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Hamdi, Helmi and Hakimi, Abdelaziz

Aix-Marseille University CERGAM (4525), France, Faculty of Law,
Economics and Management of Jendouba, Tunisia

12 May 2015

Online at <https://mpra.ub.uni-muenchen.de/64310/>
MPRA Paper No. 64310, posted 14 May 2015 13:09 UTC

Did banks and financial markets developments lead to economic growth in MENA region? Evidence from Dynamic panel data estimation

Helmi HAMDI*,

Aix-Marseille University CERGAM (4525), France

Corresponding author. Tel.: + 973 17547947; fax: + 973 17532274. E-mail address:

helmi_aix@yahoo.fr

Abdelaziz HAKIMI,

Faculty of Law, Economics and Management of Jendouba, Tunisia

abdelazizhakimi@yahoo.fr

Abstract

This study examines the consequences of banks and stock markets developments on economic growth for eleven Middle Eastern and North African (MENA) countries for the period from 1995 to 2010. We perform dynamic panel data estimation and we use GMM estimator as suggested by Arellano and Bond (1991). The overall results suggest a positive relationship between banking and financial developments and economic growth. The results reveal that stock markets in MENA countries are still at an early stage of development and the sector needs the implementation of deep policy reforms to attract investors and to promote the contribution of the financial market in economic development.

JEL classification: E44; G20; O16

Keywords: Financial development, Economic growth, MENA, Dynamic Panel Data

1.Introduction

Since the pioneering works of Bagehot (1873) and Schumpeter (1912/1934), the role of banks in economy has received a great deal of attention. Bagehot described the crucial role of banks during the industrial revolution of the UK in the beginning of the 19th century while Schumpeter studied the role of banks in the economy through the allocation of capital and the creation of wealth. In the middle of the 20th century, the emergence of financial markets in advanced economies has led to the born of numerous studies analyzing the added-value of financial sector as a whole in economic development. Goldsmith (1969), McKinnon (1973) and Shaw (1973), were the first economists who analyzed in detail the causal relationship between finance and economic growth. The authors are considered as the founders of the financial repression school and they opine in their studies that the financial sector plays an important role in economic growth. Precisely, Goldsmith concentrates his research on the consequence of financial superstructure of a country on the acceleration of economic growth to the extent that the economic performance is related to the movement of funds to the best projects available. However, McKinnon and Shaw underline the government boundaries, such as interest rate ceilings, high reserve requirements, and directed credit programs, that hamper financial development, and eventually reduce growth.

Goldsmith (1969), McKinnon (1973) and Shaw (1973), recommend the liberalization of the financial sector to sustain growth rates of savings and investment and improve capital efficiency. Since this conclusion, several papers were dedicated to examine the causal relationship between finance and growth relationship in many countries by the use of different empirical and theoretical methodologies. The most famous study was conducted by King and Levine (1993),

which highlight the important role of the banking system and financial market development in economic growth. They demonstrated a strong correlation between GDP as an indicator of economic growth and size of the financial system. The studies of Beck and Levine (2006) and Beck *et al* (2000) show that the development of the banking system and the modernization of financial market can lead to economic growth if there exists low information asymmetry, low transaction costs and an optimal allocation of resources. Caporale *et al.* (2004) also found the similar result and they conclude that a well functioning financial market can promote economic development. The study of Shan and Jianhong (2006) for China case study demonstrated the existence of a positive relationship between financial development and economic growth and they found that the financial sector is the second largest contributor of growth after the workers income in Chinese economy. The relationship between the financial and economic sphere has a double meaning of causality.

Despite the abundance of literature on finance and growth, there are few articles on Middle East and North Africa (MENA) region. Abu-Bader and Abu-Qarn (2006) have used a VAR approach for five MENA countries during the period of 1960-2004 and their results show no strong evidence between financial development and economic growth in the long-run. Ben Naceur and Ghazouani (2007) have gathered data for eleven MENA countries and they have performed an unbalanced panel data. They found that banks and stock markets are complements rather than substitutes in the growth process.

In this paper we use a new empirical approach to examine the relationship between banks, stock market development and economic growth in MENA region. In addition, we introduce new variables, such as financial liberalization and crisis, which in our knowledge, have never been

explored before. Moreover, our analysis covers the *pre* and *post* subprime crisis which may give better results. The remainder of the paper proceeds as follows. Section 2 elaborates the finance and growth literature. Section 3 describes the data, model specification and the results. Section 4 concludes.

2. Banks, financial market and economic growth: the dilemma

While the works of McKinnon (1973), Shaw (1973) and Levine (1993, 1997, 1998) recommend the liberalization of the financial sector to enjoy high economic growth, the studies Demirgüç-Kunt and Detragiache (1998), Fisher and Chenard (1997), and Plihon and Miotti (1997) suggest the opposite recommendation. In this section we briefly give an overview of literature of the two viewpoints.

2.1. The positive effects of financial and banking sector development on economic growth

Economic growth in an advanced economy depends on the degree of development of its financial sector. A modern financial sector is capable to collect domestic savings and mobilizes foreign capital for productive investments. Moreover, it is capable to transform unexploited projects into productive projects.

Empirically, pioneering works of Goldsmith (1969), McKinnon (1973) and Shaw (1973) suggest a positive relationship between financial sector developments and economic growth. They opine that an inefficient financial system and poor capital markets discourage foreign investors because generally speaking, underdeveloped markets suffer from a lack of liquidity and signify high transaction costs. In this case, the local economy becomes unattractive and investment activities remain underdeveloped. Authors call for a financial liberalization program and the

adoption of structural reforms in the banking and financial sector in order to attract foreign direct investment and to boost the local economy. According to authors who recommend financial liberalization, the financing activities through the financial market are more effective than financing through debts for many reasons. First, it is less expensive (reducing the intermediation costs), second it is more flexible and secure for lenders and finally, it allows an optimal allocation of resources. The optimal allocation of financial resources leads to an acceleration of growth rate.

Authors suggest that the modernization of the banking system through the liberalization of interest rates, the liberalization of credit and the encouragement of banking competition through the opening of the banking sector to foreign banks, are the only effective ways to develop the banking intermediation and spur economic growth. The development of the banking system through liberalization of interest rates (deposit rates more precisely) will encourage the accumulation of savings. Depositors seeking for strong returns on their deposits will prefer saving their money instead of keeping them under mattresses. The saving accumulation will be served as source of investment financing. Investment will create employment and increase productivity and thus improve the level of economic growth. According to the opinion of the financial repression school, we can build a first hypothesis in which we opine a positive relationship between the banking and financial development and economic growth (H1). We divide this hypothesis into the two following assumptions:

H1-1 there is a positive relationship between banking development and economic growth.

H1-2 there is a positive relationship between financial development and economic growth.

2.2. The negative effects of financial and banking sector development on economic growth

Many economists have argued that the development of stock market has a slight consequence to economic growth and many others, called the “Neo-Structualist School”, have argued that the relationship between financial market development and economic growth is negative. These authors have especially focuses on the consequences of the implementation of liberalization program on the real economic activities and they severely criticized the supporters of financial repression school. For example Laizoz (2006) argued that liberalization of financial markets might have adverse effects on growth if curb markets are more and more effective than official money market in financing investment. In another perspective, Jeanneney and Kpodar (2004) have studied the relationship between financial development and financial instability. They found that the stimulation of the banking system and financial market development in a context of financial openness, led in most cases to banking and financial crises followed by a slowdown in economic growth. According to Plihon and Miotti (2001), the financial liberalization policies adopted by several developing countries as a solution to boost the banking sector and strengthen the financial market structure, were followed by an accentuation of the banking crisis and the emergence of new risky behaviors. The trade and finance opening and the liberalization of the capital account are the main cause of the recent financial instability. This financial instability leads in most cases to the fragility of the banking system and increase the probability of financial crises. According to opinion of Neo-Structualist School, we will build another hypothesis which suggests the existence of a negative relationship between banking and financial development and economic growth (H2). We divide this hypothesis into the two following assumptions:

H2-1: there is a negative relationship between bank development and economic growth.

H2-2: there is a negative relationship between financial development and economic growth.

3. Empirical study

The objective of this section is to model the relationship between banks, financial markets and economic development in the MENA region. However, before starting the empirical analysis, it is worth to give a look on the evolution of some financial indicators of our selected MENA countries.

3.1. Indicators of financial development in MENA countries

To provide insight into the nature of the relationship between financial developments, banking and economic growth in MENA region, we selected three indicators for 11 countries to better understand their evolution over the time. These indicators are market capitalization, private credit and GDP per capita.

The market capitalization and private credit are seen as a proxy to measure the effectiveness of the banking sector. They show the ability of banks to collect savings and allocate credit to productive investments. Generally speaking, when the banking and financial sectors work well, they will contribute to the improvement of the infrastructure of the economy and they will also improve the GDP per capita.

Figure 1: Evolution of GDP per capita (%), Market capitalization and private credit for 11 MENA countries

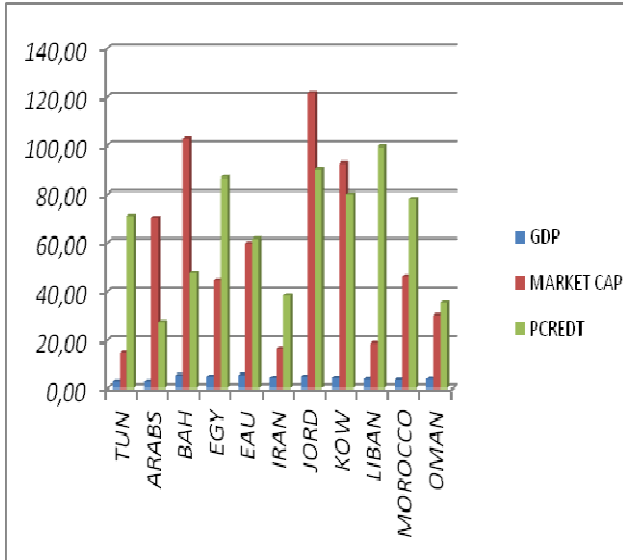
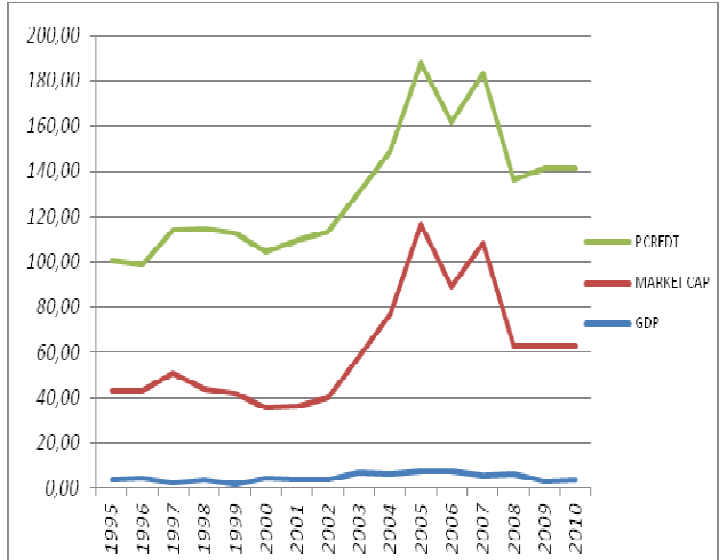


Figure 2: Annual evolution of GDP per cap (%), Market capitalization and private credit for 11 MENA countries from 1995 to 2010



Source: World development indicators 1995-2010 (WDI)

The graph 1 shows that most countries of MENA region have a low average growth rate of GDP per capita. This rate varies between 3% and 5% for Saudi Arabia and the UAE respectively. In addition, we can see that some countries have a more developed financial market than others with reference to market capitalization indicator.

Jordan seems to be the country with the most dynamic financial market with an average level of market capitalization of 121.53. This country was followed by Bahrain with a level of 102.89. In the other side, Tunisia and Lebanon are experiencing the least developed capital markets with respectively an average level of market capitalization 14.73 and 18.62.

The level of banking credit to the private sector is satisfying in most MENA countries. This shows the importance of the banking sector in the economies of MENA countries as the

dominant source for financing. Banks in Lebanon provide the highest credit to the private sector (99.45) followed by Jordan (90.30) and Egypt (86.96). The significant level of credit to private sector reflects the weak contribution of the financial market and the use of traditional financial intermediaries as the primary source of financing.

Figure 2 illustrates the evolution of the 3 indicators from 1995 to 2010. The most remarkable conclusion of this graph is the identical trend of the three curves which may reflect causality or independency between the three variables. We can see from the graph 2 that the subprime crisis has affected the financial sector of MENA region given the drop of the three indicators during 2007-2009.

3.2. *Data and methodology*

Our sample is made up of 11 countries observed for the period from 1995 to 2010. The econometric model used is the General Methods of Moments estimator (GMM) estimation for panel data. Data on the development of the banking system, financial market and economic growth are obtained from the World Bank database while other variables are obtained from other sources¹.

With reference to pioneering works of Levine, Zervos and Sara (1998) and Beck and Levine (2002) our model can be specified as follows:

$$GDP_{i,t} = \beta_0 + \beta_1 Pcredit_{i,t} + \beta_2 Bequity + \beta_3 Marketc_{i,t} + \beta_4 Tosh_{i,t} + \beta_5 Flib_{i,t} + \beta_6 FDI + \beta_7 Opns_{i,t} + \beta_8 Inf_{i,t} + \beta_9 Crise_{i,t} + \beta_{10} Polins_{i,t} + \mu_i \dots \dots \dots (1)$$

¹ Arab monetary fund and central banks of each country

Table below defines the different variables of the model, their expected sign as well as their source.

Table 1: Definitions, measurements, source of data and expected signs

Variables	Definitions et mesures	E.S	Source
GDP _{i,t}	Growth rate of real GDP per capita		WDI
GDP _{i,t-1}	Growth rate of real GDP per capita lagged	(+)	WDI
PCREDIT	Bank credit to the private sector to GDP	(+)	WDI
BEQUITY	The ratio of capital/Total assets, capital includes equity capital and reserves	(+)	WDI
MARKETC	Market capitalization relative to GDP per capita	(+)	WDI
TOSH	Share turnover = value of equity relative to market capitalization	(+)	WDI
FLIB	Dummy variable, takes 0 before and 1 after the LIB	(-)	Authors
FDI	measured by FDI relative to GDP	(+)	WDI
OPNS	Opening rate measured by the total X ° and M ° relative to GDP.	(+)	WDI
INF	Inflation rate is the increasing rate of CPI	(-)	WDI
CRISE	Dummy variable takes the value 0 before 2008 and after a year.	(-)	Authors
POLINS	Dummy variable takes the value in times of political stability in a period of political instability	(-)	Authors

We use GMM estimator as suggested by Arellano and Bond (1991) to overcome the problem of variables endogeneity. In addition, time-invariant country characteristics (fixed effects), such as geography and demographics, may be correlated with the explanatory variables. The fixed effects are contained in the error term in equation (1), which consists of the unobserved country-specific effects, v_i , and the observation-specific errors, ε_{it} : $u_{it} = v_i + \varepsilon_{it}$. (2).

In our model, GDP is the variable and it is written as follows:

$$GDP_{i,t} = \beta_0 + \beta_1 GDP_{i,t-1} + \beta_2 Pcredit_{i,t} + \beta_3 Bequity + \beta_4 Marketc_{i,t} + \beta_5 Tosh_{i,t} + \beta_6 Flib_{i,t} + \beta_7 FDI_{i,t} + \beta_8 Opns_{i,t} + \beta_9 Inf_{i,t} + \beta_{10} Crise_{i,t} + \beta_{11} Polins_{i,t} + \mu_i \dots \dots \dots (2)$$

3.3. Results

This section deals with the results of the study, we start by analyzing the descriptive statistics of the different variables which are provided in table 1 below.

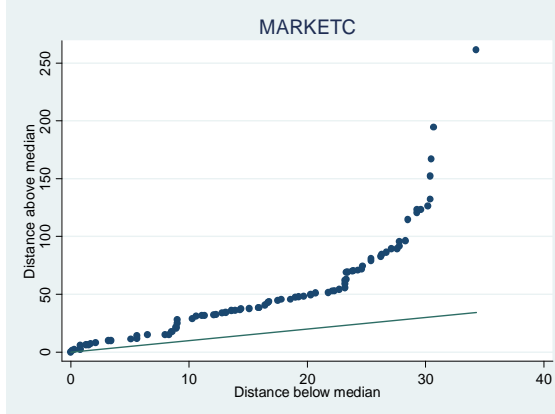
Table 2: descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Gdp	176	4.462864	2.996755	-6.6	17.3
gdplag	176	.0030282	3.866136	-14.4	18.8
marketc	175	56.43069	48.43989	3.4	299
tosh	176	32.74545	41.07667	1.5	288.4
pcredt	176	70.41648	38.03296	-4	191.2
fdi	176	514.3317	1052.663	-200.09	7062.44
inf	176	4.865057	6.053621	-1.3	49.7
topns	176	86.88193	39.44044	30	196
flib	176	.5056818	.5013942	0	1
crise	176	.1875231	.3914262	0	1
polins	176	.2840909	.4522671	0	1

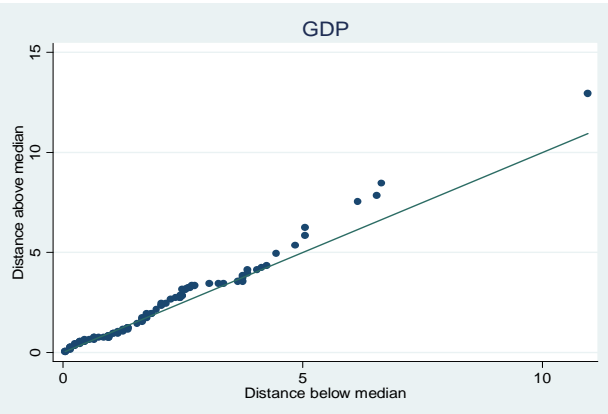
The descriptive statistics show that the average growth rate of real per capita GDP is 4.45% with a maximum of 17.3% and a minimum of -6.6%. For the financial market we find that the average market capitalization to GDP per capita is around 56.43 while the average credit provided to private sector reached the level of 70.25. The level of credit to private sector indicates the importance of traditional financial intermediaries in MENA region. As for foreign direct investment to GDP, this indicator remains low for the 11 MENA countries with a mean value of 517.25, a maximum of 7062,447 and a minimum of -200.0922.

Distributional graphs of variables (Distance between median)

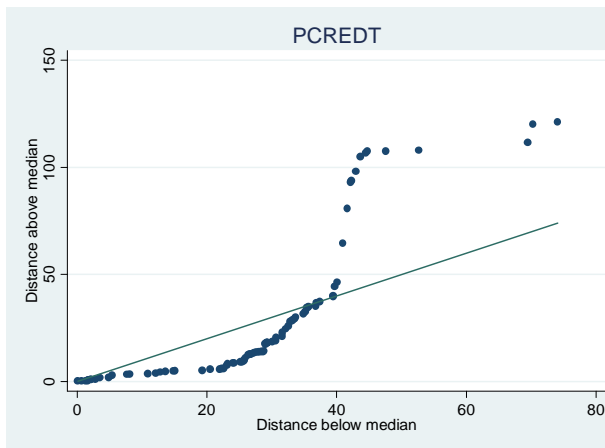
Market capitalisation



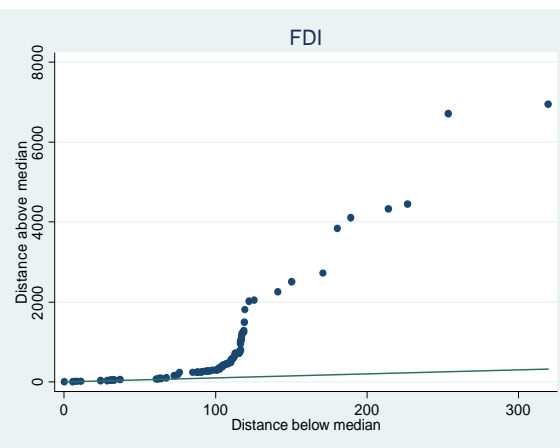
Growth of GDP



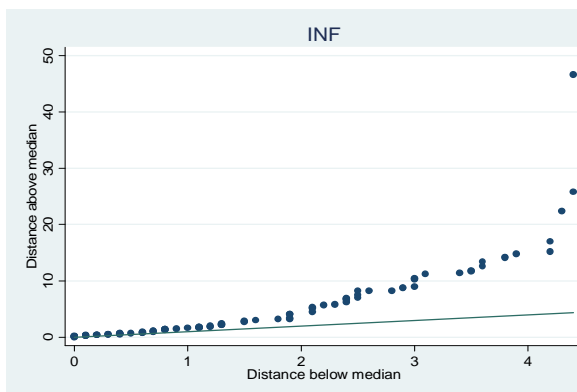
Private credit



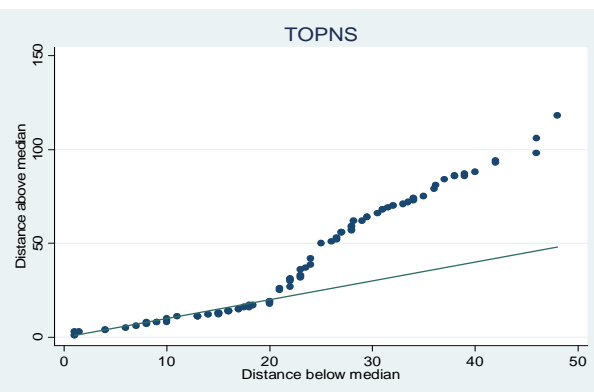
foreign direct investment



Inflation rate



Economic opening



The level of correlation between the different variables, as presented in table 2, is very small except for the relation between GDP and GDP_{t-1} (54.44%). This reflects the absence of multicollinearity between the variables.

Table 3: Correlation Matrix

	gdp	gdpt-1	marketc	tosh	pcredt	fdi	inf	topns	flib	crise	polins
gdp	1.0000										
gdpt-1	0.5444	1.0000									
marketc	0.3328	-0.0060	1.0000								
tosh	-0.0597	-0.0442	0.4572	1.0000							
pcredt	0.0092	-0.0087	-0.0258	-0.1698	1.0000						
fdi	0.1283	0.0051	0.1343	0.1898	0.0364	1.0000					
inf	-0.0714	-0.0123	-0.1810	-0.0217	-0.1500	0.2355	1.0000				
topns	0.2661	0.0120	0.6023	0.0639	-0.1633	-0.1426	-0.2937	1.0000			
flib	0.1134	-0.0269	0.0027	0.1232	-0.0770	0.2450	-0.1396	-0.2928	1.0000		
crise	-0.0153	-0.0725	0.0224	0.1066	0.0785	0.1198	0.1822	0.1162	0.0382	1.0000	
polins	-0.0166	0.0051	-0.1746	0.0041	0.3459	-0.0500	0.3482	-0.3431	-0.1867	0.0525	1.0000

The results of the model are presented in table 3 below. They show that GDP_{t-1} is positively and significantly correlated with the dependent variable (GDP). This means that growth rate of real GDP of a current year (t) depends of the GDP of the previous year (t-1).

The results show that market capitalization is acting positively and significantly on the growth rate of GDP per capita despite the low value of the coefficient (2.8%). Broadly, it is well known that capital markets in emerging economies did not contribute efficiently in the development process.

Table 3: GMM panel dynamic regression

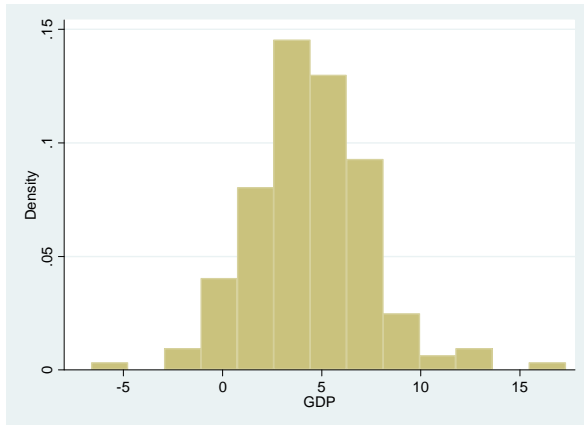
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.060434	1.994120	1.033255	0.3031
GDP t-1	0.509594	0.050190	10.15124	0.0000***
MARKETC	0.028334	0.008414	3.367458	0.0010***
TOSH	-0.024493	0.008373	-2.925337	0.0037**
PCREDIT	0.115184	0.034481	3.340517	0.0010***
BEQUITY	0.011810	0.000875	1.529330	0.0000***
FDI	6.18 ^E -05	0.000275	0.224648	0.8225
INF	-0.396061	0.054941	-7.208090	0.0000***
TOPNS	0.037886	0.023376	1.620747	0.1071
FLIB	0.019797	0.006904	2.867302	0.0047**
CRISE	-0.182172	1.406761	-0.129497	0.8981
POLINS	-0.471022	0.806196	-0.584252	0.5592
Wald chi2 (11)		151.06		
Prob chi2		0.0000		
Nb of instruments		64		

***, **, * significant respectively at 1%, 5% and 10%

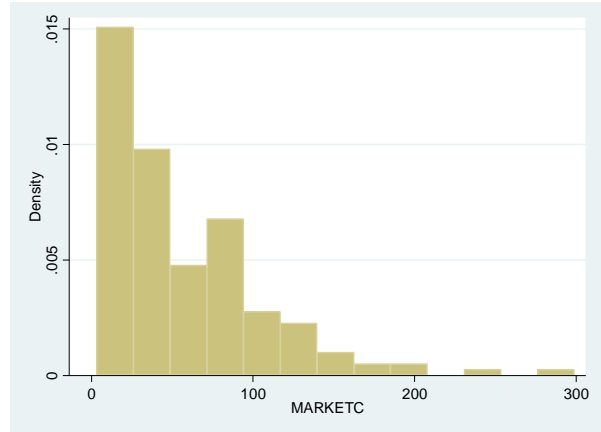
Despite the numerous financial reforms and the modernization in the financial and banking sector in many MENA countries, stock market remains at a very early stage of development. However, without an efficient capital markets, investors have limited means to diversify their portfolios and they will shun equity stakes because they are very risky. In this case, it is obvious that capital market became incompetent to contribute to economic growth. Empirical evidence from Demirgüç-Kunt and Huizinga (1999, 2001) and Arestis (2005) show that banks have greater profit opportunities in countries having well-developed stock markets, providing endorsement for the complementary effects.

Histograms for continuous and categorical variables

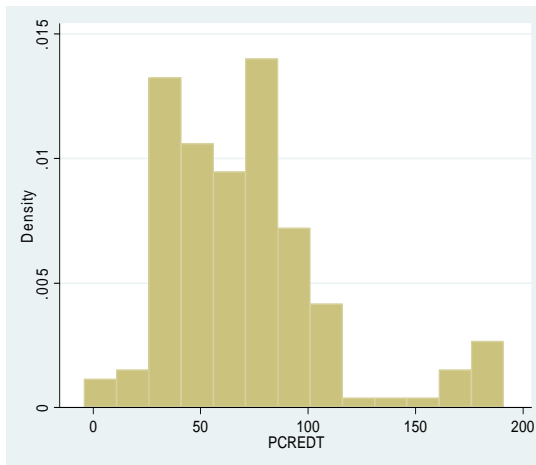
Growth of GDP



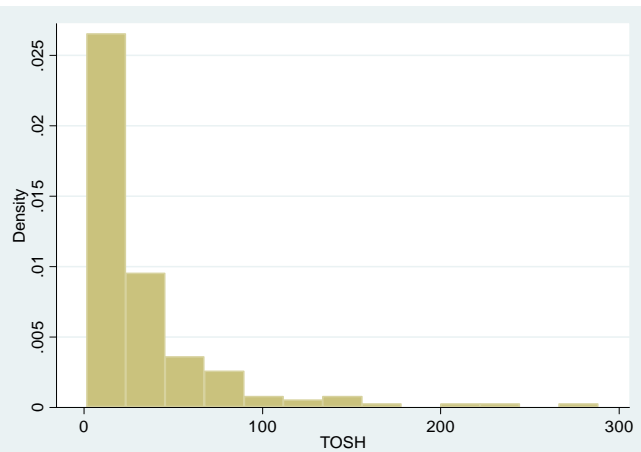
Market capitalisation



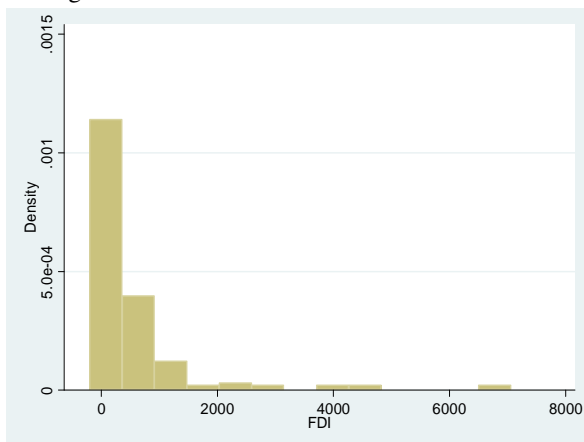
Private credit



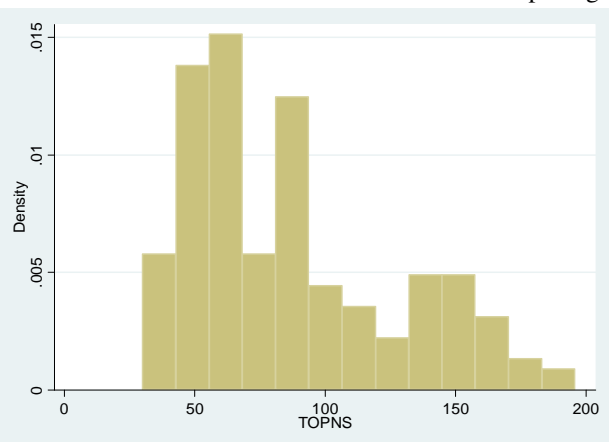
Turnover of shares



Foreign direct investment

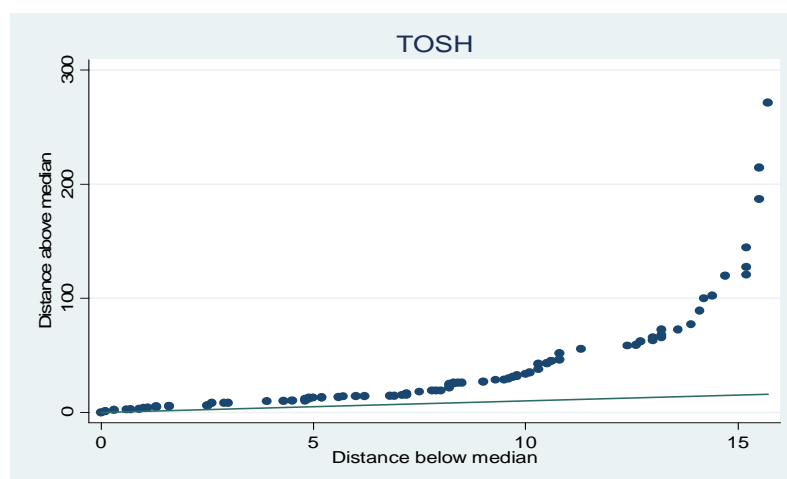


Economic opening



The turnover ratio (TOSH), captured by the value of trades divided by market capitalization to capture the efficiency of the domestic stock markets, exerts a negative and significant effect on economic growth. High turnover is often used as an indicator of low transaction costs and it complements the market capitalization ratio in our case, le coefficient is low which indicates the need to improve the functioning of financial markets in the MENA region in order to contribute to economic growth.

Turnover of shares



Contrary to recent theoretical and empirical literature acknowledging the negative impact of financial liberalization (FLIB) on economic growth, our results confirm the recommendations of McKinnon (1973) and Show (1973). According to pioneering works of these authors, financial liberalization is the only effective way to ensure economic development. Our results support this thesis and find a positive and significant relationship between financial liberalization and economic growth in MENA. It is important to mention that almost half of the countries in our study did not conduct the process of financial openness. In addition, those who have opted for liberalization programs, the policy of liberalization was partial and gradual, such as Tunisia and

Morocco. This liberalization was different than that recognized in Latin America and South East Asia countries and is characterized by an accelerated pace, an institutional and economic environment and unfavorable sequence evil chains.

Regarding the effect of banking development, the variable (PCREDIT) acts in a positively and significantly in the growth rate of real GDP per capita (GDP). This indicator shows the importance of banks in MENA economies and their role in promoting investment and credit distribution. Generally speaking, the higher is the ratio the more efficient is the banking sector and the more dynamic is the economy.

The variable (EQUITY) is positively and significantly linked with the growth rate of GDP per capita. This variable is measured by the ratio of capital and reserves of banks over total assets. The higher is this ratio, the more the bank is covered against liquidity risk. It is able to provide the necessary liquidity for these clients and to finance the economy through the financing of business investment that many contributory to economic growth.

As for the other variables, the effect of foreign direct investment (FDI) and the rate of economic openness (TOPN) are positive but insignificant. One policy recommendation for governments of MENA countries is to look for new structural reforms to attract more foreign investment by ensuring a stable political environment (negative impact to growth) and by offering an attractive fiscal policy to investors.

Contrary to the positive and not significant (FDI) and (TOPN), there is a negative and significant relationship between inflation and economic growth. Microeconomics' history shows that high inflation rate hamper investments and reduces the attractiveness of the economy and competitiveness of domestic firms. Inflation may so slowdown economic growth. To avoid the

negative effect of inflation on economic growth governments should determine the origins of inflation in the MENA region and then implement the proper responses to limit its fluctuation.

4. Conclusion

The aim of this paper is to investigate the relationship between banking and financial development and economic growth in the MENA region. Our sample is based on 11 countries observed during the period 1995-2010. We performed an empirical study based on dynamic panel data estimation (GMM). The results reveal the existence of a positive relationship between banking development and economic growth through the improvement of financing to the private sector which is become one of the major factor of economic development. This positive relationship is also found between financial development and growth. Our study shows that financial markets in MENA need in reality some changes and modernization, by implementing new reforms and new policies and strategies.

In our study financial liberalization appears to pushes economic growth given the positive and significant correlation between the two variables. This conclusion contradicts the results of several empirical studies that underline the negative impact of financial openness on economic development. Economic growth in the MENA region is not influenced by the level of inflation and the volume of foreign direct investment. Despite the importance of FDI in creating value, reducing unemployment and boosting economic growth, the effects is found to be insignificant. This encourages the MENA governments to encourage FDI by promoting a stable political and social environment and implementing an attractive fiscal stability. Following these results, we conclude that the development of banking and financial sectors has a positive effect on economic

growth in the MENA region. This allows accepting the hypothesis H1: there is a positive relationship between the banking and financial development and economic growth.

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