

## The Effect of Corruption on Seigniorage: Applying on a Sample of Oil and Non-Oil Countries

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اثر الفساد في عوائد الاصدار النقدي بالتطبيق عن عينة من الدول النفطية وغير  
النفطية

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## Abstract

Corruption causes a shift in the composition of public finances toward seigniorage and, as a result, lowers growth. Corruption manifests itself in the embezzlement of public funds, increasing the government's dependence on seigniorage financing. This results in a rise in inflation, which decreases capital accumulation and growth. This study aims to diagnose the effect that corruption can have on influencing the Seigniorage in four non-oil Arabic countries (Jordan, Tunisia, Egypt, Morocco), and adopted the Balanced Panel Data methodology for each of the two groups and for the period (2002-2015) as a model to prove this. The results of the estimate revealed that corruption has not been able to demonstrate its moral impact on the return on cash issuance for both groups of countries. **Keywords: finances, embezzlement, growth, cash issuance.**

## 1. Introduction

Monetary issuance, as well as the use of tax tools and the use of internal and/or external borrowing and monetization of the government's real and financial assets, is one of the options available to the government to finance the deficit that may affect its public budget. It is resorted to, usually compelled, when it is lost the possibility of harnessing these alternative tools in the face of this deficit. Consequently, the budget deficit and what affects its elements, negatively or positively, from economic and non-economic variables that will reduce or maximize, and indirectly, the government's dependence on the money issuance to cover that deficit, which is the (monetary issuance) the basis for forming its returns.

Given the role that corruption can play, as a negative deviation in the context of employment from its proper and correct course, on both sides of the public budget (expenses and revenues) it contributes to raising levels of money issuance and then increasing its returns. Using a variety of techniques and data sets, numerous empirical studies have identified a general negative relationship between corruption and development. Blackburn, Neanidis & Haque (2008), emphasize that corruption, and through its negative impact on both sides of the government's public budget, will increase its reliance on the cash issue. Then explained by

Gupta et al., 2001 (Tanzi&Davoodi, 1997; Mauro, 1998;) that corruption and through its inadequate distribution of some aspects of government expenditures. Directing them towards the channels most likely to generate bribes from channels. It is aimed at improving the living standards of individuals in society by And its ability, on the other hand, according to (Ghura, 1998; Tanzi&Davoodi, 1997,2000; Imam & Jacobs, 2007; Mokhtari & Grafova, 2007; Ajaz& Ahmad, 2010). Following up on the fundamental issue of whether corruption is harmful or beneficial to the economy, a number of related questions have piqued economists' interest. What effect does corruption have on economic growth? What effect does corruption have on inflation? If we look at empirical studies that look at the link between corruption and development, we can see that. to reduce returns from most tax sources (income, Profits, property, capital gains, goods and services) will reduce the amount of total tax revenue. Therefore, with other things remaining the same, it will be paid by the government to cover its expenses. Nation, which increases due to inflation, to use other means to get the revenue needed for that, and one of the most is the lure of cash version (Blackburn, Neanidis& Haque, 2008; Myles & Yousefi, 2012). Myles & Yousefi (2012) adds that corruption and by raising inflation rates and the increase in the size of inflationary taxes can exert a positive indirect effect on the returns of monetary issuance, as well as by reducing economic growth rates and what causes them from low levels of tax will exercise the same positive effect Previous in Cash Edition (Myles & .Yousefi, 2012; Garcia, 2015). Most of the studies that linked corruption and monetary issuance (Elkamel, 2019; Myles & Youse, 2012; Samimi et al., 2015; Ben Ali et al., 2016). focused on the impact of corruption on raising levels of monetary issuance on the one hand and what it does from High levels of inflation and its positive repercussions on inflation levels, on the other side. However, the contribution of the research is an attempt to track the mechanism and the channels through which corruption can pass through to influence the levels of monetary issuance, and then measure the size of the returns that the government can obtain from those increases in the monetary issuance, which have been measured in terms of total returns or incomes or The revenue that the government receives from the process of creating, issuing, or printing money after which the monopoly agency to do so, which is represented by a change in the monetary basis and the

cost of the opportunity to hold it in addition to the inflation tax. The research aims to take a holistic view of the theoretical foundations and empirical studies that have framed the impact of corruption on monetary issuance returns and the interpretation and analysis of the mechanism and channels of influence that can be practised therein, as well as exploring a quantitative model to diagnose and test the nature, size and direction of the impact that corruption can have on the monetary issuance revenue And the extent of the ability of reality to the theoretical side. To achieve this objective, a quantitative analysis based on binary data (Balance Panel Data) was used for the study variables for a sample of Arab countries divided into two groups, the first included four oil countries. In contrast, the second included four non-oil countries for the period 2002-2015.

## 2. Literature Review

Corruption exerts its influence on monetary issuance and hence its returns through the following channels:

### 2.1 Government Revenue:

By almost complete agreement among most researchers, the existence of corruption is one of the reasons that drive tax revenues towards moving away from their optimum or even acceptable levels. The presence of corruption and the distortion and weakness it causes in the state's institutions and components of its tax system<sup>1</sup> (Tanzi, 1998; Ghura, 1998; Abed & Gupta, 2002; Epaphra & Massawe, 2017) will hinder and restrict the tax administration's capabilities in collecting the tax imposed on economic units and individuals. In a Ghura (1998) study that included 39 sub-Saharan African countries for the period (1985-1996), it showed that the high levels of corruption contributed to reducing tax revenues as a percentage of the gross domestic product in those countries, and therefore an attempt to reduce levels of corruption or elimination of it is expected Urge significant increases in tax revenue. In the same context, Tanzi & Davoodi (2000) emphasized that a one-point drop in the level of corruption causes an increase in the ratio of total tax revenue to GDP by 2.7 points. Also, corruption and through the low effectiveness of tax systems (Attila, 2008), loss of confidence in tax authorities

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<sup>1</sup>For the causes and drivers of corruption in the area of tax revenues, see: (Tanzi, 1998; Imam & Jacobs, 2007).

(Bird et al., 2004) and it is undermining the moral motives of individuals to pay taxes and increasing their sense of frustration (Torgler, 2004) will raise levels of evasion and lack of tax compliance. It will thus be constrained by the amount of tax revenue (Djumashev, 2007). According to studies in various developing countries, half or more of the tax revenue cannot be traced back due to tax evasion caused by corruption (Fjeldstad, 2009). She confirmed

Other studies (Imam & Jacobs, 2007; Gupta, 2007) that corruption in developing countries is one of the important variables that negatively affect the collection of tax revenues, and Coulibaly & Gandhi (2018) supports this by saying that fighting corruption can contribute significantly to enhancing tax capabilities In developing countries. On the other hand, corruption, through its erosion of bureaucratic efficiency and the removal of trust in the administrative system, exerts a dampening effect on the economic units of investment in general<sup>2</sup> (Mauro, 1995; Pellegrini & Gerlagh, 2004; Lauritzen, 2012; Adegboyega, 2017) and working within the formal sectors In particular, on the one hand, it is pushing towards stimulating and growing the informal sectors on the other hand (Borlea et al. 2017; Ouedraogo, 2017), which is reflected in the long term in the reduction of economic growth rates (Akca, et al. 2012), and a high contribution rate

The informal sectors are at the expense of the formal sectors and thus reducing the tax revenue base and hence the size of future tax revenues (Dreher & Herzfeld 2005; Nawaz; 2010

## 2.2 Government Expenditure

Tanzi (1988B) indicates that corruption contributes to raising levels of government spending in three main ways. The first is an unjustified and non-economic expansion in the establishment of some public projects, and the second is to raise levels of spending on some goods and services used by the government, either the third is to pay Capital to individuals or economic units that are unable to repay. Liu & Mikesell (2014) asserts that during the period 1997-2008 the ten most corrupt states of the United States of America could reduce their annual spending by an average of \$

<sup>2</sup>There are a large number of studies that have shown the mechanisms and channels of influence that corruption can have in reducing economic growth rates, including (Bruntti, 1997, Poirson, 1998; Li, Xu & Zou, 2000; Mo, 2001; Leite & Weidmann, 2002; Gyimahbrempong , 2002; Dreher & Herzfeld 2005).

1.308 per person, equivalent to 5.2% of average government spending per person if they had reduced their levels of corruption to the average for total states. On the other hand, most recent studies show that corruption possesses the ability, in all countries and more clearly in developing countries, to distort the structure of government spending by stimulating the trend towards public services and maintaining the political system, energy, culture and defence, at the expense of spending on health, education and protection Social as well as infrastructure spending (Gupta, et al, 2000; Delavallade, 2006; Jajkowicz&Drobiszova, 2015). It also drives corruption, and as a result of its expansion of total public spending as a proportion of GDP (Tanzi, 1998, Haider et al., 2011) and preventing it from achieving the requisite efficiency in the structure and nature of spending (Shleifer)

(Shleifer & Vishny, 1993; Hellman, et al. 2000) would undermine the ability to reach the desired balance in the public budget and thereby generate a persistent deficit in it. Usually, government institutions in countries with high levels of corruption tend to direct spending towards projects and economic sectors that allow access to bribes and kickbacks (Hessami, 2010)<sup>33</sup> such as spending on defence (Hines, 1995), and away from investment in human Capital (Ehrlich & Lui (1999), especially investment in education (Mauro, 1997; Garamfalve, 1997) and health (Korneliusson, 2009), which will undermine part of the economy's ability to grow in the long run, supported by the corruption caused by declining productivity of public expenditures and a move away from the ideal allocation of public resources (Dreher & Herzfeld 2005), and thus the government's ability to obtain the desired revenue Through taxes, which is proportional to the economic growth and the growth of per capita income, and then the possibility of entering into the budget deficit. Therefore, the government, as a result of the corruption caused by its high levels of spending (Haider et al., 2011; Samimi et al., 2012), in return for the decrease in its total revenues, which will result in a deficit in its public budget (Haider et al., 2011), and considering its inability to

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<sup>33</sup>In order to obtain bribes and kickbacks, government and political officials tend to direct public spending toward sectors that deal with high-tech goods and equipment (advanced military defense equipment) that are traded in oligopoly markets (limited number of suppliers), since it is difficult to detect and track prices Reality in these markets is characterized by its high base, and therefore easy access to commissions, bribes and high volumes (Hessami, 2010).

raise its tax revenues and the difficulty in accessing other financing channels (internal and/or external borrowing), the government will resort to the Seigniorage. Figure 1 reflects the mechanism of the impact of corruption on monetary issuance through the budget deficit.

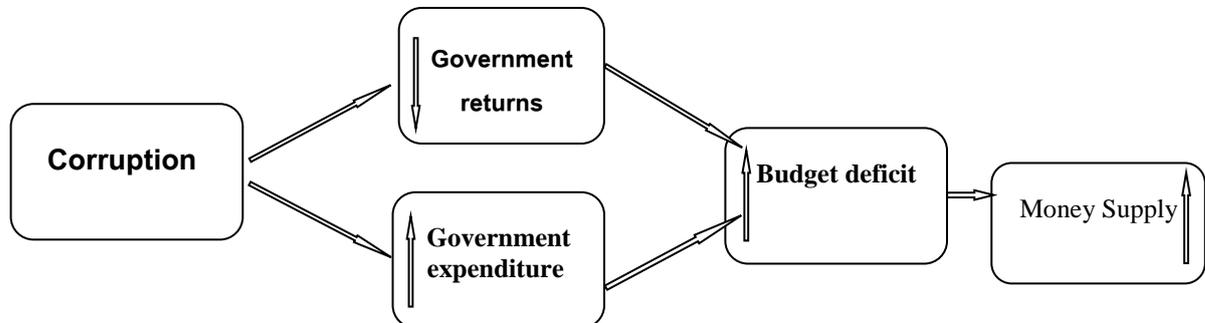


Figure (1) Mechanism of the impact of corruption on monetary issuance through the budget deficit.

### 2.3 Inflation

Inflation, a critical economic metric, and corruption have a clear cause-and-effect relationship. Inflation is described as a financial factor that causes corruption, as well as an economic problem caused by corruption. The one-way relationship between inflation and corruption was attempted to be checked in this report. Most of the results of studies dealing with the relationship between corruption and inflation (Al-Marhubi, 2000; Abed & Davoodi, 2000; Piplica, 2012; Mohammadshirkolaei, 2014) confirmed a significant positive effect of corruption on inflation. In a study by Ozsahin & Ucler (2017) that dealt with 20 countries for the period (1995-2015), it showed that the high levels of corruption have caused an increase in inflation rates and that the causal relationship between corruption and inflation in ten of the sample countries is a two-way relationship. By seeking to test his hypothesis about the role of corruption in stimulating monetary expansion and then raising inflation rates using data for 164 countries for the period (1995-2010), Yousefi (2015) concluded that the inflation rate enjoyed a significant positive response to high levels of corruption and that inflation rates in developed countries it is less affected by levels of corruption than in developing countries. The impact of corruption on inflation in oil-exporting countries is weaker than in non-oil-exporting countries. Akca, et al. (2012), however, that corruption and the additional cost it causes in the economy will raise inflation rates. In another interpretation, Ali et al. (2016) believe that countries with corrupt environments and poor

government management usually resort to obtaining revenues to raise the levels of the money supply through a money issuance that reflects negatively on inflation and raises rates, those rises that work on the other side To support the proceeds of the cash issue and contribute to its increase. High rates of inflation, and the high levels of the inflation tax, will contribute to raising the returns of monetary issuance (Bruno & Fischer, 1987,1) (Perera et al., 2011, 10-12; Figure 1) shows the mechanism of the impact of corruption on inflation.

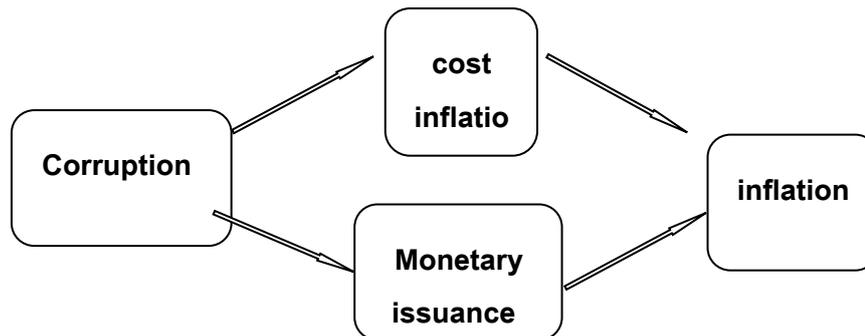


Figure (2) Mechanism of the impact of corruption on inflation.

Consequently, it can be said that there is a positive relationship between inflation and corruption according to the findings from empirical studies in which corruption was taken as the dependent variable and inflation as the independent variable, or vice versa.

### 3. Methodology

This study discussing the problem of the effect of the corruption on the Seigniorage. The study main objective is to diagnose the effect that corruption can have on influencing the Seigniorage in four non-oil Arabic countries. This can be done through formulation a quantitative diagnosis of the impact of corruption on the return of the monetary issuance (the approved variable) in the Arab countries, a sample was chosen from those countries divided into two groups. The first group included four of the oil countries (Iraq, Saudi Arabia, Kuwait, Qatar). In contrast, the second group included four of Non-oil countries (Egypt, Morocco, Jordan, Tunisia) and use what is known as Balanced Panel Data<sup>4</sup> method for each of the two groups and for the period (2002-2015) to reach the number of time series views for each group (56) views.

<sup>4</sup>For more details on the pros of using Panel Data, see for example: Baltagi, Badi H. (2005). *Econometric Analysis of Panel Data*. 3rd ed. John Wiley & Sons, Ltd, 4-9.

### a. Data sources

In order not to fall into the problem of different data and variability, it has relied on the unified Arab economic report and the Economic Statistics Bulletin of the Arab countries issued by the Arab Monetary Fund for most of the research variables (budget deficit, tax revenues, government spending). In contrast, data (inflation rate) was based on a rule The World Bank data for human development indicators. At the same time, the International Monetary Fund (IFS) statistics were consulted to obtain data on the cash basis and interest rate, while it relied on Transparency International to access the CPI data (Corruption Perception Index).

### 3.1 Form variables

dependent variable: The cash-dividend yield as a percentage of the gross domestic product (Sig) is the dependent variable. In spite of the difference in the methods of its expression and the result of the variation of its interpretations or the purpose of studying its components and sources, the return of the monetary issuance (Seigniorage) often indicates the total returns, incomes, or revenues that the government obtains from the process of creating, issuing, or printing the money after the entity Monopolies to do so. Thus, the proceeds of the monetary issuance, according to economic literature, consist of three components:

Inflation Tax, which reflects the size of the implicit tax paid by economic units as a result of the liquid cash balances that lose parts of their real value at different levels of inflation (Delong & Olney, 2006; Colander, 2006; Hubbard et al., 2012; End et al., 2015). His equation takes the following formula:

$$S_{1,t} = \pi_{t,t-1} M_{t-1}$$

Where  $S_{1,t}$  represents the return on cash issuance expressed in inflation tax,  $M_{t-1}$  stored from nominal cash balances (monetary base),  $\pi_{t,t-1}$  the inflation rate between the t and t-1 periods, Which is equivalent to  $P_t/P_{t-1}$  By calculating the inflation tax as a percentage of real output (Y) and then more accurate and realistic values, the monetary return yield equation takes the following form:

$$S_{1,t} = \pi_{t,t-1} \frac{M_{t-1}}{P_t Y_t}$$

The Opportunity cost to hold cash, which includes all the losses incurred by economic units as a result of maintaining their cash balances in a liquid way, and that is the lost returns resulting from not investing them in the interest-raising assets or financial assets. What would otherwise be costs, which the government would surpass when borrowing these cash balances (Mishkin, 2004). The formula for the formula that expresses the return of the cash issue at the opportunity cost, which Flandreau (2006) also defines the return of the central bank, takes the form:

$$S_{2,t} = i_{i,t-1} M_{t-1}$$

Where  $S_{2,t}$  represents the return on the cash issue expressed in the opportunity cost,  $i_{i,t-1}$ , the risk-free rate of interest on financial instruments (excluding the cash basis) between the  $t$  and  $t-1$  periods. The return on the cash issue can also be calculated in the concept of the opportunity cost as a percentage of the real output ( $Y$ ) my agency (Buiter, 2007):

$$S_{2,t} = i_{i,t-1} \frac{M_{t-1}}{P_t Y_t}$$

The monetary concept of monetary Seigniorage, or as some economists including Flandreau (2006) and Bordo (2006) have defined the monetary return, which refers to a change in the monetary base or monetary base. His formula takes the following formula:

$$S_{3,t} = \Delta M_t = M_t - M_{t-1}$$

Where  $S_{3,t}$  represents the return on cash issuance expressed in the monetary concept, and  $M_t$  is the storage of nominal cash balances (monetary base) between the period  $t$  the period  $t-1$ , and the return on the monetary issue can be taken within the monetary concept of the return on cash issuance as a ratio From the real product ( $Y$ ) the following formula (Buiter, 2007):

$$S_{3,t} = \frac{\Delta M_t}{P_t Y_t} = \frac{M_t - M_{t-1}}{P_t Y_t}$$

By combining the previous three components of the cash issue return, it is possible to reach the total returns that the government can obtain from the money issue process (Figure 3). This trend is a departure from previous studies that mostly took one of the three components as a measure of the return of the cash issue. The formula for the total returns for a cash issue can be formulated as a percentage of real output ( $S$ ) as follows:

$$S = \frac{\Delta M_t}{P_t Y_t} + i_{t,t-1} \frac{M_{t-1}}{P_t Y_t} + \pi_{t,t-1} \frac{M_{t-1}}{P_t Y_t} Y_{-t}$$

or

$$S = \frac{\Delta M_t}{P_t Y_t} + r_{t,t-1} \frac{M_{t-1}}{P_t Y_t}$$

Where  $r_{t,t-1}$  is the real interest rate between the  $t$  and  $t-1$  periods. summarizing the last equation as follows:

$$Sig = \frac{\Delta M}{Y} + i \frac{M}{Y} + \pi \frac{M}{Y}$$

Which represents (Sig) the total return of the cash issue, that is, all the returns that the government receives from the issuance of the money. M is the monetary base, Y GDP, i, interest rate,  $\pi$ : inflation rate.

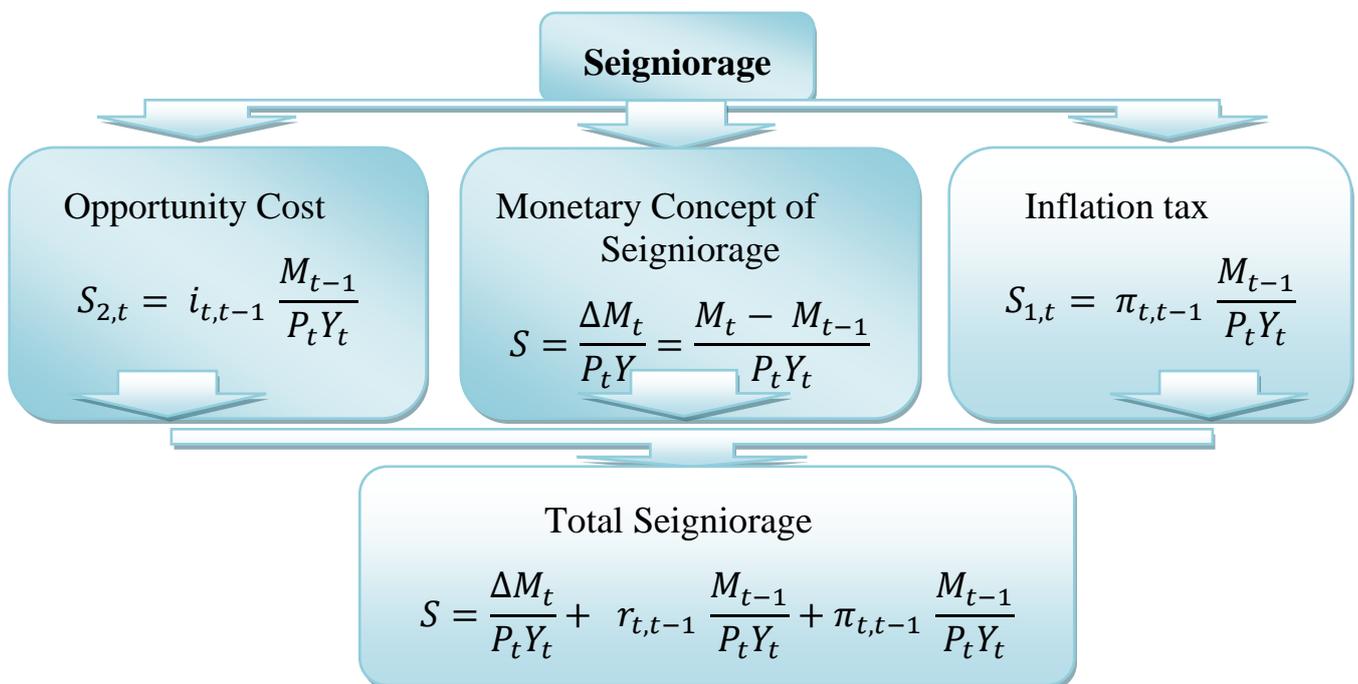


Figure (3) components of the monetary return

• *the figure prepared by researchers.*

### 3.2 Explanatory variables:

They are:

**A. Corruption:** (CPI) many international institutions have sought, through their development of quantitative indicators, to try to measure the phenomenon of corruption in the countries of the world, which are mostly based on seeking expert opinions about their impressions, from the reality of their practical practice, about the extent of corruption in various countries. The most common indicators used in applied literature include the Corruption Index issued by the Political Risk Services Group, the

Corruption Index issued by Transparency International, and the Corruption Index issued by the World Bank within the Composite Governance Index. However, those who are these indicators and the most used and common in experimental studies is the Corruption Perceptions Index, which was issued for the first time in the year (1995) and is issued annually. It is an indicator that evaluates countries and ranks them according to the degree of corruption among officials and politicians based on them. The awareness of business people, analysts and politicians, including specialists and experts from the same country that is evaluated by its residents or non-residents, and the Corruption Perceptions Index is the most important indicator issued by the organization. It is considered a composite index that relies on data collected through surveys and specialized opinion polls. It is carried out by various independent institutions. The index focuses mainly on corruption in the public sector. For the state to enter the classification process, it must be included in at least three survey sources from the Corruption Perceptions Index. Therefore, the Corruption Perceptions Index (CPI) was adopted as a variable of corruption.

**B. Other** explanatory variables that are channelled through which the effect of corruption affects the return on monetary issuance has been included in Table (1), which reflects the nature of its expected effects<sup>5</sup> on the return of the monetary issuance and the indicators used to express it:

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<sup>5</sup>It is possible to return to the appendix to find out the nature of the effect (parameter indication) exerted by the independent variables in the adopted variable, as mentioned in previous studies on the subject.

Table (1)

illustrative variables affecting the return on cash issuance

Expected influence	Symbol	Index	Variables	
+	Budg	The budget deficit as a percentage of GDP	Budget deficit	1
-	Tax	Tax revenue as a percentage of GDP	Tax revenue	2
+	Exu	Government expenditure as a percentage of GDP	Government expenditure	3
+	CPI	Corruption Perceptions Index	Corruption	4
+	Inf	Consumer Price Index	Inflation	5

*\* The table is prepared by researchers based on the theoretical framework and previous studies*

### 3.3 Model estimation methodology

Dual data models are characterized by its ability to take into consideration the sectional effects (qualitative characteristics) that are unique to each country in the group, as well as not neglecting the temporal effects between those countries, in addition to its interest in what is described as heterogeneity or differences other than The observed components of the sample, whether cross-sectional or temporal, because their negligence gives biased and inconsistent estimates (Greene, 2003). These cross-sectional and temporal effects are dealt with according to two models:

#### 3.3.1 Fixed Effect Model (FEM)

According to the fixed impact model, the cross-sectional and temporal effects of groups of countries are dealt with as divisions that express individual differences (between countries within the group) or temporal (which is the study period 2002-2015), meaning that the model allows the presence of breakers that vary according to each country or according to each time period (Each year), to contain the factors and effects not observed that affect the dependent variable. Therefore, it can be said that the fixed effect model reflects the differences and differences between the

constituent countries. To estimate the fixed effect model, the least-squares method is usually used for placebo variables (LSDV) (Least-Squares Dummy Variable Model), as it allows each country's fixed segment to contain fake variables with an N-1 number to represent sections and a number (T-1) to represent time periods, as shown in the following equation (Gujarati, 2003). ; Baltagi, 2005):

$$y_{it} = \alpha_i + \sum_k \beta_k X_{it} + \varepsilon_{it}$$

$$\alpha_i = \alpha_0 + u_i$$

Assuming that random errors follow a normal distribution with zero mean and constant variance  $\varepsilon_{it} \sim IID(0, \sigma_v^2)$

### 3.3.2 Random Effect Model (REF):

According to the random-effect model, the cross-sectional effects, and the temporal effects of groups of countries are treated as random effects, and not static parameters, based on those effects being independent random variables with zero arithmetic mean and specific variance and added as random components in the random error limit. This model is also based on the assumption that random effects are not related to the explanatory model variables. While the fixed effect model assumes that each country takes a different sector ( $\alpha_0 + u_i$ ), the random effect model assumes that each country differs in its random limit ( $u_i + \varepsilon_{it}$ ), and therefore the random effect model can be formulated with the following formula: (Gujarati, 2003; Baltagi, 2005)

$$y_{it} = \alpha_0 + \sum_k \beta_k X_{it} + \varepsilon_{it}$$

$$\varepsilon_{it} = u_i + \varepsilon_{it}$$

To distinguish between the two models in the analysis, it usually relies on the Hausman test, which tests the extent of a correlation between sectional effects and explanatory variables, where the random effect is consistent and efficient and therefore is best when accepting the null hypothesis, while inconsistent when accepting the hypothesis Alternative. Hence, the fixed impact model is the best and most representative (Brooks, 2008).

## 4. estimating the model and analyzing the results

Based on the above, estimation models can be formulated in the form of two equations. The first equation reflects the state of the oil states and is as follows:

$$Sig = \beta_0 + \beta_1 CPI + \beta_2 Exu + \beta_3 Budg + \beta_4 Inf + \varepsilon_{it}$$

While the second equation reflects the situation of non-oil states, which are as follows:

$$Sig = \beta_0 + \beta_1 CPI + \beta_2 Tax + \beta_3 Exu + \beta_4 Budg + \beta_5 Inf + \varepsilon_{it}$$

It should be noted that the first equation for the oil states is free from the tax revenue variable as a percentage of GDP (Tax), as it is countries that finance tax revenues only a very small part of their public budget, as dependence is almost entirely on oil revenues<sup>6</sup>.

### 4.1 Estimation and analysis of the model for oil states.

Based on the above data and using the dual logarithmic formula, the effect of the explanatory variables was estimated on the return of monetary issuance to oil countries and by adopting the fixed effect methodology (FEM) and using Eviews 10 program, and after comparing it with the results of the estimation based on the random effect method (REF) by adopting the Hausman test<sup>7</sup>, And shown in Table (2), which shows acceptance of the alternative hypothesis and the consistency of the results estimated according to the random effect method (REF), which pushes towards adopting the results of the random effect method (Asteriou & Hall, 2007), which.

<sup>6</sup>For example, the contribution of oil revenues to the general budget in Iraq exceeds 95%, and in some years it exceeds 99%.

<sup>7</sup>The Hausman test is used to determine the extent to which the estimated results can be relied upon according to the random-effect methodology. Results determined according to the fixed-impact methodology are usually characterized as consistent, and therefore the test objective is to indicate whether the results estimated with the random-effect method are consistent with the results of the fixed effect. Therefore, the null hypothesis means that there are no differences between the capacities of the generalized least squares in the random-effect methodology and the capabilities of the least-squares with imaginary variables in the fixed-effect methodology, and the alternative hypothesis is the presence of differences.

Table (2)

## Hausman test for oil-producing countries

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary	Summary of Chi-Sq. Statistic		Chi-Sq. d.f	Prob.
Cross-section random	2.791847		1	0.0947
Cross-section random effects test comparisons				
Variable	Fixed	Random	Var(Diff.)	Prob
LOGBUDG	0.056013	0.054504	0.000001	0.0947

• *Table prepared by researchers Based on Eviews 10 outputs.*

They are listed in Table (3), after which the best results are obtained from the set of estimation equations. The results of estimating the effect of the explanatory variables on the monetary returns of oil countries and by adopting the random effect methodology (REM), as shown in Table 3, showing the following: Budg budget deficit (budget deficit as a percentage of GDP) contributes positively to the return of the cash issue, which is consistent with the logic of the economic analysis, which sees one of the cash issues.

Table (3)

the effect of some economic variables on the return of monetary issuance to oil countries.

Dependent Variable: LOGSIG				
Method: Panel EGLS (Cross-section random effects)				
Date: 07/09/19 Time: 17:35				
Sample: 2002 2015				
Periods included: 14				
Cross-sections included: 4				
Total panel (balanced) observations: 56				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGBUDG	0.054504	0.011940	4.564966	0.0000
C	-0.046861	0.018667	-2.510330	0.0151
Effects Specification				
	S.D		Rho	
Cross-section random	0.018118		0.2356	
Idiosyncratic random	0.032635		0.7644	
Weighted Statistics				
R-squared	0.271939	Mean dependent var		0.010817
Adjusted R-squared	0.258457	S.D. dependent var		0.038522
S.E. of regression	0.033172	F-statistic		20.16964
Sum squared resid	0.059421	Prob(F-statistic)		0.000038
Durbin-Watson stat	20.16964			
Unweighted Statistics				
Mean dependent var	0.024938	R-squared		0.176728
Durbin-Watson stat	1.168144	Sum squared resid		0.081371

• *Table prepared by researchers based on Eviews 10 outputs.*

The options available to the government to finance the deficit that may affect its public budget, as the high budget deficit will give the government the incentive to use this option, and thus the returns to this issue will increase. Fischer et al. (2001) study confirmed this result. However, this positive contribution to the budget deficit in the return on the cash issuance came modest, as the budget deficit parameter did not exceed the (0.054504) barrier, meaning that changes in the budget deficit by 100% do not cause changes in the return on the cash issuance except by (5.4%), This is consistent with the Jong-A-Pin & de Haan (2004) study that showed that the effect of budget deficits was not that strong in countries with moderate or low levels of inflation.

The budget deficit variable (Budg) was able to explain the amount of 25.8% ( $\bar{R}^2 = 0.258457$ ) from the changes in the return on the cash issue, leaving other variables not included in the model to complete the rest of the 100.

Other explanatory variables (Exu, INF, (CPI) failed to demonstrate their statistical significance in affecting the monetary issue return, as the calculated value of t-test did not exceed the tabular value of these variables.

#### **4.2 Estimate and analyze the model for non-oil countries.**

The effect of the explanatory variables on the monetary returns of non-oil countries has been estimated using the Fixed Impact Methodology (FEM), using Eviews 10, and after comparing it with the results of the REF based estimation results using the Hausman test, shown in Table 4, which shows Accept the null hypothesis and the inconsistency of the estimated results.

Table (4)

## Hausman test for non-oil countries

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary	Summary of Chi-Sq. Statistic		Chi-Sq. d.f	Prob.
Cross-section random	5.431416		1	0.0198
Cross-section random effects test comparisons				
Variable	Fixed	Random	Var(Diff.)	Prob
LOGEXU	0.047015	0.012908	0.000214	0.0947

• *Table prepared by researchers based on Eviews 10 outputs.*

For the random-effect methodology, which leads to the adoption of the results of the fixed-effect methodology (FEM), which was included in Table (5), then the best result obtained from the set of estimation equations. The results of estimating the effect of the explanatory variables on the return of monetary issuance to non-oil countries and by adopting the fixed effect methodology (FEM), as shown in Table 5, reflecting the following:

• Government spending (EXU) (government spending as a percentage of GDP) contributes positively to revenue.

Table (5)

the effect of some economic variables on the return of monetary issuance to countries other than

Dependent Variable: LOGSIG				
Method: Panel Least Squares				
Date: 07/09/19 Time: 17:43				
Sample: 2002 2015				
Periods included: 14				
Cross-sections included: 4				
Total panel (balanced) observations: 56				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGEXU	0.047015	0.017558	2.677689	0.0099
C	-0.039198	0.023466	-1.670410	0.1010
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.442012	Mean dependent var	0.023382	
Adjusted R-squared	0.398248	S.D. dependent var	0.020369	
S.E. of regression	0.015801	Akaike info criterion	-5.372446	
Sum squared resid	0.012733	Schwarz criterion	-5.191611	
Log likelihood	155.4285	F-statistic	10.09994	
Durbin-Watson stat	1.608402	Prob(F-statistic)	0.000004	

• *Table prepared by researchers based on Eviews 10 Outputs.*

The monetary issue, which is consistent with the logic of economic analysis. To counteract the increases in government spending, especially when its levels exceed government revenue limits, a monetary issue may be used. However, this positive contribution to government spending in return on cash issuance came simple, as the budget deficit parameter did not exceed the (0.047015) barrier, meaning that changes in the budget deficit by 100% do not cause changes in the return on cash issuance except by (4.7%).

The government spending variable (EXU) was able to explain the amount of 39.8% ( $R^2 = 0.398248$ ) of the changes in the return on the money issue, leaving other variables not included in the model to complete the remaining 100.

Other illustrative variables failed the budget deficit ((Exu tax revenue), inflation (INF), and corruption (CPI), to demonstrate their statistical significance in influencing the return on cash issuance, as the calculated value of the t-test did not exceed the tabular value of these variables.

## 5. Conclusion

A study and determining the impact that corruption has on the return on cash issuance formed the main goal that the research sought to achieve, using a sample from Arab countries divided into two groups. The first group included a sample of oil countries (Saudi Arabia, Iraq, Qatar, Kuwait). In contrast, the second group included a sample From non-oil countries (Jordan, Tunisia, Egypt, Morocco) and using the Balanced Panel Data methodology for each group of the two groups and for the period (2002-2015) as a model to prove this, and by applying the fixed impact model (FEM and random effect model) REF), which was differentiated based on the results of the Hausman test, Which indicated the preference of the first model over the second for the second group of countries, and the preference of the second model over the first for the first group of countries. The results of applying the fixed impact model (FEM and random impact model (REF) have confirmed the inability of the corruption variable to demonstrate its effect, both positive and negative, in the monetary issuance returns for both groups of countries. This reflects the inconsistency with the logic of economic analysis. Who sees high levels of corruption, and through its influence on the components of the state's general budget, will push the government to pursue the option of monetary issuance, which in turn causes high returns. Perhaps this reason for this incompatibility is due to the complete independence of the central banks in those countries, which limits and may prevent. Those governments are from Resort to cash version option when suffering its general budget deficit.

On the other hand, due to the high levels of fiscal revenues they possess, the oil countries can cover the large increases in public expenditures resulting from corruption, which may prevent them from falling in the

event of financial deficits and the need for cash issuance and then increasing its returns supplement. Some empirical studies of determinants of monetary issuance:

Influence	variable	reference
+	Corruption	Al Marhubi (2000)
+ -	Tax revenue Government expenditure, Domestic prices	Berument (1998)
+ 0	Government expenditure , Income tax, trade tax, Government debt	Click (1998)
+	Government expenditure, Government debt	De Haan et al. (1993)
-	Budget deficit	Desai et al. (2003)
+	Budget deficit	Fischer et al. (2001)
-	Total income	Kenny & Winer (2001)

- Source: Jong-A-Pin, Richard M. & de Haan , Jakob (2004) .How Robust is the Economic? Political and Institutional Determinants of Seigniorage, University of Groningen.

This study is limited to the effect of corruption on seigniorage. In this context the study discussed chose the relevant variables to deliver the main objective of this study. Future direction can be made by expanding the investigation to include more variables that may influence the seigniorage and also further research can be done by including more countries such as comparison between oil countries and non-oil countries in context of the seigniorage and the influence of the corruption on it.

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