Economic studies Journal
ISSN 2602-7925
https://www.asjp.cerist.dz/en/PresentationRevue/417

Volume: 16 N°: 01 (2022), P 756-768

Financial integration and growth:

Empirical evidence from MENA region

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Abstract ;

This paper discusses the relationship between financial integration and economic growth in the MENA region countries, given that these countries imposed financial restrictions before the programs of structural adjustment. We proceed by an econometric estimate on the whole region on a period of 1990-2020 using multiple regressions. We found that an increase in the commercial opening rate, which was the result of financial liberalization, had a positive correlation with economic growth, also we have found that the flow of Gross fixed capital formation in the studied countries have a negative impact on the economic growth in the MENA region.

Article info

Received 13/12/2021

Accepted 17/01/2022

Keyword:

- ✓ Economic growth
- ✓ Financial integration
- ✓ MENA

1. *Introduction*

Financial integration is a major transformation in an economy, given that the inflows and outflows of capital are free movements, which means that the local investor can invest outside the country of origin which can be detrimental to the local economy, but it can also allow foreign investors to invest in the sector that can contribute to the economic growth of the countries. begun the process of financial integration has been untamed in the Middle East and North Africa since the eighteen when they have undertaken structural adjustment programs as recommended by the IMF **(Arteta, Eichengreen, & Wyplosz, 2001)**. In this study we want to see if the flow of Gross fixed capital formation is beneficial for the economic growth and if the financial system of the Middle East and North Africa is impacted or not, by asking the following problem:

Is there a relationship between financial integration and economic growth in the MENA region countries?

Study hypothesis:

- There is a significant statistical relationship between financial integration and economic growth in the MENA region countries

However, in the first part, we will present studies develop on this topic, some approve that financial integration has a positive impact on growth while others authors proved that financial integration causes bank crises, second section we will do an econometric estimate on the effect of financial integration on the Middle East and North Africa countries economic growth.

2. ***Literature review:***

The concept of financial integration has been studied by several economists. This concept first appeared in the works of Mac Kinnon **(Mc Kinnon, 1973)** and Shaw **(Shaw , 1973)**. The authors presented the policy of financial liberalization as an effective and simple way to stimulate economic growth and development of the financial system in developing countries (**Bouchikhi & Sadouki , 2020)** :

2.*1 Mc Kinnon:* For The researcher, the state cannot accomplish economic growth without investment, and the investment is not achieved without thrift. This led him to pay attention to individuals saving. He concluded that economic agents can only be motivated to save by liberation up restrictions on setting interest rates, combating fiscal restraint, and encouraging financial liberalization. The study of McKinnon is a macro-economic study, concerned the economics in which the financial system is primitive and where money is the only financial asset available to savers or investors and the growth driver. According to the researcher, the process of accumulation of capital through savings to direct them to investments effective for economic growth can be achieved only if the real interest rate is not specified by the authorities, it reaches the result that the intervention of the authorities hinders economic growth. In fact, according to Mc Kinnon, the

increase of the money return, cause higher savings on fixed assets, which boosts the financial assets formation and the capital accumulation, but when the return of self-financed investment funds, traders prefer to keep funds on their investment. Financial integration allows for the removal of barriers through competition among financial intermediaries in a broad banking system, which will boost capital flows and investment **(Mc Kinnon, 1973)**.

2.2 *Shaw:* The author published the book "financial deepening in economic development." in the same year, 1973. For this researcher, the basic property of financial restraint policy is to determine the authorities interest rate in less than at the real market level, and the difference from his work with Mc-Kinnon that for him the accumulation of capital is when through financial intermediaries through the products of loans and not only from the deposits as assumed by Mc-Kinnon. In fact, Shaw supposed that self-financing is not the only means of project financing, investors can get bank loans, Rates of interest paid to rely on self-financing can also lead to rationalization of loans, but this rationalism in developing countries produce by favoritism in Granting loans and not to encourage creativity. The researcher proves in his model how weak interest rates increase the fragility of the banking system. For the researcher, the only way to obtain effective growth is financial liberalization and thus determine the market interest rate. Also, for him, this policy is appropriate for developing countries characterized by low savings, high-interest rates through financial liberalization will allow the raising of savings and thus will allow the decline of capital. These studies have witnessed the emergence of literature and many studies, including those supporting them and defending the policy of financial liberalization and its positive effects in the achievement of financial development and economic growth, also some econometric and experimental studies tried to prove it, and other researchers prove the relationship between the policy of financial liberalization and the occurrence of banking and financial crises. Some of them will be reviewed **(Shaw , 1973)**.

The literature review shows that several economists study the impact of financial integration by gross fixed capital formation on economic growth, the studies had two kinds of results, there is those who approve that the investment promotes economic growth and there is those who say that financial liberalization hinders growth and below we outline a few studies on the subject.

3. Previous studies:

3.1 Financial integration and credit democratization: Linking banking deregulation to economic growth (Berger, Butler, Hu, & Zekhnini, 2021) : This article provides new vision into the economic effects of bank branching deregulation. They analyze that the average effect of deregulation on economic growth is smaller than previous estimates and is statistically indistinguishable from zero five years following deregulation. These results suggest that if supervisors were to assign deregulation events aimlessly there would be no statistically significant economic growth effect on average for at least the first five to eight years. Also, significant heterogeneity in the treatment effects of state-level bank branching deregulation on economic growth and use this heterogeneity to explore the mechanisms through which economic

growth occurs. Synthetic counterfactuals enable them to identify the heterogeneous treatment effects and the causal channels of bank branching deregulation on economic growth. They move the literature forward by using credible, state-level counterfactuals to document heterogeneous treatment effects and to identify the channels through which deregulation causes economic growth. They show that the constrained credit channel is a mechanism through which deregulation influences economic growth. Specifically, a state's pre-deregulation capital concentration indicates the degree to which deregulation impeded capital mobility. The results document that in states with capital concentration, bank branching deregulation changed the banking sector, thereby spurring economic growth. Banks were able to extend more loans to clients. At the same time, banks shifted lending to commercial and real estate loans and away from individual loans. They conclude that financial development leads to economic growth, but only where financial development resolves the constrained credit problem.

3.2 Financial Integration Without Financial Development (Corneli, 2021) **:**This paper demonstrates that, in a two-country model, where the two economies diverge in their financial market development level, financial integration has generous short- and medium-term effects, even in the absence of aggregate risks. Reliable with the Lucas paradox, the study establishes that financial integration can decrease the speed of capital accumulation and increase savings in a developing country still in the process of convergence toward the sturdy state and with domestic capital market distortions. The level of capital accumulation at the time of integration crucially affects agents' welfare. The closer the economy is to its steady state, the lower are agents' welfare gains in the financially less advanced economy, while they are always negative in the more developed country. Two forces drive these results: precautionary saving and the propensity to move resources from risky capital to safe assets until the risk-adjusted return on capital equalizes the risk-free interest rate. Under the assumption of the constant relative-risk-aversion utility function, those forces are both decreasing in wealth.

3.3 ***Do economic and financial integration stimulate economic growth? A critical survey ((Ehigiamusoe & Lean, 2019)*** **:** the paper survey recent empirical studies on the relationship between economic integration and economic growth in developed and developing countries. It also investigates the literature concerning the impact of financial integration on economic growth. the study shows that although other views exist, there is devastating support for the growth enhancing effects of economic integration, although common currency adoption has an insignificant effect on economic growth. The channels through which economic integration exerts its influence on economic growth include, productivity growth, trade, capital accumulation and financial integration. However, the researcher's shows that the impact of financial integration on economic growth is inconclusive. Based on the result, the study draws some implications and policy options. Moreover, the amalgamation of an economic integration-growth nexus with a financial integration-growth would provide more perceptions to highlight the interaction between financial integration, economic integration, and economic growth. The delineation of the financial integration and growth studies into developing and advanced economies would provide greater insights for policymaking. Furthermore, for better inferences,

future studies should endeavor to account for structural breaks and cross-sectional dependence in the panel data.

***3.4 The Impact of Financial Integration on Economic Growth in Southeast Asia (Bong & Premaratne, 2019)*:** They analyze the impact of financial integration on economic growth in Southeast Asia over the period 1993-2013. The studies further investigates whether the relationship depends on the level of financial and economic development, macroeconomic policy, and government corruption, these interrogations raise important issues both from a theoretical and a policy perspective. The authors employ the generalized methods of moment (GMM) in the dynamic panel estimation framework to examine several factors, including initial income, initial schooling, financial development, inflation, trade openness, corruption, and financial crisis. The study further analyzes the data using the EGLS model to examine the consistency of the GMM model. They found that financial integration has a significant positive effect on economic growth in Southeast Asia. Result findings suggest that increasing financial integration could improve the productive capacity of the economy, including more investments and efficient allocation of capital, and thus enhancing economic growth in this region. More specifically, the results suggest that the government should work towards eliminating corruption and stabilizing macroeconomics in order to enhance financial integration and economic growth. This paper sheds new insights on a better evaluation of the past and present theorizing on the subject of financial integration and economic growth; especially, in Southeast Asia.

***3.5 Financial integration and economic growth: An empirical analysis using international panel data from 1974-2007 (Osada & Saito , 2010)* :** This paper studies the effects of financial integration on economic growth using an international panel data of 83 countries from 1974-2007. The effects of financial integration on economic growth differ considerably, depending on the type of external assets and liabilities as well as on the characteristics of countries that experience financial integration. In particular, when a break down external liabilities into FDI and equity liabilities and debt liabilities, the former has a positive impact on economic growth, while the latter, especially public debt, has a negative impact. They also find in general that countries with good institutions and developed financial markets benefit more from financial integration, and countries in Western Europe and North America as well as those in East Asia are more likely to meet these conditions. This paper then considers whether the effects of financial integration have changed over time. Finally, the paper provides some evidence that financial integration has an additional, indirect effect on economic growth through its impact on other determinants of growth such as the volume of international trade and the development of domestic financial markets.

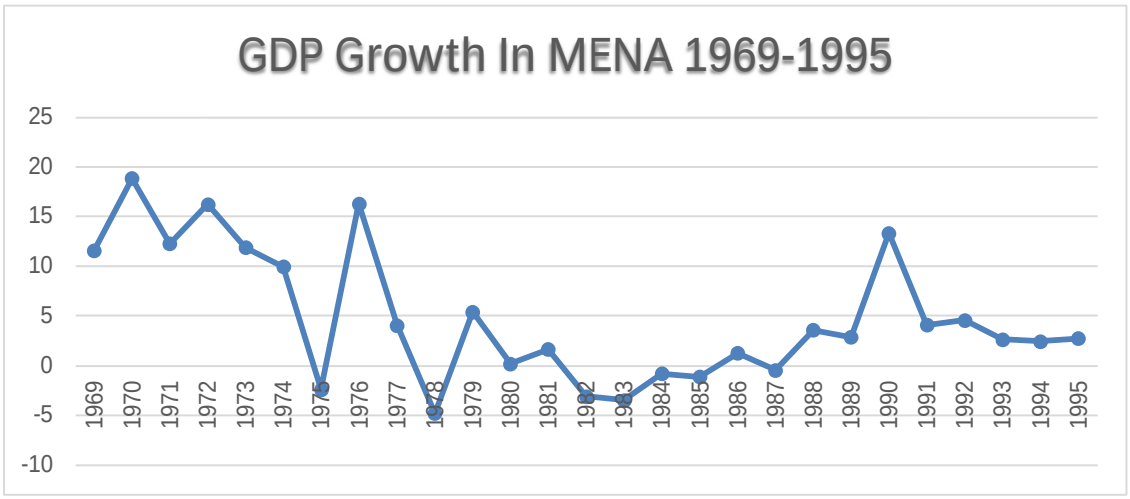
4 Current situation in the MENA region:

4.1: Economic growth evolution:

The economic growth in the Middle East and North Africa has known a refreshing beverage in the years 1990 which coincides with the fact that they have begun the process of financial

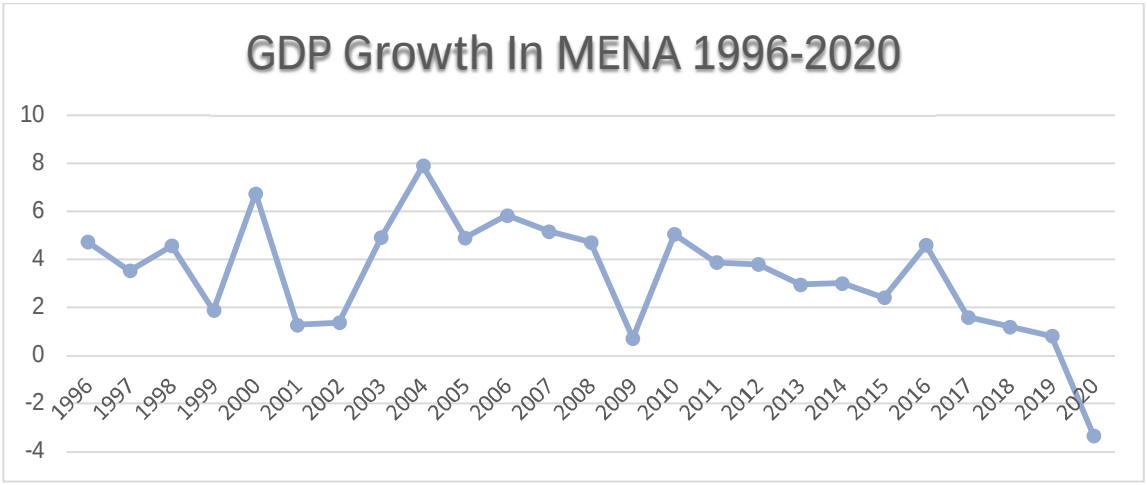
liberalization, except that this growth is not really important to the point of their permit to be of emerging countries.

Fig.1: Gross Domestic Product in MENA (1969-1995):



Source: (world bank,2021)

Fig.2: Gross Domestic Product in MENA (1996-2020)

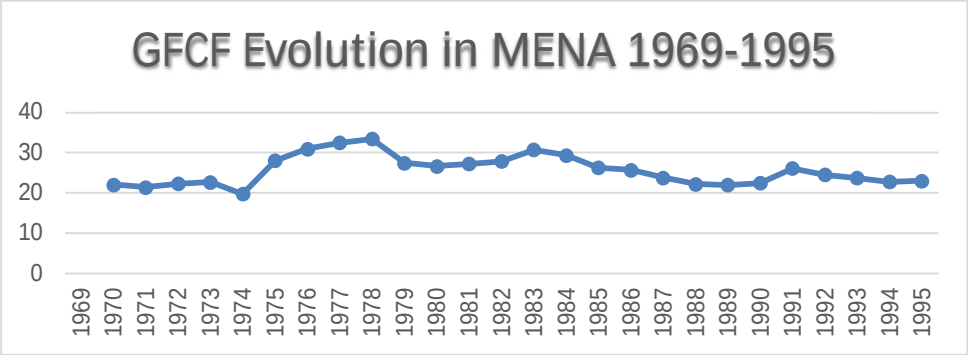


Source: (world bank,2021)

We note by the evolution of the GDP that the MENA region get economic growth until 2004, after this period the region was affected by the financial crisis of 2008 and was able to emerge from the crisis at the same time as the world economy, also we note in the graph that the region experienced growth close to 3,87 % in 2011 and then experienced a slowdown in 2015. We can also say that this growth is linked to the increase in the price of hydrocarbons given that in 2016, growth a slowed down in the hydrocarbon-exporting countries and continued to evolve in the hydrocarbon-importing countries. But due to covid 19 pandemic, MENA records negative GDP growth rates in 2020 (-03,35%).

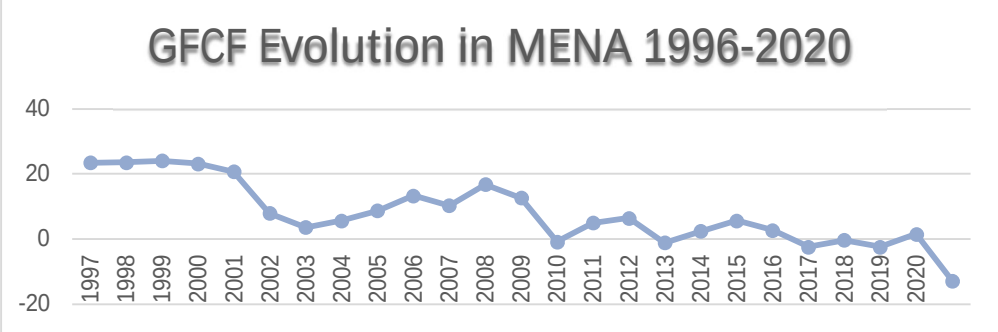
4.2: Investment evolution:

Fig.3: Gross fixed capital formation (1969-1995)



Source: (world bank,2021)

Fig.4: Gross fixed capital formation (1996-2020)



Source: (world bank,2021)

The investment does not have fixed rates that are fluctuating, and this could be due to political instability, especially what some of the countries in the region have experienced blow state, as a result, the Arab Spring has spread to some countries in the MENA region. Also in the countries of the region, the foreign currency credit transactions made by residents are always controlled by the authorities, this control applies to all loan transactions [5], the same with respect to portfolio investments, it remains controlled in relation to foreign investments, but it also notes that the banking system and financial statements are different from one country to another, for this purpose we observe according to the graph, stability of the GFCF in the years 80 and 90, On the other hand, the subprime crisis had a negative impact on investment, bringing it from 16% in 2007 to -0.88% in 2009. Also, with the onset of the pandemic, investment fell sharply, reaching a record in the region with -12.92% in 2020.

5.Empirical study:

Our study was inspired by a paper made by Bong & Premaratne on Southeast Asia countries **(Bong & Premaratne, 2019)** . In our case we have chosen to take the entire region of Mena, the countries concerned are: Algeria, Bahrain, Cisjordany and Gaza, Djibouti, Egypt, United Arab Emirates, Iran, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Syria, Tunisia, Yemen, we have also distinguished between the value of acquisitions of new or existing fixed assets by the business sector , and the appropriations granted to the private sector as a percentage of GDP unlike the model of reference .

5.1 Empirical Study Methodology: Our study is carried out on the period from 1990 to 2020; this period has been chosen by report to the availability of data that was taken from the database of the World Bank, using the generalized methods of moment (GMM), we obtained:

$$gdp_t = gdp_{t-1} + Gfcf + loans + op + inf$$

With:

$\boldsymbol{gdp_t}$: The real GDP per capita of the year.

$\boldsymbol{gdp_{t-1}}$: The real GDP per capita of the previous year.

Loans: represents the appropriations granted to the private sector as a percentage of GDP, this variable is used to reflect the level of financial development.

Op: represents the rate of trade openness.

Inf: represents the inflation, this variable is used to determine the level of macroeconomic stability of the country.

Gfcf: Gross fixed capital formation it measures the value of acquisitions of new or existing fixed assets by the business sector, governments and "pure" households

5.2 The stationarity test:

Table 1: The stationarity test

Variables	level	signification
Gdp t	1rd	0.0250
Gdp t-1	1rd	0.0362
Gfcf	1rd	0.0008
Loans	2nd	0.0001
Op	2nd	0.0000
Inf	0	0.005

Source: by author, adapted from EViews

The stationary test showed that the variables are stationary at different levels with a significance level of 5%. We have introduced logarithm to make variables linear, and with using the estimate by OLS we obtained the following equation:

$$gdp_t = 0.11 + 0.96\, gdp_{t-1} - 0.006\ Gfcf + 0.06\, loans + 0.04\, op + 0.002 inf$$

Sig= 0.000 **sig= 0.07** **sig=0.04** **sig= 0.003** **sig= 0.23**

With: R- squared= 0.99 Probability F-statistic= 0.00

5.3 Estimation of the GMM model:

Table 2: Estimation of financial integration & economic growth model

Dependent Variable: LOGGDP1
Method: Least Squares
Date: 10/10/21 Time: 12:36
Sample (adjusted): 1990 2020
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.118569	0.093066	1.274043	0.2198
LOGGDP0	0.964640	0.017665	54.60618	0.0000
LOGGFCF	-0.006079	0.003172	-1.916451	0.0723
LOGLOANS	0.061151	0.028366	2.155747	0.0457
LOGOP	0.047365	0.014075	3.365152	0.0037
LOGINF	0.002999	0.002437	1.230919	0.2351
R-squared	0.999538	Mean dependent var		9.341615
Adjusted R-squared	0.999402	S.D. dependent var		0.315437
S.E. of regression	0.007712	Akaike info criterion		-6.672516
Sum squared resid	0.001011	Schwarz criterion		-6.376301
Log likelihood	82.73394	Hannan-Quinn criter.		-6.598019
F-statistic	7356.939	Durbin-Watson stat		2.209166
Prob(F-statistic)	0.000000			

Source: EViews result

5.4 Result and discussion:

- As soon in table R^2 =0.99 and F-statistic = 0.00; it's less than 5%, So the model is statistically robust.
- Adjusted R- squared = 0.99, which means that 99% of the variable explains the phenomena of variation of GPD per capita.
- The investment variable in the MENA region is significant because sig = 0.07 is lower than the level of significance set by researcher 0.1, but the increase in Gfcf flows by 1%

decreases the growth of 0.006, Is not very important but this can be explained by the banking systems of this country which are not very developed and also by the dominance of the economies parallel in certain countries of the region and also because there are still restrictions on some investments

- A raise in loans granted to the private sectors of 1% led to an increase in the GDP per capita of 0.06, and this is due to the reforms initiated in these countries, which allowed the private sector to have access to bank financing. Consequently, many companies have been created which positively influence economic growth. This variable has a statistical signification equal to 4 %, it's less than 10 % so it's must be taken into consideration.

- The increase in the rate of the commercial opening of 1% led to the evolution of the GDP per capita of 0.04, because it is the motor of economic growth, as trade openness undoubtedly promotes international diffusion innovation through the flow of services and goods, especially capital goods whose leadership must be emphasized, it also allows the operation of static and dynamic economies of scale, it's having a statistical signification equal to 3%.

- The evolution of the inflation of 1% led to the improvement of the GDP per capita of 0.002, the impact positive of inflation can be explained by the fact that in the case of fixed-rate borrowings, when the rate of inflation increases the interest charged by the Bank decreases due to inflation, in on the side of the debtor the credit is less expensive than in the beginning and could borrow more to finance other projects.

Durbin Watson test: We test the hypothesis:

H0: there are no positive autocorrelation residues

H1: there are positive autocorrelation residues (positive error follows a positive error)

- For a number equal to 6 variables, the sample size is equal to 16 and the significance level of 5% was obtained value of DW on the table:

  D1=0.34

  D2=2.97

- The calculated DW = 2.3

The DW statistic is equal to 2.3, the higher than 0.0.34, so we accept the H0, so all parameters are statistically significant hypothesis H0, there is no error autocorrelation.

Table 3: Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	20.57501	Prob. F(5,17)	0.0000
Obs*R-squared	19.73827	Prob. Chi-Square(5)	0.0014
Scaled explained SS	30.10619	Prob. Chi-Square(5)	0.0000

Source: EViews result

The test probability is 0.00, it is less than 15%, which means that we accept the null hypothesis of Heteroskedasticity residual or error terms. The specification of the error correction model is validated.

Normality test:

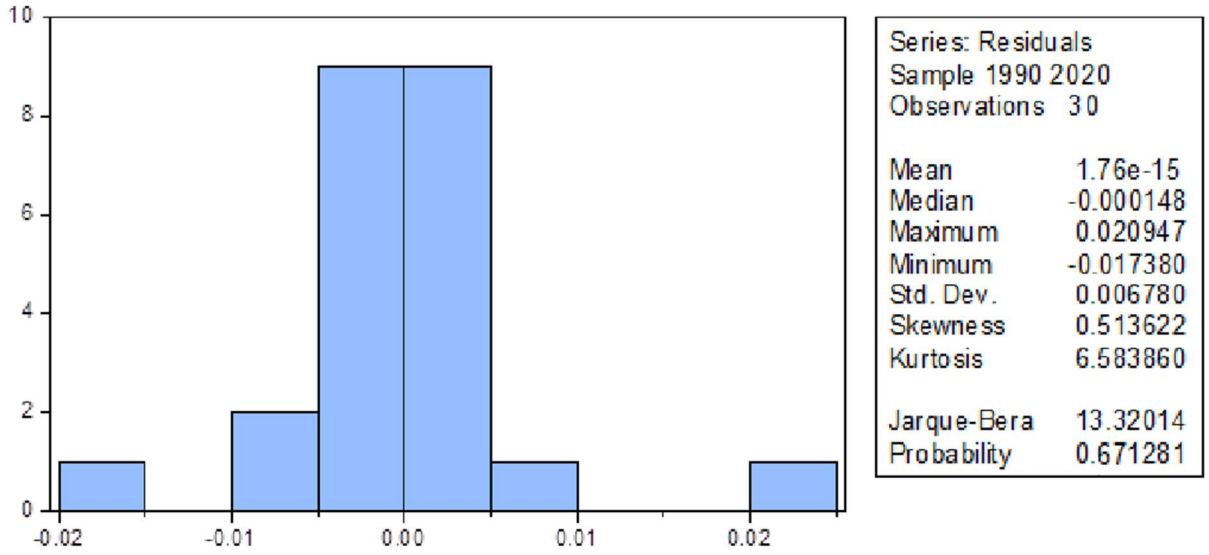
The normal distribution of residuals of the regression model is umpired by the Jarque-Berra statistic by making two hypotheses:

The null hypothesis H0: abnormal distribution in the case of SIG<5%

Alternative Hypothesis H1: Normal distribution in the case of SIG > 5%

Through the following figure, we can interpret this test

Fig.5 Normality test



P-Value = 0.67, meaning its value is greater than the significant value 0.1, and therefore the residuals of the model have a normal distribution, i.e. we accept the alternative hypothesis H1 and reject the null hypothesis H0.

6. *Conclusion*:

Empirical studies that have shown the effect of international financial integration on economic growth have found mitigated results. Indeed, while some of these studies show that international financial integration is beneficial for renewed competitiveness and growth Studies like **(Quinn , 1997), (Markusen & Venables, 1999); (Bailiu , 2000) ; (Eichengreen, 2001); (Honig , 2008)); (Klein & Olivei , 2008)**, other studies suggest the opposite. According to them, financial integration is disadvantageous for most economies especially those which are weakly developed such as the work of **(Loayza & Ranciere, 2004); (Artus & Cartapanis, 2008) ; (Edison, , Levine , Ricci , & Slok , 2002); (Neto & Veiga , 2008)**.

The objective of this study is to show the relationship between financial integration and economic growth in the MENA region, we carried out an estimation of the entire region on the period from 1990 to 2020, using multiple regression and the results obtained confirm that financial integration contributes in a negative way on economic growth.

It remains to be noted that the financial development changes from one country to another, depending on the policies appliqued in these countries, but despite this, it can be concluded that financial integration, the financial development are the engine of economic growth, thus we can say that it is necessary to continue the banking reform for the modernization of the financial system in the MENA region.

The financial implications of our analysis suggest that financial integration should be encouraged, but it must be accompanied by other effective controls in order to support growth economic. This means that a financial openness policy should not be pursued in just any conditions, since the favorable effect of financial integration on economic growth could be lessened by financial instability. Therefore, macroeconomic policies must take into account the factor of financial instability which itself results from an irregular financial development.

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