0.65764
Q24	1.00	5.00	3.6833	0.78840
Q25	1.00	5.00	2.4417	0.83812
Valid N (list wise)				

From the Table (3) it was found that there are negative attitudes towards question 25, because its mean is less than the mean of scale (3), meanwhile, there are positive attitudes towards the rest of all questions, because their mean is greater than the mean of the scale (3).

### **Questionnaire Answers Analysis and Hypothesis Test**

The questionnaire answers were transformed into a worksheet using Microsoft Excel, and then moved to SPSS statistical program. After analyzing the data in the light of the objectives and hypothesis of the study, the results appeared as follows:

#### ***Hypothesis (1)***

Ho: There is no stronger relation between the electronic services offered by the commercial banks of Jordan and reduction of cost and efforts for these banks.

Ha: There is a stronger relation between the electronic services offered by the commercial banks of Jordan and reduction of cost and efforts for these banks.

**Table 4. Test of Hypothesis (1).**

Calculated t	Tabulated t	Sig. t	Result of Ho
19.131	1.9799	0.000	Reject

T. test was used to test our first hypothesis and we found that (calculated  $t=19.131$ ) is greater than tabulated t. Therefore, Ho is rejected in favor of Ha. So that, there is a stronger relation between the electronic services offered by the commercial banks of Jordan and reduction of cost and efforts for these banks.

***Hypothesis (2)***

Ho: The lower the use of electronic finance by the banks, the more profits they gain.

Ha: The higher the use of electronic finance by the banks, the more profits they gain.

**Table 5. Test of Hypothesis (2).**

Calculated t	Tabulated t	Sig. t	Result of Ho
19.519	1.9799	0.000	Reject

T. Test was used to test our second hypothesis and we found that (calculated  $t=19.519$ ) is greater than tabulated t. Thus, Ho is rejected in favor of Ha. So that, the higher the use of electronic finance by the banks, the more profits they gain.

***Hypothesis (3)***

Ho: Electronic financial institutions do not perform their jobs faster and less costly than the traditional financial institutions.

Ha: Electronic financial institutions perform their jobs faster and less costly than the traditional financial institutions.

**Table 6. Test of Hypothesis (3).**

Calculated t	Tabulated t	Sig. t	Result of Ho
29.791	1.9799	0.000	Reject

T. test was also used to test this hypothesis and we found that (calculated  $t=29.791$ ) is greater than the tabulated t. Thus, Ho is rejected in favor of Ha. As a result; electronic financial institutions perform their jobs faster and less costly than the traditional financial institutions.

***Hypothesis (4)***

Ho: Electronic services do not improve the relation between the bankers and customers.

Ha: Electronic services improve the relation between the bankers and customers.

**Table 7. Test of Hypothesis (4).**

Calculated t	Tabulated t	Sig. t	Result of Ho
26.225	1.9799	0.000	Reject

One sample T-test was used to test fourth hypothesis and we found that (calculated  $t=26.225$ ) is greater than tabulated t. Therefore, Ho is rejected in favor of Ha. So that, electronic services improve the relations between the banker and customers.

***Hypothesis (5)***

Ho: Electronic finance technology do not effect positively the financial services.

Ha: Electronic finance technology effect positively the financial services.

**Table 8. Test of Hypothesis (5).**

Calculated t	Tabulated t	Sig. t	Result of Ho
34.055	1.9799	0.000	Reject

T. test was used to test our hypothesis and we found that (calculated  $t=34.055$ ) is greater than tabulated t. Thus, Ho is rejected in favor of Ha. So that electronic finance technology effect positively the financial services.

***Hypothesis (6)***

Ho: Resistance of change by the customers does not hinder the use of electronic finance technology as well as the new technological changes.

Ha: Resistance of change by the customers hinders the use of electronic finance technology as well as the new technological changes.

**Table 9. Test of Hypothesis (6).**

Calculated t	Tabulated t	Sig. t	Result of Ho
24.336	1.9799	0,000	Reject

One sample T. test was used to test our hypothesis and we found that (calculated  $t=24.336$ ) is greater than tabulated t. Thus, reject Ho in favor of Ha. So that resistance of change by the customers hinders the use of electronic finance technology as well as the new technological changes.

***Hypothesis (7)***

Ho: Access to the internet has not vastly changed the opportunities for the use of electronic payment systems.

Ha: Access to the internet has vastly changed the opportunities for the use of electronic payment systems.

**Table 10. Test of Hypothesis (7).**

Calculated t	Tabulated t	Sig. t	Result of Ho
35.517	1.9799	0,000	reject

T-test was used to test our hypothesis and we found that (calculated  $t=35.517$ ) is greater than tabulated t. Thus, reject Ho in favor of Ha. Therefore, access to the internet has vastly changed the opportunities for the use of electronic payment systems.

***Hypothesis (8)***

Ho: The extreme use of ATM did not bring a qualitative change in the interaction ways between banks and customers.

Ha: The extreme use of ATM brought a qualitative change in the interaction ways between banks and customers.

**Table 11. Test of Hypothesis (8).**

Calculated t	Tabulated t	Sig. t	Result of Ho
27.222	1.9799	0.000	Reject

T. test was also used to test our last hypothesis and we found that (calculate  $t=27.222$ ) is greater than tabulated t. Thus reject Ho in favor of Ha. So that the extreme use of ATM brought a qualitative change in the interaction ways between banks and customers.

## **Study Results**

After analyzing the data and testing the hypothesis, the following results were extracted:

1. The bankers of the Jordanian commercial banks have a deep belief in the importance of using E-finance in their operations.
2. Operating costs for Jordanian commercial banks that use E-finance extensively are far lower than the traditional banks.
3. A large number of people in Jordan have access to the internet and this has vastly changed the opportunities for the use of electronic payments systems, the operations of financial services firms and financial markets.
4. Not all banks provide the same services, customers with the most money in the bank are the most active ones, and competing banks can make them leave by more frequently contacting them through E-finance tools.
5. Transactions on the internet are more cheaper as compared to ATM withdrawals or checks.
6. The customer do not look for an emotional relationship with the banks but sees the price, quality and performance as important factors when choosing banks. Therefore, the bankers has to stand for the brand while dealing with customers.
7. The results confirm the common belief that larger banks charge other banks customers more for using their services, such as ATM which is used extensively in Jordan.
8. It was found that the growth and development of E-finance communication technologies are dramatically changing the structure and nature of financial services in Jordan.
9. There is a positive statistical relation between: electronic services and reduction of cost and efforts, the use of E-finance and profits, E-finance institutions perform their jobs more faster and less costly than the traditional ones, electronic services improve the relation between bankers and customers and electronic finance technology and the financial service.

## Recommendations

The researchers mainly recommend the following points:

1. Bankers need to educate their customers more about using E-finance and the risks involved in it.
2. The search for excellence for all types and sizes of banks is their main objective. The winner is the one who predicts changes in the appropriate manner and responds quickly and effectively to them. This can only be achieved through a mixed of policies, procedures, techniques and IT tools. E-finance is a powerful tool that enables banks in achieving their strategic priorities.
3. In order to provide strong incentives between the customers and service providers, e-finance need to shift the focus from price to a more holistic value proposition involving value-added services and collaboration activities.
4. Banks could offer training and consulting to customers as well as employees to reduce the reluctance to use or adopt e-finance.
5. E-finance system in itself does not offer competitive advantage in the banking environment. Competitive advantage comes not from the fact that Jordanian banks have adopted an e-finance system, yet that is what all other major banks all over the world has done. It is how they interface that system with their customers, and how making customers perceive it. By applying that, banks then can bring their customers into self-service, which will attract customers to do their business electronically. This is where the competitive advantage will start to come out between the banks.

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### Appendix

#### Questionnaire

Questions	Absolutely Agreed	Agreed	Neutral	Absolutely Disagreed	Disagreed
1. A large number of people have access to the internet service and this has vastly changed the opportunities for the use of electronic payment systems.					
2. Communication technology and the use of internet for financing are considered very important.					
3. Electronic finance technology effect positively the financial services.					
4. The use of ATM brought a qualitative change in the interaction ways between the banks and customers.					
5. The use of E-finance through the internet in the foreign currency market, depository institutions, insurance companies and stock market is becoming something indispensable.					
6. The rapid increase in the use of the internet represents a continuation of banks effort to replace their costly branch network with alternative distribution channels such as the telephones, the mail and Automated Teller Machines ATM.					
7. Customers use the Website as a tool to get private information about them from the bank.					
8. Bank use the Websites as a tool to improve the relation with clients.					
9. The Websites are considered as a cycle for most transactions occurs between the bank and customers.					
10. Websites are used by banks to receive customers suggestions and complaints.					
11. The use of E-finance in a modest way reduces the profitability of the bank.					
12. E-finance gives accessible opportunities to improve the financial services.					

Questions	Absolutely Agreed	Agreed	Neutral	Absolutely Disagreed	Disagreed
13. The use of E-finance reduces the time and efforts of bank employee.					
14. Electronic financial institutions works with less cost than traditional institutions.					
15. Bank use electronic information for evaluating and pricing customers loans.					
16. E-finance has an affect on the securities industry. It facilitate the mission for the broker-dealers particularly in the secondary securities markets.					
17. Credit cards issued by the bank facilitate the communication process between the creditor and debtor.					
18. Credit cards issued by the bank increase the loyalty between the bank and clients.					
19. Checks are considered more costly than other electronic alternatives used by the bank.					
20. The growth and development of electronic finance technology brought qualitative change in the structure and nature of financial services.					
21. The continuous technological change form a burden on the bank regarding cost.					
22. The bank face obstacles regarding the resistance of the customers to use E-finance technology or understanding the recent technological changes.					
23. Using E-finance with outside financial institutions is considered less costly and risky for the bank.					
24. There is a positive relation between the use of E-finance and reduction of costs and efforts for the bank.					
25. There is a negative relation between the use of E-finance and reduction of costs and efforts for the bank.					

## الخدمات المصرفية الإلكترونية: دراسة حالة البنوك التجارية الأردنية

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المستخلص. التمويل الإلكتروني يمتلك المقومات لأن يكون أكثر من مجرد تغير متزايد في طرق تنفيذ الأعمال التجارية، حيث يمكن أن يكون ثورة حقيقية. والتمويل الإلكتروني عبارة عن تعاون مميز حيث يقدم وسائل الراحة، وشفافية في السعر، والوصول إلى المعلومات بشكل واسع والتكلفة المنخفضة. الخدمات المالية عبارة عن معلومات مكثفة ولا تحتاج إلى التسليم الشخصي. التمويل الإلكتروني أيضاً يمتلك القوة لينقل الأعمال التجارية ليس فقط من أنظمة التسليم التقليدية وإنما لطرح نماذج جديدة للأعمال التجارية.

ولكي نعزز مفهومنا عن التمويل الإلكتروني الذي تمارسه البنوك التجارية الأردنية قمنا بإعداد استبيان مبنياً على الجانب النظري الذي تم طرحه في الدراسة، وتم توزيع الاستبيان على جميع البنوك التجارية العاملة في الأردن وعددها ٢٤ بنكاً والتي مثلت عينة الدراسة، وكان معدل الإجابة على الاستبيان عالياً مما مكن الباحثين من وضع الخطوط العريضة لاتجاهات التمويل الإلكتروني من خلال المادة.

من خلال هذا البحث خرجنا بالنتائج التالية: بأن هناك علاقة إيجابية ذات دلالة إحصائية بين: التمويل الإلكتروني وتقليل

التكاليف والجهد على البنك، بين التمويل الإلكتروني والأرباح. وتبين من الدراسة أن المؤسسات المالية الإلكترونية تتجزأ أعمالها أسرع وبتكلفة أقل من المؤسسات المالية التقليدية، وأن الوصول إلى شبكة الانترنت أحدث تغييراً نوعياً في الفرص لاستخدام أنظمة الدفع الإلكتروني، وأن الخدمات الإلكترونية طوّرت من العلاقة بين المصرفيين والزبائن.