

FINANCE AND GROWTH NEXUS: WHAT ROLE FOR INSTITUTIONS IN DEVELOPED AND DEVELOPING COUNTRIES?

HELMY HAMDI, ABDELAZIZ HAKIMI, AND RASHID SBIA

*Aix-Marseille University CERGAM (4225), France
Faculty of Law, Economics and Management of Jendouba, Tunisia
Ministry of Finance, UAE*

The main purpose of this paper is to investigate the relationship between financial sector development and economic growth taking into consideration the role of institutions quality. Our sample is on a group of 143 countries observed during the period of 2006-2013. The sample is divided into 100 developing and 43 developed countries. Using structural GMM the paper shows that financial sector plays a crucial role in economic development and growth for the whole sample as well as for developed and developing countries. However, the results show that unlike developing countries, developed countries enjoyed the presence of proper institutions in their countries which in turn have contributed further to the development of their financial sector.

Keywords: Finance, growth, institutions, developed and developing countries
JEL Classification: C23, E44, G0, O0

1. INTRODUCTION

The past decades have witnessed a growing literature on the finance-growth relationship. This relation has been extensively studied since the pioneering works of Schumpeter (1911) who argued that financial intermediaries play a pivotal role in economic development since they are the main channel by which economy get funds. The role of the financial sector has received a special attention by Gurley and Shaw (1955), Goldsmith (1969), McKinnon (1973), Shaw (1973), Jung (1986)). These authors believe that a well-developed financial sector contributes to promoting economic development and spur growth. This conclusion has motivated several researchers and academicians such as King and Levine (1993b), Levine et al. (2000) and Rousseau and Sylla (2003) to investigate the possible relationship between financial development and economic growth using country level study or/and panel data methodology for group of countries. However, the causal relationship between finance and growth appeared to be unclear. In fact, many authors have found a positive relationship between finance and

economic growth (Dollar (1992), Ben-David (1993), Sachs and Warner (1995), Edwards (1998), Wacziarg and Welch (2008), and Lucas (2009)), may others have found a negative relationship (Demirguç-Kunt and Detragiache (1998), Fisher and Chenard (1997), and Plihon and Miotti (1997)).

Even though, there is an implicit agreement among economists that finance leads to economic growth at least in at one stage. Most of the theoretical works aiming at explaining finance growth nexus have been very concentrated on the standard finance in general. Little attention has been given to the role of institutions in the finance-growth relationship. Therefore, for a more comprehensive analysis of the finance growth nexus, it was imperative to integrate the role institutions in such relationship's analysis. We think that conventional analysis of finance-growth nexus is more likely to underestimate the magnitude of the impact of institutions on the finance-growth relationship especially for developing countries and this was the principal motivation of this study. Moreover, in addition to the legal system and political system institutional variables and we have also used new important variables named cost of import and cost of export to reflect the ease of doing business. To the best of our knowledge, there is no study yet that employed such variables in the finance-growth relationship.

To test the relationship between finance, growth and institutions quality, we based our analysis on a group of 143 countries observed during the period of 2006-2013. The sample is divided into 100 developing and 43 developed countries. In this study, data are collected from the World Bank database. Precisely, we used macroeconomic variables, governance indicators and variables measuring doing business. Using structural GMM the paper shows that financial sector plays a crucial role in economic development and growth for the whole sample as well as for developed and developing countries. However, the results show that unlike developing countries, developed countries enjoyed the presence of proper institutions in their countries which in turn have contributed further to the development of their financial sector.

The structure of this paper is presented as follow: literature review is given in the section 2. In the section 3, we present data, methodology and the main results. In the section 4, we conclude and address some policy recommendations.

2. FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH: THE DILEMMA

While the works of McKinnon (1973), Shaw (1973) and Levine (1997, 1998) recommend the liberalization of the financial sector to enjoy high economic growth, the studies of Demirguç-Kunt and Detragiache (1998), Fisher and Chenard (1997), and Plihon and Miotti (1997) suggest the opposite recommendation.

Using time series data from 1990 to 2012, Zarrouk et al. (2017) tested the financial development-Islamic finance-growth causal nexus in the United Arab Emirates. Empirical results of bivariate vector autoregressive model show that there is a causality

running from financial development to economic growth. However, the reverse causality is not verified.

Hamdi et al. (2013) empirically examine the dynamic relationship between financial deepening, investment activities and economic growth for the case of Tunisia during the period 1961-2010. Using a multivariate framework based on Vector Error Correction Model and Cointegration techniques the results show that the short-run estimation reveals that finance does not lead to economic growth in Tunisia while the long-run results show the opposite conclusion. Further, it was shown that investment is the main engine of growth in the short-run and long-run as well.

Based on a sample of 87 developed and developing countries, Hook and Singh (2014) used an innovative dynamic panel threshold technique to test the relationship between finance and economic growth. The empirical results indicate that there is a threshold effect in the finance-growth relationship. More precisely, they found that economic growth positively reacts to financial development with an “optimal” level.

Based on a dataset from 286 Chinese cities over the period 2001–2006, Zhang (2012) investigated the relationship between financial development and economic growth. Empirical results from both traditional cross-sectional regressions and first-differenced and GMM in system indicate that most traditional proxies of financial development are positively correlated with economic growth.

For the case of the GCC countries, Hamdi et al. (2014) employed panel unit root tests and Error Correction Model and cointegration techniques to detect long-run and short-run causalities between the variables. The overall empirical results reveal that the financial sector development contributes significantly to economic growth in the GCC countries. The authors show that the financial sector could play a crucial role in lowering the dependency of the governments to oil revenues and could contribute significantly to spur economic growth.

On the other hand, many economists argued that the development of stock market has a slight consequence to economic growth and many others from the so called “Neo-Structuralist School”, found 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.

Empirically, many studies have been done. For example, Prochniak and Wasiak (2017) investigated the impact of the development and stability of the financial sector on economic growth. They have used a panel of 28 EU and 34 OECD economies observed during the 1993–2013 period. The Blundell and Bond’s GMM system estimation indicates that there is a non linear relationship between financial sector development (stability) and economic growth. Also, findings indicate that the large size of the financial system does not lead to more rapid economic growth. In contrary, it may negatively affect the GDP dynamics. For the MENA countries, Gasdar and Cherif (2015) tested the effect of institutional quality on the finance- growth nexus. To this end, they used data related to 18 MENA countries over the period 1984-2000 and they performed

the GMM estimators. They report that most of proxies of financial development exerts a negative effect on economic growth. However, this effect appears positive and significant for the interaction between variables. Also, results indicate that in presence of good quality of institutions, the association between finance and growth is more consistent. In another perspective, Jeanneney and Kpodar (2011) studied the relationship between financial development and financial instability. They found that financial development is accompanied by financial instability, led in most cases to banking and financial crises followed by a slowdown in economic growth.

Besides the positive or the negative effects of financial development on the economic growth, literature provides a third part which supports the absence of connection between those two indicators. For example, Menyah et al. (2014) have used a dataset for 21 African countries over the period 1965-2008 to examine the causal relationship between financial development and economic growth. As a proxy of financial development, they developed a financial development index based on four different financial development indicators. In the empirical approach, they performed the panel bootstrapped approach and the Granger causality. Major findings indicate that the hypothesis of the finance-led growth and the trade-led growth is limited.

More recently, Samargandi et al. (2015) explored if the relationship between financial development and economic growth is monotonic or not. To achieve this goal, they used a panel of 52 middle-income countries over the 1980–2008 periods. The empirical method performed in this study is based on the pooled mean group estimations in a dynamic heterogeneous panel. Empirical findings supported the existence of an inverted U-shaped relationship between finance and growth in the long-run. However, this relationship is insignificant in the short run.

3. EMPIRICAL ANALYSIS

3.1. Data and Methodology

To test the linkage between finance and growth taking into account the institutions quality, we used a dataset of 143 countries¹ observed during the period of 2006-2013. The sample is divided into 100 developing and 43 developed countries. In this study, data are collected from the World Bank database. Specifically, we used macroeconomic variables, governance indicators and variables measuring doing business. We investigated the problem of the possible endogeneity and reverse causality by the means of the system Generalized Method of Moment (GMM) estimator in dynamic panel data models initially proposed by Arellano and Bover (1995) and later by Blundell and Bond (1998). This method uses moment conditions based on the level equations together with the usual Arellano and Bond type orthogonality conditions to avoid the problem of

¹ For more details on the sample (developed and developing countries) see appendix 2 and 3.

inconsistency. System GMM could be considered as the most efficient technique in this type of research as it has a lower bias and higher efficiency than other estimators if certain persistence exists in the series (Soto, 2009).

3.2. Model Specification and Variables Definition

The estimation procedure is done in several steps. The first is to test the impact of the financial sector on economic growth for the whole sample and the two sub-samples namely: developed and developing countries using macroeconomic variables only. The econometric model can be written as follow:

$$Growth_{i,t} = \alpha_0 + \alpha_1 FD_{i,t} + \alpha_2 FDI_{i,t} + \alpha_3 Inv_{i,t} + \alpha_4 TO_{i,t} + \alpha_5 Dummy_{i,t} + \varepsilon_{i,t}, \quad (1)$$

where Growth denotes economic growth measured the GDP per capita growth (Demetriades and Hussein, 1996; Levine and Zervos, 1998; Arestis et al., 2001; Beck and Levine, 2004, Hassan et al. 2011). FD denotes financial sector development proxied by credit to the private sector (Levine et al., 2000, Liu and Li, 2001; Guariglia and Poncet, 2008; Chen, 2006, Demirgüç-Kunt and Levine, 1996, Hook Law and Singh, 2014, Gazdar and Cherif. 2015, Omri et al. 2015). FDI is the foreign direct investment as a share of GDP. Traditionally, FDI shows the provision of external financing resources in the form of direct investments in the reporting economy from foreign investors and to external economies by domestic investors. Several studies have highlighted the role of FDI in the level of growth (Zhang et al. 2012, Adu et al. 2013, Samargandi et al. 2015). TO is the trade openness and it is measured as the sum of export and import to GDP (OPEN). The trade-to-GDP ratio is frequently used to measure the importance of international transactions relative to domestic transactions. Trade openness has been considered as a key factor for economic growth (Levine et al. 2000, Beck et al. 2000, Huang et al. 2010, Zhang et al. 2012, Menyah et al. 2014). In vest the domestic investment activities measured by the gross fixed capital formation to GDP. More precisely, it measures the net increase in fixed capital. Dummy is a dummy variable that is equal to 1 if it is a developed country and 0 otherwise.

In the following steps, we gradually introduce the variable (*Inst*) to the model in order to assess the role of institutions in financial sector development. This approach is interesting as it differentiate between the direct and indirect effect of the variables used and their relation with the dependant variable. Papyrakis and Gerlagh (2004) used the same methodology to detect the direct and indirect effect of institution separately. Therefore, the model will take the following new expression:

$$Growth_{i,t} = \alpha_0 + \alpha_1 FD_{i,t} + \alpha_2 FDI_{i,t} + \alpha_3 Inv_{i,t} + \alpha_4 TO_{i,t} + \alpha_5 Inst + \alpha_6 Dummy_{i,t} + \varepsilon_{i,t}, \quad (2)$$

where *Inst* is set of institutional variables that will be introduced to (1). These

variables give information on the legal and the political system of our sample to investigate whether they affect the finance-growth relationship. As proxies, we used the legal enforcement of contracts (RLAW), regulatory quality (REGQU), voice and accountability (VAAC), political stability and absence of violence or terrorism (POLIS). All those variables are ranged between -2.5 and 2.5. The value of -2.5 implies weak governance. In contrary, the value of 2.5 indicates strong governance. Empirical evidences have confirmed the link between good governance and successful development and have stimulated demand for monitoring the quality of governance across countries and within individual countries over time (Gradstein, 2004; Huynh and Jacho-Chávez, 2009; Aidt et al. 2008; Dzhumashev, 2014).

We also include some variables, which refer to the business environment² such as the total tax rate (TAX), the cost of import (COSTI) and the cost of export (COSTE). A high cost of export and import causes disequilibrium in the trade balance, which can depreciate the local currency and slowdown the economic level. Further, a high cost of international transactions can be considered as a barrier for the foreign investment (North, 1990; Mlodkowski and Bywaters, 2012, Bussolo and Whalley, 2003). In the same line of idea, a high tax rate leads to a profit and added value reduction which decreases the level of growth. As Dummy is a dummy variable, which refers to developed countries, therefore we will provide two outputs in two different tables: one for developed countries and the second for developed countries.

Table 1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
GDPPC	300	1,772	3,888	-11,260	15,744
FDI	293	5,818	6,617	-17,951	53,811
OPEN	268	91,303	34,563	23,751	191,368
INVES	333	22,938	5,284	10,550	46,017
CPS	320	114,440	59,001	10,545	311,063
GOVEFF	301	1,220	0,618	-0,326	2,430
POLIS	301	0,715	0,568	-1,623	1,514
REGQU	301	1,181	0,552	-0,964	1,967
VACC	301	0,888	0,796	-1,857	1,754
RLAW	301	1,184	0,620	-0,714	2
TAX	314	39,561	18,847	0	108
COSTE	312	726,500	391,236	11	1562
COSTI	312	787,516	421,478	1	1825

² It should be noted that the last three variables are available only from the year 2006 and for this reason that we started our study from this year.

3.3. Results and Interpretation

3.3.1. Statistics and Correlation Matrix

In the empirical section, we start our analysis by providing some descriptive statistics for all the variables described above including means, maximums, minimums and standard deviation and then we present the correlation coefficients of the variables used in our models.

Table 1 above indicates that the average value of GDPPC is 1.772% with a maximum of 15.74% and a minimum of -11.26%. The average FDI inflow in our sample is about 5.18%. It records a maximum of 53.81% and -17.95% as a minimum value. The degree of openness appears satisfactory. On average, it registered 91.303 and 191.36% as a maximum value. With regard to the domestic investment, the average value is 22.93% and the maximum value is 46.01%.

GOVEFF, POLIS, REGQU and VACC are considered as institutional variables. They reflect the quality of governance. These values run from -2.5 to 2.5, with higher values corresponding to better governance. On average, these variables reveal positive value. We can conclude that globally the quality of governance of our sample is medium. However, it's forth to notice that these indicators indicate strong values. For example, the maximum of GOVEFF is 2.43 which is very near to 2.5 and which reflect a good and strong quality of governance in some countries of our sample. In addition, we find that the maximum value of REGQU is about 1.967, which indicates better governance. Bad quality of governance is running from political stability (POLIS) and voice and accountability (VACC). Descriptive statistics show that POLIS registered -1.623 as a minimum value. Almost, the same level for VACC with a level of -1.857.

Variables that represent business environment and which are able to affect the domestic and the foreign investment are taxation (TAX), cost to export (COSTE) and cost to import (COSTI). The average cost of export and import are almost the same with a value of 726.5\$ per container for export and 787.51\$ per container for import. Also, there is no strong difference for the maximum values. Descriptive statistics indicates maximum values of 1562\$ per container for export and 1825\$ per container for export.

After providing descriptive analysis about all variables used in this research, Table 2 below presents the nature and the level of correlation between the variables. The correlation matrix shows whether the correlation is negative or positive, weak or very high and significant or not so that we can detect the presence or the absence of multicollinearity problem. From the Table 2, we conclude that the level of correlation between all variable is very weak which implies the absence of multicollinearity problem.

Table 2. Correlation Matrix

	GDPPC	OPEN	INVES	FDI	CPS	RLAW	REGQU	VACC	POLIS	GOVEFF	TAX	COSTE	COSTI
GDPPC	1.0000												
OPEN	0.0505	1.0000											
	0.4252												
INVES	0.0155	0.0320	1.0000										
	0.0908	0.6043											
FDI	0.1283	0.3389	-0.0234	1.0000									
	0.0290	0.0000	0.6920										
CPS	0.0071	-0.0248	-0.2649	0.1052	1.0000								
	0.9051	0.6963	0.0000	0.0806									
RLAW	-0.0137	-0.0441	-0.1039	0.1066	0.6107	1.0000							
	0.8241	0.4739	0.0743	0.0874	0.0000								
REGQU	-0.0043	0.0715	-0.1113	0.1465	0.5860	0.9011	1.0000						
	0.9439	0.2449	0.0559	0.0185	0.0000	0.0000							
VACC	0.0159	0.1280	-0.3374	0.1565	0.5292	0.6567	0.6682	1.0000					
	0.7971	0.0370	0.0000	0.0118	0.0000	0.0000	0.0000						
POLIS	-0.0128	-0.0115	0.0787	0.1077	0.2074	0.5722	0.4863	0.4689	1.0000				
	0.8355	0.8519	0.1769	0.0843	0.0004	0.0000	0.0000	0.0000					
GOVEFF	-0.0044	0.0243	-0.1102	0.0727	0.5730	0.9230	0.8771	0.6281	0.5583	1.0000			
	0.9430	0.6935	0.0583	0.2445	0.0000	0.0000	0.0000	0.0000	0.0000				
TAX	-0.0440	0.2304	-0.1513	0.1530	-0.1691	-0.1708	-0.1550	0.3987	-0.0406	-0.1151	1.0000		
	0.4693	0.0003	0.0083	0.0123	0.0039	0.0047	0.0103	0.0000	0.5045	0.0575			
COSTE	-0.0501	0.1817	-0.0055	0.2423	0.0826	0.0323	0.0188	0.0915	0.0210	-0.0062	-0.0360	1.0000	
	0.4114	0.0045	0.9237	0.0001	0.1622	0.5965	0.7576	0.1328	0.7312	0.9194	0.5268		
COSTI	0.0238	-0.0756	-0.0288	0.2289	0.0004	-0.0640	-0.1148	0.0356	-0.0245	-0.1617	0.1231	0.2808	1.0000
	0.6968	0.2404	0.6187	0.0002	0.9952	0.2937	0.0591	0.5593	0.6880	0.0076	0.0297	0.0000	

Note: Values in parentheses below coefficients represent the level of significance at 1%, 5% and 10%

3.3.2. Output of the model

We employ the GMM in system (SGMM) as econometricians agreed that it improve the GMM estimator in the first differenced (DGMM) model in terms of bias and root mean squared error. According to Blundell and Bond (1998), the SGMM estimator performs better than the DGMM estimator because the instruments in the level model remain good predictors for the endogenous variables in this model even when the series are very persistent (Bun and Windmeijer, 2010). Generally, the Arellano and Bond (AR) test for autocorrelation has a null hypothesis of no autocorrelation and is applied to the differenced residuals. The test for AR (1) process in first differences generally rejects the null hypothesis. The test for AR (2) in first differences is more important, because it will detect autocorrelation in levels. The validity of the instruments through Sargan test of over-identifying restrictions and a test of the absence of serial correlation of the residuals. The output of the whole sample is displayed in table 3 below.

Table 3. Results of Panel (A) for the Full Sample

	GDPPC	GDPPC	GDPPC	GDPPC
L.GDPPC	0.140 (5.46)***	0.139 (4.31)***	0.141 (4.50)***	0.083 (2.21)**
OPEN	0.050 (5.24)***	0.070 (4.94)***	0.068 (4.76)***	0.082 (4.38)***
INVES	0.051 (1.53)	0.068 (1.62)	0.077 (1.76)*	0.075 (1.77)*
FDI	0.011 (0.17)	-0.036 (0.63)	-0.045 (0.76)	-0.041 (0.74)
CPS	0.074 (4.60)***	0.100 (4.68)***	0.101 (4.54)***	0.056 (2.80)***
Legal Systems				
RLAW		4.365 (2.40)**	5.441 (2.41)**	3.955 (1.78)*
REGQU		-4.145 (2.10)**	-4.105 (1.92)*	-2.298 (1.09)
VACC		2.927 (1.24)	2.905 (1.21)	1.864 (0.81)
Political Systems				
POLIS			-0.538 (0.54)	-0.303 (0.30)
GOVEFF			-0.528 (0.20)	-2.134 (0.85)
Business environment				
TAX				-0.010 (1.40)
COSTE				-0.001* (1.63)
COSTI				-0.001 (1.43)
N	691	649	648	587
R2	0.69	0.66	0.71	0.64
Wald test χ^2	65.14***	55.58***	56.98***	34.07
AR (2) test	-2.915	1.63	1.13	0.69
P-value	0.355	0.412	0.365	0.58
Sargan test	2.864	2.79	1.74	2.55
P-value	0.998	0.986	0.995	0.958

Note: The numbers in parentheses are t-statistics. *, **, and *** indicate rejection of the null hypothesis at the 1, 5, and 10 percent levels of significance, respectively. Estimation method is GMM-in-System estimator. AR (2): test of null of zero second-order serial correlation, distributed $N(0, 1)$ under null. The null hypothesis is that errors in the first difference regression exhibit no second-order serial correlation. Sargan: Sargan test for validity of over-identifying restrictions, distributed as indicated under null. This test of over-identifying restrictions is asymptotically distributed as χ^2 under the null of instrument validity.

Columns (1) in Table 3 reports estimates of Eq.(1) including all countries, assuming that financial development is adequately measured. As first step, we use dynamic system GMM à la Arellano and Bover (1995). In such kind of estimation, we use multiple lags of the regressors as instruments for the variables in the model. Further, we control for trade openness as a share of GDP, investment activities as share of GDP and foreign

direct investment (FDI) as share of GDP.

The lag of GDP per capita is positively related to the dependent variable and statistically significant at 1%. Likewise, trade openness positively influences GDP per capita. A 1% increase in trade openness contributes to 5% increase in GDP per capita. However, investment activity and FDI inflows are positively related to GDP per capita but statistically insignificant. Traditional macroeconomic theory suggests that an increase in investment may contribute in wealth accumulation, which will subsequently enhance economic development and growth. Finally, credit to private sector as share of GDP has a positive impact on GDP per capita. A 1% increase in the credit to private sector variable boosts GDP per capita by 7%. It seems that credit to the private sector is a key factor of economic growth. Making credit conditions less constraining and increasing access to finance would expand the well-being of citizens. Further, affordable credits would allow companies to increase hiring process to optimize output. As a result, job opportunities would proliferate (Hamdi et al. 2013). Thus, these results support the finance-led growth hypothesis as in many researches including King and Levine (1993a, 1993b), Levine and Zervos (1998), Christopoulos and Tsionas (2004) and Loayza and Ranciere (2006).

We include, gradually, in Eq (2) different set of institutional variables starting by legal systems set (rule of law, regulation quality and voice and accountability), then political systems set (political stability and government effectiveness) and finally, business environment set (taxation, cost of export and cost of import). All estimates are reported in columns (2) through (4) in Table 3.

Our goal is to check whether institutions have an effect on economic growth and the finance-growth relationship. Eventually, the aim of this step is to identify some specific institutions that may have that role. Douglass North (1990, p. 3) defines institutions as “rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction.” We also estimate the model for the whole sample, developed countries and developing countries. Ultimately, we aim to compare results of different estimations, especially when introducing institutional sets. We believe that institutions can differ between countries for many reasons including political system, economic institutions framework, legal framework, culture, religion and geographic situation.

Across all estimations of the whole sample, we find that that credit to the private sector as share of GDP is positively related to economic growth and highly significant statistically (i.e. 1%). However, the size of the coefficient varies through different estimations, depending on the specification and the controls. It varies between 5% and 10%. Thus, there is evidence that finance led growth in the whole sample and the inclusion of different institutional set do not change much in term of relations sign or statistical significance. As expected, the empirical results also confirm that economic growth is positively associated with trade openness, investment activities and foreign

direct investment.³

When introducing the legal system set of variables (column (2)), we observe that (RLAW) and (VACC) have a positive impact on economic growth. Obviously, property rights, respect of contracts, law enforcement are considered key factors in flourishing markets. It provides local and foreign investors with confidence and gives positive signals to international markets. Further, it makes market mechanisms working smoothly. Surprisingly, regulation quality seems to have a negative impact. This could be explained by the fact that an excess of regulation or corrupted system of regulation could have a negative effect on economic activity. Next step consists to introduce political system set which we find it negatively related to economic growth. Nevertheless, results are statistically insignificant. Finally, we introduce business environment set column (4). The results reveal that taxation (TAX) component impacts negatively output growth. After adding costs of export component, taxation effect remains negative as costs of export. In addition, after adding the last cost of imports component, taxation and cost of export remains negative as per costs of imports. It is logic that tax burdens and high cost of export and import might have negative impact on economic growth. It is important to mention that in the column (4) in Table 3, the majority of institutional variables is statistically insignificant. The results cannot confirm the role of institutions in promoting growth.

We conclude from Table 3 that there is evidence of finance led growth in whole sample. Further, trade openness contributes to spur growth. However, introducing gradually variables such as legal systems, legal systems, political systems and business environments did not change much the results. It suggests that the role of institutions in promoting growth cannot be confirmed. Nevertheless, as the relationship between finance development and economic growth remains positive when introducing institutions (indirect effect), we can conclude that direct and indirect effect reveal same finding.

To get better insight into the role of institutions, we split our sample into two sub-samples. The first one includes 40 developed countries and the second one includes 100 developing countries. All different results are reported in Table 4 and Table 5.

Let start by interpreting results of finance-growth nexus for developed countries, the output of the model; are displayed in Table 4. The Table 4, related to developed countries, confirms the results of the whole sample in Table 3 before including institutional sets. The lag of GDP per capita is positively correlated to the dependent variable and statistically significant at 1%. It means that the previous economic performance and condition contributes the current year performance. In developed countries, economic agents' behavior is very sensitive to economic data and policy announcements.

³ This last result appear to hold only in the first estimation before including different institutional set.

Table 4. Results of Panel (B) for Developed Countries

	GDPPC	GDPPC	GDPPC	GDPPC
L.gdp	0.403 (9.53)***	0.418 (11.08)***	0.419 (9.42)***	0.418 (8.85)***
OPEN	-0.061 (1.50)	-0.317 (5.39)***	-0.288 (4.45)***	-0.290 (5.02)***
INVES	0.118 (2.23)**	0.081 (1.44)	0.108 (1.79)*	0.055 (0.59)
FDI	0.137 (3.67)***	-0.006 (0.13)	-0.016 (0.30)	-0.068 (1.10)
CPS	0.263 (4.99)***	0.120 (2.16)**	0.129 (2.09)*	0.093 (1.84)**
Legal Systems				
RLAW		1.591 (5.14)***	1.208 (3.24)***	0.981 (3.00)***
REGQU		-0.920 (2.24)	0.917 (2.49)	0.951 (2.46)**
VACC		-0.635 (2.31)**	-0.550 (1.89)*	-0.623 (2.15)**
Political Systems				
POLIS			-0.167 (1.24)	-0.099 (0.90)
GOVEFF			0.555 (1.72)*	0.492 (1.39)*
Business environment				
TAX				0.055 (0.24)
COSTE				-0.627 (3.08)***
COSTI				0.788 (3.43)***
N	202	200	200	181
R2	0.72	0.68	0.67	0.57
Wald test χ^2	55.19***	51.22***	54.91***	34.52
AR (2) test	-2.915	1.63	1.13	0.69
P-value	0.288	0.332	0.345	0.425
Sargan test	2.140	2.342	1.881	2.33
P-value	0.998	0.977	0.994	0.968

Note: The numbers in parentheses are t-statistics. *, **, and *** indicate rejection of the null hypothesis at the 1, 5, and 10 percent levels of significance, respectively. Estimation method is GMM-in-System estimator. AR (2): test of null of zero second-order serial correlation, distributed $N(0, 1)$ under null. The null hypothesis is that errors in the first difference regression exhibit no second-order serial correlation. Sargan: Sargan test for validity of over-identifying restrictions, distributed as indicated under null. This test of over-identifying restrictions is asymptotically distributed as χ^2 under the null of instrument validity.

Likewise, investment activity, FDI inflows and credit to private sector are positively related to GDP per capita statistically significant at 5%, 1% and 1% respectively. Positive macroeconomic indicators are incentive for economic agent and foreign investors to inject funds into the market. Further, banking sector will be very active by

providing credit to the private sector as risk level is low with healthy economy. However, trade openness, is negative in this regression but not statically significant. In highly competitive environment, where cross-border capital flows and importation of financial services could play a key role, trade openness without proper regulated framework could have a negative impact on domestic economic activity.

Results suggest a strong evidence of finance led growth in developed countries. Literature provides us with theoretical models explaining how finance influences growth through different channels. Montiel (2003) suggests that a financial system may boost economic growth by i) generating incentives for physical and human capital accumulation, by ii) optimizing capital allocation for productive activities, and by iii) reducing the costs of intermediation. Levine (1997) distinguishes between five basic functions of financial systems, namely: 1) risk management facilitation; 2) allocation of resources; 3) managers monitoring and control; 4) increasing savings; 5) simplification of goods and services exchange. Consequently, the quality of financial systems relies on the performance of those functions.

Additionally, it suggests that some institutional variables have evident impacts (positive or negative) on economic growth including rule of law, voice and accountability, regulation quality, government effectiveness and costs of import and export. Acemoglu et al. (2001) describes the key role of strong institutions for financial development and justify that institutional quality varies across countries because of varying initial endowments.

Table 4 put forward evidence of finance led growth again with strong evidence of some institutions variables such rule of law in the legal system set and the cost of export and import in the business environment set.

Table 5, related to developing countries, suggests that all endogenous variables of the first equation spur economic growth. All variables are positively and statistically significant except lag GDP, which is statically not significant. In fact, trade openness, investment activity, FDI inflows and credit to private sector are significant at 5%, 10%, 5% and 5% respectively. We can interpret such results as the following:

First: Current economic condition is independent from the previous one because many developing countries rely on naturel resources or/and Foreign aid. Such sources of revenues and volatile and it is difficult to set an economic plan based on those kind of resources.

Second: FDI inflows have a positive effect on economics growth in developing countries as it creates job, increase the purchasing power of the households. Moreover, it boost both private and public investment, which will also have a positive impact on economic growth. .

Third: Developing countries rely heavily on trade. Importing factors of production will definitely contribute in the economic growth. Trade openness has a key role in the development process. Nevertheless, excess openness can be risky for the domestic economy.

Fourth: Developing economies is big niche for Small and Medium enterprises.

Providing credit to this sector will have positive impact on the economic activity.

Table 5. Results of Panel (C) for Developing Countries

	GDPPC	GDPPC	GDPPC	GDPPC
L.gdp	0.056 (1.21)	0.075 (1.41)	0.065 (1.23)	0.064 (1.15)
OPEN	0.144 (2.21)**	0.083 (1.05)	0.048 (0.63)	0.043 (0.45)
INVES	0.391 (7.94)***	0.296 (3.99)***	0.277 (3.71)***	0.239 (3.36)***
FDI	0.142 (2.47)**	0.133 (2.06)**	0.112 (1.82)*	0.106 (1.75)*
CPS	0.145 (2.39)**	0.039 (0.57)	0.064 (0.93)	0.076 (1.18)
Legal Systems				
RLAW		-0.189 (1.40)	-0.277 (2.19)**	-0.262 (1.56)
REGQU		0.485 (3.24)***	0.356 (2.42)**	0.361 (1.78)
VACC		0.092 (0.75)	0.035 (0.31)	0.034 (0.32)
Political system				
POLIS			0.166 (1.68)*	0.218 (1.95)*
GOVEFF			0.224 (2.67)***	0.119 (1.28)
Business environment				
TAX				-0.317 (1.15)
COSTE				0.410 (1.66)*
COSTI				0.073 (0.30)
N	489	449	449	421
R2	0.58	0.55	0.61	0.64
Wald test χ^2	45.85***	42.58***	22.89***	28.62
AR (2) test	52.14***	50.59***	52.14***	34.07
P-value	-2.915	1.63	1.13	0.69
Sargan test	0.355	0.412	0.365	0.58
P-value	2.864	2.79	1.74	2.55

Note: The numbers in parentheses are t-statistics. *, **, and *** indicate rejection of the null hypothesis at the 1, 5, and 10 percent levels of significance, respectively. Estimation method is GMM-in-System estimator. AR (2): test of null of zero second-order serial correlation, distributed $N(0, 1)$ under null. The null hypothesis is that errors in the first difference regression exhibit no second-order serial correlation. Sargan: Sargan test for validity of over-identifying restrictions, distributed as indicated under null. This test of over-identifying restrictions is asymptotically distributed as χ^2 under the null of instrument validity.

Thus, we can conclude that in developing countries there is evidence of finance led

growth. However, when including different set of institutional variables this relation becomes irrelevant, which was not the case in developed countries sample. In addition, we notice that credit to the private sector, as share of GDP remains positive but statistically insignificant. Further, results reveal weak evidence on the role of institutions on economic growth and the finance-growth nexus.

In many developing countries, financial and banking system is weak comparing to developed counterpart. One can find different justifications in the related literature. Lately, inefficient institutions become redundant justification of underdevelopment trap. It is important to discuss the difference between the existence of institutions and their efficiency in country. Many international organizations, as the World Bank, have been sponsoring numerous program of “institutional reforms”. Nevertheless, such projects have not been very successful. Even with the implementation of new institutions in some developing countries, their efficiency remains weak due to deep obstacles such as the independency of legal system, corruption, lack of political willing, knowledge and experience.

Such situation creates a lack of faith in the institutions and leads citizens to keep their savings outside the financial system, since appropriate savings institutions and instruments do not exist or exclude major share of the population. Furthermore, financial system suffers from weak confidence because of fragile stability, corruption and high inflation figures. Moreover, both developed and developing countries’ estimations confirm the results of the whole sample. The direct and indirect effect of institutions reveal the same positive relationship.

There is a global agreement that access to financial services is one of the pillars for poverty alleviation and sustainable economic growth. Moreover, access of poor households to financial services for the poor will support achieving the MDGs in many ways. It provides poor households and micro and small enterprises with opportunities to invest and diversify incomes. According to CGAP (2002), poor families invest in better nutrition, health services, and schooling.

Results of this study have important policy implications. To get full benefit of the financial sector, developing countries must improve the quality of different institutions. In fact, the existence of different institutions does not mean they are functioning, as they should. Many other conditions are compulsory to make such institution efficient such as independent legal system and political willing. However, it would be difficult to provide a global plan on how to improve institutions in different countries. A strong policy analysis and case by case is needed.

4. CONCLUSION AND RECOMMENDATIONS

This paper studied the empirical link between financial development and economic growth for a panel of 143 countries during the period 2006-2013. We conducted the system generalized method of moment (GMM) estimator in dynamic panel data models

initially proposed by Arellano and Bover (1995) and later by Blundell and Bond (1998). Our empirical results suggest evidence of finance led growth in whole sample. Nevertheless, introducing gradually different institutional variables did not change much the results. It implies that the role of institutions in promoting growth cannot be confirmed. We conducted an extended analysis by splitting the sample in two subsample namely advanced countries sample and developing countries sample.

The empirical results for developed countries confirmed evidence of finance led growth again with strong evidence of some institutional variables. In addition, empirical analysis related to developing countries, suggests that all endogenous variables spur economic growth concluding in developing countries there is evidence of finance led growth. However, when including different set of institutional variables, this relation becomes irrelevant. Further, results reveal weak evidence on the role of institutions on economic growth and the finance-growth nexus.

These results have important policy implications. To get full benefit of the financial sector, developing countries must improve the quality of different institutions. As per our results, developing countries should implement suitable policy measures in order to enhance the attractiveness of foreign investment, by providing both hard and soft infrastructure, which refers to all the institutions, which give snapshot of the quality of the economic, health, and cultural and social standards of a country. Soft infrastructure includes financial system, the education system, the health care system, the system of government, and law enforcement, as well as telecommunication. It is clear that strong institutions, especially in terms of rule of law and legal framework should be put on top priority to unleash financial system potential in those countries. However, it would be difficult to provide a global plan on how to improve institutions in different countries. A strong policy analysis and case by case is needed.

APPENDIX

Table A1. Acronyms of Variables

GOVEFF	Government effectiveness
POLIS	Political stability
REGQU	Regulation quality
VACC	Voice and Accountability
RLAW	Rule of law
TAX	Taxation
COSTE	Cost of export
COSTI	Cost of import
FDI	Foreign direct investment
GDPPC	Gross domestic product per capita
OPEN	Trade openness as a % of GDP
INVES	Investment activities % of GDP
CPS	Credit to the private sector as % GDP

Table A2. Sample of Developed Countries

1	Argentina	23	Kuwait
2	Australia	24	Latvia
3	Austria	25	Lithuania
4	Bahrain	26	Luxembourg
5	Belgium	27	Malta
6	Canada	28	Netherlands
7	Chile	29	New Zealand
8	Croatia	30	Norway
9	Cyprus	31	Poland
10	Czech Republic	32	Portugal
11	Denmark	33	Qatar
12	Estonia	34	Saudi Arabia
13	Finland	35	Singapore
14	France	36	Slovak Republic
15	Germany	37	Slovenia
16	Greece	38	Spain
17	Hungary	39	Sweden
18	Iceland	40	Switzerland
19	Ireland	41	United Arab Emirates
20	Israel	42	United Kingdom
21	Italy	43	United States
22	Japan		

Table A3. Sample of Developing Countries

1	Afghanistan	38	Grenada	75	Romania
2	Albania	39	Guatemala	76	Rwanda
3	Algeria	40	Guinea	77	Senegal
4	Angola	41	Haiti	78	Serbia
5	Armenia	42	Honduras	79	Seychelles
6	Azerbaijan	43	India	80	Sierra Leone
7	Bahamas, The	44	Indonesia	81	South Africa
8	Bangladesh	45	Iran, Islamic Rep.	82	Sri Lanka
9	Benin	46	Iraq	83	Sudan
10	Bolivia	47	Jamaica	84	Syrian Arab Republic
11	Bosnia and Herzegovina	48	Jordan	85	Tajikistan
12	Botswana	49	Kazakhstan	86	Tanzania
13	Brazil	50	Kenya	87	Togo
14	Bulgaria	51	Kosovo	88	Trinidad and Tobago
15	Burkina Faso	52	Lebanon	89	Tunisia
16	Burundi	53	Liberia	90	Turkey
17	Cape Verde	54	Libya	91	Uganda
18	Cambodia	55	Macedonia, FYR	92	Ukraine
19	Cameroon	56	Madagascar	93	Uruguay
20	Chad	57	Malawi	94	Uzbekistan
21	Colombia	58	Mali	95	Venezuela, RB
22	Comoros	59	Mauritania	96	Vietnam
23	Congo, Dem. Rep.	60	Mexico	97	West Bank and Gaza
24	Costa Rica	61	Mongolia	98	Yemen, Rep.
25	Cote d'Ivoire	62	Montenegro	99	Zambia
26	Djibouti	63	Morocco	100	Zimbabwe
27	Ecuador	64	Mozambique		
28	Egypt, Arab Rep.	65	Namibia		
29	El Salvador	66	Nepal		
30	Equatorial Guinea	67	Nicaragua		
31	Eritrea	68	Niger		
32	Ethiopia	69	Nigeria		
33	Fiji	70	Oman		
34	Gabon	71	Pakistan		
35	Gambia, The	72	Paraguay		
36	Georgia	73	Peru		
37	Ghana	74	Philippines		

REFERENCES

- Acemoglu, D., S. Johnson and J.A. Robinson (2001) "The Colonial Origins of Comparative Development: An Empirical Investigation". *American Economic Review*, 91, 1369-1401.
- Adu, G., G. Marbuah, and J.T. Mensah (2013), "Financial Development and Economic Growth in Ghana: Does the Measure of Financial Development Matter?" *Review of Development Finance*, 3, 192-203.
- Aidt, T., J. Dutta and V. Sena (2008), "Governance Regimes, Corruption and Growth: Theory and Evidence," *Journal of Comparative Economics*, 36, 195-220.
- Arellano, M., O. Bover (1995), "Another Look at the Instrumental-variable Estimation of Error-components Models," *Journal of Econometrics*, 68, 29-52.
- Arestis, P., P.O. Demetriades and K.B. Luintel (2002), "Financial Development and Economic Growth: The Role of Stock Markets," *Journal of Money, Credit and Banking*, 33(1), 16-41.
- Beck .T, and R. Levine (2006), "Institution Building and Growth in Transition Economies," *Journal of Economic Growth*, 11, 157-186.
- Beck T., R. Levine , and N. Loayza (2000), "Finance and the Sources of Growth," *Journal of Financial Economics*, 58, 261-300.
- Ben-David, D. (1993), "Equalizing Exchange: Trade Liberalization and Income Convergence," *Quarterly Journal of Economics*, 108(3), 653-679.
- Blundell, R., and S. Bond (1998), "Initial Conditions and Moment Restrictions in Dynamic Panel Data Models," *Journal of Econometrics*, 87(1), 115-143.
- Bun, M., and F.W. Indmeijer (2010), "The Weak Instrument Problem of the System GMM Estimator in Dynamic Panel Data Models," *Econometrics Journal*, 13(1), 95-126.
- Bussolo. M., and J. Whalley (2003), "Exploring the Links between Transaction Costs, Income Distribution and Economic Performance in a Case Study for Colombia," *International Economics*, 94-95(2), 235-260.
- Chen, H. (2006), "Development of Financial Intermediation and Economic Growth: The Chinese Experience," *China Economic Review*, 17(4), 347-362.
- Christopoulos, D.K., and E.G. Tsionas (2004), "Financial Development and Economic Growth: Evidence from Panel Unit Root and Cointegration Tests," *Journal of Development Economics*, 73(1), 55-74.
- CGAP (2002), Consultative Group to Assist the Poorest, The World Bank 1818 H. Street, N.W. Room Q4-400 Washington, D.C. 20433.
- Demetriades, P.O., and K.A. Hussein (1996), "Does Financial Development Cause Economic Growth? Time-series Evidence from 16 Countries," *Journal of Development Economics*, 51(2), 387-411.
- Demirgüç-Kunt. A., and E. Detragiache (1998), "Financial Liberalization and Financial Fragility," World Bank and Research Department of IMF.
- Demirgüç-Kunt, A., and R. Levine (1996), "Stock Market Development and Financial

- Intermediaries: Stylized Facts,” *The World Bank Economic Review*, 10(21), 291-321.
- Dollar, D. (1992), “Outward-Oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDCs, 1976-85,” *Economic Development and Cultural Change*, 40(3), 523-544.
- Dzhumashev. R. (2014), “Corruption and Growth: The Role of Governance, Public Spending, and Economic Development,” *Economic Modelling*, 37, 202-215.
- Edwards, S. (1998), “Openness, Productivity and Growth: What Do We Really Know?” *Economic Journal*, 108(447), 383-398.
- Fischer, K.P., and M. Chenard (1997), “Financial Liberalization Causes Banking System Fragility,” Working Paper No 97-14, University of Laval.
- Gazdar. K., and M. Cherif (2015), “Institutions and the Finance-growth Nexus: Empirical Evidence from MENA Countries,” *Borsa Istanbul Review*, 15(3), 137-160.
- Goldsmith, R.W. (1969), *Financial Structure and Development*. Yale University Press.
- Gradstein, M. (2004), “Inequality, Democracy, and the Emergence of Institutions,” CEPR Discussion Paper 4187, London: United Kingdom: Centre for Economic Policy Research.
- Guariglia, A., and S. Poncet (2008), “Could Financial Distortions be no Impediment to Economic Growth After All? Evidence from China,” *Journal of Comparative Economics*, 36(4), 633-657.
- Gurley, J.G., and E. Shaw (1955), “Financial Aspects of Economic Development,” *American Economic Review*, 45(3), 515-538.
- Hamdi. H, A.S. Hakimi, and W. Hakimi (2013), “Multivariate Granger Causality between Foreign Direct Investment and Economic Growth in Tunisia,” *Economics Bulletin*, 33(2), 1193-1203.
- Hamdi, H., R. Sbia and B.O. Tas (2014), “Financial Deepening and Economic Growth in GCC,” *International Economic Journal*, 28(3), 459-473.
- Hassan. K., B. Sanchez, Y. Jung-Suk (2011), “Financial Development and Economic Growth: New Evidence from Panel Data,” *Quarterly Review of Economics and Finance*, 51, 88-104
- Hook L.S., and N. Singh (2014), “Does Too Much Finance Harm Economic Growth?” *Journal of Banking and Finance*, 41, 36-44.
- Huang, H.C., S.C. Lin, D.H. Kim, and C.C. Yeh (2010), “Inflation and the Finance-growth Nexus,” *Economic Modelling*, 27(1), 229-236.
- Huynh, K.P., and D.T. Jacho-Chávez (2009), “Growth and Governance: A Nonparametric Analysis,” *Journal of Comparative Economics*, 37(1), 121-143.
- Jeanneney, S.G., and K. Kpodar (2011), “Financial Development and Poverty Reduction: Can There be a Benefit without a Cost?” *Journal of Development Studies*, 47(1), 143-163
- Jung, W.S. (1986), “Financial Development and Economic Growth: International Evidence,” *Economic Development and Cultural Change*, 34, 336-346
- King, R., R. Levine (1993a), “Finance and Growth: Schumpeter Might be Right,”

- Quarterly Journal of Economics*, 108, 717-738.
- ____ (1993b), "Finance, Entrepreneurship, and Growth: Theory and Evidence," *Journal of Monetary Economics*, 32, 513-542.
- ____ (1993c), "Finance and Growth: Schumpeter Might be Right", *Quarterly Journal of Economics*, 108(3), 717-38.
- Levine R. (1997), "Financial Development and Economic Growth: Views and Agenda," *Journal of Economic Literature*, 15, 688-726.
- ____ (1998), "The Legal Environment, Banks, and Long-Run Economic Growth," *Journal of Money, Credit, and Banking*, 30, 596-613.
- Levine, R., S. Zervos (1998), "Stock Markets, Banks, and Economic Growth," *American Economic Review*, 88, 537-558.
- Levine, R., N. Loayza, and T. Beck (2000), "Financial Intermediation and Growth: Causality and Causes," *Journal of Monetary Economic*, 46(1), 31-77.
- Liu, T., and K.W. Li (2001), "Impact of Liberalization of Financial Resources in China's Economic Growth: Evidence from Provinces," *Journal of Asian Economics*, 12, 245-262.
- Loayza, N.V., and R. Ranciere (2006), "Financial Development, Financial Fragility, and Growth," *Journal of Money, Credit and Banking*, 38(4), 1051-1076.
- Lucas, R.E. (2009), "Ideas and Growth," *Economica*, 76(301), 1-19.
- McKinnon, R.I. (1973), *Money and Capital Economic Development*, Washington D.C.: Brookings Institution.
- Menyah. K., S. Nazlioglu, and Y. Wolde-Rufael (2014), "Financial Development, Trade Openness and Economic Growth in African Countries: New Insights from a Panel Causality Approach," *Economic Modelling*, 37, 386-394.
- Mlodkowski, P., and D. Bywaters (2012), "The Role of Transactions Costs in Economic Growth," *International Japan Economic Policy Studies*, 7, 53-66.
- Montiel, P.J. (2003), *Macroeconomics in Emerging Market*, Cambridge University Press.
- North, D.C. (1990), *Institutions, Institutional Change, and Economic Performance*. New York: Cambridge University Press.
- Pagano, M. (1993), "Financial Markets and Growth: An Overview," *European Economic Review*, 37(2-3), 613-622.
- Papyrakis, E., R. Gerlagh (2004), "The Resource Curse Hypothesis and Its Transmission Channels," *Journal of Comparative Economics*, 32, 181-193.
- Plihon. D., and L. Miotti (2001), "Libéralisation Financière, spéculation et Crises Bancaires", *Economie Internationale*, 85 (1), 3-36
- Prochniak. M., and K. Wasiak (2017), "The Impact of the Financial System on Economic Growth in the Context of the Global Crisis: Empirical Evidence for the EU and OECD Countries," *Empirica*, 44(2), 295-337.
- Rousseau, P.L., and R. Sylla (2003), "Financial Systems, Economic Growth, and Globalization" in Michael, D.B., A.M. Taylor, and J.G. Williamson, eds., *Globalization in Historical Perspective*, Chicago: University of Chicago Press.
- Sachs, J.D., and A. Warner (1995), "Economic Reform and the Process of Global

- Integration,” *Brookings Papers on Economic Activity*, 1, 1-118.
- Samargandi. N., J. Fidrmuc, and S. Ghosh (2015), “Is the Relationship Between Financial Development and Economic Growth Monotonic? Evidence from a Sample of Middle-Income Countries,” *World Development*, 68, 66-81.
- Schumpeter, J. (1911), *The Theory of Economic Development*, Cambridge: Harvard University Press.
- Shaw, E.S. (1973), *Financial Deepening in Economic Development*, Oxford University Press, New York.
- Soto, M. (2009), “System GMM estimation with a Small Sample,” Working Paper, No 395, Barcelona Graduate School of Economics.
- Wacziarg. R., and K. Welch (2008), “Trade Liberalization and Growth: New Evidence,” *World Bank Economic Review*, 22, 187-231.
- Zhang, J, L. Wang, and S. Wang (2012), “Financial Development and Economic Growth: Recent Evidence from China,” *Journal of Comparative Economics*, 40, 393-412.
- Zarrouk. H., T.E. Ghak, and E.A.A. Haija (2017), “Financial Development, Islamic Finance and Economic Growth: Evidence of the UAE”, *Journal of Islamic Accounting and Business Research*, 8(1), 2-22.

Mailing Address: Abdelaziz Hakimi, Essanabel post office P Box N 71, 8122 Jendouba Tunisia
Email: abdelazizhakimi@yahoo.fr.

Received November 2, 2016, Revised September 18, 2017, Accepted November 16, 2017.