

The Impact of the Increase of Crude Oil Prices on the Jordanian Public Debt for the Period 1998-2013

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Abstract

The study aimed to identify the impact of the increase of crude oil prices on the Jordanian Public debt for the period 1998-2013, as well as impact of the increase of crude oil prices on the internal and external debt in Jordan for the Period 1998-2013. So, the increase in the crude oil prices has a significant impact on the budget deficit in Jordan and therefore on indebtedness. The study found a number of results most notable was:

a. The results explain that increase of the (crude oil prices) will lead to increase the (public debt) of Jordan for the Period 1998-2013.

b. The results explain that increase of the (crude oil prices) will lead to increase the (internal debt) of Jordan for the Period 1998-2013.

c. The results explain that increase of the (crude oil prices) will lead to decrease the (external debt) of Jordan for the Period 1998-2013.

The study concluded that a number of recommendations and conclusions.

Keywords: Crude oil prices, Public debt, Internal debt, External debt, Budget deficit, Jordan.

1. INTRODUCTION

The indebtedness considered an of the most important problems facing Jordan like any other developing nations due to its negative effects on the economic and social development, which are considered debt an important source of income for developing nations and for Jordan as one of the developing nations, it has been accompanied by the development plans in most nations necessity of providing the funding necessary to achieve the development objectives, but at the same time we find that the majority of the developing nations, including Jordan suffer from a decline in the outcome of domestic savings and export revenues as well as the increase in the rates of consumption, resulting in a lack of domestic investments.

Jordan suffers like any other developing nations of permanently disabling in the general budget, where less government revenues from the total public expenditure spent by the state on various aspects of expenditure in the economy, has resulted in a burden on the Jordanian government which necessitated recourse to external sources of finance to achieve economic growth and then advancing economic development, it was must be provide the necessary for that funding, and it was the borrowing the external, especially one important ways where the government has started drawing on this source to cover the deficiencies in financial resources and possibilities available, as a consequence arrived the growth rate in the external public debt to very high levels, this indicates on one thing, it shows the continued borrowing from the outside over the past years with a view to finance the development (Rajoub, 2011).

Increasing of the oil prices have a significant impact on the budget deficit in Jordan and therefore specifically on the indebtedness. Thus, we will address in this study to identify the impact of the increase of crude oil prices on the public debt as well as impact of the increase of crude oil prices on the Jordanian internal and Jordanian external debt in Jordan for the period 1998-2013.

2. METHODOLOGY

2.1. The Study Problem

The crude oil and its products considered from the basic inputs for all industrial and service companies operating in Jordan. As a result of the increase in the crude oil prices during the study period it increased the Jordanian government expenditures, raising the Government Budget Deficit which is to increase the indebtedness (Basha, 2015), and it has become necessary to identify the impact of increasing the crude oil prices on the public debt in Jordan for the period 1998-2013.

2.2. The Study Importance

The study gaining its importance through the following:

a. Finding appropriate solutions to mitigate the negative impact of the increase of crude oil prices and their impact on the Jordanian indebtedness.

b. Supplying the Jordanian library by the specializing researches in the field of the indebtedness.

c. Open new horizons for the researchers, including respect to this research.

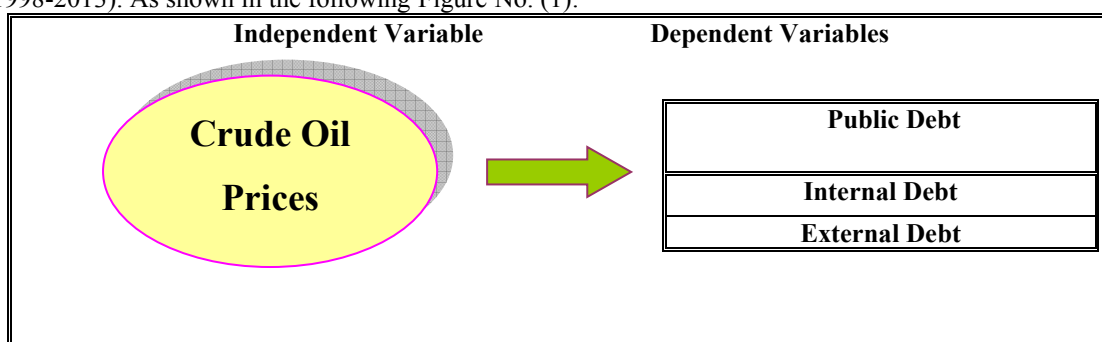
2.3. The Study Objects

This study aims to measure and analyze the impact of the increase of crude oil prices on the public debt in Jordan for the period (1998-2013), and through the following sub-objectives:

- a. Identify on the indebtedness concept and their causes in Jordan.
- b. Analysis the impact of the increase of crude oil prices on the internal debt in Jordan for the period 1998-2013.
- c. Analysis the impact of the increase of crude oil prices on the external debt in Jordan for the period 1998-2013.

2.4. The Study Model

In light of the study objectives was to propose the following study model, for the purpose of analyzing the impact of the increase of crude oil prices on the public debt (internal debt, and external debt) in Jordan for the period (1998-2013). As shown in the following Figure No. (1):



Source: Prepared by the researcher.

Figure 1. The Study Model

2.5. The Study Hypotheses

To achieve the study objectives, the researcher develop the following hypotheses as a null form (H_0):

H₀: There is no a statistically significant impact at the significant level ($\alpha \leq 0.05$), for increasing the crude oil prices on the public debt in Jordan for the period 1998-2013.

The study hypothesis is divided to the following sub hypotheses:

H₀₁: There is no a statistically significant impact at the significant level ($\alpha \leq 0.05$), for increasing the crude oil prices on the internal debt in Jordan for the period 1998-2013.

H₀₂: There is no a statistically significant impact at the significant level ($\alpha \leq 0.05$), for increasing the crude oil prices on the external debt in Jordan for the period 1998-2013.

3. LITERATURE REVIEW

After taking a look at some studies related to the external indebtedness of Jordan, a group of studies relevant to the study theme had been chosen. Al-Momani (1995) identifies the causes of the external indebtedness of Jordan by identifying the extent of Jordan's ability to assume the burden indebtedness, in addition to the economic effects on a number of economic variables for the period (1967-1991). Also, Iyoha and Milton (1999) discussed the impact of the external debt on the economic growth in the countries of Saharan African for the period (1970-1994), and the study concluded that there exist a negative impact of the external debt on the investment, it was found that the external debt lowers the investment and thus a negative impact on the economic growth. Karagol (2002) pointed out to the nature of the relationship between the external debt service and the economic growth in Turkey for the period (1956-1996), where found that the relationship between the external public debt service and the economic growth is an inverse relationship in the long term. Abbas and Jakob (2007) refer to the existence of a positive and strong relationship between the internal debt and the economic growth in a study of (93) States from the low-income for the period (1975-2004). Jayaraman & et al., (2008) explained that the increase in the flow of aid and the external dept clearly contributed to in increasing the economic growth rates in (6) six nations of the Pacific nations for the period (1988-2004). Butts (2009) pointed out to a causal relationship between the external public debt and economic growth in (13) nations of (27) nations from Latin America and the Caribbean nations for the period (1970-2003). Sheikh & et al., (2010) indicated that there exist a positive relationship between the internal debt and the economic growth in Pakistan for the period (1972-2009), this means that the money which generated through the domestic borrowing may be partly used to finance the government expenditures, which contribute to the growth of GDP.

Some authors as Chowdhury (2001), Siddiqui and Malik (2001), Easterly (2001 & 2002), and Sen (2007) pointed out to the relationship between the external debt and the economic growth is negative.

4- STATISTICAL ANALYSIS OF DATA

4.1. Data of Study

The study is mainly depending on the secondary data related the (crude oil prices, internal debt, external debt, and public debt of Jordan for the period (1998-2013). The researcher selects the above data from the Department of Statistics (national accounts) and the Central Bank of Jordan (annual statistical data) and others. As shown in Table (1) below:

Table 1. The Crude oil prices, Internal debt, External debt, and Public debt of the Hashemite Kingdom of Jordan for the period (1993-2013) (million dinars)

Years	*Crude oil prices	Internal debt	External debt	Public debt
1998	12.76	1007	5333.7	6340.7
1999	17.90	889	5510.1	6399.1
2000	28.66	1120	5045.7	6165.7
2001	24.46	1289	4718.1	6007.1
2002	24.99	1521	5133.3	6654.3
2003	28.85	1679	5211.5	6890.5
2004	38.26	1945	5247.9	7192.9
2005	54.57	2316	5056.7	7372.7
2006	65.16	2830	5186.5	8016.5
2007	72.44	3522	5253.3	8775.3
2008	96.94	5524	3336.7	8860.7
2009	61.74	6771	3546.5	10317.5
2010	79.61	7412	4102.9	11514.9
2011	111.26	8694	3972.0	12666.0
2012	111.63	10422	4256.1	14678.1
2013	108.56	10364	4668.9	15032.9

Resources:

- <http://www.mof.gov.jo> (The Ministry of Finance)
- <http://web.dos.gov.jo> (Department of Statistics)
- <http://www.cbj.gov.jo> (The Central Bank of Jordan)
- Independent Statistics and Analysis U.S. Energy Information Administration (E.I.A)*.

4.2. Results Related to Test the Hypotheses

The purpose of this section to present the results of the statistical analysis of data about measure the impact of the increase of crude oil prices on the public debt in Jordan for the period (1998-2013), which was reached through using of the Statistical Package for Social Sciences (SPSS). The researcher will test the study hypothesis and it's sub-hypotheses as follows:

H₀: There is no a statistically significant impact at the significant level ($\alpha \leq 0.05$), for increasing the crude oil prices on the public debt in Jordan for the period 1998-2013.

In order to test the validity of the study hypothesis was used the simple linear regression analysis. As shown in table (2) and (3) below:

Table 2. Summary of Simple Linear Regression Model

R	R ²	F Ratio	Sig. (P-value)	df.
0.900	0.810	59.845	0.000	(1 , 14)

[Tabulated (F) with df. (1, 14) at the significance level ($\alpha = 0.05$)] = 4.60

The results in table (2) show that:

- a. Validity of simple linear regression is proven, this is supported by the calculated value (F) (59.845) which is greater than the critical value of (F) equaled to (4.60), and that the significance value (0.000) is less than the significance level ($\alpha = 0.05$).
- b. The value of the (R²) of (0.81), refers to increase the (crude oil prices) interprets (81%) of the changes that happen in the (public debt), while the remaining percentage (19%) is attributable to another variables that have not been entered into the simple linear regression model.

Table 3. Results of Simple Linear Regression Analysis to measure the impact of increasing the crude oil prices on the public debt in Jordan

Independent Variable	Coefficients (β)	Std. Error	(t) value	Sig.	Beta
Constant (β_0)	4376.817	680.503	6.432	0.000	-
Crude oil prices	77.689	10.043	7.736	0.000	0.900

The results in the table (3), explained that:

a. There exist a statistically significant of regression coefficient (β) for the (crude oil prices) was proven. Therefore, there exist a positive statistically significance impact at the significant level ($\alpha = 0.05$) for increasing the (crude oil prices) on the **public debt** in Jordan. Depend on the P-value (0.000), and this value is less than the significant level ($\alpha = 0.05$), this means that the null hypothesis (H_0) **is rejected**, based on the above results.

b. The value of the standardized coefficient (Beta) calculated for (crude oil prices) which is (0.9), show that increase of the (crude oil prices) by a unity standard deviation will lead to increase the (public debt) of Jordan by (90%).

After the researcher had finished from test the study hypothesis, and was verified the existence of the impact for increasing the (crude oil prices) on the **public debt** in Jordan, should be test the impact of increasing the (crude oil prices) on every dimension of the (public debt), as follows:

4.2.1. Test the 1st sub-hypothesis

H₀₁: There is no a statistically significant impact at the significance level ($\alpha \leq 0.05$), for increasing the crude oil prices on the internal debt in Jordan for the period 1998-2013.

In order to test the validity of the 1st sub-hypothesis was used the simple linear regression analysis. As shown in table (4) and (5) below:

Table 4. Summary of Simple Linear Regression Model

R	R ²	F Ratio	Sig. (P-value)	df.
0.919	0.845	76.247	0.000	(1, 14)

[Tabulated (F) with df. (1, 14) at the significance level ($\alpha = 0.05$)] = 4.60

The results in table (4) show that:

a. Validity of simple linear regression is proven, this is supported by the calculated value (F) (76.247) which is greater than the critical value of (F) equaled to (4.60), and that the significance value (0.000) is less than the significance level ($\alpha = 0.05$).

b. The value of the (R²) of (0.845), refers to increase the (crude oil prices) interprets (84.5%) of the changes that happen in the (internal debt), while the remaining percentage (15.5%) is attributable to another variables that have not been entered into the simple linear regression model.

Table 5. Results of Simple Linear Regression Analysis to measure the impact of increasing the crude oil prices on the internal debt in Jordan

Independent Variable	Coefficients (β)	Std. Error	(t) value	Sig.	Beta
Constant (β_0)	- 1095.743	701.906	- 1.561	0.141	-
Crude oil prices	90.465	10.358	8.733	0.000	0.919

The results in the table (5), explained that:

a. There exist a statistically significant of regression coefficient (β) for the (crude oil prices) was proven. Therefore, there exist a positive statistically significance impact at the significant level ($\alpha = 0.05$) for increasing the (crude oil prices) on the internal debt in Jordan. Depend on the P-value (0.000), and this value is less than the significant level ($\alpha = 0.05$), this means that the null hypothesis (H_{01}) is rejected, based on the above results.

b. The value of the standardized coefficient (Beta) calculated for (crude oil prices) which is (0.919), show that increase of the (crude oil prices) by a unity standard deviation will lead to increase the (internal debt) of Jordan by (91.9%).

4.2.2. Test the 2nd sub-hypothesis

H₀₂: There is no a statistically significant impact at the significance level ($\alpha \leq 0.05$), for increasing the crude oil prices on the external debt in Jordan for the period 1998-2013.

In order to test the validity of the 2nd sub-hypothesis was used the simple linear regression analysis. As shown in table (6) and (7) below:

Table 6. Summary of Simple Linear Regression Model

R	R ²	F Ratio	Sig. (P-value)	df.
- 0.663	0.440	11.004	0.005	(1, 14)

[Tabulated (F) with df. (1, 14) at the significance level ($\alpha = 0.05$)] = 4.60

The results in table (6) show that:

a. Validity of simple linear regression is proven, this is supported by the calculated value (F) (11.004) which is greater than the critical value of (F) equaled to (4.60), and that the significance value (0.005) is less than the

significance level ($\alpha = 0.05$).

b. The value of the (R^2) of (0.44), refers to increase the (crude oil prices) interprets (44%) of the changes that happen in the (external debt), while the remaining percentage (56%) is attributable to another variables that have not been entered into the simple linear regression model.

Table 7. Results of Simple Linear Regression Analysis to measure the impact of increasing the crude oil prices on the external debt in Jordan

Independent Variable	Coefficients (β)	Std. Error	(t) value	Sig.	Beta
Constant (β_0)	5472.560	260.978	20.969	0.000	-
Crude oil prices	- 12.776	3.851	- 3.317	0.005	- 0.663

The results in the table (7), explained that:

a. There exist a statistically significant of regression coefficient (β) for the (crude oil prices) was proven. Therefore, there exist a negative statistically significance impact at the significant level ($\alpha = 0.05$) for increasing the (crude oil prices) on the external debt in Jordan. Depend on the P-value (0.005), and this value is less than the significant level ($\alpha = 0.05$), this means that the null hypothesis (H_0) is rejected, based on the above results.

b. The value of the standardized coefficient (Beta) calculated for (crude oil prices) which is (- 0.663), show that increase of the (crude oil prices) by a unity standard deviation will lead to decrease the (external debt) of Jordan by (66.3%).

5. CONCLUSIONS AND RECOMMENDATIONS

This section deals with the most important conclusions of the study, also included on the most important recommendations in light of the results, which are as follows:

5.1. Conclusions

The study reached to a number of conclusions, among them the following:

- There exist a positive statistically significant impact at the significance level ($\alpha = 0.05$), for increasing the crude oil prices on the public debt in Jordan for the period 1998-2013.
- There exist a positive statistically significant impact at the significance level ($\alpha = 0.05$), for increasing the crude oil prices on the internal debt in Jordan for the period 1998-2013.
- There exist a negative statistically significant impact at the significance level ($\alpha = 0.05$), for increasing the crude oil prices on the external debt in Jordan for the period 1998-2013.
- The results explain that increase of the (crude oil prices) will lead to increase the (public debt) of Jordan for the period 1998-2013.
- The results explain that increase of the (crude oil prices) will lead to increase the (internal debt) of Jordan for the period 1998-2013.
- The results explain that increase of the (crude oil prices) will lead to decrease the (external debt) of Jordan for the period 1998-2013.

5.2. Recommendations

In light of the results, the study recommended the following:

- Necessity of recommending for the government to take package of measures and the mechanisms that contribute to the reducing the external debt, this fact will lead to achieve the economic growth for Jordan.
- Necessity of the Government to adopt a policy which would pressure on the external debt, this fact will help to attract the foreign investment for Jordan.
- The study recommends on need to work for laying a mechanism to control on impose the taxes of the petroleum products in order to reduce the internal borrowing and thus to increase the state revenues.
- The study recommends to make some comparative studies between Jordan and other nations in order to identify the differences that may appear on the economic growth, and determine the effects of the increase in crude oil prices on the public debt and the internal and external debt for Jordan.

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