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FINANCIAL INTERMEDIATION, INSTITUTIONAL QUALITY AND ECONOMIC GROWTH: THE CASE OF TUNISIA

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ABSTRACT: *The objective of our work is to show the importance of a healthy institutional framework in the finance-growth relation. In this context, we start by presenting, a theoretical lighting on this subject while trying to define the concept of the governorship and to determine its various measurements. Then, we empirically test a model of growth of Solow increased by the human capital to treating the relation between financial intermediation, institutions and economic growth. The various estimates were made by Vector Autoregressive Method over the period of 1980 to 2011 for Tunisia. Following these estimates, it seems that the quality of the institutions is regarded as an important factor which must not be neglected in the study of the relation between the financial sphere and the real sphere.*

KEYWORDS: Financial intermediation, Governance, Economic growth, Vector Auto Regressive (VAR)**.**

JEL: C23, O16, O43, O47.

INTRODUCTION

Before the fifties, the economic theory does not really incorporated banks and lending institutions that made the agents intervene decisively in the transmission of savings, investment and money creation.

The theory of financial intermediation was made in the late fifties from the study of a financial market economy. The work of *Gold Smith in 1955* and *Gurley Shaw in 1955* and *1956* discussed to the rise of the institutionalization of the process of financial intermediation in the American economy.

In approach less recent, *Gold Smith* questioned the reasons for the increasing complexity of financial systems in contemporary economies. However, this approach does not explain or justify the proliferation of financial intermediaries in the development countries.

This justification will be also provided by *Gurley and Shaw (1960)* in "Money in a theory of finance" which for the first time analyzed them for financial institutions in relation to their intermediation function by questioning process financing of economic activity.

In fact, the concept of financial intermediation has known profound changes over time according to the definitions and interpretations of theorists and practitioners.

In general, economists have taken the Anglo-Saxon terminology developed by *Gurley and Shaw*, namely "intermediation", which is defined as the process of adjusting to the needs and financial capabilities through the intervention of a specific agent, the financial intermediary,

whose role is to collect savings ultimate lenders by issuing indirect primary securities to finance the acquisition of the ultimate borrowers.

The financial intermediation model of *Gurley and Shaw* probably offered the most synthetic expression of the theoretical and conceptual framework intermediation remains current and even attracted renewed interest with the development of markets. This framework is built on the distinction between direct and indirect finance.

In a long term, the evolution of financial structure of the economy seem marked by both a shift from direct to indirect finance from traditional bank lending and money creation (bank disintermediation) to benefit of collective management of savings.

However, the majority of theoretical and empirical work, the quality of institutions is analyzed independently of the relationship between the real economy and the financial sector. Therefore, in this work we try to show the relationship between financial intermediation and economic growth through the institutional aspect. Indeed, this new paradigm of thought shows that the financial system operates with a set of institutions. These institutions are responsible to monitor and control the transparency of markets and government activity. This has led many economists to measure institutions and introduce the concept of "governance", to show the importance of these variables as the main determinants of financial development, and the result of sustained economic growth.

Therefore, our problem is how good governance is seen as a key factor in the relationship between financial intermediation and economic growth. To address this problem, we adopt the following approach.

First, after introducing the concept of governance and presented its measures, we will show theoretically that the quality of institutions is considered as the main determinant of financial development. Then, we test empirically the Solow growth model augmented by human capital, on the relationship between financial intermediation, institutions and economic growth. This allows us to show the direct and indirect effects of financial intermediation on economic growth. The last part is devoted to the results of different estimates and their interpretations in order to draw conclusions and politico-economic recommendations.

Institutional Policies and Economic Growth

In recent years, emerging economies have made significant macroeconomic performance. To enhance its performance, the authorities in these countries have undertaken a number of institutional reforms in the functioning of the economy in general. The main objective of these countries is to achieve the transition to the "good governance". Indeed, improving the quality of institutions becomes fatal to achieve a level of sustainable development and achieve a high economic growth rate. From a theoretical and empirical view, several studies show the existence of a limited between the institutional framework and the growth of gross domestic product per capita *(Laurent Clerc and Hubert Kempf, 2006*) relationship. Different economists have argued, in recent years, one of the main reasons why growth rates differ between countries is that the quality of the economic environment in which agents operate is different. This environment includes laws, institutions, rules, government policies and regulations of the country.

Good institutions are characterized by structures and incentive laws that reduce uncertainty and support efficiency. They contribute to a stronger economic performance. Indeed, a favorable environment for growth is one that provides adequate protection for property rights and gives agents the incentive to produce, invest and accumulate skills.

Recognizing the importance of good governance in improving the business environment, competitiveness and attractiveness of the country as well as the efficient management of human capital, public authorities in emerging countries have registered, a package of reforms aimed at launching a new impetus to development of the country, to provide opportunities for the involvement of different stakeholders and of society and thus to lay the foundations for a new management development.

Measuring the quality of governance is a daunting task. The *World Bank in 2003* has developed a set of indicators to assess the quality of various aspects of governance. Today, the size and governance measures we take to explore the idea of distinguishing between governance at the macro level and micro-level governance.

In macroeconomic terms, governance means "the traditions and institutions through which authority is exercised in a country" (*Kaufman, Kraay and Zoido-Lobaton, 1999 a and b*). This definition emphasizes that the effective mobilization of resources, the formulation and implementation of appropriate policies depend on the ability of leaders. Governance is qualified as "good" or "bad" according to the mechanism of coordination between the government, the market and civil society. Good governance is defined by the credibility based on the availability and transparency of information, government accountability and participation in decision making for the collective society. Instead, poor governance is expressed by the lack of rule of law, the existence of corruption, asymmetric information, etc..

In terms microeconomics, "corporate governance" or corporate governance refers to "the set of organizational mechanisms that have the effect of defining the powers and influence management decisions, ie which» govern «their conduct and define their discretionary space "(*Charreaux, 1997, p.1*). According to this definition, ownership structure and various corporate partners play a crucial role in determining the scope and organizational rules. This distinction seems difficult in the sense that the quality of corporate governance depends on the quality of the system of corporate governance that prevails in the country. Thus, the construction of an overall index of governance is not easy because, at the macroeconomic level, governance depends on several variables. Indeed, the diversity of indicators is due to the complex and multidimensional nature of governance.

The study of Kaufman et al. uses at least 250 indicators to measure the quality of institutions in a country. The information collected from twenty five different sources and are produced by eighteen international organizations. This database covers 199 countries for the years 1996, 1998, 2000 and 2002. Each country receives a score that varies between -2.5 and +2.5. A higher value is for a country corresponds to better governance.

In total, the study *of Kaufman, Kraay and Mastruzzi (2003),* the overall governance index is calculated as the average of the following six steps: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and corruption.

1 Voice and Accountability: Measures the ability of a country's citizens to participate and choose the government. It is based on a number of indicators measuring various aspects of the political process, civil liberties and human and political rights;

2 Political Stability: Measures the likelihood that the government will be destabilized or overthrown up by unconstitutional and / or violent means is threatened by public policy such as terrorism;

3 Government Effectiveness: Measures aspects of quality and availability of public services, the bureaucracy, the competence of civil servants, the independence of the administration of political pressure and the credibility and transparency of the government's reform commitments and policies;

4 Regulatory Quality: Focuses on the policies themselves, including measures of the impact of anti-market policies such as price controls or inadequate bank supervision and supervision as well as the perception of the blockage imposed by excessive regulation in areas such as foreign trade and business climate;

5 Rule of Law: Includes several indicators that measure the confidence of citizens in accordance with the laws and rules of society. These include perceptions of the incidence of crime, the effectiveness and predictability of the judiciary, and the enforceability of legal contracts;

6 Corruption: Measuring the extent of corruption, defined as the use of public power for personal interests and private in terms of wealth and corrupt gain profits.

The phenomenon of growth has been developed by various economic theories. These theories show the importance of the accumulation of physical capital in the development process. They are divided into three streams of different thought. The first trend inspired by Keynesian theory, the main supporters *Domar (1946 and 1947) and Harrod (1948)*. The second trend has emerged in the mid-50s takes the name "Neo" was essentially developed by *Solow (1956).* The third trend is the endogenous growth theory following the work of *Romer (1986) and Lucas (1988)*.

DATA STATISTICAL ANALYSIS

Economic Growth Evolution

The average annual growth rate was 4.18% over the period 1980-2011. However, during the period of analysis we find that it was not regular. It reached its lowest rate in 2011 (-2%) and the highest in 1990 (7.94%) rates. Over the past two years, its evolution has been marked by internal and external shocks such as lower production, lower the value of the Tunisian dinar against the euro and the dollar, rising oil prices.

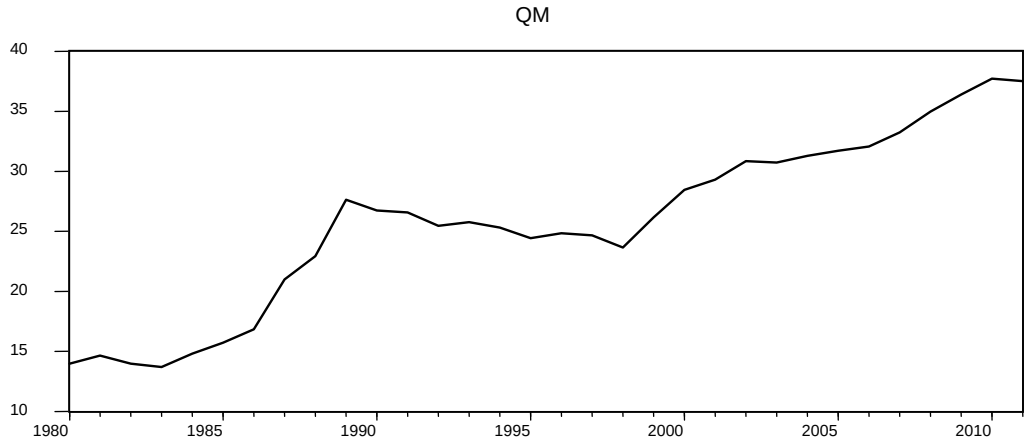
Graph 1: *Evolution of the growth rate of GDP (1980-2011)*

Economic growth in Tunisia since 1980 remained moderate, with the exception of some years and it is either negative or lower the population growth rate. Production is mainly dominated by the primary sector and tertiary sector. The Tunisian economy is also characterized by the predominance of the informal sector. Since the revolution in 2010, Tunisia knows of negative growth rates and lowers population growth rate.

Financial Intermediaries Size

The evolution from quasi-money to GDP is an indicator of the financial system deepening in the sense that it measures the financial intermediaries size (Graph 2). This indicator has increased by an average of 14% in 1980 to 37,5% in 2011.

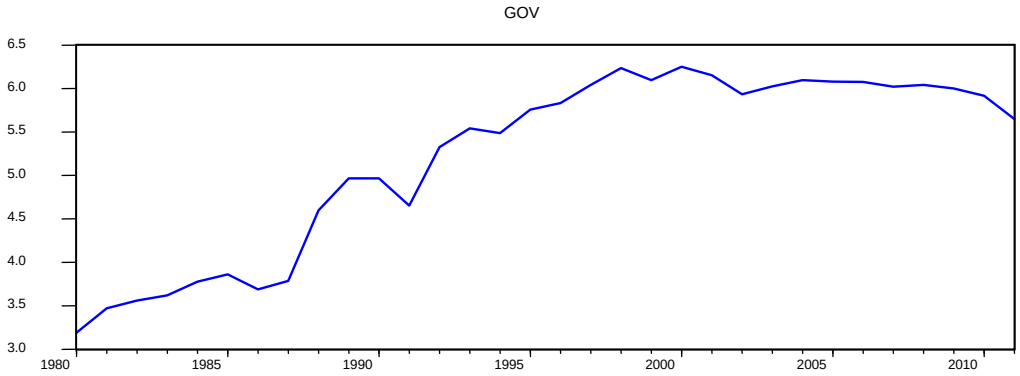
Graph 2: *The ratio of* $\frac{Quasi-Monnaie}{PIB}$ *of Tunisia (1980-2011)*



Evolution of Institutions

The evolution of institutional quality is measured by a composite governance index. This index is used to classify countries into two categories: well governed country and poorly governed country. From graph 3, the Tunisian institutions have experienced an improvement in the institutions quality from an average of 3.19 points in 1980 to 5.65 points in 2011.

Graph 3: *Governance index of Tunisia (1980-2011)*



Empirical modeling

The Solow model considers investment rates, population growth and technological progress as exogenous. The two inputs, capital and labor are paid their marginal productivities. We assume a Cobb-Douglas production which at the time (t) is given by:

$$Y_t = K_t^a \left[A_t L_t\right]^{1-a} \qquad \text{With } 0 < a < 1 \qquad (1)$$

Y: is the product, K: capital, L: labor and A: the technology level. L and A are assumed to grow to exogenous rate (n) and (g):

$$L_t = L_0 e^{nt} \qquad (2)$$

$$A_t = A_0 e^{gt} \qquad (3)$$

The number of units actually labor $A_t L_t$ increases rate (n + g). The model assumes that a constant fraction (s) of the product is invested. Or (k) the stock of capital per unit of labor ($k = \frac{K}{AL}$) and (y) the level of output per unit of labor is given by: $y = \frac{Y}{AL}$

The evolution of K is such that:

$$K_t^{'} = sy_t - (n + g + \delta)k_t$$

$$K_t^{'} = sk_t^a - (n + g + \delta)k_t \qquad (4)$$

Where δ is the depreciation rate. Equation (4) implies that (k) converges to a stationary value (k *) or defined by:

$$k^* = \left[\frac{s}{(n+g+\delta)}\right]^{\frac{1}{1-a}} \quad (5)$$

At equilibrium, the capital-labor ratio is positively related to investment rate and negatively to the population growth rate.

The main predictions of the Solow model concern the impact of investment and population growth on real income. By replacing (k) as in equation (5) in the production function and by the logarithmic per capita income yields:

$$Log(\frac{Y_t}{L_t}) = LogA_0 + gt + (\frac{a}{1-a})Logs - (\frac{a}{1-a})Log(n+g+\delta) \quad (6)$$

The essential question is whether the data are consistent with the predictions of the Solow model for the determinants of living standards. Thus, suppose that Solow (g) and (s) are constant across countries, with (g) reflects the level of advancement of knowledge which is not a specific country. The term (A0) reflects not only the technology but resource endowments, climate, institutions. It will be different between countries. (A0) therefore contains some factors specific to each country.

It is assumed that $LogA_0 = \alpha + \varepsilon$

With (α) is a constant and (ε) is a shock specific to each country. In this way, the logarithm of per capita income:

$$Log(\frac{Y_t}{L_t}) = \alpha + gt + (\frac{a}{1-a})LogS - (\frac{a}{1-a})Log(n+g+\delta) + \varepsilon \quad (7)$$

Equation (7) is the empirical specification baseline in the Solow model. It assumes that investment rate and population growth rate are independent of the specific factors that may affect the production. In this case, this assumption implies that the equation (7) can be estimated using ordinary least squares.

For the generalized model, we will integrate the basic model all factors that affect growth. Equation (1) can be written:

$$Y_t = K_t^a H_t^b \left[A_t L_t\right]^{1-a-b} \quad (8)$$

Where (H) is the stock of human capital, the other variables are defined as in equation (1). (L) and (A) to increase by (n) and (g) rates such that:

$$L_t = L_0 e^{nt} \quad (9)$$

$$A_t = A_0 e^{(gt+X_q)} \quad (10)$$

Where (X) is a political vector and other factors affecting the technology level and economic efficiency. In addition, (q) is the vector of coefficients for these policies and other variables. Let (s_k) and (s_h) fractions of income invested respectively in physical and human capital. The assessment of the economy is determined by:

$$k_t^{'} = s_k y_t - (n + g + \delta)k_t \quad (11)$$

$$h_t^{'} = s_h y_t - (n + g + \delta)h_t \quad (12)$$

Where $y = \frac{Y}{AL}$, $k = \frac{K}{AL}$ and $h = \frac{H}{AL}$ are the actual amounts by work units.

It is assumed that the same production function is applied to human capital, physical capital and consumption. In addition, it is assumed that human capital and physical capital depreciate at the same rate (δ).

Equations (11) and (12) imply that the economy converges to a steady state defined by:

$$k^* = \left[\frac{s_k^{1-b} s_h^b}{n + g + \delta}\right]^{\frac{1}{1-a-b}} \quad (13)$$

$$h^* = \left[\frac{s_k^a s_h^{1-a}}{n + g + \delta}\right]^{\frac{1}{1-a-b}} \quad (14)$$

Substituting the values of equations (13) and (14) in the production function, with logarithmically, and asking ($a + b = x$), we obtain the per capita income balance:

$$Log(\frac{Y_t}{L_t}) = LogA_0 + gt + X_q - (\frac{x}{1-x})Log(n + g + \delta) + (\frac{a}{1-x})Logs_k + (\frac{b}{1-x})Logs_h \quad (15)$$

The terms $\frac{x}{1-x}$, $\frac{a}{1-x}$ and $\frac{b}{1-x}$ are the elasticities of per capita income, respectively, compared to the population growth, the fraction of income invested in physical capital and the fraction of income invested in human capital. This model predicts that the amount of elasticity with respect to (s_k) and (S) is equal to the elasticity with respect to (n + g + δ).

Similarly, the Solow model predicts conditional convergence after controlling for determinants of the steady state. In addition, this model makes quantitative predictions about the speed of convergence. Thus, either (y*) per capita income derived from equation (15), the convergence rate is given by:

$$\frac{dLogy_t}{dt} = \lambda\left[Logy^* - Logy_t\right] \quad (16)$$

With λ = (n + + δ g) (1 - a - b) is the speed of convergence, is produced by the current header. Equation (16) implies:

$$Logy_t = (1 - e^{\lambda t})Logy^* + e^{\lambda t} Logy_0 \quad (17)$$

Subtracting ($logy_0$) in both sides of the equation (17) and replacing (y*), we obtain:

$$Logy_t - Logy_0 = (1 - e^{-\lambda t})\left[\frac{-x}{1-x} Log(n + g + \delta) + \frac{a}{1-x} Logs_k + \frac{b}{1-x} Logs_h + X_q - Logy_0 + gt + LogA_0\right] \quad (18)$$

With T is a time index.

Thus, from the time index is introduced in the model, recent work developed by *J.C Berthélemy and Varoudakis A. (1998)* show that to obtain a satisfactory explanation of

empirical real growth, we must introduce explanatory factors other than simply the progress of labor, human capital and physical capital that appear in the neoclassical model. To this end, the extension of the Solow growth model (1969) allowed us to enter the permanent effects of financial development through their effects on total factor productivity. Two production functions (standard and modified) Cobb-Douglas is considered with constant returns to scale and neutral technical progress. They are represented by equations (19) and (20) respectively:

$$y_t = A_0 e^{gT} k_t^{\alpha} \quad (19)$$

$$y_t = A_0 e^{(g_0 + g_1 IF_t)T} k_t^{\alpha_0 + \alpha_1 IF_t} \quad (20)$$

IF: is a measure of financial intermediation.

FINANCIAL INTERMEDIATION, INSTITUTIONS QUALITY AND ECONOMIC GROWTH: EVALUATION TEST

The estimated model is inspired by the work developed by Mark Hay (2001) to measure the influence of the behavior of banks on economic growth. It uses a sample of 12 countries over a period from 1970 to 1996 with the use of panel data approach. Here the actual variables that influence economic growth and those suggested by the theories of endogenous growth (such as trade openness, inflation, human capital, the investment rate etc.) are taken into account simultaneously with indicators of financial intermediation. The absence of significant financial market in Tunisia allows limiting banks. To specify the model, it came in a first estimate an equation taking into account only the variables of the real economy, which has helped keep real variables whose influence on growth is more important than in a second stage analysis of indicators of financial development has been made to add to this equation the most relevant financial variables. This process allows you to see the extent to which financial variables improves the relationship.

The chosen specification is as follows:

Growth = $\mathbf{aX_t + bZ_t + \mu_t}$

Y_t: GDP per capita at constant prices 2000. From this variable we calculate the dependent variable, namely, the real per capita growth rate by subtracting the GDP in period (t-1) to the GDP in period (t).

$X_{i,t}$: Matrix of variables used in a study of the determinants of growth. These variables are the control variables as following:

- INV_t: the ratio (gross fixed capital formation + changes in inventories) / GDP. Investment is a key variable for growth and should have a strong positive effect.

- INFLATION: the introduction of the inflation rate as explanatory variable of growth is justified by the concept of financial repression. Indeed, a high inflation rate characterizes economies where financial repression is strong, so that the real interest rate is negative, thereby reducing the burden of government debt. However, high inflation disadvantage long-

term investments and has a detrimental effect on growth. The expected sign for this variable is negative.

- **$Trade_t$**: Berthélemy and Varoudakis (1998) he used the trade openness coefficient is calculated by the ratio (Exports + Imports) / GDP. However, this indicator is not optimal since more lines of economic policy; it reflects the influence of natural differences such as the size and location of each country.

- **KH_t**: Human capital is the number of people enrolled in secondary: The gross enrollment rate is to determine the percentage of the total population was recorded at study here the sub- when the people gathered in the age group corresponding to the level of study in question. **Z_t:** matrix variables characterizing the banks system, which are as follows:

- **QM:** Quasi-money refers to bank deposits which cannot be processed at any time and in their entirety, by legal fiat money: these are deposits and deposits savings.

The ratio QM/GDP measures the financial intermediary size because M1/PIB consists mainly of highly liquid deposits. This ratio is centralized on long-term deposits.
- **GOV:** Global Governance Index is calculated as the arithmetic average of citizen participation and accountability, political stability and absence of violence, government effectiveness, the regulatory burden, rule of law and the absence of corruption.
With regard to the data source, all financial data are derived from site http://www.worldbank.org/data&statistics World Bank, except data on the governance index from «International Country Risk Guide "(International Country Risk Guide - ICRG) for the period 1980-2011.

The econometric analysis is based on annual data over the period 1980-2011, so 32 observations.

The choice of the period is justified, on the one hand, the availability of data and the other due to the emergence of new financial intermediation over the past three decades.

ESTIMATES AND INTERPRETATIONS OF RESULTS

Stationarity test series

The stationarity test is preferred in estimates of temporal data as it avoids the risk of spurious regression. There are a variety of the variables stationarity tests. In our study, we use the Dickey-Fuller (ADF) test.

The results of the stationarity test are summarized in the table below.

Table 1: Results of Stationarity Test

The threshold stationarity test of ***1%, **5% et *10%				
Variables	***Stationarity***		***Dickey-Fuller (ADF)***	
	Yes/No	**Integration order**	**Statistic value**	**Critical value**
GROWTH	Yes	I(0)	-5,7458***	-4,2845
INV	Yes	I(0)	-4,1204**	-3,6032
INFLATION	Yes	I(0)	-3,7882**	-3,5628
TRADE	Yes	I(1)	-5,5460*	-4,2967
KH	Yes	I(1)	-4,2907**	-3,5683
QM	Yes	I(0)	-3,3102*	-3,2217
GOV	Yes	I(1)	-3,8753**	-3.5806

The results of the unit root test of Augmented Dickey-Fuller (ADF) show that the growth rate of gross domestic product (GDP), the investment rate (INV), the inflation rate (INFLATION) and the quasi- money (QM) are stationary in level. Other variables (TRADE, KH, and GOV) are stationary in first differences. Since all variables are integrated of the same order, they cannot be cointegrated in the Granger sense according to econometric theory. This leads us to choose a Vector AutoRegression (VAR).

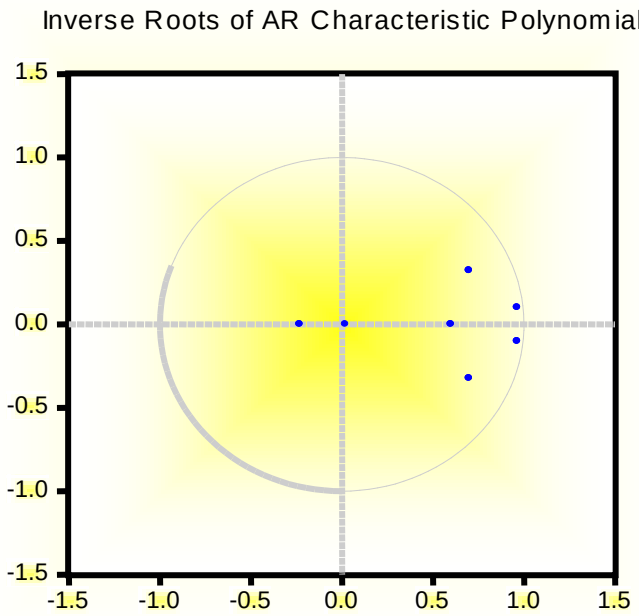
The fundamental interest of the Autoregressive Vector or Vector Error Correction is that it allows us to study the causality in the short or long term Granger between financial intermediation and economic growth.

One of the main applications of the VAR model is to analyze the effects of economic policy shocks. The VAR method is also used for residual testing (autocorrelation, homoscedasticity, heteroscedasticity)

VAR model. Stationarity

The below graph shows that the VAR is stationary because the inverse of the roots of AR characteristic polynomial are all located inside the unit circle. This means that all eigenvalues of modulus greater than 1. The estimated model was acceptable R^2 and p-values of the Fisher statistic below 0.05. So the model is acceptable.

Graph 4: Model Stationarity



Before estimating the model, it was necessary to determine the optimal lag number. To do this we used the method of information criterion because of its accessibility in Eviews. We chose the lag number that minimizes the information criteria, is 1.

Table 2: Choice of lags number model VAR

VAR Lag Order Selection Criteria
Endogenous variables: GROWTH INV INFLATION GOV TRADE KH QM
Exogenous variables: C
Date: 04/27/13 Time: 16:44
Sample: 1980 2011
Included observations: 30

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-536.5607	NA	12895779	36.23738	36.56432	36.34197
1	-343.5673	283.0569*	958.2950*	26.63782*	29.25339*	27.47457*
2	-300.5395	43.02781	2594.412	27.03597	31.94016	28.60486

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5%level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Tableau 3 : Model estimation VAR (1)

Vector Autoregression Estimates

Date: 04/27/13 Time: 14:34

Sample (adjusted): 1981 2011

Included observations: 31 after adjustments

Standard errors in ( ) & t-statistics in [ ]

	GROWTH	QM	INV	INFLATION	TRADE	KH	GOV
GROWTH(-1)	-0.190131	-0.132165	0.198677	0.150119	0.229250	0.021192	0.013151
	(0.21511)	(0.07856)	(0.13583)	(0.22178)	(0.50392)	(0.11737)	(0.01606)
	[-0.88388]	[-1.68229]	[1.46271]	[0.67689]	[0.45494]	[0.18056]	[0.81868]
QM(-1)	-0.165236	0.670823	0.015637	-0.298800	0.974518	-0.147657	0.004246
	(0.26633)	(0.09727)	(0.16817)	(0.27459)	(0.62391)	(0.14531)	(0.01989)
	[-0.62041]	[6.89657]	[0.09298]	[-1.08818]	[1.56197]	[-1.01612]	[0.21351]
INV(-1)	-0.069421	-0.265895	0.690626	-0.209167	-0.373324	0.002750	-0.036246
	(0.20353)	(0.07433)	(0.12851)	(0.20983)	(0.47678)	(0.11105)	(0.01520)
	[-0.34109]	[-3.57715]	[5.37398]	[-0.99682]	[-0.78301]	[0.02477]	[-2.38488]
INFLATION(-1)	0.121301	-0.113713	0.306508	0.193557	0.309295	0.173815	0.023872
	(0.19666)	(0.07182)	(0.12418)	(0.20276)	(0.46070)	(0.10730)	(0.01469)
	[0.61680]	[-1.58320]	[2.46828]	[0.95462]	[0.67136]	[1.61987]	[1.62551]
TRADE(-1)	-0.015913	0.024422	0.065244	0.178702	0.470540	-0.040780	-0.005900
	(0.08533)	(0.03117)	(0.05388)	(0.08798)	(0.19990)	(0.04656)	(0.00637)
	[-0.18648]	[0.78363]	[1.21086]	[2.03120]	[2.35386]	[-0.87586]	[-0.92596]
KH(-1)	-0.005649	0.078470	-0.041537	-0.013126	0.012258	0.952230	-0.003254
	(0.06473)	(0.02364)	(0.04087)	(0.06673)	(0.15163)	(0.03532)	(0.00483)
	[-0.08728]	[3.31942]	[-1.01631]	[-0.19669]	[0.08084]	[26.9630]	[-0.67325]
GOV(-1)	1.552537	-0.820811	0.446565	-1.005268	-3.540327	2.484760	0.919907
	(1.13263)	(0.41366)	(0.71518)	(1.16774)	(2.65329)	(0.61798)	(0.08458)
	[1.37073]	[-1.98427]	[0.62441]	[-0.86087]	[-1.33431]	[4.02077]	[10.8762]

C	3.851927	14.80756	-0.798721	7.389460	46.44562	-1.856377	1.843557
	(7.84770)	(2.86612)	(4.95529)	(8.09094)	(18.3839)	(4.28182)	(0.58603)
	[0.49084]	[5.16641]	[-0.16119]	[0.91330]	[2.52642]	[-0.43355]	[3.14585]
R-squared	0.132036	0.984287	0.880883	0.515200	0.705975	0.996555	0.966594
Adj. R-squared	-0.132128	0.979504	0.844630	0.367652	0.616490	0.995507	0.956427
Sum sq. resids	172.0129	22.94382	68.58261	182.8412	943.9595	51.20748	0.959208
S.E. equation	2.734743	0.998778	1.726804	2.819506	6.406381	1.492117	0.204217
F-statistic	0.499826	205.8165	24.29826	3.491745	7.889251	950.5335	95.07038
Log likelihood	-70.54762	-39.32254	-56.29490	-71.49387	-96.93658	-51.76652	9.885234
Akaike AIC	5.067588	3.053067	4.148058	5.128637	6.770102	3.855905	-0.121628
Schwarz SC	5.437650	3.423129	4.518119	5.498698	7.140163	4.225966	0.248433
Mean dependent	4.078694	26.09852	25.88079	5.644288	87.35195	61.40290	5.274350
S.D. dependent	2.570212	6.976485	4.380865	3.545642	10.34485	22.25995	0.978322

Determinant resid covariance (dof adj.)	199.3883
Determinant resid covariance	24.67531
Log likelihood	-357.5996
Akaike information criterion	26.68385
Schwarz criterion	29.27427

Fisher statistics in Table 3 is greater than the reader Fisher's table (1.96) then the model is globally significant. At the individual level, each variable in the model is significant. But in analyzing the financial development-economic growth relationship, we note that financial intermediation and good governance have an impact on economic growth.

Residual Tests

These are tests for normality, heteroskedasticity and errors autocorrelation.

Normality Test

The assumption of normality of error terms specifies the statistical distribution of the estimators. This hypothesis can be tested on the model variables or error terms of the model. This test is performed with the Jarque-Bera statistic and follows a chi-square with two degrees of freedom at the 5% level equal to 5.99. It shows whether the variables in the model

or not follow a normal distribution. The results of this test show that the residuals are normal because the Jarque-Bera statistics are all below 5.99.

Tableau 4 : Normality Test

VAR Residual Normality Tests
Orthogonalization: Cholesky (Lutkepohl)
Null Hypothesis: residuals are multivariate normal
Date: 04/27/13 Time: 14:44
Sample: 1980 2011
Included observations: 31

Component	Skewness	Chi-sq	df	Prob.
1	-0.238454	0.293779	1	0.5878
2	0.236874	0.289899	1	0.5903
3	1.366273	9.644629	1	0.0019
4	0.148747	0.114316	1	0.7353
5	0.412200	0.877860	1	0.3488
6	0.103959	0.055839	1	0.8132
7	0.055762	0.016065	1	0.8991
Joint		11.29239	7	0.1264

Component	Kurtosis	Chi-sq	df	Prob.
1	1.315819	3.663767	1	0.0556
2	1.396798	3.319917	1	0.0684
3	4.870590	4.519681	1	0.0335
4	2.155055	0.922162	1	0.3369
5	2.116562	1.008098	1	0.3154
6	1.082608	4.748675	1	0.0293
7	1.571381	2.636230	1	0.1045
Joint		20.81853	7	0.0040

Component	Jarque-Bera	df	Prob.
1	3.957546	2	0.1382
2	3.609816	2	0.1645
3	14.16431	2	0.0008
4	1.036478	2	0.5956
5	1.885958	2	0.3895
6	4.804514	2	0.0905
7	2.652295	2	0.2655
Joint	32.11092	14	0.0039

Hétéroscedacité test of residues

This test is performed using the White test. It can detect if the errors are homoskedastic or not. Heteroscedasticity describes the series that do not have a constant variance. However, the series must be homoskedastic to present the best estimators. Tests Breusch-Pagan (BP) and White: In a heteroscedasticity test, two tests are generally used. But, the White test is used in our model. The general idea of this test is to check whether the squared residuals can be explained by the variables in the model. In this case, residues are homoskedastic with probability (0.2534) greater than 5%. So the estimates are optimal.

Tableau 5 : Heteroscedasticity Test

VAR Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares)
Date: 04/27/13 Time: 14:47
Sample: 1980 2011
Included observations: 31

Joint test:

Chi-sq	df	Prob.
410.2004	392	0.2534

Individual components:

Dependent	R-squared	F(14,16)	Prob.	Chi-sq(14)	Prob.
res1*res1	0.558699	1.446889	0.2375	17.31967	0.2395
res2*res2	0.513678	1.207142	0.3558	15.92401	0.3180
res3*res3	0.341435	0.592518	0.8344	10.58448	0.7183
res4*res4	0.833328	5.714053	0.0007	25.83316	0.0272
res5*res5	0.305116	0.501816	0.8991	9.458597	0.8006
res6*res6	0.594667	1.676695	0.1601	18.43468	0.1877
res7*res7	0.692610	2.575082	0.0363	21.47091	0.0902
res2*res1	0.578245	1.566910	0.1933	17.92560	0.2102
res3*res1	0.655472	2.174311	0.0692	20.31963	0.1204
res3*res2	0.410602	0.796168	0.6628	12.72867	0.5480
res4*res1	0.682260	2.453972	0.0439	21.15005	0.0978
res4*res2	0.533490	1.306946	0.3012	16.53819	0.2816
res4*res3	0.614798	1.824046	0.1245	19.05874	0.1627
res5*res1	0.568971	1.508605	0.2137	17.63810	0.2238
res5*res2	0.614723	1.823470	0.1246	19.05642	0.1628
res5*res3	0.551324	1.404322	0.2554	17.09106	0.2514
res5*res4	0.700421	2.672017	0.0312	21.71304	0.0847
res6*res1	0.625122	1.905757	0.1083	19.37880	0.1510
res6*res2	0.575654	1.550361	0.1989	17.84527	0.2139

res6*res3	0.440693	0.900487	0.5743	13.66148	0.4752
res6*res4	0.571900	1.526747	0.2071	17.72891	0.2194
res6*res5	0.373589	0.681597	0.7616	11.58127	0.6399
res7*res1	0.312623	0.519778	0.8874	9.691314	0.7844
res7*res2	0.426459	0.849776	0.6168	13.22022	0.5093
res7*res3	0.362638	0.650247	0.7880	11.24177	0.6669
res7*res4	0.503106	1.157146	0.3862	15.59630	0.3386
res7*res5	0.321537	0.541623	0.8723	9.967648	0.7645
res7*res6	0.614456	1.821415	0.1250	19.04814	0.1631

Errors Autocorrelation Test

This test, also called correlation test checks for errors if the errors are not correlated. It should detect the errors autocorrelation by the Durbin-Watson. In our study, there is no autocorrelation for the associated probability is greater than 5% as shown in the table below.

Various econometric tests show that our model is well specified, there is no autocorrelation and homoscedasticity of errors, the normal distribution and the model is stable. This model can be used for econometric forecasts.

Tableau 6: Errors Autocorrelation Test

VAR Residual Serial Correlation LM Tests
Null Hypothesis: no serial correlation at lag order h
Date: 04/27/13 Time: 14:46
Sample: 1980 2011
Included observations: 31

Lags	LM-Stat	Prob
1	34.23199	0.9459
2	32.41668	0.9674
3	40.18510	0.8111
4	37.62906	0.8816
5	62.58194	0.0920
6	73.31006	0.0138
7	43.47888	0.6957
8	37.11731	0.8934
9	48.44276	0.4956
10	39.31751	0.8371
11	38.38284	0.8628
12	52.52324	0.3392

Probs from chi-square with 49 df.

Causality test

According to Granger, a variable X causes variable Y only if the past and present values of X are more predictive values of the variable Y. In other words, a variable X causes variable Y if knowledge of past and present values of X expresses best prediction of Y. The Granger causality test to examine whether returns the current value of Y is significantly related to lagged values of the same variable and lagged values of X that is considered the causal variable.

The following table gives the results of the causality test of financial intermediation and the growth rate of real GDP through the quality of institutions.

Tableau 7: Granger causality Tests

Null Hypothesis of no causality	**Ob.**	**F-Statistic**	**Probability**
QM does not cause GROWTH	31	***2,8301***	***0,0925***
GROWTH does not cause QM		0,3849	0,5350
QM does not cause INV		***12,7960***	***0,0003***
INV does not cause QM		0,0086	0,9259
QM does not cause TRADE		0,6140	0,4333
TRADE does not cause QM		2,4397	0,1183
QM does not cause INFLATION		2,5065	0,1134
INFLATION does not cause QM		1,1841	0,2765
QM does not cause GOV		***3,9373***	***0,0472***
GOV does not cause QM		0,0455	0,8309
QM does not cause KH		***11,0185***	***0.0009***
KH does not cause QM		1,0324	0.3096

The causal analysis told us that financial intermediation because economic growth. The application of these test variables taken in pairs for optimal delay period, indicating that the financial intermediation because investment, governance and human capital.

The results in Table 7, it appears that in the short term or long term financial intermediation cause GDP growth since the P-value is less than 0.05, that is to say that prior information on financial intermediaries allow better prediction of the level of economic growth. Economic growth rate does not cause either the financial variable (the P-value is greater than .05).

Therefore, the test results allow us to reject the null hypothesis and conclude that there is unidirectional causality between the financial intermediation and the economic growth rate.

Variance decomposition

The variance analysis provides information about the relative importance of innovations in the variations of each variable in the VAR. It allows us to determine in which direction the shock has more impact. The variance decomposition for each variable in the VAR gives the results presented in Table 8.

The results of table variance decomposition show that fluctuations in the variance of the growth rate of GDP, investment as a percentage of GDP, inflation, trade openness, the quasi-money as a percentage of GDP, governance and human capital are explained by their variances are decreasing about the first ten years.

Tableau 8 : Variance Decomposition

Variance decomposition of GROWTH :

Period	S.E.	GROWTH	INV	INFLATION	TRADE	KH	QM	GOV
1	2.734743	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	2.834850	96.28710	0.007151	1.979931	0.076894	0.014772	0.541371	1.092778
3	2.864504	95.13297	0.088153	2.192225	0.075503	0.014879	0.830590	1.665682
4	2.883122	93.95665	0.184624	2.426808	0.123734	0.015800	1.038103	2.254281
5	2.898874	93.03690	0.318407	2.522636	0.198627	0.021911	1.175539	2.725982
6	2.912070	92.25002	0.475769	2.561247	0.308772	0.034352	1.267499	3.102346
7	2.923272	91.58413	0.643691	2.565005	0.442663	0.052863	1.326815	3.384834
8	2.932707	91.02198	0.805552	2.554554	0.591045	0.076364	1.363439	3.587064
9	2.940523	90.55642	0.948108	2.541345	0.742384	0.103572	1.384517	3.723659
10	2.946827	90.18111	1.063544	2.531117	0.886335	0.133245	1.395277	3.809367

Variance Decomposition of INV:

Period	S.E.	GROWTH	INV	INFLATION	TRADE	KH	QM	GOV
1	1.726804	0.451453	99.54855	0.000000	0.000000	0.000000	0.000000	0.000000
2	2.642611	3.949509	85.02854	8.993632	1.895168	0.028894	0.000213	0.104043
3	3.165019	4.309448	76.09235	13.22667	6.150642	0.079440	0.018449	0.123000
4	3.411974	4.413008	71.05028	14.36025	9.873690	0.171956	0.016131	0.114692
5	3.504239	4.301607	68.58268	14.19867	12.22021	0.297802	0.074954	0.324078
6	3.546677	4.203484	67.03508	13.86638	13.21276	0.425249	0.284933	0.972116
7	3.593708	4.219698	65.30614	13.93989	13.27437	0.519091	0.652224	2.088591
8	3.654956	4.337531	63.17675	14.39616	12.92180	0.566108	1.100030	3.501620
9	3.720291	4.489357	60.98359	14.93640	12.48960	0.576312	1.538942	4.985797
10	3.779944	4.617620	59.09242	15.32141	12.11059	0.567314	1.914339	6.376294

Variance Decomposition of INFLATION:

Period	S.E.	GROWTH	INV	INFLATION	TRADE	KH	QM	GOV
1	2.819506	2.958991	16.04689	80.99412	0.000000	0.000000	0.000000	0.000000
2	3.075989	3.590057	13.85943	71.26753	10.35526	0.000589	0.537996	0.389136
3	3.137241	3.453760	13.32411	68.69656	12.87468	0.012731	0.538842	1.099321
4	3.168767	3.418302	13.09937	67.45048	13.30385	0.035862	0.570294	2.121841
5	3.201075	3.467332	12.84650	66.50480	13.16652	0.054825	0.700844	3.259185
6	3.233860	3.528612	12.59940	65.62813	12.93502	0.064623	0.879532	4.364681
7	3.264418	3.570928	12.47683	64.74889	12.72552	0.067394	1.057187	5.353248
8	3.292635	3.584810	12.53084	63.84046	12.57211	0.066877	1.210373	6.194543
9	3.319342	3.576315	12.72918	62.91080	12.49321	0.065842	1.334245	6.890410
10	3.344865	3.555132	12.99901	61.99397	12.49330	0.065784	1.432798	7.460003

Variance Decomposition of TRADE:

Period	S.E.	GROWTH	INV	INFLATION	TRADE	KH	QM	GOV
1	6.406381	0.027011	15.21801	0.003049	84.75193	0.000000	0.000000	0.000000
2	7.192650	0.114196	14.25224	0.355430	82.39080	0.044862	1.959764	0.882708
3	7.644065	1.117455	12.85416	0.981396	78.36696	0.045713	3.745232	2.889082
4	8.161278	2.572122	12.89720	3.863133	70.02354	0.046991	5.136765	5.460252
5	8.679977	4.075318	12.97793	7.171100	62.03545	0.101334	5.977498	7.661369
6	9.068769	5.155265	12.62356	9.490668	56.83100	0.242348	6.425662	9.231498
7	9.293999	5.812852	12.14203	10.59482	54.11014	0.481620	6.640865	10.21768
8	9.401616	6.137815	11.87673	10.85679	52.89087	0.809111	6.710613	10.71808
9	9.458036	6.237739	11.91641	10.76706	52.35053	1.192585	6.686498	10.84918
10	9.509572	6.209947	12.12324	10.69678	52.00160	1.587545	6.615569	10.76532

Variance Decomposition of KH:

Period	S.E.	GROWTH	INV	INFLATION	TRADE	KH	QM	GOV
1	1.492117	7.650405	1.000033	0.351903	28.41891	62.57875	0.000000	0.000000
2	2.126044	5.979943	0.496013	5.038433	20.94307	61.39544	1.170501	4.976598
3	2.801105	3.492213	0.289343	11.57401	15.44288	52.15185	3.587309	13.46240
4	3.557245	2.291482	0.279431	16.70166	11.13063	41.77316	5.956572	21.86707
5	4.361491	1.926039	0.611817	19.62047	7.983898	33.22838	7.797621	28.83177
6	5.182592	1.914268	1.383280	20.77690	5.771358	26.73946	9.112725	34.30201
7	6.002015	2.014650	2.568748	20.75695	4.303443	21.85032	10.00880	38.49709
8	6.810494	2.129316	4.049902	20.03434	3.446827	18.11510	10.58808	41.63644
9	7.602676	2.227794	5.671607	18.94815	3.089875	15.21465	10.93394	43.91398
10	8.373778	2.306318	7.291299	17.72474	3.124010	12.93366	11.11333	45.50665

Variance Decomposition of QM:

Period	S.E.	GROWTH	INV	INFLATION	TRADE	KH	QM	GOV
1	0.998778	1.942651	8.695027	7.653958	1.017495	1.496869	79.19400	0.000000
2	1.451959	12.25882	10.40224	15.67270	3.561081	0.708301	56.23249	1.164356
3	1.907072	13.87286	18.68632	22.10053	2.323036	0.624389	39.73535	2.657521
4	2.287741	14.82360	23.13427	25.26615	1.731580	0.959707	30.69289	3.391797
5	2.533829	15.34472	24.72293	26.59910	1.884558	1.609002	26.29238	3.547310
6	2.656697	15.72174	25.06253	26.76386	2.206982	2.561871	24.29010	3.392916
7	2.705990	15.86403	24.95053	26.30188	2.394512	3.764389	23.43574	3.288928
8	2.737277	15.65702	24.52531	25.71772	2.404394	5.039493	22.96781	3.688254

9	2.788188	15.09080	23.65014	25.38035	2.317690	6.132468	22.47296	4.955591
10	2.871381	14.29125	22.30555	25.35040	2.200145	6.861074	21.84647	7.145116

Variance Decomposition of GOV:

Period	S.E.	GROWTH	IN	INFLATION	TRADE	KH	QM	GOV
1	0.204217	2.911530	2.125193	2.059454	1.316762	0.435845	3.789154	87.36206
2	0.290815	4.678187	1.574895	9.850240	0.929855	0.291400	3.140139	79.53528
3	0.352538	3.827282	6.947712	9.898491	1.023015	0.234732	3.468308	74.60046
4	0.407521	3.062680	14.99527	7.982765	1.957405	0.192097	3.643160	68.16662
5	0.459486	2.449498	21.86517	6.311026	3.807435	0.159667	3.677431	61.72978
6	0.506810	2.031079	26.22711	5.190040	6.083306	0.136329	3.706848	56.62529
7	0.547844	1.763790	28.42242	4.444351	8.279895	0.119470	3.807010	53.16306
8	0.582523	1.614776	29.19527	3.934648	10.10504	0.106546	3.990541	51.05318
9	0.611875	1.563807	29.16438	3.607721	11.47033	0.096571	4.235759	49.86143
10	0.637115	1.590445	28.74664	3.433158	12.41813	0.090665	4.507711	49.21324

Cholesky Ordering: GROWTH INV INFLATION TRADE KH QM GOV

CONCLUSION

This paper examines the relationship between financial intermediation and economic growth in Tunisia. Following a detailed time series analysis, the findings reveal that financial intermediation has a positive impact on economic growth in Tunisia. Although an indicator of financial intermediation (quasi-money) was used for the purpose of this paper. This paper observes that in the years 1980 to 2011, the highest average annual economic growth rate and especially before the revolution of December 2010. In addition, this paper suggests the expansion of the model used above to accommodate more explanatory variables. The use of more advanced econometric tests such as the VAR estimation technique or the component analysis approach may be used for a more robust empirical test of the causal link between financial intermediation and economic growth in Tunisia.

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ANNEXES

ANNEXE 1 : TEST DE STATIONNARITE SUR GROWTH

En niveau (stationnaire)

Null Hypothesis: GROWTH has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.745896	0.0003
Test critical values:	1% level	-4.284580	
	5% level	-3.562882	
	10% level	-3.215267	

*MacKinnon (1996) one-sided p-values.

ANNEXE 2 : TEST DE STATIONNARITE SUR INV

En niveau (stationnaire)

Null Hypothesis: INV has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 6 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.120447	0.0173
Test critical values:	1% level	-4.374307	
	5% level	-3.603202	
	10% level	-3.238054	

*MacKinnon (1996) one-sided p-values.

ANNEXE 3 : TEST DE STATIONNARITE SUR INFLAION

En niveau (stationnaire)

Null Hypothesis: INFLATION has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.788292	0.0309
Test critical values:	1% level	-4.284580	
	5% level	-3.562882	
	10% level	-3.215267	

*MacKinnon (1996) one-sided p-values.

ANNEXE 4 : TEST DE STATIONNARITE SUR TRADE

En niveau (non stationnaire)

Null Hypothesis: TRADE has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.613649	0.2772
Test critical values:	1% level	-4.284580	
	5% level	-3.562882	
	10% level	-3.215267	

*MacKinnon (1996) one-sided p-values.

En différence 1ère (Stationnaire)

Null Hypothesis: D(TRADE) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.546040	0.0005
Test critical values:	1% level	-4.296729	
	5% level	-3.568379	
	10% level	-3.218382	

*MacKinnon (1996) one-sided p-values.

ANNEXE 5 : TEST DE STATIONNARITE SUR KH

En niveau (non stationnaire)

Null Hypothesis: KH has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.924024	0.9403
Test critical values:	1% level	-4.284580	
	5% level	-3.562882	
	10% level	-3.215267	

*MacKinnon (1996) one-sided p-values.

En différence 1ère (Stationnaire)

Null Hypothesis: D(KH) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.290710	0.0101
Test critical values:	1% level	-4.296729	
	5% level	-3.568379	
	10% level	-3.218382	

*MacKinnon (1996) one-sided p-values.

ANNEXE 6 : TEST DE STATIONNARITE SUR QM

En niveau (stationnaire)

Null Hypothesis: QM has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 2 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.310284	0.0845
Test critical values:	1% level	-4.309824	
	5% level	-3.574244	
	10% level	-3.221728	

*MacKinnon (1996) one-sided p-values.

ANNEXE 7 : TEST DE STATIONNARITE SUR GOV

En niveau (non stationnaire)

Null Hypothesis: GOV has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 3 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		0.364672	0.9980
Test critical values:	1% level	-4.323979	
	5% level	-3.580623	
	10% level	-3.225334	

*MacKinnon (1996) one-sided p-values.

En différence 1ère (Stationnaire)

Null Hypothesis: D(GOV) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 2 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.875310	0.0270
Test critical values:	1% level	-4.323979	
	5% level	-3.580623	
	10% level	-3.225334	

ANNEXE 8: TESTS DE CAUSALITE

VAR Granger Causality/Block Exogeneity Wald Tests
Date: 04/27/13 Time: 15:37
Sample: 1980 2011
Included observations: 31

Dependent variable: GROWTH

Excluded	Chi-sq	df	Prob.
INV	0.116344	1	0.7330
INFLATION	0.380441	1	0.5374
TRADE	0.034775	1	0.8521
KH	0.007618	1	0.9305
QM	0.384913	1	0.5350
GOV	1.878909	1	0.1705
All	2.898244	6	0.8215

Dependent variable: INV

Excluded	Chi-sq	df	Prob.
GROWTH	2.139519	1	0.1435
INFLATION	6.092384	1	0.0136
TRADE	1.466193	1	0.2259
KH	1.032879	1	0.3095
QM	0.008646	1	0.9259
GOV	0.389886	1	0.5324
All	15.97761	6	0.0139

Dependent variable: INFLATION

Excluded	Chi-sq	df	Prob.
GROWTH	0.458176	1	0.4985
INV	0.993647	1	0.3189
TRADE	4.125771	1	0.0422
KH	0.038688	1	0.8441
QM	1.184141	1	0.2765
GOV	0.741092	1	0.3893
All	9.613500	6	0.1419

Dependent variable: TRADE

Excluded	Chi-sq	df	Prob.
GROWTH	0.206966	1	0.6492
INV	0.613110	1	0.4336
INFLATION	0.450724	1	0.5020
KH	0.006536	1	0.9356
QM	2.439735	1	0.1183
GOV	1.780394	1	0.1821
All	10.93863	6	0.0903

Dependent variable: KH

Excluded	Chi-sq	df	Prob.
GROWTH	0.032602	1	0.8567
INV	0.000613	1	0.9802
INFLATION	2.623969	1	0.1053
TRADE	0.767137	1	0.3811
QM	1.032499	1	0.3096
GOV	16.16658	1	0.0001
All	21.79626	6	0.0013

Dependent variable: QM

Excluded	Chi-sq	df	Prob.
GROWTH	2.830113	1	0.0925
INV	12.79602	1	0.0003
INFLATION	2.506523	1	0.1134
TRADE	0.614070	1	0.4333
KH	11.01855	1	0.0009
GOV	3.937344	1	0.0472
All	33.96750	6	0.0000

Dependent variable: GOV

Excluded	Chi-sq	df	Prob.
GROWTH	0.670240	1	0.4130
INV	5.687671	1	0.0171
INFLATION	2.642282	1	0.1041
TRADE	0.857394	1	0.3545
KH	0.453261	1	0.5008
QM	0.045586	1	0.8309
All	12.23567	6	0.0569