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The impact of financial development on Economic Growth in MENA middle-income countries

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Abstract : The role of finance in economic growth is a topical issue marked by controversial results, some studies favoring the impact of financial development with its two main components (capital markets and financial intermediaries) on economic growth, while others have indicated the opposite. This study aims at re-examining this relationship using the generalized least squares (GLS) method on a sample of 16 middle-income countries in the MENA region, over a period from 1999-2019.

Keywords: Financial development, Capital markets, Financial intermediaries, Economic growth

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1. Introduction :

The role of finance on economic growth is current topic wich is interessting and continue to interest economist and public authority marked by an ambiguity in the nature of this relation, in fact many economist has mentionned the benefits of financial development on economic growth. (Schumpeter 1911) indicates that a well-functioning bank stimulate technological innovation by financing projects with a high chance of success and significant added value. However, the role of finance has long been ignored in economic growth models. Indeed, Keynesian theorists, for whom monetary and financial phenomena are decisive in explaining the level of activity, are traditionally not interested in growth (a long-term phenomenon), but in the development of short-term models, after this trend came the theory of financial liberalization developped by (Mckinnon 1973) and (shaw1973), which consists on eliminating financial repression to promote economic growth, this policy has received a favorable echo from international financial institutions such as the world bank and the international monetary fund, several countries have proceeded to liberalize their financial systems.

Despite this favorable response, (Taylor 1983) and (Winbergen 1973) begin to question the merits of liberalization , trying to show that financial liberalization can be a reason for economic downturns, it was necessary to wait until the beginning of the 1990s with the endogenous growth models, which sought to highlight the direct positive link between financial development (development of financial intermediaries and capital markets) and economic growth, developed by (Pagano 1993) and (levine 1993) who indicate that finance affects economic through productivity improvement and capital efficiency. It also affects capital accumulation through the savings rate and the fraction of savings used for investment (Pagano, 1993 ; Levine,1993). In addition, financial intermediaries allow diversification of technological risk and make investment specialization more attractive, allowing for increased productivity and, consequently, economic growth (Saint paul 1992). Furthermore, capital

markets can reduce the cost of mobilizing savings and investing in the most productive technologies (Greenwood and Smith, 1997), Finally, a high degree of global risk sharing through internationally integrated securities markets leads to portfolio reconstitution in favor of high yield investments. This will improve resource allocation and automatically affect economic growth (Devereux and Smith, 19941 ; Obstfeld, 1994).

After this trend, the arrival of the new literature in the early 2000s and the financial crisis of 2008, several authors have retraced the relationship between these two components, but this time with two new phenomena: the "disappearance effect" and "Too much finance". The first phenomenon was discussed by (Rousseau and Watchell 2011) who indicated that the hypothesis of the existence of a positive relationship seems weak since they see that credit to the private sector does not have an impact on GDP growth, they also indicate that this disappearing effect may be due to the shift from intermediated finance to market-based finance.

Therefore, the objective of this study is to review the relationship between financial development and economic growth by using the method of generalized least squares « GLS », on a sample of 16 countries, over a period from the period 1999-2019,

The rest of the paper is organized as follows : the first part is dedicated to the presentation of theoretical and empirical literature reviews, the second part is reserved for the empirical study carried out with an analysis of the results and recommendations

2. Littérature review

Debate on the impact of financial development on economic growth strated since bagehot(1873) who showed in his thesis that the British revolution was due to the superiority of its financial market and its liquidity which allowed the financing of investments and facilitated the transition from innovation to industrial activity and its subsequent spread to all continents, on the other hand, economic underdevelopment is linked to the impossibility of mobilzing resources in a weak or almost non-existent financial system, (Schumpeter 1911) finance stimulated economic growth through an efficient allocation of resources. Schumpeter's theory gives more importance to the action of credit and puts little emphasis on savings. The bank ensures the financing of projects through money creation, the bank finances projects through money creation, neglecting the existence of savings through supply and demand, and without ensuring the success of the risk associated with new technology projects

Following these favorable theories of the financial sector (Keynes 1936) proposed a different theory from (Bagehot 1873), (Schumpeter 1917) emphasized the role of investment in aggregate production and employment, so Keynes is not interested in monetary mechanisms that can infect the dynamics of the real economy.

It thus appears what is called "Financial Keynnesi" whose object is to implement the financial springs of investment, contrary to the neo-classical currents Keynes, who is interested in the interest rate, recommends a fall in interest rates to encourage investment. Keynes, who is interested in the interest rate, recommends a decrease in interest rates to favor investment, in fact Keynes makes a difference between financial intermediation which is supposed to support investment and financial speculation which generates financial instability. In this order we should mention the contribution of (Minsky 1964) who indicated that financial intermediaries can be a source of propagation of a crisis to the whole financial system, since he linked economic agents when a crisis occurs, the whole system is affected.

(Gurley and Shaw 1955) pointed out that financial development was neglected in growth models that focus on welfare, labor, production and income. They present the impact of monetary assets on economic growth, criticizing the Keynesian model on the neglect of the financial aspect to study economic development.

(Gurley and Shaw 1967) showed in their study that the increase in per capita income is anticipated by a faster growth of financial assets growth in financial assets; and they identify two determinants of financial development which are: the division of net labor, techniques of transferring savings to savings to investment.

(Gerschenskron 1962) placed banks in backward economies, which he considered to be a favorable financial system for economic growth in underdeveloped countries that need to achieve high economic growth, while mentioning the importance of the banking system in development of backward economies.

Although in this context, which lacks a concrete theoretical framework, the relationship between finance and economic growth was always at the center of the debates, a new currency would arrive to deal with this relationship by the two authors (Mackinnon and Shaw 1973) who denounce the policy of financial repression and recommend the policy of financial liberalisation which would participate in economic growth. Financial liberalization consists of the abolition of state intervention in the market. Some authors have criticized the policy of financial liberalization as a possible source of economic downturns (Taylor 1983) and (Winbergen 1973),

After the liberalization current, the arrival of the endogenous growth current which integrated financial indicators in their models, (Pagano 1993), indicates that an improvement of intermediation allows increasing in the fraction of savings directed towards investment, limits the losses of intermediation as well as positively affects economic growth, mable and (Chatelain 1995) who decomposed Pagano's financial efficiency into three main components: the efficiency of allocating savings to firms, the efficiency of transforming resources into investments by firms, and the efficiency of mobilizing savings investment by firms, and efficiency in mobilizing savings. (Levine 2004) has shown that it mainly involves information processing and lower transaction costs and indicates five main functions: facilitation of trade in goods, mobilization and collection of savings, production of information

on possible investments and allocation of savings, distribution of risks and finally control of investments and intervene in governance.

We cannot move on from the treatment of the relationship between finance and growth without addressing the concept of Much finance. In the mid-2000s,(Jean-Luis Arcand and Enrico Berkes 2015) showed that the correlation between financial development and economic growth becomes negative when credit distributed to the private sector exceeds 100% of GDP, and the term Too Much was often used by journalists and policymakers.

(Arcand 2015) and (Cecchetti and Kharroubi 2012) make a new contribution to the evanescent relationship. They test whether financial development has a negative effect on economic growth and at what threshold it starts to be negative, concluding that the relationship between financial development and economic growth is non-monotonic and that the marginal effect of financial development becomes negative at the threshold where credit distributed to the private sector exceeds 100% of GDP, although they did not work on the channels through which the financial system, but they concluded that the number of countries whose financial sector size exceeds the "too much finance" threshold has increased.

On the empirical side, the literature on the finance-growth relationship could be split into three categories, cross-sectional, panel and time series studies. the results were contradictory, studies have shown a positive impact of finance on economic growth, others a negative effect and others the non-existence of a relationship. (Goldsmith 1969) indicates the existence of a positive correlation between the two components, using an annual data set of 35 countries over the period 1860 to 1963. De (Gregorio et Guidotti 1995) using cross-country data state that the bank credit to the private sector to GDP impact positively the growth, though they found a negative impact in a panel data for latin america, They warrant their results that financial liberalization in the poor regulatory environment is the reason for this negative relationship. Rajan and (Zingales 1996) affirm that the financial market gives an important service for growth, (Odedekun 1996) stat the financial depth impact negatively the growth rates by using the Generalized least squares technique on a sample of 71 developing countries. A pioneer work on financial development and economic growth by Beck et al. (2000) concluded that there is an economically large and statistically significant relationship between financial intermediary development and both real per capita GDP growth and total factor productivity growth.

3. Empirical study :

3.1 Methodology of the study :

Once the literature has been reviewed and the empirical context identified, the essential phase of exploring the data and processing them statistically and econometrically begins. Indeed, this research phase aims to detect plausible and significant effects between the variables, affirm the hypotheses of this study and propose adequate models for our research problem.

The premise of our research is that "financial development has an impact on economic growth through its different components, money supply, shares traded on the market, stock market value and domestic credit".

To confirm this research hypothesis, i.e. to test the existence of an impact of financial development on economic growth and to examine the consequences of its different components on growth in the middle-income countries of MENA region, we have mobilized panel econometric techniques GLS on the theoretical basis of our research for the period 1999-2019.

3.2 Research hypotheses

In line with the standards of scientific research methodology, our starting position for our research was the problem observation phase.

Hypothesis 1: Financial development has a direct impact on economic growth given the time variable.
Our second hypothesis would be a practical one and will focus on the nature of the impact of financial development on economic growth. We would formulate it as follows:
Hypothesis 2: Financial development positively affects economic growth Hypothesis 2: Financial development positively affects economic growth through its various components Given the diversity of components, this hypothesis has to be subdivided into sub-hypotheses by focusing on four factors:
H2a: The broad money has a positive impact on economic growth.
H2b: shares traded on the market have a positive impact on economic growth.
H2c: stock market value has a positive impact on economic growth.
H2d: domestic credit has a positive impact on economic growth.

3.3 Selected models :

After a theoretical and empirical review of the literature on financial development and economic growth, the findings allowed us to distinguish the most important variables

$\boldsymbol{LPIBR} = \boldsymbol{f}$(MK, $\boldsymbol{M3}$, $\boldsymbol{Act}$ - é$\boldsymbol{ch}$, $\boldsymbol{Cr}$ - $\boldsymbol{In}$, $\boldsymbol{Ifl}$, $\boldsymbol{INV}$)

-LPIBR: real GDP per capita
- MK: Market capitalization
- M3: Broad money
- Act-ech: Stock traded on the market
- Cr-In: Domestic credits granted
- Inv: Investment
- Inf : inflation.

Table 1 : Selected variables and data sources

Variables	Nature	Mesure	Codage	Sources
GDP per capita	**Dependent variable**	**A measure of a country's total economic output divided by the number of inhabitants and adjusted for inflation**	**LPIBR**	**The world bank**
Broad money	**Independent variable**	**the sum of currency and deposits at the central bank (M0), plus transferable deposits and electronic money (M1), plus time and savings deposits, transferable foreign currency deposits, certificates of deposit and repurchase agreements (M2), plus travelers' cheques, foreign currency time deposits, and foreign currency securities. (M1), plus time and savings deposits, transferable foreign currency deposits, certificates of deposit and repurchase agreements (M2), plus travelers' cheques, foreign currency time deposits, commercial paper and units in mutual or market funds held by residents**	**M3**	**The World bank**
Market capitalization	**Independent variable**	**is the total value of a publicly traded company's outstanding common shares owned by stockholders**	**MC**	**The world bank**
Stock traded on the Market	**Independent variable**	**The value of shares traded is the total number of shares traded, both domestic and foreign, multiplied by their respective matching prices**	**Act-éch**	**The world bank**

Domestic credit	**Independent variable**	**Domestic credit to private sector refers to financial resources provided to the private sector by financial corporations, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment**	**Cr-in**	**The world bank**
Investment	**Independant variable**	**Net capital expenditure on fixed assets**	**Inv**	**The world bank**

The generalized least squares method adapts to linear panel data models by using the possible generalized least squares. This command allows estimation in the presence of AR(1) autocorrelation within panels and cross-sectional correlation and heteroscedasticity between panels ;

3.4 Hausman test :

What is the Hausman test? The Hausman test (also known as the Hausman specification test) detects endogenous regressors (predictors) in a specification) detects endogenous regressors (predictor variables) in a regression model. . Endogenous variables have values that are determined by other variables in the system. The presence of endogenous regressors in a model will fail The presence of endogenous regressors in a model will cause ordinary least squares estimators to fail, as one of the assumptions of OLS is that there is no correlation between a predictor variable and the error term. The estimators of instrumental variables can be used as an alternative in this case. However, before you can decide on the best regression method, you must first determine

whether your predictors are endogenous. This is what the Hausman test will do. This test is also called the Durbin-Wu-Hausman (DWH) test or the augmented regression test for endogeneity. endogeneity. Use in panel data analysis The Hausman test is sometimes described as a misspecification described as a model misspecification test. In panel data analysis (the analysis of data over time), the Hausman test can help you choose between a fixed effects model or a random effects model.

3.5 Stationarity test :

Stationarity is both a tool and an assumption used to evaluate data. A time series is stationary, if it returns to a given mean and variance, without following a trend or changing over time. The importance of data stationarity lies in the danger of receiving regression results that are significant even though they are not related to non-stationary series (Hill et al. 2008).

The most common unit root test for stationarity of time series data is the Dickey-Fuller test. A problem with this unit root test is that it is often not able to reject the hypothesis of a series containing a unit root for macroeconomic variables.

The use of panel data unit root tests is more likely to find stationary macroeconomic variables and increases the power of the test (Hadri, 2000).

While panel data unit root tests are more applicable, especially to this data set, they are also more complicated and lead to several difficulties when using these tests.

These include the introduction of a significant amount of unobserved heterogeneity, complications with the assumption of cross-sectional dependence, ambiguity surrounding the extent of the relationship when the unit root assumption is rejected and the concern about co-integration between and within groups (Breitung & Pesaran, 2005).

By default, a stochastic y_test process is stationary (or covariance stationary) if the following criteria are met:

- The mean is constant and independent of time (t):$\forall$ **t et** $\forall$ **m**, **E**(**yt**) =**E**(**yt**+**m**) = **μ**
- The variance is finite and does not depend on time: $\forall$**t**, **var**(**yt**) = **σ2** < ∞
- The covariance is time independent: **cov**(**yt**, **yt**+**k**) = **γk**

As a reminder, three models (non-stationarity forms) estimated by the method
Ordinary Least Squares (OLS) method are used as a basis for the construction of this test:

- Model [1]: With constant and deterministic trend $\Delta Xt = \phi Xt\text{-}1 + \sum p\ j=1\ \gamma j \Delta Xt\text{-}j + c + bt + \varepsilon t$

- Model [2]: With constant and without deterministic trend

$$\Delta X_t = \phi X_{t-1} + \sum_{j=1}^{p} \gamma_j \Delta X_{t-j} + c + \varepsilon_t$$

- Model [3]: Without constant or deterministic trend

ΔXt = ϕXt-1 + ∑p j=1 γjΔXt-j + εt

With εt ⟶ i. i. d (0; σε 2)

We therefore need to test the null hypothesis of the unit root, which is to test the nullity of the coefficient. From Xt-1,

{H0H1 : ϕ:=ϕ0<or 0 ou ρ =|ρ1| <; process 1; stationary constationary process $avec$ ϕ = ρ - 1

STATA provides a variety of different unit root tests for sets of panel data with different characteristics. Although these tests are called panel unit root tests, they are usually just an extension of the multiple time series unit root tests, such as the Dickey-Fuller test. The various panel unit root tests make different assumptions about the characteristics of the panel data set, such as the panel data set, such as the composition of time and individuals, as well as other characteristics of the data set.

Our empirical verification adopts the LevinShu unit root test which is based on the (augmented) Dickey (augmented) Dickey-Fuller test and focuses on more heterogeneous panels and does not assume that the panel is balanced (Im, Pesaran, & Shin, 2003).

All variables that do not contain a unit root are considered stationary I(0) and their current form can be maintained during the analysis. Nonstationary I(1) variables should be excluded from the regression model, unless it can be shown that the variables are Cointegrated or take their first difference form, in which they exhibit stationarity. in which they exhibit stationarity.

Tableau 2 : stationarity test**.**

Variables	P value	Niveau de stationnarité	Observations
GDP PER CAPITA	**0.0088**	**I(0)**	**Stationnaire**
MARKET CAPITALISATION	**0.0000**	**I(0)**	**Stationnaire**
Inflation	**0.0000**	**I(0)**	**Stationnaire**
STOCK TRADED ON THE MARKET	**0.0000**	**I(0)**	**Stationnaire**
BROAD MONEY	**0.0000**	**I(0)**	**Stationnaire**
INVESTMENT	**0.0000**	**I(0)**	**Stationnaire**

it can be stated that our variables under examination follow a normal distribution. Thanks to the central limit theory, the normality assumption involved in many statistical tests and estimators is not a problem.

The normal distribution is the basis for much of statistical theory. Hypothesis tests and interval estimators based on the normal distribution are often more powerful than their non-parametric counterparts. When the distribution assumption can be satisfied, they are

When the distribution assumption can be satisfied, they are preferred because the increased power means that a smaller sample size can be used to detect the same difference. However, violation of the assumption is often not a problem, due to the central limit theorem. The central limit theorem states that the sample means of moderately large samples are often well approximated by a normal distribution even if the data are not normally distributed. For many samples, the test statistic often approximates a normal distribution.

For many samples, the test statistic often approximates a normal distribution for unbiased data when the sample size is as small as 30, and for moderately biased data when the sample size is larger than 100. The disadvantage in such situations is a reduction in statistical power, and there may be more powerful non-parametric tests.

3.5 Heteroscedasticity test :

One of the assumptions made about the residuals/errors in OLS regression is that the errors have identical but unknown variances. This is called constant variance or homoscedasticity. When this assumption is not met, the problem is known as heteroscedasticity. As a consequence of heteroscedasticity, OLS estimators and the resulting

Modified Wald test for groupwise heteroskedasticity

in cross-sectional time-series FGLS regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (22) = 0.14

Prob>chi2 = 1.0000

After this test, we cannot reject the null hypothesis, which suggests that our errors are homoscedastic

3.7 Multi-collinearity test :

Multicollinearity is a condition of very high inter correlations or inter associations between independent variables. It is therefore a type of data disturbance, and if it is data, statistical inferences made on the data may not be reliable.

Tableau 3 : Multi collinearity test :

Variable	VIF	1/VIF
Echactions	1.91	0,524544
mass3	1,57	0.636912
MK	6,67	0.150027
Inv	1,71	0.584444
Infl	1.98	0.505176
Credinter	6.65	0.150419
Mean VIF	3.41	

We conducted the variance inflation factor (VIF) test. The variance inflation factor (VIF) is a measure of the degree of multicollinearity in a set of multiple regression variables. Mathematically, the VIF of a regression model variable is equal to the ratio of the overall variance of the model to the variance of a model that includes only that single independent variable.

that single independent variable. This ratio is calculated for each independent variable. A high VIF indicates that the assosiated independent variable is highly collinear with the other variables in the model.

4. Result :

logpibhab	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
Infl	.1011181	.0300131	3.37	0.001	.0422935	.1599426
Echactions	-.0125298	.0027822	-4.50	0.000	-.0179828	-.0070769

mass3	.0187644	.0081486	2.30	0.021	.0027935	.0347353
Credinter	.0540994	.0041343	13.09	0.000	.0459963	.0622025
Kk	2.558.719	.7004014	3.65	0.000	1.185.958	3.931.481
Inv	.0011081	.0012657	0.88	0.381	-.0013726	.0035889
_cons	4.668.214	.6250611	7.47	0.000	3.443.117	5.893.312

As regards the regression carried the majority of the variables show similar results to the first overall regression, in terms of the positive and negative nature of the relationships. But with changes in terms of magnitudes.

For the middle-income country, several variables impact growth by different values, the relative weight of 1.18%, M3 by 0.11%, domestic credit by 0.12%, shares traded on the market by -0.076 by -0.076% and inflation by 0.069%.

The result of our study shows that first component of the financial system "the capital market" has a positive and larger impact than the financial intermediaries on the economic growth in the case of upper-middle and low-income countries.

This recommends that MENA countries give more importance to the capital market as a mode of financing the economy. the second component "financial intermediary" shows a positive impact on the countries of both groups, it is also necessary for countries in both groups, this component also needs to be developed and liberalized to participate in the financing of innovative projects and ensure a better accumulation of capital.

5. Conclusion :

In order to aggregate the result the study finds that banks and capital markets generally have a positive impact on economic growth for MENA countries, with differences in the degree of impact. For our study we notice that the capital market has more impact on economic growth than the financial intermediaries for the case of the two sub-samples.

Recommendations :

Financial liberalization of the financial system should be ensured by minimizing state intervention in resource allocation, as this act is likely to favour some sectors over others which may be a source of resource misallocation, in the same vein as Fry (1978, 1980) and Galbis (1977) suggested that interventions aimed at imposing restrictions on the banking system such as credit ceilings and high reserve requirements have a negative impact on the development of the financial sector, which ultimately reduces economic growth

Developing capital markets and facilitating the access of SMEs to direct financing, as this type of enterprise makes up an important part of the economic fabric of these countries and mainly the countries in the the case of middle-income countries in the MENA region

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