

MEASURING THE EFFECT OF INTEREST ON TREASURY BILLS ON THE STATE BUDGET DEFICIT IN MOROCCO

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Abstract

Treasury bills are considered one of the most important tools for financing the state's general budget deficit, and its interests have become of great importance in relation to the year-round expenditure items in the state's general budget in Morocco. Then the study aims to measure the impact of treasury bills' payments on the state's general budget deficit in Morocco in the period from 2012 to 2022. The study analyzes the effects of issuing treasury bills on a number of macroeconomic variables in Morocco and measures the impact of treasury bills, especially the benefits of treasury bills on the deficit of the state's general budget in Morocco.

The study used time series analysis to analyze this effect, and the study concluded that the benefits of treasury bills have a major role in exacerbating the state budget deficit in Morocco. Which reached 48.1 billion dirhams in 2022 in the short and long term at a significant level of 5%. Thus, the benefits of treasury bills are considered one of the important factors that exacerbate the budget deficit. Therefore, the benefits of treasury bills must be taken into consideration when discussing how to reduce the size of the deficit in the state's general budget in Morocco.

keywords: Treasury bills, budget deficit, efficiency, effectiveness and sustainability of treasury bills, benefits of treasury bills, financing disability.

First, the general framework of the research

1.1.Introduction

Treasury bills are one of the most important tools that are used to provide cash liquidity in the short term, where governments resort to issuing treasury bills to finance the deficit in the state's general budget, and they are considered bills

The treasury is an important tool for confronting inflation and financing the deficit in the general budget through real resources (Ahmed Jamal Al-Din 2019, p. 6), and treasury bills are also considered a tool for stimulating the money market

And control the amount of liquidity available to individuals and banks, and thus treasury bills play a financial and monetary role. In the Egyptian economy (Mostafa Lutfi, 2004, p. 32.)

It is noticeable that the volume of public debt in Morocco has increased from year to year and continuously, as the volume of indebtedness increased from 722.6 million dirhams in 2018 to 747.2 million in 2019 and to 832.6 million in 2020, to exceed 855 million in 2021.

The indebtedness index also increased from 65.2% compared to the gross domestic product to reach 76.4% in 2021.

The volume of circulating treasury debt increased from 590.4 million dirhams in 2018 to 702.9

million dirhams in 2021, with an increase of more than 19%.

Looking at the Interests of domestic public debt in general and the Interests of treasury bills in particular becomes clear ,It has exacerbated dramatically in recent years, as the percentage of interest on treasury bills has reached a deficit

The total amount increased to about 42.5% in 2017/2018, while it represented 7.2% in 2012-2013.

Osama Muslim, 2017, p. 34), and when comparing the interest rate of treasury bills to GDP in 2017/2018, with the ratio of both wages and subsidies to GDP, it reached 4.5% of GDP, while the ratio of both wages and subsidies to GDP the totals were 5.8% and 6.4%, respectively.

The following study will provide a model for measuring the impact of interest on each of the treasury bills and public bonds, and external public debt on the public budget deficit to know the effect of interest on bills The treasury is exacerbating the general budget deficit in Morocco

1.2.Research questions:

The main question of the study is the impact of the benefits of treasury bills on the public budget deficit of the state in Morocco Several sub-questions emerge from the main question as follows:

- 1) What are the implications of issuing state treasury bills in Morocco?
- 2) Is the use of treasury bills, with the resulting growth in public debt interest, a major reason for Growing fiscal deficit?
- 3) Is there a significant effect of the interest accrued from each of the treasury bills, public bonds and public debt? External on the state budget deficit in Morocco?

1.3.Objective of the study:

The main objective of the study is centered on:

- 1) Studying the impact of treasury bills on inflation and domestic public debt to determine the extent of the treasury bills contribution in increasing domestic indebtedness in Morocco , and comparing the interest rate of treasury bills of GDP

Total by both the wage and subsidy ratio of GDP to find out more elements effect in increasing the public budget deficit.

- 2) Measuring the impact of interest on public treasury bills, public bonds and public debt the external study on the state budget deficit in Morocco in order to determine the extent of the impact of the interest on the bills the treasury is exacerbating the state budget deficit in Morocco.

1.4.The importance of studying:

The importance of the study is: identify the role and impact of treasury bills on inflation and internal indebtedness in Morocco.

Knowing the extent of the impact of the Interests of each of the treasury bills, public bonds and public debt the exacerbation of the state budget deficit.

Studying the Interests of treasury bills and their impact on the general budget deficit in Morocco, given that treasury bills are among the main tools the Moroccan government relies

on to finance the deficit the state budget since 2012.

1.5. Study methodology:

The study relies on both the deductive approach to cover the analytical side. The study is also used the descriptive approach in analyzing the effect of issuing treasury bills on some economic variables, and the development of the ratio of each of the interests of the domestic public debt and the interest of treasury bills, subsidies and wages as a percentage of the GDP total.

The study relies on measuring the impact of interest on both treasury bills and public bonds and the external public debt on the state budget deficit, by following the standard method to study the impact in the short and long term, based on data from 2012 to 2021,

In order to determine the effect of the benefits of treasury bills on the aggravation of the public budget deficit in Morocco, and thus formulate policies to address this deficit.

1.6. The limits of the study:

Spatial boundaries: the Moroccan economy temporal limits: the period from 2012 to 2021.

Study hypothesis:

The study aims to test the following hypothesis:

There is a significant effect of the benefits of treasury bills on the public budget deficit in the short and long terms.

Second : The implications of issuing public treasury bills in Morocco.

The value of treasury bills has skyrocketed in recent years, and some see it as having several implications positive most notably absorbing excess liquidity in the market and avoiding resorting to cash issuance to bridge the deficit in the general budget, while others believe that it has some negative effects, the most important of which is its seriousness to invest and shift the banking system from financing projects and investment to buying those bills and its high cost represented by the exacerbation of the benefits of public treasury bills in Morocco, and therefore we will deal with what the following is the implications of issuing public treasury bills in Morocco. (Alaa Ibrahim Abdel Moaty, 2016, p. 120)

2.1. The effect of treasury bills on inflation rates:

Inflation is a reflection and result of the economic policies followed. In fact, the existence of Inflation in any economy means the failure of economic policies to achieve one of its most important goals, which is the goal maintaining the general stability of prices (Omneia A. Helmy, 2008, p21). Therefore, most of the Developing Countries, including Morocco, which suffered from the phenomenon of inflation, to the International Monetary Institutions for action Structural Economic reforms to limit price increases, as monetary policy included an important space in the Economy Reform Programs to contain this phenomenon (Ramadan Al-Sayed Ahmed Maan, 2015, p. 376).

By following the development of inflation rates in Morocco during the period (2012-2022), success is evident the economic reform program during the 1990s significantly reduced

inflation rates.

Inflation rates fell from 21.2% in 2008/2009 (the beginning of the reform program economic) to about 2.4% during 2001/2002, due to the success of the policy of bills the Treasury at the beginning of the implementation of the economic reform program to reduce inflation rates by withdrawing domestic liquidity to finance the public budget deficit through real resources (Nashwe Abed Rabbo, 2019, p. 36.)

2.2. The applied economic measurement methodology

A major assumption of standard economic theory is that many variables economics do not diverge from each other in the long run, and the changes that occur in one of them are linked changes that occur in other variables, if we take the relationship of each of the Interests of treasury bills and deficit long-run budgeting, for example, many standard studies confirm this fact, however the situation is different than if we look at those indicative relationships in the short term, they may happen to witness divergence in the changes that occur in each of them separately, which creates the need for economic policies that handles that divergence.

Based on the foregoing, and to perform the standard estimation of the study model using time series analysis, the next part will include a test of the rest of the time series to determine the degree of their integration, and then the test of integration

Corresponding to determine the long-term relationship between the variables of the two models and the number of integration vectors in case its existence, then estimating the error correction vectors that reconcile the behavior of the short and long terms of stopping on the form, direction, and significance of the changes that occur in the short term, and then end with Granger's test for causality to find out the causal relationships between the variables that make up the model and the size of the interests arising from Moroccan treasury bills during the study period.

2.3. Evolution of debt

known its counterpart since the nineties.

As a result of this circumstance, the volume of treasury debts amounted to 832.6 billion dirhams, an increase of 85.3 billion dirhams or 11.4% compared to the end of the year.2019 (747.3 billion dirhams).

According to the The year 2020 was marked by the outbreak of the Covid-19 pandemic, as the restrictions imposed by the authorities to limit the spread of the pandemic led to a sudden stop for entire sectors. These measures had a direct impact on the macroeconomic situation in Morocco, as is the case with most countries in the world. as the budget deficit deteriorated to 7.6%, compared to 3.6% in the previous year, in light of the economic recession resulting from this pandemic. the national economy has source of the debt, the evolution of the treasury debt structure shows a decrease in the share of the internal debt, which amounted to 76% at the end of 2020, compared to 78.4% at the end of 2019, while the share of external debt increased by 2.4 points to settle at 24.0%, which is consistent with the target structure of the reference portfolio (70%-80% internal debt and 20%-30% external debt). Thus, the volume of debt

reached 632.9 billion dirhams at the end of 2020, an increase of 47.2 billion dirhams, or 8%, compared to 2019. the external debt is 199.7 billion dirhams, recording an increase of 38.1 billion dirhams, or 24%, compared to the previous year. the volume of external debt is 199.7 billion dirhams, registering an increase of 38.1 billion dirhams, or 24%, compared to the previous year.

As for the percentage of the gross domestic product, the volume of the treasury debt increased by 11.6 percentage points, after it settled in the range of 65% over the past four years, registering 76.4% at the end of 2020, compared to 64.8% at the end of 2019. In the hit index the internal indebtedness is 58.1% of the GDP and 18.3% of the external indebtedness, compared to 50.8% and 14.0% at the end of 2019.respectively. The internal debt volume increased from 376.8 million dirhams in 2012 to 632.9 million dirhams in 2020, with an increase of 67.97%.

2.4. Debt structure by instruments

The treasury debt mainly consists of negotiable debt with a share of 82%, of which 72% is drawn from treasury bonds issued in the auction market. and 10% for bond issues in the international financial market.

As for the non-current debt, whose share reaches 18% of the total treasury debt portfolio, it mainly consists of external debt. obtained from bilateral and multilateral creditors (15%).

Table (1): Distribution of the volume of treasury debt according to debt instruments - in millions of dirhams

	2019		2020		Change in value
	debt value	%	debt value	%	
current debt	609551	82%	679625	82 %	70074
Issuing bonds in the internal market	557161	75 %	600741	72 %	43580
Issuing bonds in the external market	52390	7 %	78884	10 %	26494
Non-current debt	137704	18 %	152977	18 %	15223
internal borrowings	26249	3 %	26242	3 %	393
external borrowings	111455	15 %	126335	15 %	14880
Total	747255	100 %	832602	100 %	85347

Source: Draft Public Finance Law - Moroccan Ministry of Economy and Finance 2022

2.5. Debt structure according to the original maturity

The current treasury debt volume consists of 87% of medium and long-term bonds (5 years and above). Treasury bonds with medium and long maturities reached 75% of the total volume of debt in circulation, while the shares of bond issues amounted to in the international financial market, 12%. The remainder is distributed in treasury bills with a maturity of two years and a

duration of 52 weeks, with shares of 8.4% and 3.4% on respectively.

As for the circulating debt, it consists exclusively of medium and long-term debt. The share of external debt is 83% of the total volume. For non-circulating debt, so that the share of the internal debt does not exceed 17% of it.

Table (2): Distribution of the volume of current treasury debt according to the original maturity

	13w	26w	52w	2y	5 y	7 y	10 y	12 y	15 y	20 y	30y
debt value	2284	7479	2306	5693	16485	6679	15096	1984	12533	7238	4990
Mio Dr.			2	7	0		9	0	6	4	5
%	0.3	1.1	3.4	8.4	24.3	1.0	22.2	2.9	18.4	10.7	7.3 %
	%	%	%	%	%	%	%	%	%	%	

Source: Draft Public Finance Law - Moroccan Ministry of Economy and Finance 2022

2.6. Debt structure by interest rate

The volume of debt with a fixed interest rate represented 92.5% of the treasury's total in 2020, registering a slight increase compared to by the end of 2019. And the dominance of debt with a fixed interest rate remains the basis for the universe of domestic debt, which accounted for 76% of the volume of treasury debt, consisting exclusively of debt with fixed interest rates. Treasury issuances contributed to the international financial market, and that was done at fixed interest rates, in enhancing the share of this category of debt. With regard to the external debt of the treasury, its structure was characterized according to the type of interest rates by strengthening the share of fixed-rate debt, which it reached 68.7%, compared to 64.3% in 2019. As for the share of variable interest rate debt, it decreased from 35.7 percent at the end of 2019 to about 31.3% of citizens in 2020.

The distribution of domestic debt, according to interest rate domains, shows an increase of 11% in the share of debt with an interest rate of less than 3%. which constitutes about 41% of the domestic debt portfolio in 2020 compared to 30% in 2019, while the share of the debt price decreased. interest less than 4%, to reach 31% of the volume of the internal debt in 2020, compared to 40% in 2019.

This distribution is due to the continued low interest rates for Treasury bonds, which resulted in a decrease in the nominal interest rate. The average for bonds issued in the auction market amounted to 2.35% in 2020, compared to 3.14% in 2019.

2.7. Debt structure by currencies

The issuer debt in dirhams dominates the treasury debt portfolio, with a share of 75.4%, registering a decrease compared to 2019. (78.1%).

As for the treasury's external debt, the share of the debt denominated in euros reached 60.6% in 2020, while the share of the debt denominated in dollars and related currencies, about 33.8%. As for the rest of the currencies (Japanese, Kuwaiti dinars and the rest), its share has reached 5.6% of the total debt.

This structure reflects the efforts made to bring the structure of the treasury's external debt

portfolio closer to that of the dirham basket for reducing the exposure of this portfolio to the risks of exchange rate fluctuations.

2.8. Treasury debt service

The treasury debt burdens of principal, interest and commissions paid in 2020 increased to reach 169.6 billion dirhams, compared to 135.9 billion dirhams in 2019, an increase of 33.7 billion dirhams, or 25%. This development is attributed to the double effect of high altitude the principal debt amounted to 34.6 billion dirhams, and the interest decreased by 0.9 billion dirhams.

By type of debt, domestic debt service increased by 22 billion dirhams, to reach 145.6 billion dirhams, compared to 123.9 billion dirhams at the end of 2019, the external debt service increased by 11.9 billion dirhams to reach 24 billion dirhams in 2020, compared to 12.1 years 2019.

2.9. Debt interest and commissions

Interest and commissions on treasury debt amounted to 29.6 billion dirhams, a decrease of 0.9 billion dirhams compared to 2019. And represent these allowances are 2.7% of the gross domestic product and 12.9% of the ordinary incomes for the year 2020, compared to 2.6% and 12.2%, respectively 2019.

The interest and commissions of the internal debt amounted to 25.5 billion dirhams in 2020 compared to 26.6 billion dirhams in 2019, i.e. a decrease of 1.2 billion dirhams. This decrease is mainly attributed to the improvement in the terms of treasury financing in the internal market during the recent years it enabled the debt to be refinanced on preferential terms in terms of interest rates.

With regard to the total net interest on internal debt, it amounted to 24.8 billion dirhams in 2020, taking into account the interest that it was paid by the subscriber in the form of the bonds issued in the same way, amounting to 503 million dirhams.

The principal debt liabilities of the treasury amounted to 140.1 billion dirhams in 2020, compared to 105.4 billion dirhams in 2019, an increase of 34.6 billion dirhams.

The total liability of the principal domestic debt amounted to approximately 120.2 billion dirhams in 2020, compared to 97.2 billion dirhams in 2019, i.e. an increase. amounting to 22.9 billion dirhams, in relation to the following:

The structure of the issues for the past years, as the repayment of the principal of the internal debt is once at the end of the bonds' terms. And so on, Principal debt tolerances associated with treasury bonds with a duration of 10 and 15 years recorded, during the year 2020, an increase. Compared to the year 2019, this is based on the structure of issuances for the year 2010 regarding the repayments of the 10-year bonds. 2005 issues for 15-year bond payments.

-The completion of three repurchase operations during the year 2020, at an amount of 14 billion dirhams, covering the dues of the years 2021 and 2022; and

- The increase in the volume of payments of bills with deadlines of 13 and 26 weeks, issued in 2020, as a result of the shift in the structure of issuances during this period. year affected by the

crisis.

With regard to the debt liability of the external treasury, it recorded an increase of 11.7 billion dirhams, reaching 19.9 billion dirhams last year.

2020 compared to 8.2 billion dirhams at the end of 2019. This increase is mainly due to the payment of the treasury issue for the year 2010 in the amount of one billion euros (11.1 billion dirhams), as well as the beginning of repayment of some parts of the loans mobilized at the Arab Monetary Fund.

2.10. Indicators of cost and risk of treasury debt

The Directorate of Treasury and External Finance relies on a financing strategy that has been developed according to specific objectives in managing debt. and is measured the degree of realization of this strategy, thanks to tracking indicators of cost and debt risks

Cost Indicators

Average cost of treasury debt

The average cost of treasury debt continued its downward trend, reaching 3.6% at the end of 2020, compared to 3.9% at the end of 2019.

As for domestic debt, its average cost amounted to 3.89%, recording a decrease of about 35 basis points compared to last year. (4.24%). This development mainly reflects the continuous decline in interest rates in the domestic market over the past years, which it co

Third : Theoretical framework of the model, identification of data sources and the applied economic measurement methodology

3.1. Theoretical framework of the model

In a standard attempt to identify the most important effects of resorting to the treasury bills mechanism for financing the deficit in the Moroccan budget, during the period from the beginning of 2012 to 2022, and the study is based on using a standard form that includes the interest accrued from each of the treasury bills, public bonds and debt the external year as independent variables and the budget deficit as a dependent variable.

We will discuss the formula for the standard model used and the standard justifications for its use. Then we perform the economic measurement process using the economic package EViews, starting with the measurement the stability of the time series and the end of the model estimates and drawing conclusions.

To measure the total interest effects of treasury bills, public bonds and debt the external year in Morocco depends on the general budget deficit, the study will resort to using a standard model multiple regression using time series data during the period from 2012 to 2022 for a group of variables. To measure the total effects of interest on each of the treasury bills and public bonds and the external public debt on the general budget deficit in Morocco. The impact of that policy is measured through it using symmetric integration and error correction model. for the autoregressive vector (VAR/ECM).

By testing the linear relationship between the changes that occur in the general budget deficit

as a dependent variable for the changes that occur in the independent variables, including the size of the Interests of treasury bills. (Siamack Shojai, 1999, p317.

According to what was included in the results of the standard literature survey referred to above, we will study the variable the volume of interest on treasury bills, interest on public bonds, and interest on external public debt as variables

Independent survey to measure their impact on the changes that occur in the state budget deficit in Morocco . it's done convert the model into logarithmic formula to overcome the variance in the values of the variables over a period study, so that the form of the form becomes as follows:

$$\ln BD = \alpha + \beta_1 \ln tb + \beta_2 \ln to + \beta_3 \ln ed + \epsilon$$

Where:

BD: the size of the deficit in the general budget of the state in Morocco

TB: the size of interest on public treasury bills

To: the amount of interest on public bonds

ED: The volume of interest on external public debt

€: Random Error Threshold

The previous model shows the effect of changes in the state budget deficit with the changes that occur in the volume of interest on treasury bills, the volume of interest on public treasury bonds, and the volume of interest on external public debt,

In addition to other explanatory variables that appear within the random error limit. And this was chosen the model, because it measures the effect of changes that occur in the size of the budget deficit as a dependent variable for the changes occurring in the main independent variables, among which is the volume of interest on treasury bills, to try standard to determine the shape, direction and significance of the effect between the volume of treasury bills interest and the general budget deficit country in the short and long terms.

3.2. Description of economic variables and data sources:

The standard model includes a set of constituent variables, including annual data for the period spanning the period from 1991 to 2019, in order to be able to analyze these variables statistically to reach the results of estimation and economic measurement of the model, the following is an economic description of the variables the study model is as follows:

3.2.1.Public Budget Deficit: (BD)

Description of the variable: It is represented in the cash deficit of the government resulting from the difference between the total public expenditures of the state and public revenues during the year.

Source of time series data: The cash deficit data in the general budget was calculated through an account the difference between public revenues and public expenditures in Morocco for the time series from 1991 to the year 2019 the values of public revenues and public expenditures were obtained from the annual report of the Central Bank Morocco.

3.2.2. Treasury bills annual interest: (TB)

Description of the variable: It represents the value of the total annual benefits of the bills on the public treasury with their different maturities which ranges from three months to more than a year.

Time Series Data Source: The data for this series has been computed from public debt interest data and calculating the interests of treasury bills as a percentage of the total interests of the domestic public debt.

3.2.3. Interest on public bonds on the treasury OB

Description of the variable: It is represented in the value of the total annual interest of public bonds on the public treasury with their maturities different.

Time Series Data Source: Data for this series were calculated by extracting debt interest data domestic public debt and calculate the interest on public bonds as a percentage of the total interest on domestic public debt.

3.2.4. The Interest of external debt ED

Description of the variable: It represents the value of annual interest on external public debt.

Source of time series data: The data for this series was extracted from the annual report of the Central Bank this series is limited to the value of interest only and does not include the value of annual installments.

Table (3): shows the descriptive statistics of the study variables

	N	Minimum	Maximum	Mean	Std. Deviation
public budget deficit	11	10.7	48.1	17.573	9.7485
Interests of treasury bills	11	4.4	19.8	7.218	4.4271
Bond interest	11	8.2	36.8	13.491	8.1954
Interests of external public debt	11	72.2	323.8	118.727	72.1069
Valid N (listwise)	11				

Source: output from Spss 25

The previous table No. (3) presented the descriptive statistics for the variables under study all variables follow the normal distribution, except for the logarithm of the external public debt interest rate, as that the Std. Deviation of the Interests of external public debt is more than 10%, while the Std. Deviation value of the rest of the variables are less than 10 %

3.3.Limits test for the existence of an integration relationship between the variables under study

A bounds test will be conducted to analyze the Cointegration of the state budget deficit and the interest accrued on each of the treasury bills, public bonds, and external public debt using the method ARDL Bounds test for co-integration. This method is based on the F-statistic below the null hypothesis which states that there is no cointegration of the series. And for every degree of confidence, it is offset two sets of critical values, where the first set of critical values is

constructed assuming all ARDL model variables are static.

3.3.1. Studying the long term relationship between the budget deficit and its determinants

Table (4): The value of the correlation coefficient and the coefficient of determination

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000 ^a	1.000	1.000	.0947

Source: output from Spss 25

a. Predictors: (Constant), The interest of external public debt, the interest of treasury bills

Table No. 4 shows the relationship between each of the correlation coefficients between the benefits of treasury bills and the benefits of public debt as an independent variable on the one hand, and the state budget deficit as a dependent variable on the other hand, as the correlation coefficient reached 1,000, and this indicates the existence of a strong direct correlation between the independent variable and the dependent variable. The specification is 1,000, which is a very high value, and this indicates that the regression equation or prediction is good. The standard error was 0.0974, which is a low deviation.

Table (5): The results of the ANOVA test for the significance of the relationship between the budget deficit and the interests of treasury bills

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1155.230	2	577.615	64459.704	.000 ^b
	Residual	.072	8	.009		
	Total	1155.302	10			

Source: output from Spss 25

a. Dependent Variable: the size of the deficit in the general budget

b. Predictors: (Constant), The interest of external public debt, the interest of treasury bills

Table No. 5 shows the results of the variance analysis and the ANOVA test for the significance of the relationship between the interests of treasury bills and the interests of public debt on the one hand, and the size of the state's general budget deficit, and through it we find that the value of SIG = 0.000 and the value of F equal to 64459.704, and this indicates the existence of a significant relationship between the two independent variables and the dependent variable and that the model The previous regression is good.

Table (6) Coefficients of the relationship between the interests of treasury bills and the interests of public debt with the state budget deficit

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.067	.060		1.119	.295
	interest of treasury bills	2.679	.270	1.103	9.939	.000
	interest of external public debt	-.015	.017	-.103	-.932	.379

Source: output from Spss 25

a. Dependent Variable: the size of the deficit in the general budget

Table No. 6 shows the value of the statistic T and the level of significance for the significance test of the beta value, and since the value of T = 1.119 and the value of sig = 0.295 corresponding to the constant and also the value of sig = 0.000 for the benefits of treasury bills and 0.392 for the benefits of public debt, this indicates that the benefits of treasury bills affect in the state budget deficit in Morocco.

Table (7) Coefficients of the relationship between the interests of treasury bills with the state budget deficit
Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.049	.056		.866	.409
	Interests of treasury bills	2.428	.007	1.000	361.708	.000

Source: output from Spss 25

a. Dependent Variable: public budget deficit

Table No. 7 shows the value of the statistic T and the level of significance for the significance test of the beta value, and since the value of T = 0.866 and the value of sig = 0.295 corresponding to the constant and also the value of sig = 0.000 for the interests of treasury bills, this indicates that the interests of treasury bills affect in the state budget deficit in Morocco

Table (8): The value of the correlation coefficient and the coefficient of determination
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000 ^a	.999	.999	.3226

Source: output from Spss 25

a. Predictors: (Constant), Bond interest

Table No. 8 shows the relationship between each of the correlation coefficients between the interests of treasury bills and the Bond interests as an independent variable on the one hand, and the state budget deficit as a dependent variable on the other hand, as the correlation coefficient reached 0.999, and this indicates the existence of a strong direct correlation between

the independent variable and the dependent variable. The specification is 0.999, which is a very high value, and this indicates that the regression equation or prediction is good. The standard error was 0.3226, which is a low deviation.

Table (9): The results of the ANOVA test for the significance of the relationship between the budget deficit and the Bond interest

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1154.365	1	1154.365	11091.296	.000 ^b
Residual	.937	9	.104		
Total	1155.302	10			

Source: output from Spss 25

a. Dependent Variable : the budget deficit

b. Predictors: (Constant), Bond interest

Table No. 9 shows the results of the variance analysis and the ANOVA test for the significance of the relationship between the Bond interest, and the size of the state's general budget deficit, and through it we find that the value of SIG = 0.000 and the value of F equal to 11091.296, and this indicates the existence of a significant relationship between the two independent variables and the dependent variable and that the model The previous regression is good.

Table (10) Coefficients of the relationship between the interests of Bond interest with the state budget deficit

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.114	.194		-.586	.572
	Bond interest	1.311	.012	1.000	105.315	.000

Source: output from Spss 25

a. Dependent Variable : state budget deficit

Table No. 10 shows the value of the statistic T and the level of significance for the significance test of the beta value, and since the value of T = - 0.586 and the value of sig = 0.572 corresponding to the constant and also the value of sig = 0.000 for the Bond interest, this indicates that the interests of treasury bills affect in the state budget deficit in Morocco

Table (11): The value of the correlation coefficient and the coefficient of determination Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000 ^a	.999	.999	.3261

Source: output from Spss 25

a. Predictors: (Constant), Interests of external public debt

Table No. 11 shows the relationship between each of the correlation coefficients R between the Interests of external public debt, and the state budget deficit as a dependent variable, as the correlation coefficient reached 1.000, and this indicates the existence of a strong direct correlation between the independent variable and the dependent variable. The specification is 0.999, which is a very high value, and this indicates that the regression equation or prediction is good. The standard error was 0.3261, which is a low deviation

Table (12): The results of the ANOVA test for the significance of the relationship between the budget deficit and the Interests of external public debt

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1154.345	1	1154.345	10856.744	.000 ^b
	Residual	.957	9	.106		
	Total	1155.302	10			

Source: output from Spss 25

a. Dependent Variable : the budget deficit

b. Predictors: (Constant), Interests of external public debt

Table No. 12 shows the results of the variance analysis and the ANOVA test for the significance of the relationship between the Interests of external public debt, and the size of the state's general budget deficit, and through it we find that the value of SIG = 0.000 and the value of F equal to 10856.744, and this indicates the existence of a significant relationship between the two independent variables and the dependent variable and that the model The previous regression is good.

Table (13) Coefficients of the relationship between the interests of Interests of external public debt with the state budget deficit

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.118	.196		-.601	.563
	Interests of external public debt	.149	.001	1.000	104.196	.000

Source: output from Spss 25

a. Dependent Variable : state budget deficit

Table No. 13 shows the value of the statistic T and the level of significance for the significance test of the beta value, and since the value of T = - 0.601 and the value of sig = 0.563 corresponding to the constant and also the value of sig = 0.000 for the Bond interest, this indicates that the interests of treasury bills affect in the state budget deficit in Morocco

3.3.2. Studying the short term relationship between the budget deficit and its determinants

Just estimating the ARDL model In the long run, the third step is modeling

Short-range dynamic parameters in the ARDL framework. Thus the values are preserved lag for all original strings (i.e. having a linear combination denoted by the error-corrected term, (uECMt-1) in the ARDL model. The following table presents the results of the correction model estimated error of the general budget deficit model in Morocco using the ARDL technique. and is chosen the model is based on the AIC. The following table shows:

Table (14): shows the descriptive statistics of the study variables

	N	Minimum	Maximum	Mean	Std. Deviation
public budget deficit	4	10.7	14.5	12.025	1.7115
Benefits of treasury bills	4	4.4	5.9	4.925	.6702
Bond interest	4	8.2	11.1	9.200	1.2987
Interests of external public debt	4	72.2	97.7	80.975	11.4267
Valid N (listwise)	4				

Source: output from Spss 25

The previous table No. (14) presented the descriptive statistics for the variables under study all variables follow the normal distribution, except for the logarithm of the external public debt interest rate, as that the Std. Deviation of the Interests of external public debt is more than 10%, while the Std. Deviation value of the rest of the variables are less than 10 %

Table (15): The value of the correlation coefficient and the coefficient of determination

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000 ^a	.999	.998	.0668

Source: output from Spss 25

- a. Predictors: (Constant), The interest of external public debt,
- b. the interest of treasury bills

Table No. 15 shows the relationship between each of the correlation coefficients between the interests of treasury bills and the interests of public debt as an independent variable on the one hand, and the state budget deficit as a dependent variable on the other hand, as the correlation coefficient reached 1,000, and this indicates the existence of a strong direct correlation between the independent variable and the dependent variable. The specification is 0.999, which is a very high value, and this indicates that the regression equation or prediction is good. The standard error was 0.0663, which is a low deviation

Table (16): The results of the ANOVA test for the significance of the relationship between the budget deficit and the interests of treasury bills

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.783	2	4.392	984.765	.023 ^b
	Residual	.004	1	.004		

Total	8.788	3			
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Source: output from Spss 25

- a. Dependent Variable: the size of the deficit in the general budget
- b. Predictors: (Constant), The interest of external public debt, the interest of treasury bills

Table No. 16 shows the results of the variance analysis and the ANOVA test for the significance of the relationship between the interests of treasury bills and the interests of public debt on the one hand, and the size of the state's general budget deficit, and through it we find that the value of SIG = 0.023 and the value of F equal to 984.765, and this indicates the existence of a significant relationship between the two independent variables and the dependent variable and that the model The previous regression is good.

Table (17) Coefficients of the relationship between the interests of treasury bills and the interests of public debt with the state budget deficit

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.084	.420		-2.579	.236
	interest of treasury bills	5.698	1.783	2.231	3.196	.193
	interest of external public debt	-.185	.105	-1.233	-1.766	.328

Source: output from Spss 25

- a. Dependent Variable: state budget deficit

Table No. 17 shows the value of the statistic T and the level of significance for the significance test of the beta value, and since the value of T = -2.579 and the value of sig = 0.193 corresponding to the constant and also the value of sig = 0.000 for the benefits of treasury bills and 0.328 for the interests of public debt, this indicates that the interests of treasury bills affect in the state budget deficit in Morocco.

Table (18): The results of the ANOVA test for the significance of the relationship between the budget deficit and the the interest of treasury bills

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8.769	1	8.769	954.861	.001 ^b
	Residual	.018	2	.009		



Total	8.788	3			
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Source: output from Spss 25

- a. Dependent Variable: budget deficit
- b. Predictors: (Constant), the interest of treasury bills

Table No. 18 shows the results of the variance analysis and the ANOVA test for the significance of the relationship between the interest of treasury bills, and the size of the state's general budget deficit, and through it we find that the value of SIG = 0.001 and the value of F equal to 954.861, and this indicates the existence of a significant relationship between the two independent variables and the dependent variable and that the model The previous regression is good

Table (19) Coefficients of the relationship between the interests of treasury bills with the state budget deficit

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.539	.409		-1.316	.319
	the interest of treasury bills	2.551	.083	.999	30.901	.001

Source: output from Spss 25

- a. Dependent Variable: budget deficit

Table No. 19 shows the value of the statistic T and the level of significance for the significance test of the beta value, and since the value of T = 0.866 and the value of sig = 0.295 corresponding to the constant and also the value of sig = 0.000 for the interests of treasury bills, this indicates that the interests of treasury bills affect in the state budget deficit in Morocco

Table (20): The value of the correlation coefficient and the coefficient of determination

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.997 ^a	.995	.992	.1547

Source: output from Spss 25

- a. Predictors: (Constant), Bond interests

Table No. 20 shows the relationship between each of the correlation coefficients between the benefits of treasury bills and the benefits of public debt as an independent variable on the one hand, and the state budget deficit as a dependent variable on the other hand, as the correlation coefficient reached 0.997, and this indicates the existence of a strong direct correlation between the independent variable and the dependent variable. The specification is 0.995, which is a very high value, and this indicates that the regression equation or prediction is good. The standard error was 0.1547, which is a low deviation

Table (21): The results of the ANOVA test for the significance of the relationship between the budget deficit and the Bond interest

ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	8.740	1	8.740	365.098	.003 ^b
Residual	.048	2	.024		
Total	8.788	3			

Source: output from Spss 25

- a. Dependent Variable: budget deficit
- b. Predictors: (Constant), Bond interests

Table No. 21 shows the results of the variance analysis and the ANOVA test for the significance of the relationship between the Bond interests, and the size of the state's general budget deficit, and through it we find that the value of SIG = 0.003 and the value of F equal to 365.098, and this indicates the existence of a significant relationship between the two independent variables and the dependent variable and that the model The previous regression is good.

Table (22): The results of the ANOVA test for the significance of the relationship between the budget deficit and the Interests of external public debt
ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	8.737	1	8.737	349.468	.003 ^b
Residual	.050	2	.025		
Total	8.788	3			

- a. Dependent Variable : budget deficit
- b. Predictors: (Constant), Interests of external public debt

Table No. 22 shows the results of the variance analysis and the ANOVA test for the significance of the relationship between the Bond interests, and the size of the state's general budget deficit, and through it we find that the value of SIG = 0.003 and the value of F equal to 349.468, and this indicates the existence of a significant relationship between the two independent variables and the dependent variable and that the model The previous regression is good.

It is clear from the previous analysis that this model is characterized by efficiency, and these previous indicators indicate that the validity of the model and its ability to accurately predict the relationships between the variables under study during the study period. thus, the results of the model are good and strongly reliable, and we can rely on them strongly in analyzing the situation economy and developing the necessary policies to address existing problems. At the end of the statistical analysis, it becomes clear that the benefits of treasury bills have an important role in exacerbating the deficit the state budget, whether in the short or long term, which makes us think about how to reduce and treat the budget deficit of the state, taking into account the important role of the benefits of treasury bills when analyzing the causes the budget deficit and how to treat it, and therefore it is possible to accept the

hypothesis that the benefits of treasury bills have positive moral effect in exacerbating the state budget deficit.

Conclusion:

1- The high cost of financing the state's general budget deficit, represented by the high interest on public treasury bills for the country, where the benefits of treasury bills constituted a high percentage of the gross domestic product compared to both wages and subsidies to GDP, where the ratios are approximately converging which indicates the interest of treasury bills have become a significant role in exacerbating the state's general budget deficit.

2- An increase in the percentage of interest on treasury bills, reaching 52.9% of the total deficit in general 2018/2019, which indicates the strong impact of treasury bills interest on the volume of domestic public debt and public expenditures, and thus on the size of the deficit in the state's general budget.

3-The volumes of treasury bills issuances are proportionate to the percentages and rates of deficit in the public budget. this is due to the deviation of permissions from the desired goal, as the largest part of the permissions has become its issuances are used to finance previous debts that have fallen due and use the remaining part for financing deficit, which threatens to incur increasing burdens on the budget, in addition to increasing the potential for deficit in the future.

4- The yield of treasury bills has a major role in exacerbating the state's general budget deficit in the short term and the long term, as standard studies have proven that the benefits of treasury bills have a significant positive effect on the state budget deficit in Egypt in both the short and long terms, and thus is considered interest treasury bills are among the important factors that contribute to the exacerbation of the general budget deficit in Morocco

the interest of treasury bills must be taken into account when looking at how to reduce the size of the budget deficit General of the state in Morocco.

Thus, the importance of the benefits of treasury bills appears as one of the determinants of the general budget deficit in Morocco the decision-maker must issue treasury bills or use them to finance the budget deficit in a large way to take into account the resulting benefits, as these benefits have been proven by standard relationships an important role in the aggravation of the general budget deficit in Egypt during the study period, and these benefits represent costs

Issuance of public treasury bills.

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