Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 12, Issue 7, July 2021: 1945 - 1966

The Impact of Financial Development on Sustainable Development: An Empirical Study on the Iraqi Economy for the Period (2004-2020)

[1]Wisam H. Ali Al-Anezi,[2]Faisal Ghazi Faisal,[3]Abdulrazaq l. Shabeeb

ABSTRACT

The study aims to know the role of financial system and its developments in Iraq in order to improving sustainable development in its three dimensions (economic, social and environmental) with having been obtained quarterly data for both indicators of financial and sustainable development duration of a period of study extending from 2004-2020. Hence, the relationship was estimated by employing the statistical program (**EViews**), by applying the methodology of cointegration, and applying the autoregressive model which have periodic of distributed slowdowns (**ARDL)**, and obtaining the absence of a long-term complementary relationship between indicators of financial development and sustainable development, this indicates that financial development did not contribute to achieving sustainable development. The reason behind that is the harsh conditions that the Iraqi economy experienced at the security and political level during that period, on the other hand, the study proofed the existence of a long-term complementary relationship between financial development and the economic dimension which represented by the indicator of the ratio of credit granted to the private sector then to the gross domestic product, this change that takes place in financial development adapts with the credit granted for a period of 50 days only.

Keywords*: financial sector, sustainable development, Cointegration, Iraqi economy.*

---

[1]wisamali@uoanbar.edu.iq ,University of Anbar.
[2]Faisal.ghazi@jic.edu.iq, Jannat of Iraq college
[3]Abdulrazaq.ibraheem@jic.edu.iq, Jannat of Iraq college.

1- Introduction:

The concept of sustainable development is a complex concept for many economies and poses a major challenge to all countries.

Therefore, a debate arose among economists about the essential role of financial development to stimulate the various pillars of the concept of sustainable economic, environmental and social development. The issue of financial development is considered one of the strategic goals that most economies aim to achieve as long as there are significant implications for sustainable development. An increase in degree of financial development it will lead to an increase in the number of investment projects.

Then it will lead to a productivity increasing, decreasing number of unemployment and poverty, improvement individuals live, and achieving advanced level of well-being (**Demetriades, 2008: 5**). Therefore, this research has dealt with the issue of financial development and its impact on achieving sustainable development by analyzing the indicators of both financial and sustainable development in Iraq **for the Period (2004-2020)**.

As long as the effects of financial development will be reflected on the quality and efficiency of the financial services provided, and improvement of economic and social living standards, and increasing economic growth degree (**Andrada, 2015:217).**

However, the nature of the Iraqi economy and its dependence on oil revenues in a large way has made the repercussions of financial development, at the same time the development of financial services will not contact dimensions of sustainable social and environmental development in Iraq.

The economic dimension has been expressed in the index of credit granted to the private sector as a ratio to gross domestic product (Y1) about an environmental dimension of an emission of gases index (Y2), and about the social dimension of an emission of gases index (Y3).

Here is the research problem, which revolves around the degree of financial development and whether sustainable development will be affected by any development that takes place in the indicators of financial development in the Iraqi economy. In order to find a solution to this problem, the research aimed to analyze the financial development indicators in the Iraqi economy and to know the developments that they witnessed during the study period and their relationship to the developments in the indicators of sustainable development in its three dimensions (economic - environmental - social).

2- The reference review:

A study by (Hussain & et al, 2011) It aimed to study the relationship between financial development and sustainable development in Pakistan using an annual data from the period 1973 to 2007, by applying the autoregressive model with distributed slowdown periods (ARDL) to estimate a long-term relationship, it Have been found a stable relationship between financial sector indicators and sustainable economic development. That is, the financial sector has had a positive impact on sustainable economic development in the short term as well as in the long term. As for the study by (Comfort & et al, 2016), which aimed to know the impact of the development of banking financial services on the indicators of sustainable development in Nigeria for the period 1994-2013, the results of the study showed that there is a long-term relationship between the development of banking services and sustainable development. While the study of (Pervan & et al, 2020) indicated to the importance of financial development and improving the quality of financial services on the indicators of sustainable development in the Norwegian economy by applying the study to 390 public textile companies, and the study showed the existence of a long-term complementary relationship between the two variables.

As for the study of (Nahla & et al, 2015), it aimed to study the relationship between financial development and economic development in 52 middle-income countries and indicated the existence of a long-term relationship between financial development and economic development, while there was no short-term relationship, and these results comes were similar to the findings of (Bongini & et al, 2017), which were applied to the countries of Eastern and Southeastern Europe, which also indicated the presence of a direct impact through the results of financial development on economic development and sustainable development.

3-The theoretical framework of financial and sustainable development

The financial sector has witnessed a major transformation in many economies of the world, so it has taken a series of measures, such as removing restrictions, privatization, openness, and it has revolutionized this sector (**Estrada, 124: 2010).**

These procedures have led to many results related to the importance of financial development in promoting the concept of sustainable development. Hence, views differed on financial development and its implications to achieving sustainable development or whether sustainable development would lead to financial sector development. But even if sustainable development has a role in achieving financial development, the existence of an advanced and effective financial system with well advanced systems will enhance both the achievement of economic development in general and sustainable development in particular.

The financial sector occupied an important role in carrying out development activities and acted as a catalyzer for economic growth. This is what was witnessed by most economies that have an advanced banking sector. This is what was witnessed by most economies that have an advanced banking sector, so financial markets grew faster during the study period that compared to other economies **(Levine, 1997)**. The effects of technological changes contributed

to an increase in the financial demand for the company's assets, which led to the necessity to allocate funds for these projects and then increase the productivity of capital, and thus financial development contributed to achieving economic growth.

3-1- Financial development indicators

There are many financial and real indicators through which it is possible to express the extent of financial and banking development in the economy, whether those indicators related to the structural composition of the system or what is related to the nature of systems and known tools. The most prominent indicators can be summarized as follows:

Below Table (1) indicators of financial development and its counting methods.

Numerical sequence	index	Concept
1	Monetary depth	This indicator is used to indicate the importance of the financing granted by the financial system and the degree of its financing this device in the macro economy and is expressed through the index of the ratio of total financial assets to GDP, Credit granted to the private sector as proportion to GDP, the ratio of bank deposits to GDP, Capitalization as a ratio to GDP.
2	Market access	This indicator reflects the ability of economic parties, whether lenders or borrowers, to access the market and benefit from banking products and modern financial services, this indicator can be obtained from the ratio of credit that granted to GDP, or through the number of

		windows per 100,000 people, the percentage of lenders, the risk premium for bank loans.
3	Financial stability	It indicates to the creditworthiness and resilience of the financial system, as well as that macroeconomic stability is an important factor at financial stability, This indicator can be obtained through the ratio of central bank assets to GDP, Foreign exchange reserves for a month of imports, transparency and financial reporting, as well as the ratio of total public debt to GDP, inflation rate.
4	Effectiveness	This indicator expresses the ability of the financial system to provide modern financial services and high performance to the beneficiaries at the lowest costs. This indicator can be inferred from some data, including: banking system concentration, stock market liquidity, cash liquidity, interest margin, and banking costs.
5	opening up of the banking	This indicator is used to indicate the openness of the financial and banking sector towards foreign investment, and there are a number of measures to reach this index, including: foreign direct investment, credit granted by foreign banks, and remittances of migrants.

Adejumo, Akintoye Victor, and Adejumo, Opeyemi Oluwabunmi, (2014), Prospects for Achieving Sustainable Development Through the Millennium Development Goals in Nigeria, European Journal of Sustainable Development, 3,1.

3-2- sustainable development

This term indicates that it is an activity that contributes to the improvement of social welfare as much as possible, while taking care of the available natural resources and with the least possible damage and harm to the environment, and this explains that sustainable development differs from development, In that it is more complex and intertwined in what is economic, social and environmental. In 1987 Brundtland pointed out in a report that sustainable development "is a process that meets the requirements and needs of the present without endangering the capacity of future generations."

3-3-The role of the financial sector in sustainable development:

Financial development plays a major role in achieving economic development in general and sustainable in particular, through the functions and implications of this development. so that, the function of the mediating role of the institutions of the developed financial system has

made the ability of access to investment requirements much closer than it was, and this will enable investors to meet their capital needs easily, which causes stimulating economic growth (Al-Nuaimi et al., 2019: 306).

The developed financial sector plays its role in achieving sustainable development through its positive role in mobilizing savings and providing funds needed to establish investments with large profits, which saves society from the exorbitant costs of importing goods and services by increasing the degree of banking competition, diversifying risks and working efficiently in a manner that enables small and medium enterprises to Take advantage of the services that provided by the financial and banking system in the economy.

4- The relationship between indicators of financial development and sustainable development in Iraq

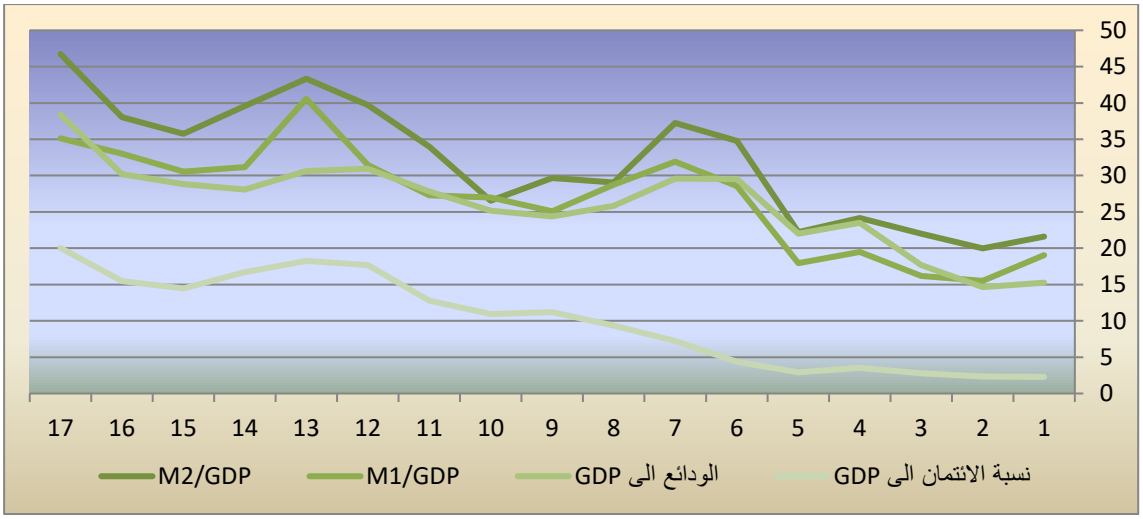
Financial development leads to impacts on sustainable development through three dimensions represented in the role of the financial sector as a mediator in mobilizing financial savings, as well as its role in promoting and developing economic activities, and the role of the developed financial sector in stimulating economic growth rates and then the reflection of those effects on sustainable development.

4-1- Monetary depth: the money supply of cash establishment in the Iraqi economy witnessed successive developments, which reflected its effects in its economic variables. We note that the money supply as a ratio to the gross domestic product rose to reach at (2010) to (37%), but it decreased again to reach at (2013) to (26%) Despite the increasing of money supply to (72,679) billion dinars. Also, the monetary depth of the Iraqi economy was affected by the fluctuations in the money supply, which explains why monetary policy is able to access banking institutions and influence them during the study period, but as long as the output in Iraq is based on its oil exports and then generating foreign cash in the possession of the central bank, which enables it to increase the monetary basis And then offer the cash **(Bongini et al, 2017: 4).** Therefore, this indicator will be inappropriate in explaining the structure of the banking system as it is affected by the oil sector more than the rest of the output components (Central Bank of Iraq, 2019).

4-2- Financial stability: This indicator refers to the creditworthiness and resilience of the financial system, in addition to that the macroeconomic stability is an important factor for financial stability, and therefore it appears that the creditworthiness in Iraq has witnessed fluctuating rates between high and low, and then these changes were reflected in the levels of economic growth and the achievement of sustainable development in Iraq. This indicator has witnessed a clear decline from (2010) until (2015) and the reason for this is due to the issuance of instructions from the Ministry of Finance that prevent government institutions from placing their money in private banks (Central Bank of Iraq, 2016). This led to a decrease banks asset from (329056) billion dinars in (2010) to reach (116643) billion dinars, and this effect will extend in subsequent years. However, on 28/1/2015, the Ministerial Economic Committee recommended that this

decision should be canceled and allowed to government institutions to deposits its money in private banks until the activation of the path of economic growth and economic development is reached, and then sustainable development.

Below Figure (1) Evolution of indicators of financial development for the Iraqi economy for the period 2004-2020:



Source: The Central Bank of Iraq, various years for the period 2004-2020.

4-3- Bank deposits: On the level of bank deposits, this indicator is one of the important indicators that express the extent of the depth of bank deposits in the national economy and the degree of banking dealings, It is noticeable that this percentage took a range between increase and decrease, but the general trend for it was a positive trend, as it recorded (29%) in (2010) and then decreased slightly in the year (2011) affected by the political problems that occurred after the year (2010), Then it rose again to reach (30% and 28%) for the years (2016 and 2017), respectively, after the noticeable improvement in oil prices and the establishment of security and economic stability somewhat (Al-Rawi, 2009: 314). This was reflected in the performance indicators of sustainable development, as the number of internet users increased from (244,251) people in (2004) to (22,145,743) people in (2020), and this reflects the employment of funds deposited with banks in front of parties with a financial deficit, As well as an increase in health expenditures to (7.5%) of the gross domestic product after it recorded (3.8%) in (2014). The volume of deposits witnessed a continuous increase despite the fluctuation occurring in some years, but the general trend was positive. Deposits gradually increased to 2014, when they became (74,073) billion dinars, but they decreased significantly in (2015) and last subsequent years. Hence, this is due to a number of reasons presented in the following (Annual Report of Financial Stability in Iraq, 2016: 7):

- Increasing the expenditures for the war on terror and supporting the displaced people; Because of armed terrorist groups controlling take over the governorates of Nineveh, Anbar and Salah al-Din.
- Decline in oil prices, and the austerity policies that accompanied this by reducing government expenditures; Which was reflected in the decrease in the percentage of government deposits in banks, which constitute more than (60%) of the total deposits in banks, especially government banks, to decrease from (49.4) trillion dinars in (2014) to (38) trillion dinars in a year of (2016).
- deposits' withdrawals increasing in banks and an increasing in the emigration of citizens abroad.
- The number of bank branches decreased to (840). This is due to the merger of bank branches or their closure in some governorates due to the deterioration of the security situation, the amount of decrease in bank branches reached (194) branches in (2014), which resulted in a decrease in the monetary mass of (72,692) billion dinars in the year of (2014) To (65435) billion dinars for the year of (2015) (Central Bank of Iraq, 2016: 21).
- decline the central bank's sales of dollars for various domestic, foreign, and economic purposes ranging from (54.4) billion dollars in (2014) to (44.3) billion dollars in (2015), then they decreased again in (2016) to become (5.33) billion dollars.

4-4- Market access: On the level of bank credit, it is considered one of the important indicators that measure the development and efficiency of the banking system in any country, This percentage increases with the increase in the size and importance of the private sector participation in banking activity, this is on the one hand, the other hand is increase the volume of financing provided by the private banking sector in private sector investments, especially commodities. (Reid, 2010: 258). The increase in credit provided to the private sector is responsible for the increase in private economic activity in the process of economic development and then raising the rate of economic growth after the increase in loans provided to the private sector will lead to an increase in the volume of investment, and in order to assess the efficiency of banking institutions in Iraq, and it will adopted the index of credit granted percentage to the private sector/GDP ratio (Diesendorf, 2000: 132).

The credit provided by government and private banks has witnessed a continuous increase in varying proportions throughout the study period. In (2010) there was a big jump for cash credit, as the total credit provided and reached (11721) billion dinars, with a growth rate of 105.99%) compared to the year (2009) in which the total credit was only (5690) billion dinars, The largest share of this increase was due to the increase in the percentage of credit provided by government banks, as this ratio was (134.90%), hence, the value of credit provided to the central government increased from (399)

billion dinars in (2009) to (2308) billion dinars in (2010), this reflects the nature of the decisions of the Central Bank of Iraq in expanding the scope of credit, then taking the total credit to increase gradually until it reached (37952) billion dinars at (2017). It is noticed from the previous table, despite of the large capital that the Iraqi banking sector possesses and the modest growth in its ratio towards output; However, the cash credit which granted by this sector as a ratio to GDP is still low, and this may be attributed to the following points (Central Bank of Iraq, 2015: 55):

- Poor credit rating of borrowers, who are the predominant category of tangible risks.
- Weakness or difficulty in evaluating appropriate and sufficient guarantees granted in exchange for granting credit, this is due to the effect of inflationary expectations or the so-called market risk.
- Most of the banks, especially the private ones, do not enjoy high solvency that enables them to expand their credit activities in light of the deposit structure, which is predominantly short-term.

In spite of the gradual and clear rise in the ratio of total cash credit to GDP, which ranges between (2.3% - 18.6%) in Iraq while in the regional countries (Middle East and North Africa up to 55%) The banking system's weak contribution to economic growth is noted, despite all the facilities which provided by the Central Bank. This means there is a weakness in the influence of the Iraqi banking sector in economic development and rebuilding the national economy, Especially since the private sector needs credit from banks, and then comes the sector on which the government depends in the coming stage in order to play a major role in boosting economic growth rates.

5- Methodology:

5-1- Fixed time series test.

The unit root is used to check the static of the data, many unit root tests can be applied but the elementary origins of the static tests which is belong to Fuller in 1976. It is the most widely usage due to its ease of use (Alimi, 2014: 107), and it was developed to address the problem of autocorrelation with randomization distribution to become Dickey Fuller extended tests (Dickey- ***Fuller augmente***) (***FDA).*** As well as, (PP) (Peroon- Phillips).

A- Test of Dickey- Fuller:

This test allows to clarification of the stillness characteristic of the time series, and this is through general trend or without, there are three versions of Dickey's **Fuller** model, it's as follows:

- **Without a fixed boundary and no general direction**

$$X_t = \phi_1 X_{t-1} + \mathcal{E}_t \quad \ldots\ldots\ldots (1).$$

- **With the *insertion* of a fixed limit**

$$X_t = \phi_1 X_{t-1} + \beta + \mathcal{E}_t \quad \ldots\ldots(2)\ .$$

- ***With the insertion of the general direction***

$$X_t = \phi_1 X_{t-1} + b_t + C + \mathcal{E}_t \quad \ldots\ldots(3).$$

B- Test of Dickey et Fuller augmente :

Dickey-Fuller in 1981 resorted to developed the slow formula to test it, This is in order to avoid the negatives that this formula contains, which represented in its lack of interest in the problem of spontaneous correlation in the random error limit, and that development was done by including the test function by a certain number of differences of the dependent variable (Al-Qadeer, 2005: 210), and this is done by estimating the following regression equation:

$$\Delta Y_t = \beta Y_{t-1} + \beta_1 \sum \Delta Y_{t-j} + et \ \ldots\ldots(4).$$

And it became later called on this developed formula the (Extended Dickey - Fuller test). This test is based on knowing the extent of the existence of the unit root and then the time series static on the same simple Dickey - Fuller equations. It is also based on the same two assumptions (Nothingness and Alternative) in determining the stillness or not (Abdel Qader, 2007: 6).

Hence, the (ADF) test is based on

$$\Delta X_t = p x_{t-1} - \sum \phi_j \Delta x_{t-j+1} + \mathcal{E}_t \quad \ldots\ldots(5).$$

$$\Delta x_t = p x_{t-1} - \sum \phi_j \ \Delta x_{t-j+1} + C + \mathcal{E}_t \quad \ldots\ldots(6).$$

$$\Delta x_t = p x_{t-1} - \sum \phi_j \ \Delta x_{t-j+1} + C + bt + \mathcal{E}_t \quad \ldots\ldots(7).$$

P: degree of delay. $\mathbf{P = \phi - 1}$

Conducting this test is similar to the simple DF tests, and that the difference lies in the statistical tables only, also, we can determine the value of p by means of a criterion standard, " Akaike Schwarz", Or we proceed with a somewhat significant value of p, and estimate the model with delay (P-1) , then delay (P-2), until the P-parameter becomes significant (Rad, 2012: 5).

C-Test of (Phillips-Perron):

This test was able to get rid of the effects of autocorrelation in the rest of the equation of the unit root test, this is done by making a non-parameter modification of the variance of the model to take into account the presence of autocorrelation and also to reflect the dynamic nature in the series. This test suggested a non-standard method " ***Non-Parametrique*** " to correct the presence of autocorrelation in contrast to the ADF test which used a differs standard method, the P.P test is also different from the simple and extended Dickie-Fuller test, hence, it does not contain lagging values

for differences, and the Phillips-Peron test has a better and more accurate statistical test capacity than the Dicky-Fuller extended test, especially when the sample size is large, and this test (P.P) is consider insensitive because of the absence of the traditional random error limit distribution conditions. The Phillips-Peron test requires estimation of the following equation (Petal et al., 2011: 13):

$$\Delta Y_t = a_0 + a_1 y_{t-1} + a_2 t + e_t \ldots\ldots (8).$$

The (P.P) test is regard insensitive to the unavailability of the traditional random error limit distribution conditions, it also does not allow for self-related variable random errors of variance. To test (P.P) the same distribution of the Dickey-Fuller test, then use the same critical values for the two tests, as both tests adopt the same formulas (without a fixed and direction, only a fixed existence, with a fixed existence and general trend) and the same hypotheses are be (alternative and null) (Rad, 2012: 4).

Extended Dickie-Fuller test (ADF) and Phillips-Peron test (P.P) were performed to see if the time series of variables included in the model were static or not, and the results were as follows:

Table (1) Stability test for the study variables:

Interpretation of variables	Variables	tests	Fixed limit	Fixed + general trend	without
financial Mediation M2/GDP	**X1**	p.p	-9.634	-9.7614	-9.416
		Probability	0	0	0
		ADF	-3.7319	-3.77	-3.4322
		Probability	0.0043	0.0202	0.0007
Tight money supply as a percentage of GDP	**X2**	p.p	-10.5192	-10.5161	-10.4931
		Probability	0	0	0
		ADF	-4.6761	-4.6632	-4.5167

		Probability	0.0001	0.0011	0
Bank assets as a proportion of gross domestic product	**X3**	p.p	-10.6199	-10.6487	-10.4255
		Probability	0	0	0
		ADF	-5.8451	-5.9242	-4.2076
		Probability	0	0	0
Bank deposits as a ratio of GDP	**X4**	p.p	-8.9929	-9.1613	-8.5326
		Probability	0	0	0
		ADF	-2.3222	-2.3257	-1.8239
		Probability	0.1661	0.4176	0.065
ا Credit granted to the private sector as a percentage of gross domestic product	**X5**	p.p	-6.6684	-6.9223	-5.4743
		Probability	0	0	0
		ADF	-2.4602	-2.6199	-1.9346
		Probability	0.1269	0.272	0.0509
Economic growth	**The economic dimension (Y1)**	p.p	-9.9533	-9.9459	-9.9222
		Probability	0	0	0
		ADF	-5.3216	-5.3565	-5.3337
		Probability	0	0.0001	0
Health spending	**The social dimension (Y2)**	p.p	-10.3469	-10.4273	-10.3156
		Probability	0	0	0
		ADF	-4.3156	-4.5762	-4.2784
		Probability	0.0006	0.0015	0
Gas emissions	**The environmental dimension (Y3)**	p.p	-10.4814	-10.7216	-9.994
		Probability	0	0	0
		ADF	-3.1741	-3.4816	-2.6479
		Probability	0.0231	0.0443	00.1

Source: Prepared by researchers depending on the outputs of the "Eviews" program.
The results shown in the table indicate the staticity of the time series included in the study, and then we can apply the cointegration tests.

5-2- Cointegration test:

A time series is statistical data or a series of specific apparent values that change over time, its purpose is to predict the future through the use of statistical data related to the past. It is also used to find out the number of repeated cycles in the data, such as the occurrence of traffic congestion every five hours. To predict these cycles, the time series must be analyzed by studying its compounds or components (Alimi, 2014: 105).

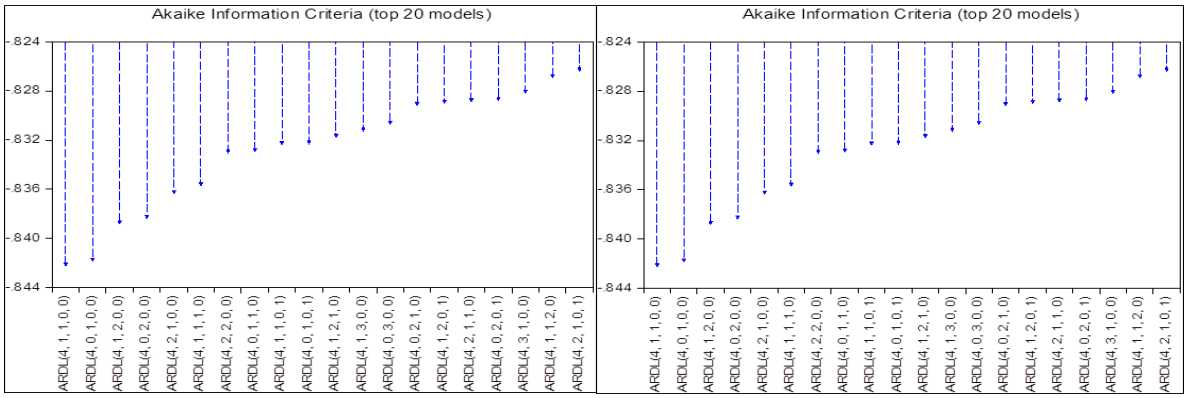
Pesaran believes that the boundary test method can be applied regardless of the characteristics of the time series, whether it is static of degree (Zero). Or static from the first difference or it be a mixture of the both, as the previous tests required that the time series be static of the same degree (Al-Baldawi and Al-Hani, 2017: 1746).

However, the only condition for this test is that the time series is not static at the second difference (I_2)**.** Another advantage of this approach is that the model takes a sufficient number of slowdowns to capture the data generation process within the general to specific modeling framework.

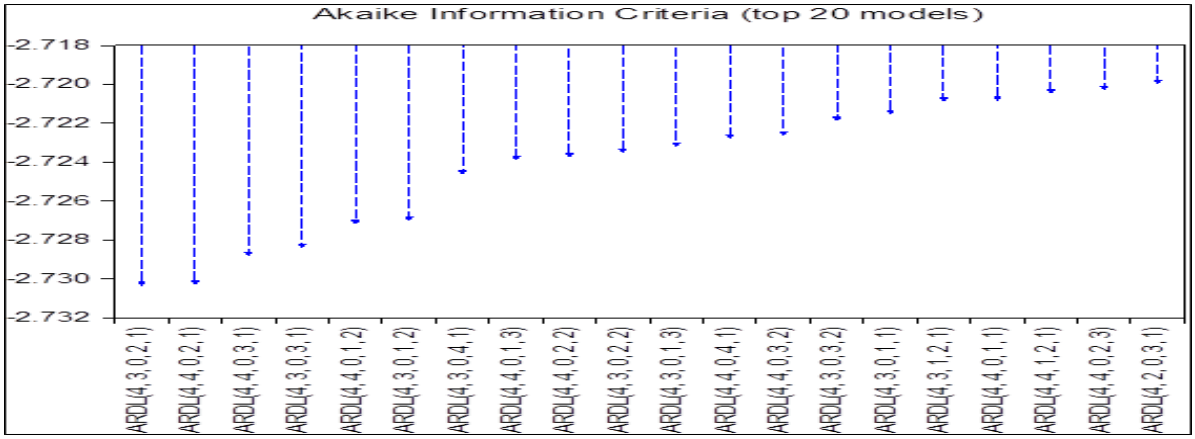
The dynamic error correction model (ECM) can be derived from (ARDL) through a simple linear shift (ECM) integrates short-term dynamics with long-term equilibrium without long-term information loss. It is also said that the use of the (ARDL) approach avoids the problems caused by inconsistent time-series data (Al-Qadeer, 2005: 12). The general form of the (ARDL) form is as follows:

$$Y_1 = \mathcal{E} + \mathcal{E}_0 x_1 + \mathcal{E}_1 x_{t-1} + \ldots\ldots + \mathcal{E}_q x_{1-q} + \emptyset_1 y_{t-1} + \ldots\ldots + \emptyset_p y_{t-p} + v_t \ldots\ldots (9).$$

So that, (x_t "s) represents the slowdown periods of the independent variable, and (y_t "s) represents the slowdown periods of the dependent variable, Figure (2) indicates to the results of the (AIC) test that shows the best estimate of the model through the optimal slowdown periods.



The social dimension **The economic dimension**



The environmental dimension

Figure (2) Results of optimal slowdown periods for the dimensions of sustainable development according to the (AIC) method.

A- Analysis of the boundary test results for the relationship between financial development and sustainable development:

In order to test the extent to which there is a long-term equilibrium relationship between the independent variables expressing financial and sustainable development, the statistic (F) is calculated. If the calculated value of the (F) statistic is greater than the upper limit of the critical values, so we reject the null hypothesis that there is no long-term equilibrium relationship and accept the alternative hypothesis.

If the calculated value is less than the minimum critical values, we accept the null hypothesis and reject the alternative hypothesis (Nkoro and Uko, 2016: 79), and Table (2) shows the results of the boundary test of a model (ARDL).

Table (2) Boundary Test Results for the ARDL Model

T- test	Value	K
The economic dimension		
F- test	**3.502822**	4
Critical value		
Significance	**I_0 Bound**	**I_1 Bound**
10%	**2.2**	**3.09**

5%	**2.56**	**3.49**
2.5%	**2.88**	**3.87**
1%	**3.29**	**4.37**
The environmental dimension		
F- test	**6.492305**	**4**
10%	**2.2**	**3.09**
5%	**2.56**	**3.49**
2.50%	**2.88**	**3.87**
1%	**3.29**	**4.37**
The social dimension		
F-statistic	**2.327157**	**4**
10%	**2.2**	**3.09**
5%	**2.56**	**3.49**
2.50%	**2.88**	**3.87**
1%	**3.29**	**4.37**

Source: Prepared by researchers depending on the outputs of the "Eviews" program

The results show that the computed value of (F) statistic is equal to (3.502822) for the economic dimension, (6.492305) for the environmental dimension and (2.327157) for the social dimension, and it is greater than the critical value of (F) at its highest level at various levels (1 ،%2.5%،10%). This means rejecting the null hypothesis and accepting the alternative hypothesis, that is, the existence of a long-term equilibrium relationship between the independent variables expressing financial development and the dimensions of sustainable development, and then the existence of a joint complementarity relationship between them during the study period.

B- Analyze the results of estimating the short and long-terms parameters and the error correction parameter between financial and sustainable development:

Table (3) results of estimating long-term parameters

Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	0.651317	0.195936	3.324138	0.0011
Y1(-1)	-0.056712	0.015283	-3.71089	0.0003
X1	0.016005	0.006439	2.485678	0.0138
X2	0.003088	0.003997	0.77265	0.4407
X3(-1)	0.00028	0.000201	1.39267	0.1654
X4(-1)	-0.013574	0.004407	-3.08012	0.0024
D(Y1(-1))	0.253284	0.068423	3.701733	0.0003
D(Y1(-2))	0.223703	0.068579	3.261976	0.0013
D(Y1(-3))	0.173084	0.062913	2.751148	0.0065
D(X3)	-0.003961	0.001709	-2.31722	0.0216
D(X4)	0.169632	0.027235	6.228343	0
D(X4(-1))	-0.04335	0.0247	-1.75502	0.0809
D(X4(-2))	-0.034643	0.024711	-1.40191	0.1626
EC = Y1 - (0.2822*X1 + 0.0544*X2 + 0.0049*X3 -0.2394*X4 + 11.4847)				
The economic dimension				
X1	0.282217	0.070553	4.000098	0.0001
X2	0.05445	0.077308	0.70432	0.4821
X3	0.004943	0.003234	1.528444	0.1281
X4	-0.239355	0.079473	-3.01178	0.003
C	11.48468	1.216509	9.440687	0
The environmental dimension				
C	0.038103	0.057473	0.662968	0.5082
The social dimension				
C	1.547494	3.595413	0.430408	0.6674

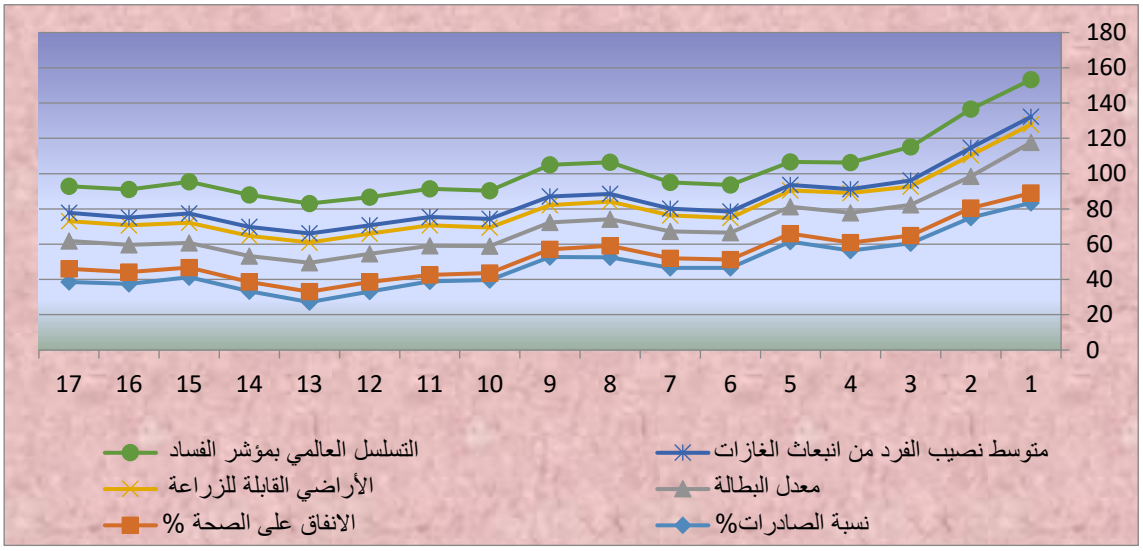
Source: Prepared by researchers depending on the outputs of the "Eviews" program

The results of the assessment indicate the existence of a short-term relationship between financial development and the economic dimension of sustainable development expressed in the economic growth index (Y1), This is confirmed by the probability score of zero and the error correction parameter of (0.651317), which expresses the speed of adaptation between the short and long term. Hence, the positive sign expresses the convergence of the kinetic model in the short term, and this means that the absolute value of the error correction factor is (0.65), At a level of significance less than (0.01%), which means that 65% of the errors in the sustainable development index for a previous month were addressed in the second month and that the equilibrium state is reached within 50 days, that is, the adaptation of the model was relatively fast, While there is no long or short-term relationship between financial development and the environmental dimension of sustainable development, As the probability of the intersection factor reached (0.5082) and the social dimension, as the probability of the intersection coefficient reached (0.6674), which indicates the absence of a relationship between the two variables, and this is closer to the nature of the Iraqi economy in which financial development operates in isolation from social and environmental variables and the correlation of changes occurring with the economic dimension, as a result of its correlation with the size of the gross domestic product, which in turn depends on oil revenues.

As well as the deteriorating security aspect experienced by the Iraqi economy, which reflects negatively on the indicators of sustainable development. As for in the short term, we notice that there are equilibrium relationships between the variables included in the study with the sustainable development index, so there was a balance relationship between the size of financial intermediation (X1), If its probability score is (0.0138), And the ratio of assets to GDP (X3) with a probability (0.0216), and the ratio of deposits to GDP (X4) with a probability of (0) on the one hand, and indicators of sustainable development on the other hand.

In the long term, there was an equilibrium relationship between the volume of financial intermediation expressed in the ratio of the broad money supply to GDP (X1), its probability (0.0001). Total deposits as a ratio to GDP (X4) and their probability (0.003) that expresses the degree of development of the financial system and the dependent variable expressing sustainable development (Y1), During the period (2004-2020, and this can be illustrated through the chart (3).

Figure (3) the evolution of sustainable development indicators in the Iraqi economy for the period (2004-2020)



Source: Central Bank of Iraq, Annual Bulletin, 2004-2020

This is due to the role of the banking sector and the financial system in achieving economic development in general and sustainable development in particular. Therefore, this study was in agreement with the study (Afonso & Blanco, 2018: 24).

that indicated to an impact of the degree of development of the financial system on economic growth in general and on sustainable development indicators in particular.

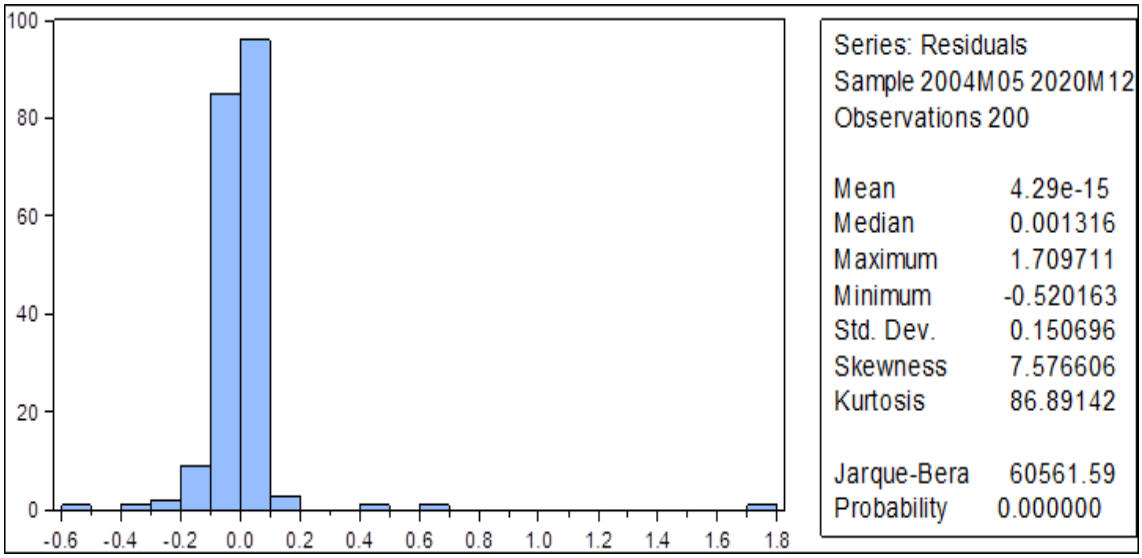
5-3- Quality testing of the model used:

After adopting the ARDL (4،1،1،0،0) model in estimating the short and long-term effects, it is necessary to ensure the quality of the model's performance, A set of tests were conducted that reported the meaning of the model and its absence from standard problems such as the self-correlation problem and the problem of heterogeneity of variance and normal distribution, and the results of the tests were as follows:

A- Test of (Jarque- Bera):

This test indicates that the random errors are normally distributed in the estimated model, and as shown in Figure (4), which shows the normal distribution of the rest of the estimated model (Histogram of the Residual)

Figure 4: The normal distribution of the residuals of the estimated model



Source: Prepared by researchers depending on the outputs of the "Eviews" program

B- Test of the stability of the error boundary anisotropy (ARCH).

There are a number of tests that used to detect the homogeneity of residues or not, among them the (ARCH) test and the results of the test were:

Table (4) test results of the stability of the variance of the error limits (smoothing of the variance)

Heteroskedasticity Test: ARCH			
F-statistic	0.010457	Prob. F(1،197)	0. 9189
Obs*R-squared	0.010562	Prob. Chi-Square(1)	0. 9181

Source: Prepared by researchers depending on the outputs of the ''Eviews'' program

It is evident from Table (4) that the model used does not suffer from the problem of homogeneity of variance, as long as the value of (F) Less than its tabular value of (0.9189), which means that the model is not significant, and then the model becomes safe from this problem.

C- Boundary independence test (no sequential self-correlation):

In order to study the hypothesis of non-correlation of errors, we resort to a test, In order to study the hypothesis of non-correlation of errors, we resort to the Breusch-Godfrey Serial Correlation LM Test for an auto-linking, and after performing the test the results were as follows:

Table (5) test results of (Breusch-Godfrey Serial Correlation LM Test) for border independence.

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	0.06628	Prob. F(2،185)	0.0724
Obs*R-squared	5.5965	Prob. Chi-Square(1)	0. 0609

Source: Prepared by researchers depending on the outputs of the Eviews program

After applying a test of Breusch-Godfrey Serial Correlation LM , It was found that the model does not suffer from a problem of self-correlation between the variables, and then the independence of the borders, and this is shown by the value (6.492305), which is greater than (1%). The results of the tests demonstrated the safety and quality of the model used from the standard problems, this is evident by comparing the calculated (F) probability with its tabular equivalent.

6- Conclusion:

This study indicated that there is a development in the indicators of financial development in the Iraqi economy, as the volume of financial intermediation (M2) and the volume of deposits as a proportion to the gross domestic product witnessed a remarkable development throughout the period of the study. The results indicated the existence of a long-term complementary relationship between indicators of financial development and the economic dimension of sustainable development in Iraq, and this is what was shown by the value of the intersection coefficient (11.48468), which its probability came (0), besides to the rapid response to the economic dimension of any change that takes place in the financial development, which reached 50 days, and this indicates the importance of financial development and its economic repercussions in society, It exercised both the volume of deposits relative to GDP (X4), and the degree of monetary economy (X1) has its effects on the economic dimension, It was affected by (28%) from the size changes in the money supply as a proportion to the gross domestic product. This relationship with the environmental and social dimensions of sustainable development ceased to exist, for which the probability of the intersection coefficient was (0.5082 and 0.6674), respectively. This relationship with the environmental and social dimensions of sustainable development ceased to exist, for which the probability of the

intersection coefficient was (0.5082 and 0.6674), respectively. This is what expresses that the dimensions of sustainable environmental and social development are not affected by any development that occurs in the financial system in Iraq, which requires the need to work to promote the requirements of sustainable development in Iraq by meeting all its requirements, and directing the credit granted to citizens with policies that guarantee employment in a way that makes it achieve sustainable development in Iraq, In addition to working for increase cultural awareness and development among the public, to consolidate a culture of sustainable development, and to work to facilitate what ensures its achievement .

The Refrense

1- Adejumo ، Akintoye Victor، and Adejumo ،Opeyemi Oluwabunmi،2014، Prospects for Achieving Sustainable Development Through the Millennium Development Goals in Nigeria ، European Journal of Sustainable Development ، 3،1.
2- Afonso،Antonio and Blanco-Arana،2018،Financial Development and Economic Growth: A Study for OECD Countries in the context of Crisis، REM Working Paper 046-2018.
3- Al-Baldawi, Asma Tariq and Afaf Saleh Al-Hani, (2017) Standard Analysis of the Response of Wheat Crop Width Using auto-Regression Models for Distributed Deceleration (ARDL) for the period (1970-2014), Iraqi Journal of Agricultural Sciences, Issue 6.
4- Al-Barwari, Suad Abd al-Qadir Qasim, (2008), Assessment and Analysis of Factors Affecting Financial Investment, a Study in a Sample of Financial Markets for the Period (1986-2004), Master Thesis, Unpublished, College of Administration and Economics, University of Mosul.
5- Alimi، R. Santos (2014)، ARDL Bounds Testing Approach to Cointegration: A Reexamination of Augmented Fisher Hypotheses In An Open Economy، Asian Journal of Economic Modelling، Vol. 2، No. 2.
6- Al-Nuaimi, Zahra Ahmed Muhammad, and others (2019), Financial Development and its Reflection on Sustainable Development, Journal of the College of Administration and Economics for Economic Studies, Volume (11), Issue (3).
7- Al-Qadeer, Khalid bin Muhammad bin Abdullah, 2005, The Impact of Bank Credit to Finance Imports on Imports in the Kingdom of Saudi Arabia, Damascus University Journal of Economic and Legal Sciences, Issue 2, Volume 21.
8- Amalu , H. I. ., Ukwueze , T. N. ., Olife, L. . U. . ., & Irokwe, . F. F. . (2020). Product Tax Revenue and Economic Growth in Nigeria: An Engle-Granger Approach, Evidence From 1981 - 2019. Journal of Advanced Research in Economics and Administrative Sciences, 1(2), 66-76. https://doi.org/10.47631/jareas.v1i2.111
9- Annual Financial Stability Report, Central Bank of Iraq, Annual Bulletin, 2004-2020.

10- Bongini ،Paola، Iwanicz-Drozdowska، Malgorzata، Smaha، Pawel and Witkowski،Bartosz،2017، Financial Development and Economic Growth: The Role of Foreign-Owned Banks in CESEE Countries، journal Sustainability ، doi:10-3390 .
11- Central Bank of Iraq, Annual Bulletin, 2004-2020.
12- Comfort Daphan & et al، (2016) The Sustainable Development Goals and the Financial Services Industry، Athens Journal of Business & Economics - Volume 3، Issue 1.
13- Diesendorf M (2000) Sustainability and Sustainable Development. In Dunphy DJ، Beneveniste J، Griffiths A and Sutton P (eds.) Sustainability: The corporate challenge of the 21st century. Sydney: Allen and Unwin.
14- Estrada، Gemma، Park، Donghyun and Ramayandi،Arief،2010، Financial Development and Economic Growth in Developing Asia، Asian Development Bank، Working Paper Series، No.233 .
15- Hussain Zakir & et al، (2011) Relationship between Financial Sector Development and Sustainable Economic Development: Time Series Analysis from Pakistan، International Journal of Economics and Finance، Vol. 3، No. 1.
16- Nahla & et al (2015) Is the Relationship Between Financial Development and Economic Growth Monotonic? Evidence from a Sample of Middle-Income Countries، World Development Vol. 68.
17- Nkoro، Emeka and Uko، Aham Kelvin (2016)، Autoregressive Distributed Lag (ARDL) cointegration technique: application and interpretation، Journal of Statistical and Econometric Methods، vol.5، no.4.
18- Okoyeuzu, C., & Kabiru Dandago Isa. (2020). Investigating the Factors that Undermine Innovative Financing towards Sustainability of Entrepreneurship in Nigeria. Journal of Advanced Research in Economics and Administrative Sciences, 1(2), 1-13. https://doi.org/10.47631/jareas.v1i2.65
19- Pesaran & shin ، An Autoregressive Distributed Lag Modeling Approach to Cointegration Analysis ، The Norwegian Academy Of Science and letters ، 1995.
20- Rad، Abaas Alavi، (2012) Long Run and Short run Effects of Monetary and Exchange variables on stock prices in Iran، International Journal of Economics and Financial studies، Vol(4)، No (1).
21- Richard Reid (2010); financial development: a broader perspective ; ADBI Working papers series ; N 258.
22- Ross Levine (1997); financial development and economic growth: views and agenda; journal of economic literature.