

The effect of electronic commerce on profitability of Jordanian commercial companies*

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Abstract: The study aims to determine the effect of e-commerce on the profitability of commercial companies of Jordan's economy and to study the magnitude of the effect of e-commerce (whether positive or negative).

The research population includes the commercial companies that are listed on the Amman Financial Market for four years (2015-2018), which consisted of (10) Companies that meet the conditions. The results of the study show that e-commerce practices positively affected the profitability in the commercial companies, also e-commerce benefits on Return on Assets (ROA) and Return on Equity (ROE) for commercial companies in Jordan.

The findings of this study indicate that there is an effect of e-commerce benefits on (ROA) for commercial companies, where (0.016). Findings also indicates that there is an effect of e-commerce benefits on ROE for commercial companies, where (0.012).

The researcher suggests developing and improving electronic commerce operations in Jordanian companies to improve the relationship between the companies and its customers. Which will lead to improve Jordanian economy rapidly?

Keywords: *Electronic Commerce; Profitability; Commercial Companies.*

1. Introduction

Since companies compete in various ways with accelerated methods at local, state, and global levels, use of the Internet has been a boon for consumers. It has made the world a semi-small village and brought it within the reach of consumers, and thus the Internet has enormously reduced the national restrictions to access the global market. Hence, it is imperative to assess the effect of changes in the global trade methodology on the systems companies' profitability.

Trade is known as the earliest communication between communities to increase capital for traders and at the same time make goods and services available to the consumers at a reasonable price. E-commerce not only eliminates borders between states but opens these countries to markets that are global rather than markets limited within the borders of countries (Heng, 2006).

In every country, almost every day, newspapers and television channels report the need of information regarding research and trade, and how numerous computer users tap the global network of unparalleled access to communications. Any commercial transaction enabled, facilitated and carried out by the electronic information exchange is called e-commerce. The true value of the World Wide Web and the Internet is that it is without any physical limitations or boundaries (Nelson, 2009).

Within the local, as well as the global economic sector, use of the Internet has become one of the decisive modes of competition between industries. The globalization era has introduced vast changes mainly in the trade style which will increase a company's profitability, including the purchasing, sale and subsequent delivery of services that can now be performed efficiently as per the laws, restrictions and links (Mitchell, 2009).

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Even though the Internet is an established and ubiquitous feature of today's life, it may be replaced, and hence use of a term that considers the future and is technologically neutral is warranted. Thus, the best presumption regarding the direction of future technology is that it will always be unexpected (Valerio, 2019).

The Internet is known as the principal platform necessary for widespread e-commerce. For developing interactive applications that are needed for marketing and advertising, providers of e-commerce technology are resolving key concerns, which include increasing bandwidth, improving e-security (i.e., secure procedures and encryption for financial transactions) and standard tools, which are key business requirements. Once these key concerns are resolved and the requirements of the Internet users are fulfilled, the advancement of e-commerce on the Internet will significantly increase (Wood, 2003). The use of Internet as a global transport medium by e-commerce may have unforeseeable and unexpected effects, which may lead to overwhelming changes in society (Valerio, 2019).

Problem of Study:

Due to a substantial increase in the application of electronics globally in all forms of trade, the researcher will investigate the impact of e-commerce on the profitability of commercial companies by studying the commercial companies of the economy in Jordan. It is imperative to study the effects of e-commerce on the profitability of commercial Jordanian companies. The outcome of this research will provide data to study and understand the effect of e-commerce on the company's profitability that use e-commerce for business.

Study objectives:

The aim of this study is to determine the effect of e-commerce on the corporate profitability in the commercial companies of Jordan's economy and to study the magnitude of the effect of e-commerce, whether positive or negative. However, the researcher expects positive outcomes from this research, which will provide the information necessary to make decisions for a smooth transition to e-commerce in Jordan. In addition, this study seeks to find ways and means that support the growth of electronic commerce in various forms so that it becomes an alternative for handling banknotes in Jordan because of its positive impact on the economy, similar to developed countries such as the United States.

Questions of the Study:

1. Are there impact of e-commerce benefits on ROA for commercial companies in Jordan?
2. Are there impact of e-commerce benefits on ROE for commercial companies in Jordan?

Study Hypotheses:

Based on the previous studies, the following hypotheses were formulated:

The first main hypothesis is H1:

H1: There are impacts of e-commerce benefits on ROA for commercial companies in Jordan.

The second main hypothesis is H2:

H 2: There are impacts of e-commerce benefits on ROE for commercial companies in Jordan.

Study Variables:

This study used three variables, one independent variable, two dependent variables. The benefits of e-commerce are independent variable. ROE to measure of a company's annual return divided by the value of its total shareholders' equity, as a formula expressed as: $ROE = \text{Net Income} / \text{Shareholders' Equity}$, ROA is an indicator of how profitable a company is relative to its total assets, as a formula expressed as: $ROA = \text{Net Income} / \text{Total Assets}$, are dependent variables.

Study Model:

This study used the Simple regression models to determine the importance of each independent variable on the dependent variables of companies, which is represented by the following equations:

$$Y = \alpha (\beta_1 - ROA) + \text{Error.}$$

$$Y = \alpha (\beta_2 - ROE) + \text{Error.}$$

The means of the benefits of e-commerce for each company were extracted by questionnaire and compared with the means of ROA and ROE for the last four years, and then a statistical treatment was performed.

Research Design:

The following research design model describes the relationships among electronic commerce variables and corporate profitability variables within the context of commercial companies of Jordanian companies.

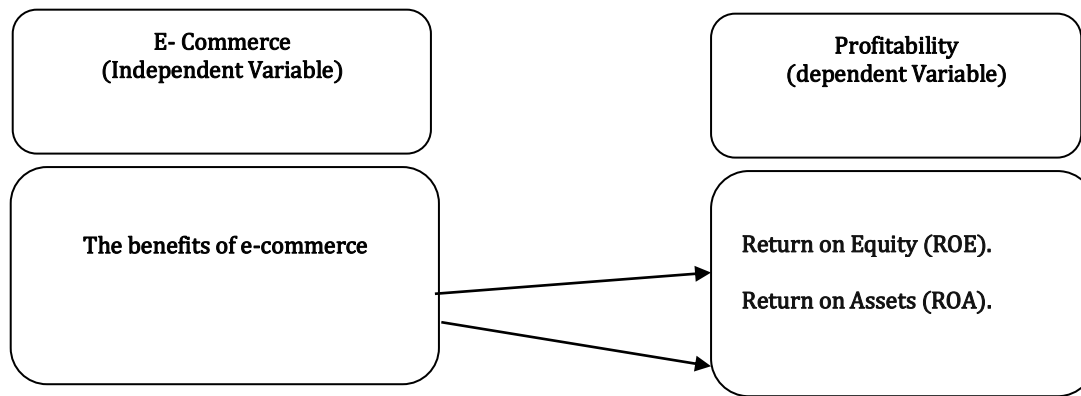


Fig (1): Research design model

Source: Researcher

Theoretical Framework

• Definition of electronic commerce:

Electronic commerce has no fixed definition; however, in broader terms it involves carrying out business transactions using the most modern means of communication like fax, telephone, television, money transfer systems and electronic payment, electronic data exchange, and the Internet. The World Trade Organization's (WTO) General Council, on September 25, 1998, adopted abroad definition of e-commerce in their work program: "The use of electronic means for the production, marketing, sale, distribution, or delivery of commodities and services." Recently, the term e-commerce has been strongly connected with the commercial activities and transactions on the Internet. For instance, the discussions by Organization for Economic Co-operation and Development on e-commerce concentrate mainly on the Internet-based transactions (Sagi, 2003).

E-commerce deals with all simultaneous activities carried out at the time of announcement, payment, booking, and delivery by investors and consumers, to attain the desired goal of selling products with minimal effort, at the cheapest prices and without physical restrictions of countries' borders (Heng, 2006). Thus, performing online transactions and/or purchases anywhere and anytime means mobile e-commerce (Weng, 2007).

In this century, e-commerce is transforming into one of the principal forces that run the world economy (Robertson, 1997). According to Robertson (1997), a crucial commercial sector that drives this progress is the business-to-business market segment. This segment can be categorized into three groups: online wholesaling, including businesses that sell goods and services on the Internet to other businesses; Internet corporate purchasing, representing different public-and-private sector companies that make online purchasing of office commodities and supplies with the use of the corporate Internet; and supply chain trading on the Internet, encompassing businesses that work together in collaboration and use the Internet to automate the transport of goods for production and distribution purposes.

• Social benefits of e-commerce:

The pivotal social benefits of e-commerce include being inexpensive, improved competence, lowered business start-up costs, wider market reach, improved business value, and it appears to nurture a perfectly competitive environment and reduce the hurdles of entry in business. One analyst reported that the "Internet can eliminate size-based hurdles by facilitating access to the world markets and furnishing new anchorage with gigantic and more influential suppliers. It also has the prospects to reduce the elevated marketing cost and develop market consciousness" (Westerlund, 2000). Furthermore, it was suggested by this report that businesses should take advantage of this opportunity to hold onto the Internet as a new mode of business transactions (Westerlund, 2000). Some analysts have forecasted that the cost of transactions will be reduced from 25% to 40%, depending on the type of industry and thus resulting in a 5% increase in the yield of goods and services in the first-world economies (Garret & Skevington, 1999). One such example quoted by this analyst's report is the Covenant consortium, which encompasses the Big Three Automakers: Chrysler, Ford and GM. To reduce the costs of building a car by 14%, these big three auto makers planned a B2B exchange for parts (Garret & Skevington, 1999).

It was found that electronic commerce has a positive effect on international business and employment. E-commerce will raise the volume of international trade. Benefits of e-commerce on country's economy differ from developed countries to developing countries depending on time. In the short run, developed countries monopolize

gains of e-commerce, but in the long run, more economic benefits will be from developing countries' destiny and huge benefits from developed countries' experience and knowledge spillovers (Terzi, 2011).

2. Literature Review

This literature review presents the background of the skyrocketing growth of electronic commerce (e-commerce) and its impact on the corporate profitability. The review offers acuity from recent studies regarding e-commerce, corporate profitability and the effect of e-commerce upon corporate profitability that are pertinent to the research questions of this discourse.

The goal of the research by Mora-Monge, Azadegan, and Gonzalez (2010) was to examine the effect of the application of Web-based E-Commerce (WEC) upon Organizational Benefits (OBE). Obviously, e-commerce is significantly affecting the interactions of firms with customers and similar trading partners. Hence, all firms irrespective of their size should perceive its significance during development of strategies and business plans to maximize gains by leveraging emerging technologies to their profit. (Mora-Monge et al., 2010).

Hallal and Xu (2012) confirmed that numerous studies have validated that those firms which have adopted and implemented e-commerce expect an increase in remuneration. The benefits span from widening the realms of the firm, enhancing business efficiency and productivity of collecting information, improving communication and achieving a competitive lead. However, these accomplishments by firms are dependent on the efficacy of the e-commerce system-based applications. In proportion to the application of the e-commerce system, the benefits will be accruing to organizations.

According to Weng (2007), computing has become a daily business irrespective of time and place due to advances in mobile and wireless technologies. Since new wireless communication channels are emerging in the electronic commerce domain, consumers have increased the usage of mobiles. It is imperative now to develop frameworks for developing e-marketplaces that can perform the transactions within the network of consumers that possess mobile access and user support capabilities. Personal login to the intended websites from their static personal computers is not required by agent-based e-marketplaces, whereas traditional Internet-based e-commerce applications are developed specifically over the web architecture for human-computer interactions.

According to the statistics, there has been considerable growth of the e-commerce values in the major markets (United States, United Kingdom, Germany, France, etc.). However, the growth of the overall retail sales is still lower than 10% both in the US and in European markets, which clearly indicates that the full potential of the B2C e-commerce has yet to be fully exploited (Mangiaracina&Perego,2009).

It was found that electronic commerce has a positive effect on international business and employment. E-commerce will raise the volume of international trade. Benefits of e-commerce on country's economy differ from developed countries to developing countries depending on time. In the short run, developed countries monopolize gains of e-commerce, but in the long run, more economic benefits will be from developing countries' destiny and huge benefits from developed countries' experience and knowledge spillovers (Terzi, 2011).

Expected contribution:

Previous studies focused on the power of electronic commerce on the profitability of companies, while the researcher's study focused on the current impact of electronic commerce, which is a paramount necessity for economic growth, especially with the decrease of economic businesses in Jordan.

3. Methodology

• Study Population and Sample:

The study population consists of all the commercial companies listed on the ASE during (2015-2018), where the number of commercial companies as shown in the directory of companies was as follows: 10 commercial companies. The sample of the study was selected to be represented in the commercial companies that meet the following conditions:

- Its shares should be traded during the study period 2015- 2018.
- Its data related to the study variables should be available and fully disclosed.
- The above conditions were met by 10 public commercial companies.

• Data Analysis:

To answer the study questions and test hypotheses, the researcher used the appropriate statistical tools for the study after calculating the means, standard deviations and iterations of the study variables according to the study years. Statistical methods used in data analysis:

- The reliability (Cronbach' Alpha).
- Frequencies and percents of the characteristics of the study sample.
- Means and standard deviation for study domains and items.
- (Simple liner Regressions) analysis.

Table (1): distribution of the sample according to the personal variables (questionnaires)

Variable	Categories	Frequency	percent
Job title	accountant	6	60.0
	sales officer	4	40.0
	Total	10	100.0
Qualification	Bachelor	7	70.0
	postgraduate studies	3	30.0
	Total	10	100.0
Years of Experience	From 3 years to 6 years	3	30.0
	From 7 to 10 years	4	40.0
	10 years or more	3	30.0
	Total	10	100.0
Certificate	JCPA	2	20.0
	CPA	5	50.0
	ACPA	3	30.0
	Total	10	100.0

Table (1) shows that: For Job title variable, the highest category (accountant) by frequency (6) percentage (60.0%), but the lowest category (sales officer) by frequency (4) percentage (40.0%).

- For **Qualification** variable, the highest category (Bachelor) by frequency (7) percentage (70.0%), but the lowest category (postgraduate studies) by frequency (3) percentage (30.0%).
- For **Years of Experience** variable, the highest category (From 7 to 10 years) by frequency (4) percentage (40.0%), but the lowest category (From 3 years to 6 years) and (10 years or more) by frequency (3) percentage (30.0%).
- For **Certificate variable**, the highest category (CPA) by frequency (5) percentage (50.0%), but the lowest category (JCPA) by frequency (2) percentage (20.0%).

• Reliability Analysis for questionnaire:

In order to ensure the reliability (Cronbach' Alpha) was applied, the total alpha values reached (0.79) this indicates to accept reliability for questionnaire.

• Statistical treatment:

The following statistical treatments through statistical software packages (SPSS) were used:

- The reliability (Cronbach' Alpha).
- Frequencies and percents of the characteristics of the study sample.
- Means and standard deviation for study domains and items.
- (Simple liner Regressions) analysis.

4. The results

This part presents the findings of the study which aims to the impact of electronic commerce benefits on the financial performance of commercial companies in Jordan (ROA - ROE) for four years (2015-2018). Also, this part includes testing study hypothesis.

• Descriptive statistics:

Table (2): Means and standard deviation for items of e-commerce benefits

#	Items	Means	Standard. Dev	Agreement Degree
1	E-commerce helps reduce the cost of communications.	4.30	0.67	high
2	E-commerce helps reduce operating costs.	4.40	0.52	high
3	E-commerce helps reach the largest possible number of customers and suppliers.	4.20	0.42	high
4	E-commerce contributes to the completion of processes and reduces the product cycle.	4.10	0.57	high
5	E-commerce contributes to improving (solidifying) the relationship between the company and its customers.	4.00	0.94	high
6	E-commerce enables you to reach as many customers as possible.	3.70	0.95	high
	Total Means	4.12		high

Table (2) shows that the highest means reached (4.40) out of (5) for item (2) "E-commerce helps reduce operating costs" by high agreement degree, And the lowest means was (3.70) for item (6) "E-commerce enables you to reach as many customers as possible" by high agreement degree. The total mean was reached (4.12) by high agreement degree.

Hypothesis of the study

H1: There are impacts of e-commerce benefits on ROA for commercial companies in Jordan.

To test this hypothesis, and to detect the impact of e-commerce benefits on ROA for commercial companies, the (Simple linear Regression) analysis was used; table (3) shows that.

Table (3): result of the (Simple Linear Regressions) to detect the impact of e-commerce benefits on ROA (n= 10)

Independent variable	"t" value	"t" sig	β	R	R ²	"F" value	"F" sig
e-commerce benefits	3.028	0.016	0.731	0.731	0.534	9.170	0.016

• Dependent variable: ROA

Table (3) shows that there are a statistically a significant role at significant level ($\alpha \leq 0.05$) for e-commerce benefits on (ROA) for commercial companies, where "F" value reached (9.170) by statistically significant (0.016). (R) Value reached (0.731), (R²) value reached (0.534).

Therefore, accepted H1 where indicates to: there are impacts of e-commerce benefits on ROA for commercial companies in Jordan.

H2: There are impacts of e-commerce benefits on ROE for commercial companies in Jordan.

To test this hypothesis, and to detect the impact of e-commerce benefits on ROE for commercial companies, the (Simple linear Regression) analysis was used; table (4) shows that.

Table (4): result of the (Simple Linear Regressions) to detect the impact of e-commerce benefits on ROE for commercial companies (n= 10)

Independent variable	"t" value	"t" sig	Beta	R	R ²	"F" value	"F" sig
e-commerce benefits	3.207	0.012	0.750	0.750	0.562	10.284	0.012

• Dependent variable: ROE

Table (4) shows that there are a statistically a significant role at significant level ($\alpha \leq 0.05$) for e-commerce benefits on ROE for commercial companies, where "F" value reached (10.284) by statistically significant (0.012). (R) Value reached (0.750), (R²) value reached (0.562).

Therefore, accepted H2 where indicates to: there are impacts of e-commerce benefits on ROE for commercial companies in Jordan.

5. Conclusions

This study investigated the impact of electronic commerce on the profitability of Jordanian commercial companies in Jordan.

Study hypotheses were verified in order to obtain the purpose of the study. The main conclusions are as follows: E-commerce practices have positively affected the profitability of Jordanian commercial companies, which will lead to the growth and of the Jordanian economy, thus, reducing unemployment and increasing demand for the Jordanian currency.

Recommendations:

Depending on the findings and conclusions, the researcher suggests the following recommendations:

- Organize training courses for companies' management about the e-commerce and provide them with adequate knowledge and experience.
- Improve E-commerce operations in Jordanian companies, using them to improve the relationship between the companies and its customers.
- Need to protect customers through develop an integrated legislative system to E-commerce in Jordan.

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Appendix:**Study Sample for dependent variables (ROA - ROE)****Table (1):** dependent variables (ROA - ROE) for Study Sample.

Company	years	ROA	ROE
Al- daawliyah for Hotels and malls	2015	3.66	4.03
Al- daawliyah for Hotels and malls	2016	7.9	8.95
Al- daawliyah for Hotels and malls	2017	1.59	1.8
Al- daawliyah for Hotels and malls	2018	0.6	0.69
Jordanian Pharmaceutical Manufacturing	2015	-22.09	-55.46
Jordanian Pharmaceutical Manufacturing	2016	-14.32	-48.45
Jordanian Pharmaceutical Manufacturing	2017	1.9	7.48
Jordanian Pharmaceutical Manufacturing	2018	-8.95	-43.99
Jordan Himmeh Mineral	2015	-1.8	-2.09
Jordan Himmeh Mineral	2016	-2.54	-2.58
Jordan Himmeh Mineral	2017	-1.81	-1.87
Jordan Himmeh Mineral	2018	-1.05	-1.08
Basic Commodities Trading	2015	1.8	18.9
Basic Commodities Trading	2016	1.9	17.9
Basic Commodities Trading	2017	1.45	11.98
Basic Commodities Trading	2018	1.9	12.1
Al-Bakri Import and export	2015	0.9	-30.77
Al-Bakri Import and export	2016	-44.91	-12.34
Al-Bakri Import and export	2017	-16.9	-12.98
Al-Bakri Import and export	2018	-12.09	-19.18
Comprehensive Multiple Project	2015	0.19	0.56
Comprehensive Multiple Project	2016	0	0
Comprehensive Multiple Project	2017	0	0
Comprehensive Multiple Project	2018	-0.38	-0.39
Awtad for Diversified Investments	2015	-1.55	-1.85
Awtad for Diversified Investments	2016	-16.8	-20.74
Awtad for Diversified Investments	2017	-2.5	-3.11
Awtad for Diversified Investments	2018	0.9	1.11
General Mining	2015	-44.91	-52.8
General Mining	2016	-195.3	-317.9
General Mining	2017	-66.46	-0.01
General Mining	2018	-20.42	-35.65
Darkom Investment	2015	0.01	0.01
Darkom Investment	2016	-2.82	-4.16
Darkom Investment	2017	-6.26	-6.83
Darkom Investment	2018	-1.55	-1.76
Al-Salhia Investment and Real Estate Development	2015	0	0
Al-Salhia Investment and Real Estate Development	2016	0	0
Al-Salhia Investment and Real Estate Development	2017	22.84	25.61
Al-Salhia Investment and Real Estate Development	2018	-11.71	-13.31

Table (2): means for (ROA - ROE) within four years for companies study sample.

Company	N	ROA	ROE
Al- daawiyah for Hotels and malls	1	3.44	3.87
Jordanian Pharmaceutical Manufacturing	2	-10.87	-35.11
Jordan Himmeh Mineral	3	-1.8	-1.91
Basic Commodities Trading	4	1.76	15.22
Al-Bakri Import and export	5	-18.25	-18.82
Comprehensive Multiple Project	6	-0.05	0.04
Awtad for Diversified Investments	7	-4.99	-6.15
General Mining	8	-81.77	-101.59
Darkom Investment	9	-2.66	-3.19
Al-Salhia Investment and Real Estate Development	10	2.78	3.08