

**Financial Development - Economic Growth Nexus:  
selected MENA countries.**

Gherbi Nacer Salah Eddine  
[Maître de conférence. Université de Tlemcen]  
[sgherbi@yahoo.fr](mailto:sgherbi@yahoo.fr)

Medjahed Kenza  
[Doctorante. Université de Tlemcen]  
[kenza.medjahed@mail.univ-tlemcen.dz](mailto:kenza.medjahed@mail.univ-tlemcen.dz)

Halaili Narimene  
[Doctorante. Université de Tlemcen]  
[narimene\\_13@yahoo.fr](mailto:narimene_13@yahoo.fr)

**Abstract:**

***Financial Development - Economic Growth Nexus: the case MENA countries.***

This paper explores the finance-growth nexus in eleven Middle East and North Africa countries, using dynamic panel estimation techniques (DOLS and FMOLS) and panel causality test during the period 1980 -2012, also using principal component analysis to build financial development index. The results showed that the relationship between financial deepening and growth is bi-directional in MENA countries: financial development granger – causes growth and growth granger – causes financial development.

**Keywords:** financial development, economic growth, dynamic panel data, panel causality test, MENA countries.

**Développement financier - Croissance économique Nexus: le cas les pays de MENA.**

**Résumé:** ce papier explore le lien entre la finance et la croissance économique sur 11 pays du Moyen-Orient et Afrique du Nord ,en utilisant les techniques de panel dynamique d'estimation (DOLS et FMOLS) et le test de causalité sur les données de panel pendant la période 1980-2012, et aussi utilisé l'analyse en composantes principales pour construire l'indice du développement financier. Les résultats ont montré que la relation entre l'approfondissement financier et la

**Les cahiers du MECAS .....N° 12/ Juin 2016**

croissance économique est bidirectionnelle dans les pays de la région MENA: le développement financier cause la croissance et la croissance cause développement financier.

**Mots clés:** développement financier, croissance économique, données de panel dynamique, test de causality, pays de MENA.

**1- Introduction:**

The issue of the determinants of economic growth has gained the attention of economists and policy makers. Both of them have tried to explain the differences in the economic performance of the developing and the developed countries and answer by the same occasion the question of why countries grow at different rates?, financial development is one of the determinants that try to link economic growth and the level of development of the financial systems across countries. Furthermore, the importance of the role that is played by the financial system is fostering economic growth and development through the mobilization of savings and the insurance that these resources are efficiently allocated into the productive sector (Schumpeter 1911, Levine 1997, Goldsmith 1969, Gurley and Shaw 1955, Hicks 1969 , Patrick 1966). In addition, the well-functioning of the financial system will improve the quality and the quantity of the investments that can spur economic growth rates. This is mainly due to the ability of financial development to reduce market frictions (information asymmetry and transaction costs) which will ensure a higher allocational efficiency of the available financial resources towards the most productive investments (King & Levine, 1993 a, 1993b, Levine 1997, Pagano, 1993, Levine & Zervos, 1998, Pagano, 1993).

Financial development is the most important element in the economic process. This is showed by the theoretical and the empirical studies. According to Gurley & Shaw (1955), Goldsmith (1969) and Hicks (1969), there is a positive relationship between the financial and the real sector. McKinnon (1973) and Shaw (1973) have focused on the impact of financial liberalization, which leads to higher efficiency of the financial development. This will certainly increase the level and the volume of the saving-investment process, and thus increase growth rates, furthermore a growing empirical literature in fact demonstrates that the financial liberalization has positive effects on (i) the long-run rate of economic growth and/or (ii) the volume and/or efficiency of investment (Fry, 1995).

According to the endogenous growth theory, financial intermediaries can play a key role in improving the productivity of the capital (Greenwood & Jovanovic, 1990, Bencivinga & Smith, 1991, Saint-Paul, 1992, Pagano, 1993). This is usually achieved through two main ways: (i) The collection of information and the evaluation of alternative investments which will result in a better allocation of the resources; (ii) Providing investors with opportunities of diversification and

hedging from risks. This will drive individuals to invest in riskier but more productive alternatives (Pagano, 1993).

The recent view has linked between financial liberalization and endogenous growth theory (Ang, 2008, De Gregorio & Guidotti, 1995, Benhabib & Spiegel, 2000, Beck et al. 2000, Levine & Zervos, 1998). It states that financial development contributes in economic growth through two complementary channels: Capital accumulation and productivity of capital.

As most of the developing countries, MENA countries have implemented various financial reforms (application of financial liberalization policy). These reforms aimed to deepen and improve the efficiency of the financial sector in order to make it the important channel in the economic process.

Therefore, the purpose of this work is to investigate the empirical relationship between financial development and economic growth in MENA countries, the main question of the present research is the following :**Does financial development affect economic growth or it results in a faster economic growth in MENA countries?**

The study employs dynamic panel data and panel granger –causality test for achieving the objective of this study that determines the nature relationship between financial development and economic growth ,**‘the direction of causality is crucial for the choice of the development strategy: one could argue that, only in the case of supply –leading, policies should aim to financial liberalization, whereas in the case of demand –following ,more emphasis should be placed on other growth-enhancing policies ( Calderon, and L. Liu, (2003) ,p:331) ,also contribute to clarify the ambiguity between financial system and growth with using financial development index ,..however,the causal nature of this relationship between financial development and economic growth has not been fully explored either theoretically or empirically ( Patrick ,1966,p:01)..**

The paper is organized as following: the first section provides a literature review of the link between the financial system development and economic growth. The second section deals with the empirical evidence about the effects of financial development on economic growth, the direction of causality between the financial and the real sector in MENA countries. The third section describes the data, the estimation methods and presents the empirical results.

## **2- The theoretical framework :**

### **The link between financial development and economic growth**

The oldest theoretical contribution about the relationship between the development of the financial system and economic growth goes back to Joseph Schumpeter (1911) who has explained the role of financial intermediaries in the economic development process through its ability to choose and

finance the most productive investments. According to this view, financial intermediaries improve the efficiency of credit allocation, which will have a positive impact on productivity and technological advancement. These elements will boost economic growth rates (Schumpeter, 1911). Ross Levine (1997) indicated that financial development plays an important role in the economic activity through its functions that mobilize savings, evaluate projects, manage risks, monitor managers and facilitate transactions. All this will contribute in stimulating the saving-investment process and technological growth, and thus economic growth (Levine, 1997).

Joan Robinson (1952) stated that: “*Where enterprise leads, finance follows*”. According to his view, the economic development creates and stimulates demand for financial services, which will increase the competition and the efficiency of the financial intermediaries (banks) and the financial markets. This will lead to the improvement of the quantity and the quality of the services that are provided by the financial system. Furthermore, financial development is a response and a result of the development of the real sector (Demand Following Hypothesis), which states that economic development leads to an improvement of the financial system.

The link between the financial system and growth has been studied by several researchers who aimed to clarify and explain the differences in the level of financial development. The latter is related to the differences in economic development across countries. Gurley & Shaw (1955), Hicks (1969) and Goldsmith (1969) found a positive relationship between financial development and economic growth rates. They concluded that financial development stimulates economic growth through the increase of the activity of intermediaries. Goldsmith (1969) has connected the development of the financial system and the efficiency of the investment. He stated that: “*Financial development accelerates economic growth and improves economic performance to the extent that it facilitates the migration of funds to the best user, i.e. to place in the economic system where the funds will yield the highest social return*” (Goldsmith, 1969, p.400).

Furthermore, Patrick (1996) stated that the relationship between financial development and economic growth depends on the country’s level of economic development; a high level of economic development will stimulate the demand for financial services, this will lead to higher efficiency among financial intermediaries and financial markets (**Demand Following Hypothesis**). On the other side, information that is made available by financial intermediaries allows investment projects to be more efficient. Thus, a higher capital accumulation and a higher economic growth will be achieved (**Supply Leading Hypothesis**).

Moreover, the works of McKinnon (1973) and Shaw (1973) about financial liberalization policies stated that the latter is a result of financial repression that is exercised by many developing countries through various tools (credit ceilings, directed credit schemes, lending targets, lending lists, controlled interest rates, capital controls, state owned banks, specialized banks, entry barriers , repressed capital markets.....) that facilitate the intervention of the government in the financial

## **Les cahiers du MECAS .....N° 12/ Juin 2016**

system. Financial repression does not encourage the collection of financial resources to finance the productive projects (decreasing the volume of investments). All this will harm economic rates. According to Shaw (1973) and McKinnon (1973), financial liberalization is a solution for the developing countries to achieve a high level of development through the development of the financial system.

Not all researchers agree on the positive effect of financial liberalization .In fact, Minsky (1975, 1991) and Diaz-Aliejandro (1985) stated that financial liberalization leads to financial instability and financial crises. Stiglitz (1994, 2000) indicates that government intervention (financial repression policies) can reduce market failures and improve the performance of the economy.

In addition to the previous points of view, many other economists such as Lucas (1988), Chandavarkar (1992), Stern (1989) and Modigliani & Miller (1958) have declared that the development of the financial system is not and important factor in the economic development process.

The endogenous growth supporters stated that financial intermediation affects growth through the productivity of capital (Greenwood &Jovanovic, 1990, Bencivinga& Smith, 1991, Saint-Paul 1992, Pagano, 1993). Financial development increases productivity through the amelioration of market frictions (information asymmetry and transaction costs) (Levine, 1997). Thus, savings are allocated in a more efficient way. This will result in a higher productivity of the capital and a higher growth (Pagano, 1993,p:615).

The growth theory states that the financial system development can influence economic growth through two main channels: The capital accumulation channel and the productivity of capital. The capital accumulation channel (quantitative channel) increases the level of savings; more funds will be available for investment. The productivity of the capital (quantitative channel) can improve the process of collection and analysis of the information to make more efficient investments. It can also evaluate different investment projects. This will contribute in diminishing the problem of information asymmetry and improve the efficiency and the quality of investments through the allocation of the financial resources in the best possible way (De Gregorio &Guidotti, 1995, Ghirmay 2006, Ang,2008, Pagano, 1993, Levine, 1997, Bethélemy&Varoudakis, 1988). Furthermore, it will reduce and hedge against risk by diversifying the investments.

The recent view has associated both financial liberalization and endogenous growth theory. Financial development influences economic growth through two channels (Ang, 2008). According to Shaw(1973) and McKinnon (1973), financial liberalization improves the efficiency of the financial system. This will increase the level of savings and investments. According to this point of view, financial liberalization contributes in increasing the volume and the amount of investments. On the other hand, the endogenous growth theory stated that financial development

## **Les cahiers du MECAS .....N° 12/ Juin 2016**

promotes the efficiency and the productivity of the capital through the allocation of the financial resources at the most productive spots (Ang, 2008, De Gregorio & Guidotti, 1995, Ghirmay, 2006, Ang, 2008, Pagano, 1993, Levine, 1997, Berthélemy & Varoudakis, 1998).

### **3- Empirical evidence:**

Now that we have dealt with the theoretical aspect of the subject, let's examine the empirical evidence that deals with the relationship between the development of the financial system and growth.

The empirical evidence concluded that the differences in the level of financial development may explain the differences in the economic development across countries. These studies have focused either on measuring the effect of financial development on economic growth (supply Leading hypothesis) or on examining the direction of causality between the financial and the real sector. Some of the empirical studies have tried to emphasize the role of transmission channels in improving economic growth (Ang, 2008). This can be achieved through the capital accumulation channel. It can also influence its productivity through the use of various financial development and growth indicators. In addition to various econometric approaches such as sectional regression, panel data and time series methods. These methods have generated different results. Most of it has agreed that there is a link between financial development and economic growth. However, the direction of causality varied from a country to another.

According to some researchers, the difference of the results may be explained by : (i) the indicators that are used to proxy the financial development (Adul et al 2013, Ewetan & Okudua, 2013, Kouki, 2013); (ii) the institutional factors or policies that may play a key role in determining the way financial development affects economic growth (Arestis & Demetriades, 1998, Demetriades & Law, 2006, Minea & Villieu, 2010, Law & Habibullah, 2006, Mishkin, 2009); (iii) the link between finance and growth may be non-linear (Deidda & Fattouh, 2002, Rioja & Valev, 2003, Rousseau & Wachtel, 2002, Berthélemy & Varoudakis 1998); (iiii) the econometrical problem that did not take into consideration the long and the short run between the proxies of financial development and growth.

This issue has been addressed by Goldsmith (1969), who has examined the relationship between financial development and economic growth in 35 countries. He concluded that there is a positive relationship between financial intermediation and economic growth through the channel that focuses on the importance of financial institutions in collecting resources for investment projects. However, the study was not able to show the direction of causality between the financial and the real sector.

King & Levin (1993a) have examined data from 80 countries during the period of 1960-1989. They have employed across-country evidence with OLS and many other proxies of the development of

**Les cahiers du MECAS .....N° 12/ Juin 2016**

the banking system. They found a positive correlation between the indicators of financial development and the proxy of economic growth, capital accumulation and total factors productivity growth.

Demetriades&Hossein (1996) examined the relationship between financial development and economic growth in 16 countries. They found that the direction of causality depends on the characteristics of the financial system across countries (In some of the countries, the relation was found to be bi-directional and in other countries unidirectional)

Ben Naceur&Ghazouani (2007) aimed to examine the effect of the banking system and financial market development on economic growth in 11 countries from the MENA region, using GMM approach with various indicators of financial development. They found a negative relationship between the financial system development and growth. They also linked this result with the under development of the financial systems of the countries under study.

Boulila&Trabelsi (2002) investigated the causal relationship between the banking system development and economic growth in Tunisia. They found evidence of finance leading growth during the period of 1963-1987 (period of financial repression). They also found a bi-directional causality from 1962 to 1998. The study concluded that there is weak evidence to support the idea that the financial system contributes to the economic process in Tunisia.

Adu George et al (2013) aimed to examine the effect of financial development on economic growth in Ghana. They found that the effect depends on the employed proxies of financial development. (The result is sensitive to the choice of the indicators of financial development). The study has employed various measures of financial development including private-sector credit/GDP; private-sector credit/ total domestic credit, broad money/ GDP, narrow money/ broad money, currency/ broad money, currency/ GD, total domestic credit/ GDP, Total bank deposit liabilities/ GDP, and real deposit interest rates, during the period of 1961-2010 using ARDL model.

Alaoui Moustain (2004) and Charti&Maaruf (2013) are among the studies that have tested the financial-led growth hypothesis on Morocco, using VAR and VECM models with various indicators of the banking system and the stock market. They found that the results highly depended on the selected proxies of financial development. Results indicated that Morocco should keep promoting development through more financial reforms in order to spur the real sector.

The studies of Bakhouch (2007) and Lacheheb et al (2013) attempted to determine and analyze the effect of financial development on the real sector in Algeria, (Test of Supply Leading Hypothesis) using the ARDL model. Their findings show that financial development does not affect the economic growth in Algeria. This is due to the under developed banking system that needs many financial reforms in order to accelerate growth in Algeria.

**Les cahiers du MECAS .....N° 12/ Juin 2016**

The study of De Gregorio & Guidotti (1995) aimed to re-examine the relationship between financial development and economic growth. They tried to determine the channels that can affect growth, using the bank credit to private sector to GDP. They found that the main transmission channel from financial development to economic growth is the efficiency of investments (productivity of capital channel).

Levine & Zervos (1998) aimed to examine the effect of financial development on growth using cross-sectional data for 47 countries over the period of 1976-1993 with the OLS method. They found that stock market liquidity and banking sector development both positively affect the real GDP per capita, capital accumulation and productivity growth.

Beck et al (2000) has examined data for 77 countries during the period of 1960-1995. The development of financial sector was found to be robustly and positively correlated with both real per capita GDP and TFP Growth. The results also provide some support to the positive role of financial development on both capital accumulation and private saving rate. However, these links were found to be statistically weaker.

Benhabib & Spiegel (2000) applied the GMM estimator on the Argentinean, Chilean, Indonesian and the Korean data from 1965 to 1985. They found that financial development positively affects both investment rates and FTP growth. However, the results were sensitive to the inclusion of the country fixed effects, and to many other indicators of financial development.

Rioja & Valev (2003) examined the effect of financial development on economic growth through capital accumulation and productivity growth in many countries. They explained the difference in the level of financial development using a GMM approach and three proxies of financial development. They found that financial development had a positive and strong effect on economic growth through the productivity channel in the developed countries, and through the capital accumulation channel in the developing countries. They concluded that the relationship may vary according to the level of financial development.

Ang (2008) has tried to examine the link between financial development and economic growth, in addition to focusing on the mechanisms that connect both the financial and the real sectors in Malaysia. The study has used six equations namely: financial development, private saving, private investment, foreign direct investment, the saving-investment correlation, aggregate output and ARDL model during the period of 1960-2003. It was found that financial development has a significant positive impact on economic growth in Malaysia through the quantitative channel (capital accumulation) and qualitative channel (productivity of investment).

Ghirmay (2006) investigated the relationship between financial development and economic growth. The study attempted to determine the channel through which financial development



influences economic growth. This will mainly increase the level of investment, the productivity or both of them at the same time. This study was applied on US data during the period of 1970-2001. He found that the financial system development affects economic growth through capital accumulation and productivity channels. There is no support to the hypothesis of a reverse causality from the real to the financial sector. The study concluded that financial development (market-based financial system) had a positive and a significant effect on the economic development in the US.

**3-Data and Methodology:**

This study aims to reexamine the link between financial development and economic growth in MENA countries. Furthermore, determine the direction of causality from financial development to economic growth (assuming that financial development affects economic growth: supply-leading hypothesis):

***H<sub>1</sub>: Does financial development promote economic growth in MENA countries?***

On the other hand, there is other hypothesis that examines the reverse causality from economic growth to the financial system development.

***H<sub>2</sub>: Does economic growth cause development in the financial system MENA countries?***

Depends on the above hypotheses, we can use the following models:

$$\text{Economic growth} = f(\text{financial development})$$

$$\text{Financial development} = f(\text{economic growth})$$

$$LGDPPC_{it} = \alpha + \beta FD_{it} + \delta X_{it} + \varepsilon_{it} \tag{1}$$

$$FD_{it} = \alpha + \beta LGDPPC_{it} + \delta X_{it} + \varepsilon_{it} \tag{2}$$

***LGDPPC<sub>it</sub>***:Economic growth is measured by the logarithm of Real GDP per capita as used in the literature.

***FD<sub>it</sub>*** : Financial development index.

The data used in our study is annual panel data for 11 MENA countries( Algeria ,Morocco,Tunisia,Egypt ,Iran,Bahrian,Jordan,Kuwait,Turkey,Oman, Lebanon) that covering the period from 1980 to 2012. The data was collected from the ***World Development Indicators*** (WDI) dataset for GDP per capita and the indicators of financial development from ***Financial Structure and Economic Development Database***.

The present study relies on various indicators and proxies that have been employed by (Shaw 1973; McKinnon, 1973; Fry 1995). These indicators measure the degree of bank intermediation toward the private sector in the developing and emerging of financial markets or absence in some countries (Bank-Based). This is one of the widely used measures (proxies) of financial

**Les cahiers du MECAS .....N° 12/ Juin 2016**

development (De Gregorio&Guidotti 1995, Benhabib& Spiegel, 2000, Adu et al 2013, Beck et al, 2000, Levine and Zervos, 1998) that can measure the quantity and the quality of services that are provided by financial intermediaries, “*the ratio of bank credit to private sector to GDP is more directly linked to investment and economic growth*” (Gregorio &Guidotti, p, 434), so financial development promotes economic growth through capital allocation channel.

We used *Money* and quasi money: the ratio of broad money (currency plus demand deposits and quasi-money) to GDP (M2/GDP) .*Thirdly*, the ratio of commercial bank assets to the sum of commercial bank assets and central bank assets (BASSET): we use this indicator to capture the overall size and depth of commercial banks the financial sector to the whole banking system.

We follow various empirical studies in constructing a single measure of financial development(FD) by using the three indicators of financial development mentioned above and using principal component analysis(PCA). We do this for two reasons. First, it addresses the problem of multicollinearity, or the high correlation between the various financial development indicators. Second, there is no general consensus as to which measure of financial development is most appropriate.

Table 01 presents the results of the principal component analysis. The first component is the only one with a high eigenvalue and it explains about 58% of the variation of the dependent variable. The second principal component explains another 33%, and the last principal component accounts for only 9% of the variation. Hence, it is clear that the first principal component has the maximum explanatory power. We use it therefore as our financial development indicator (FD).

*Table01: Principal component analysis for the financial development index.*

<b>Component</b>	<b>Eigen value</b>	<b>Difference</b>	<b>Proportion</b>	<b>Cumulative</b>
<b>Comp1</b>	1.72909	0.744656	0.5764	0.5764
<b>Comp2</b>	0.984439	0.697973	0.3282	0.9045
<b>Comp3</b>	0.286466		0.0955	1.00000

Number of comp.=3.

In order to determine the direction of causality between financial development and economic growth , there are different econometrics methods . Co-integration is the most appropriate technique to study the long-run relationship between financial development index and logarithm of gross domestic product per capita. The empirical stages used in this paper divided into four main steps. First, unit root tests in panel data. Second, if they are integrated of the same order, the co-integration tests are used. Third, if the series are co-integrated, the vector of cointegration in the long term is estimated by using the methods (FMOLS) and (DOLS).Fourth, after estimating the long run relationship using FMOLS and DOLS methods, we proceed to Panel Granger Causality.

**3.1: Panel Unit root tests:**

First, we will check if the variables under study do have a unit root or not. This is usually done in order to confirm the stationarity of each variable. We have employed the panel unit root tests. Results are summarized in the following table :

*Table02 : unit root test for panel data*

Dep.Var LGDPPC			Dep.Var FD		
Regressors	DOLS	FMOLS	Regressors	DOLS	FMOLS
<b>FD</b>	0.171223* [0.019235] (0.0000)	0.186868* [0.017995] (0.0000)	<b>LGDPPC</b>	2.883881* [0.308622] (0.0000)	2.823013* [0.287385] (0.0000)
<b>R-squared</b>	0.986009	0.978872	<b>R-squared</b>	0.854565	0.794618
<b>Adj. R-squared</b>	0.982947	0.978189	<b>Adj. R-squared</b>	0.822736	0.787974

\* Significance at 1% and \*\*Significance at 5%.

All variables are non-stationary panel in level, but in first differences all variables are stationary. The stationarity for all variables in the first difference leads us to study the existence of a long-term relationship. Therefore, that all variables are integrated of order one I (1).

**3.2- Cointegration test:**

The panel data under study are all of the order one I (1). We will now check if these are cointegrated in order to confirm the results of causality between financial development and growth , we apply Pedroni tests for panel cointegrations , The results are as follows:

**Table03 : Conitegration test**

Null hypothesis : unit root						NullHypothesis: Stationarity		
Variables	Levin, and (LLC)	Lin Chu	Breitung t-stat	Im, Pesaran And Shin (IPS) W-stat	MW-ADF Fisher Chisquare	MW-PP Fisher Chi-square	Hadri Z-stat	Heteroscedastic consistent Zstat
<b>Level</b>								
<b>FD</b>	1.23396 (0.8914)		0.34492 (0.6349)	0.63452 (0.7371)	16.8068 (0.7739)	19.6532 (0.6047)	4.64691* (0.0000)	3.28496* (0.0005)
<b>LGDPPC</b>	-0.83164 (0.2028)		0.36365 (0.6419)	-0.65004 (0.2578)	28.5400 (0.1585)	26.9658 (0.2125)	7.28666* ( 0.0000)	5.56877* (0.0000)
<b>First difference</b>								
<b>FD</b>	2.25795** (0.0120)		-5.7221* ( 0.0000)	5.72502* (0.0000)	71.9998* (0.0000)	156.849* (0.0000)	0.25609 (0.3989)	0.74408 ( 0.2284)
<b>LGDPPC</b>	-4.38465* (0.0000)		-3.1771* (0.0007)	-7.03667* ( 0.0000)	90.6252* ( 0.0000)	280.473* ( 0.0000)	1.59418 (0.1554)	1.07907 (0.1403)

The results obtained show the relevance and power of co- integration tests in panel compared to the tests of time series. In this step, we estimate the long-term relationships using FMOLS methods and DOLS estimators Proposed by Pedroni (2000, 2001) and Mark and Sul (2002) .

**3.3- Estimated long-term relationship with DOLS / FMOLS method**

**Table04 : Panel Co-integration Estimation using DOLS and FMOLS.**

<i>(within-dimension)</i>				
			<i>Weighted</i>	
	<i>Statistic</i>	<i>Prob.</i>	<i>Statistic</i>	<i>Prob.</i>
<b>Panel v-Statistic</b>	2.220226	0.0132	1.825076	0.0340
<b>Panel rho-Statistic</b>	-0.914746	0.1802	-0.492714	0.3111
<b>Panel PP-Statistic</b>	-2.147851	0.0159	-1.625763	0.0520
<b>Panel ADF-Statistic</b>	-2.882628	0.0020	-2.428150	0.0076
<i>(between-dimension)</i>				
	<i>Statistic</i>	<i>Prob.</i>		
<b>Group rho-Statistic</b>	0.016092	0.5064		
<b>Group PP-Statistic</b>	-1.611597	0.0535		
<b>Group ADF-Statistic</b>	-2.062837	0.0196		

\* Significance at 1%.

results are shown in table which exhibits estimation results of the LGDPPC-FD regression model by DOLS and FMOLS models of panel co-integration estimation. The estimation results confirm a statistically significant positive association between LGDPPC and FD in

**Les cahiers du MECAS .....N° 12/ Juin 2016**

both directions. Furthermore, the effect of economic growth on financial development index (coefficient of regressors =2.883881) is more important compared, to the impact of financial deepening on the logarithm of GDP per capita (coefficient of regressors =0.171223). This suggests that the economy's financial development boosts economic growth and economic growth tends to stimulate further financial development in MENA countries.

**3.4 Testing for the panel Granger non-causality:**

*Table05* : Results of Dumitrescu-Hurlin Panel Granger Non-Causality Test.

<b>Pairwise DumitrescuHurlin Panel Causality Tests</b>				
<b>Null Hypothesis:</b>	<b>W-Stat.</b>	<b>Zbar-Stat.</b>	<b>Prob.</b>	<b>Decision</b>
<b>LGDPPC does not homogeneously cause FD</b>	7.72789*	4.88629*	1.E-06	LGDPPC → FD
<b>FD does not homogeneously cause LGDPPC</b>	5.40589*	2.33214*	0.0197	FD → LGDPPC

\* Significance at 1%, Note: Lag length selected automatically on the basis of the SBC.

The test of causality shows that there is bi-directional causality between financial development and growth. Results are summarized in Table5. It is concluded that financial development affects economic growth, and vice versa at the 1% levels of significance. In addition, there is evidence about a reversed causality from economic growth to the financial system development in MENA.

**SUMMARY AND CONCLUSION:**

This study investigated the possible relationship the causal nexus between financial development and economic growth in MENA countries, with particular attention to use the variables that proxies the financial intermediaries ( banks ). The study employs financial development index for measuring the level of development in the financial system in selected countries that are 11 from MENA region and logarithm of GDP per capita as an indicator of economic growth ,data covered the period between 1980 and 2012. The study has employed the dynamic panel data approach and the panel Granger non-causality test . Results show the existence of a causal relationship between financial development and economic growth that is bi-directional direction in MENA countries.

**References :**

1. Adu G, Marbuah G and Tei Mensah J (2013) . Financial development and Economic Growth in Ghana: Does the measure of financial development matter? » Review of Development Finance 3, pp 192- 203.
2. Alaoui Moustain, F (2004) « Does financial Development cause Economic growth? An empirical investigation drawing on the Moroccan Experience » .Working paper N°2004/045.Lancaster University Management School.
3. Ang J.( 2008). A survey of recent development in the literature of finance and growth .Journal of economics Surveys ,Vol.22N°3 ,pp 536-576.

**Les cahiers du MECAS .....N° 12/ Juin 2016**

4. Ang, J. B. and McKibbin, W. J. (2007) Financial Liberalization, Financial Sector Development and Growth: Evidence from Malaysia. *Journal of Development Economics*.
5. Bagehot, W. (1873). *Lombard Street: A Description of the Money Market*. No source specified.
6. Bakhouch Abderezek (2007). Does the financial sector promote economic growth? A case of Algeria » savings and development, Vol .31, N°1(2007), pp.23-44.
7. Beck ,T. , Levine ,R. and Loayza, N. (2000) . Finance and the Sources of Growth. *Journal of Financial Economics* 58, 261-300.
8. Beck, T., and Levine., R.(2004). Stocks markets, banks, and growth: panel evidence. *Journal of Banking & Finance* 28, 423-442.
9. Ben Naceur ,S., and Ghazouani ,S., (2007) . Stock market, Banks ,and economic growth: Empirical evidence from MENA region .*Research International Business and Finance* 21 , 297-315.
10. Benhabib, J. and Spiegel M., (2000). The role of financial development in growth and investment .*Journal of economic growth* , 5 : 341-360 .
11. Berthelemy, J-C., and Varoudakis, A., (1996). Economic Growth, Convergence Clubs and the Role of Financial Development,” *Oxford Economic Papers*, 48, 70-84.
12. Boulila .G and M.Trabelsi, (2002).”Financial development and long run growth: Granger Causality in a bi-variate VAR Structure, Evidence from Tunisia: 1962- 1997 .*Faculté des sciences Economiques et de Gestion de Tunis (FSEGT)*.
13. Calderon, C. and Liu, L. (2003). The direction of causality between financial development and economic growth. *Journal of Development Economics* ;72: 321–334.
14. Cameron, R.E., Crisp, O., Patrick, H.T., Tilly, R. (1967). *Banking in the Early Stages of Industrialization*. Oxford University Press, New York.
15. Chandavarkar ,A., (1992) .Of finance and development :Neglected and Unsettled Questions ,” *World Development* ,20(1) , pp : 133-142.
16. Chatri and Maaruf (2014) “Cointegration and causality between financial development and economic growth: Evidence from Morocco”, *Indonesian Capital Market Review* Vol 6, N°1, ISSN:1979-8997.( pp. 1-18).
17. Cho. Y, J (1986) .Inefficiencies from Financial Liberalization in the absence of well – functioning Equity Markets . *Journal of Money , Credit , and Banking* . Vol .18, N°2.
18. Choong ,C., and Chan. S., (2011) . Financial Development and Economic Growth:A review. *African Journal of Business Management*. Vol 5,(6),pp ,2017-2027.
19. Cihák Martin, Demirgüç-Kunt, A., Feyen, E. and Levine ,R. ( 2013) . Financial Development in 205 Economies , 1960 to 2010 . Working Paper 18946.
20. Damodar N.G., (2004). *Basic Econometrics*. The McGraw-Hill, International Edition, 04<sup>th</sup> edition.
21. De Gregorio, J. and Guidotti, P.E. (1995) .Financial development and economic growth. *World Development*, Vol. 23, No. 3, pp.433–448.

**Les cahiers du MECAS .....N° 12/ Juin 2016**

22. Diaz –Alejandro, C. (1985). Good –bye financial repression, Hello financial crash .Journal of development Economics 19(1985)1-24.
23. Favara, G. (2003). An Empirical Reassessment of the Relationship between Finance and Growth. IMF Working Paper, 03/123, European I Department.
24. Fry , M.J. (1995). Money, Interest, and Banking in Economic Development . Baltimore, MD: The Johns Hopkins University Press.
25. Goldsmith, R. W. (1969). Financial Structure and Development. New Haven: Yale University Press.
26. Greenwood, J. and Jovanovic, B. (1990) .Financial development, growth, and the distribution of income. Journal of Political Economy, Vol. 98, No. 5, pp.1076–1107.
27. Greenwood, J. and Smith, B.D. (1997) .Financial markets in development, and the development of financial markets. Journal of Economics Dynamics and Control, Vol. 21, No. 1, pp.145–181.
28. Gregorio, G. and Guidotti, P. (1992). Financial Development and Economic Growth. International Monetary Fund, IMF Working Papers 92/101.
29. Gurley, J. and Shaw, E. S. (1956). Financial Intermediaries and the Saving-Investment Process. The Journal of Finance, 11(2):pp. 257-276.
30. King R., and Levine. R., (1993). Finance, Entrepreneurship, and Growth: Theory and Evidence. Journal of Monetary Economics 32: 513-542.
31. Kouki Imen (2013) .Financial development and economic growth in the north Africa region », African Development Review, Vol 25, N°4, pp. 551-562.
32. Lacheheb et al (2013) “Openness, financial development and economic growth in Algeria: An ARDL bound testing approach» International journal of Economics, Finance and Management sciences, 2013 1(6):400-405.
33. Levin, Lin. and Chu.(2002). Unit root tests in panel data: Asymptotic and finite-sample properties", Journal of Econometrics, vol 108, no 1, 1–24.
34. Levine, R., and Zervos. S. ,(1998) .Stock Markets, Banks, and Economic Growth. American Economic Review 88: 537-558.
35. Levine, R. (1997). Financial development and economic growth: views and agenda. Journal of Economic Literature, Vol. 35 No. 2, 688-726.
36. Lucas, R. E., (1988). On the Mechanics of Economic Development. Journal of Monetary Economics, 22, 3–42.
37. Mark, N.C., Sul, D., (2002). Cointegration vector estimation by panel DOLS and long-run money demand. NBER Technical Working Papers 0287, National Bureau of Economic Research, Inc..
38. McKinnon, R. I. (1973). Money and Capital in Economic Development. Washington, D.C.: Brookings Institution.
39. Modigliani, F., and Miller, M., (1958). The Cost of Capital, Corporation Finance, and the Theory of Investment. American Economic Review 48: 261-297.

**Les cahiers du MECAS .....N° 12/ Juin 2016**

40. Odedokun, M., O. (1996 ). Alternative econometric approaches for analysing role of Financial sector in economic growth: Times series evidence from LCDs. *Journal of development Economics* .Vol ,50 (1996) 119-146.
41. Pagano ,M. (1993) .Financial markets and growth: An overview .*European Economic Review*, 37, 613-622.
42. Patrick ,H., (1966) .Financial Development and Economic Growth in Underdeveloped and Cultural Chane, Vol,14, N° .2., pp. .174-189.
43. Pedroni, P., 2000. Fully modified OLS for heterogeneous cointegrated panels. *Adv. Econ.* 15, 93–130.
44. Pedroni, P., 2001. Purchasing power parity tests in cointegrated panels. *Rev. Econ. Stat.* 3 (A), 121.
45. Robinson, J.(1952) .The Generalization of the General Theory,”in *The Rate of Interest and Other Essays*. London: Macmillan.
46. Saint-Paul,G. (1992). Technological Choice, Financial Markets and Economic Development. *European Economic Review*, 36(4):763-781.
47. Schumpeter, J., (1911).*The Theory of Economic Development*. Oxford: Oxford University.
48. Shaw, E. S. (1973). *Financial Deepening in Economic Development*. New York: Oxford University Press.
49. Singh ,A.,(1997).Financial liberalization, stock markets and economic development. *The Economic Journal*Vol 107, Issue 442, pages 771–782.
50. Stern, N., (1989) .*The Economics of Development : A Survey* . *Economic Journal* ,1989,99(397) , pp:597-689.
51. Stiglitz J., and Weiss A.(1981). Credit Rationing in Markets with Imperfect Information . *The American Economic Review* , Vol 71,Issue 3,393-410.

**Tables list :**

Table01: Principal component analysis for the financial development index.

Table02 : unit root test for panel data.

Table03 : Conitegration test

Table04 : Panel Co-integration Estimation using DOLS and FMOLS.

Table05 : Results of Dumitrescu-Hurlin Panel Granger Non-Causality Test.