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**Article**

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**FINANCIAL DEVELOPMENT, ECONOMIC FREEDOM AND ECONOMIC GROWTH:  
NEW EVIDENCE FROM TUNISIA**Zaïbi Oussama<sup>1</sup>, Hachicha Ahmed<sup>2</sup> and Hachicha Fatma<sup>3</sup>**ABSTRACT**

*This article investigates the effect of financial development on economic growth conditions well-developed institutions in Tunisia as a case study during the period 1980-2014, using the generalized moment method (GMM) to analyze the panel data. We have empirically examined the relationship between financial development and institutions using the index of economic freedom as an institutional variable. It has been found that economic freedom can be used as a proxy of developed institutions and that the effect of financial development on economic growth improves in the presence of the variable of economic freedom. We have also found that economic freedom is beneficial to growth and favors the relationship between financial development and the developed institutions and their combined effects on economic growth. These findings suggest the need to promote greater economic freedom and well-developed institutions to improve the relationship between financial development and economic growth.*

**Keywords:** financial development, institutions, economic freedom, economic growth

**JEL Classification:** F63

**1. INTRODUCTION**

Until the 1990s, most studies showed that financial development had a positive long-term effect on economic activity and that an inadequate development of the financial system was an obstacle to growth and that its reform should be a priority. The economic and banking crises of the 1980s forced countries to commit themselves, as early as 1989, to the liberalization of their financial systems. Reforms

were expected to boost financial activity to support economic growth and poverty reduction strategies. However, the results of these policies have been mitigated and often disappointing (Mahar and Williamson, 1998, Bandiera et al., 2000). In some cases, financial liberalization has been a source of turbulence and instability leading to banking crises.

To regain confidence, financial liberalization uses institutional policies and mechanisms and builds trust. In this context, institutional quality can even be seen as the primary determinant of financial and economic development (Acemoglu et al., 2008, Rodrik and Subramanian, 2003). An adequate institutional environment would contribute to financial development and increase its impact on growth. The basic hypothesis that emerges from this reasoning is that financial reforms can only promote the development of the financial sector when the economic system is anchored in a sound, credible and adequate legal and institutional structure (Arestis et al., 2002).

A developed financial system alone cannot guarantee a substantial effect on the real performance of the economy and there will always be a need for developed institutions to guarantee this effect. This new thinking shows that the financial system operates in a vacuum, but, rather, requires a set of developed institutions. Good economic institutions can improve the relationship between financial development and economic growth (Anwar and Cooray, 2012; Effiong, 2015).

Many institutional perspectives such as economic freedom, financial freedom, enforcement of property rights, governance practices, regulatory oversight, and the bankruptcy law system, determine the pace of development of the

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financial system, which in turn improve economic growth. The good quality of economic institutions with a high level of economic freedom promotes economic growth, inducing competition and accelerating the diffusion of technologies (Caporale et al., 2014).

Economic freedom can exist in an institutional framework, as it guarantees the rule of law and the right to property. Economic freedom is a new conception based on responsibility, political stability and freedom from violence, the functioning of the state, the quality of regulation, the rule of law and the fight against corruption are the main factors that keep the good functioning of the governance and subsequently encourage the firms to make their decisions (Gwartney, 2003).

The main objective of this paper is to test whether the impact of financial development on economic growth is conditioned by the existence of developed institutions. This study consists of estimating a dynamic panel model adopting the Arellano and Bond (1991) system GMM estimator and shows the effects of financial development and developed institutions on the economic growth of Tunisia during the period 1980-2014. The paper also evaluates the role of developed institutions in improving the relationship between financial development and economic growth.

The results suggest that financial development has a statistically significant and positive effect on economic growth and that the impact is very important when the developed institutions are included in the model, using the index of economic freedom as an institutional variable. Thus, the results reported in this study represent an important contribution to the existing literature, in particular because they were made by adopting estimation techniques which deal with the inherent endogeneity of the included variables.

The paper is structured as follows: Section 1 provides a brief literature review on growth effects of financial development and institutions; Section 2 elaborates the data and methodological issues; Section 3 explains and interprets the empirical results and the final section concludes the discussion.

## 2. LITERATURE REVIEW

Over the past thirty years, the link between financial development and economic growth has been recognized in the economic literature, explicitly in all studies, as the idea that an efficient financial system leads to the development of the real sector and a strong economic growth. At a broader level, a robust and efficient financial system is made by ensuring that resources are allocated to the most productive projects and promoting an optimal allocation of resources. Financial development also promotes growth by strengthening competition and encourages the accumulation of capital and provides an incentive for technological innovation that fosters dynamic efficiency.

Financial development exists if financial structures in a given economy succeed in minimizing the effect of frictions, particularly information and transaction costs which distort the allocation of resources to productive investment opportunities and impede economic activity. According to Levine (2005), the overall function of a financial system is to reduce these frictions, and its five functions are (i) producing ex-ante information on projects and promoting optimal allocation of resources, (ii) monitoring investments and control of companies, (iii) facilitating financial transactions, hedging against risk, diversification of assets and pooling of risks, (iv) mobilizing and pooling savings, and (v) facilitating exchange of goods and services.

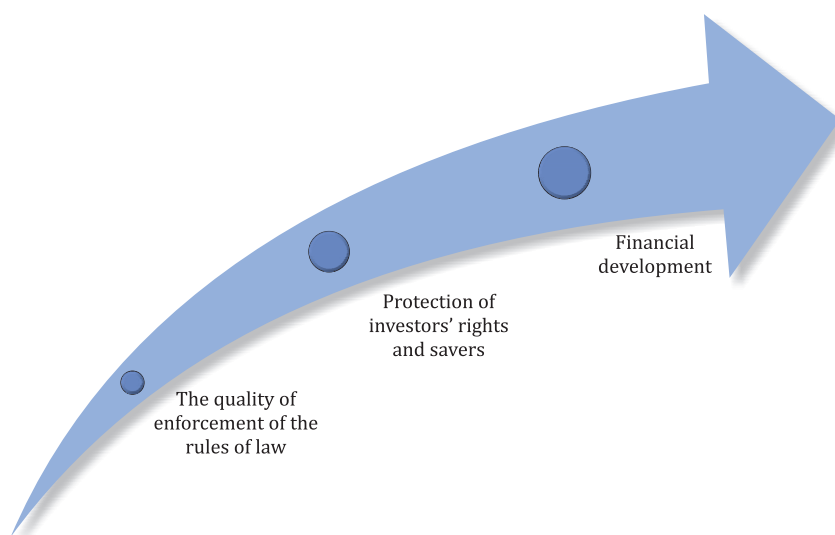
The efficiency of a financial system refers to how it performs the five basic functions and how financial development contributes to improving the efficiency of a financial system. At the empirical level, researchers agree that a positive relation exist between financial development and economic growth. Numerous other empirical studies confirm the link between financial development and economic growth (King and Levine, 1993; Demirguç-Kunt and Levine, 1996; Hassan et al., 2011; Zhang et al., 2012).

Gaytan and Ranciere (2004) have tried to control banking crises in order to separate the effects of financial development on growth from those of financial vulnerability that may be provoked. Demetriades and Law (2004) support the findings of Gaytan and Ranciere (2004) for

a smaller panel of 72 countries between 1978 and 2000. They also highlight the importance of the level of institutional development in determining the link between financial deepening and economic growth. They show that in poor countries, the low level of institutional development negates any positive impact of financial development on economic growth. The proposition “more finance, more growth” holds little applicability because an increase in financial development, as captured by standard financial development indicators, may not result in increased growth due to corruption in the banking system or when the political system is fragile and highly influential, which may divert credit to unproductive or even wasteful activities (Law et al, 2013). Arestis and Demetriades (1997) and, Demetriades and Law (2006) maintain that such varying relationships may reflect differences in the quality of finance, which is determined by the quality of institutions (such as the quality of financial regulation and rule of law). Likewise, Al-Yousif (2002) suggested that the relationship between financial development and economic growth cannot be generalized in all countries because economic policies are different to each country and that their success depends on the effectiveness and quality of the institutions that implement them. In fact, the alternative “better finance, more growth” is more embracing and the financial development has larger effects on economic growth when the financial system is embedded within a sound institutional framework. Financial development is determined not only by market forces but also through the political institutions and property rights that are required in financing

contracts (Marcelin and Mathur, 2014). Hence, our hypothesis is that the contribution of long-term financial development to economic growth is determined by the quality and effectiveness of institutions.

In fact, over the last few decades, institutions as a fundamental cause of economic growth have received increased attention from researchers. The body of literature has evolved over time and concluded that the institutional framework plays a crucial role in determining the growth performance of a country (Acemoglu and Robinson, 2002; Rodrik et al., 2004; Pande and Udry, 2006; Mijiyawa, 2010; Iqbal and Daly, 2014; Nawaz, 2015). The institutional framework of a country consisting of formal and informal rules constitutes “the rules of the game” and “codes of good conduct” that structure political, social and economic interactions and the habits of thought and behavior of economic agents in a society (Nawaz, 2015). Institutions establish the positive incentive structure which, if good, reduces the cost of transactions among economic agents as well as the inherent uncertainty between human relationships and promote efficiency of production and investment. Thus, in general, institutions favor development and growth as they determine the effectiveness and existence of markets and organizations, both public and private, all of which contributes to economic growth. Good institutions can guarantee the protection of property rights, better enforcement of contracts, a strong rule of law, control of corruption, political stability, etc. which are seen as supporting the growth process of a country.



Furthermore, there is also an established literature that links legal institutions with financial development. Well-functioning financial markets depend on legal institutions that can adequately enforce financial contracts and guarantee the protection of investors' rights and savers in order to prevent obstacles to financial intermediation (Perotti and Modigliani, 2000; Fergusson, 2006). Specifically, economies that benefit from a legal system can guarantee ownership rights and enforce contracts between the proponents of a financial agreement, which generally allows for a strong incentive for lending activities and the establishment of financial transactions. Institutions that succeed in building a strong, independent and effective judicial system can guarantee the proper enforcement of contracts which remains of paramount importance in financial contracting. And thus institutions are considered the determinant of the quality of the financial market (Demirguc-Kunt and Maksimovic, 2002; Levine, 2005, Dzafic, 2012). A stable macroeconomic environment and a strong, centralized government are prerequisites for a healthy pace of financial development. Social norms and other types of informal institutions can determine people's confidence and attitudes about risks and interests, which explains their participation in financial markets and their use of financial instruments thus contributing directly to the multiplication of contracting and the development of financial markets. Rajan and Zingales (2003) argue that if politicians form the ruling elite that seizes power, it will create an unfavorable environment for autonomous financial markets that will compete with their existing interests. Roe and Siegel (2013) showed that political stability has a robust positive impact on financial development; when inequality (the main driver of political instability) is widespread, investor protection institutions are less efficient.

Several studies show that economic freedom can be used as a proxy of a country's institutional

framework (Flert, 2012; Hafer, 2013; Coffman, 2015; Javed, 2016; Bologna et al., 2016; Eldomiaty et al., 2016). This index is used in this work because economic freedom can exist in an institutional framework, since it guarantees the rule of law and property rights and promotes the increased development of financial intermediaries to improve economic growth.

Empirically, studies have shown that developed institutions clearly contribute to financial sector development (Djankov et al., 2005; Chinn and Ito, 2006; Huang, 2010). As a result of this work, researchers now recognize that the influence of financial development on economic growth is conditioned by the existence of developed institutions.

### 3. EMPIRICAL MODEL AND THE DATA

#### 3.1. Empirical model

The relationship between growth and the economic base variables was examined using the endogenous growth approach. Thus, the real GDP per capita is used as a dependent variable. The four economic variables: financial development, economic freedom, foreign direct investment (FDI) and public expenditure (G) are used as explanatory variables.

The objective of our empirical analysis was to examine whether the impact of financial development on economic growth is conditioned by the existence of developed institutions using the index of economic freedom as an institutional variable for the case of Tunisia over the period 1980-2014. The empirical model is based on Azman-Saini et al. (2010) and Aisen and Veiga (2013). Our study therefore uses the following two equations to test the existing relationship between developed institutions, financial development and economic growth; we present in the first step the following equation:

$$GDP_{i,t} = \alpha_1 + \beta_1 GDP_{i,t-1} + \beta_2 FD_{i,t} + \beta_3 EF_{i,t} + \beta_4 X_{i,t} + \varepsilon_{i,t} \quad i=1; t=1, \dots, 35 \quad (1)$$

Where  $GDP$  is real  $GDP$  per capita,  $FD$  is the level of financial development,  $EF$  represents economic freedom (institutional variable), and

$X$  represents the matrix of control variables ( $FDI$  and public spending). In our equation, we introduce the endogenous variable delayed

by one period into the explanatory variables, in particular the real *GDP* per capita at  $t-1$ , in order to test the effect of dynamic behavior and to control the convergence. The subscripts  $i$  and  $t$  denote country and time respectively, is the individual specific effect,  $\beta_1, \beta_2, \beta_3$  and  $\beta_4$  are the parameters to be estimated in this model and  $\varepsilon_{it}$  is a noise term. All the variables are transformed into logarithm.

According to recent studies by Compton (2011), Rode (2012), Hafer (2013) Matallah (2015), and Hussain (2016), if economic freedom increases, the financial system improves, as well as economic growth. Many studies show that countries with higher levels of economic freedom tend to be countries that also have better economic growth, achieve higher levels of wealth as well as a healthier and happier population (Rode, 2013; Evrensel, 2015; Gurbel, 2015; Yilmaz, 2016). This set of evidence suggests that the social

institutions that characterize economic freedom can determine financial development.

The hypothesis allows us to test and know whether the impact level of economic freedom in Tunisia on financial development affects economic growth. For this purpose, we will add an interaction term which is constructed by financial development and economic freedom (FD\*EF) to equation (2) as an additional explanatory variable. If the coefficient of the interaction term is positive and statistically significant, this implies that improving the relationship between financial developments on economic growth depends on the high level of economic freedom.

In the second step, we will empirically justify that economic freedom affects financial development by adding an interaction term in equation (2) which takes the following form:

$$GDP_{i,t} = \alpha_i + \beta_1 GDP_{i,t-1} + \beta_2 FD_{i,t} + \beta_3 EF_{i,t} + \beta_4 (FD_{i,t} * EF_{i,t}) + \beta_5 X_{i,t} + \varepsilon_{i,t} \quad i=1; t=1, \dots, 35 \quad (2)$$

Our study uses the generalized moments method developed by Arellano and Bond (1991), Blundel and Bond (1998). In this paper, there are two reasons for choosing this estimator. First, it is used to control the unobservable individual and temporal effects and allows solving the problems of simultaneity bias caused by the possibility that some independent variables can be endogenous. Second, it allows us to introduce an endogenous delayed variable of a period into the explanatory variables to control the potential endogeneity of the explanatory variables.

### 3.2. The data

In our econometric analysis, all variables are relative to the period 1980-2014 due to the availability of reliable data for our country (Tunisia) and are expressed in logarithm. In each of the estimated models ((1) and (2)), we introduce base variables and control variables that are all extracted with the exception of institutional variables from the World Bank (World Development Indicators, 2016), and the index of economic freedom is taken from Gwartney et al., 2016. Our basic model includes the following variables:

Table 1. Definitions of variables

Abbreviation of variables	Definitions
GDP	GDP is the real gross domestic product per capita. The real GDP per capita used here is in constant 2010 U.S. Dollars.
FD	FD represents the level of financial development, measured using the ratio of liquid liabilities to GDP.
EF	EF represents the economic freedom index used to measure the level of freedom of economic activities in a country.
FDI	FDI are the net inflows of investment (% of GDP).
G	G is Government consumption, defined as the ratio of central government expenditures to GDP.

Real GDP per capita is an economic indicator used to measure a country's economic growth from one year to the next, it is the measure most used in the economic literature.

Liquid liabilities (M2/GDP) is the most widely used indicator in the financial literature (King and Levine, 1993, Beck et al., 1999, Levine et al., 2000), to measure financial development. This indicator takes into account the means of payment available in the economy. It is also an indicator of financial depth and a measure of the size of the formal financial intermediation sector in a broad sense in relation to the size of the economy (central bank, commercial banks and other financial institutions). The assumption is that the size of the financial sector is positively associated with financial services. The empirical studies by Levine et al. (2000) showed that the financial system is measured by M2/GDP, stimulating economic growth.

According to the Fraser Institute, the index of economic freedom is measured in five major areas: size of government (1), legal structure and security of property rights (2), sound money (3), freedom of trade internationally (4), and regulation of credit, labor and business (5). The empirical studies of Doucouliagos (2006), Williamson (2011), and Pattanaik (2014) show that economic freedom positively affects economic growth.

Foreign direct investment (FDI) is a very important factor in the economy, which contributes to the economic growth and productivity of host country firms in order to maintain employment and balance of economic balances.

Public spending (G) is traditionally seen as a stimulus to economic growth. State intervention in the economy, in terms of income or expenditure, is a central issue in economic freedom. This indicator takes into account

both the level of public spending /GDP and the share of revenues of public enterprises and monopolies in the state's overall revenue. In general, if public spending increases, the state decision replaces individual choices, and economic freedom is thus reduced. The greater the role of the state and public enterprises, the more taxes must be paid for their financing and the less the private sector has at its disposal.

## 4. EMPIRICAL RESULTS

### 4.1. The analysis of stationarity

The econometrics allows us to test the validity of our analysis and verify the significance of our model. The problem of cointegration of variables and autocorrelation is generally found in all models, so we want to ensure the stationarity of our variables to avoid this complication. Before proceeding to the estimation of the model, we will first carry out a test which allows us to ensure the observed stationarity of the series. There are several tests of stationarity which we quote in the following tests: The usual unit root Dickey-Fuller tests which may be simple or augmented, the Phillips-Perron (PP) test, the Kwiatkowski, Philips, Schmidt and Shin test (KPSS). We use the Augmented Dickey Fuller unit root technique to examine this stationarity by performing the test for a unit root in the level, first difference, and second difference.

The decision rule is as follows:

$$\left\{ \begin{array}{l} H_0: \text{Non-stationarity} \\ H_1: \text{Stationarity} \end{array} \right.$$

Referring to the tabulated values from the Augmented Dickey Fuller test, the following results were obtained (in threshold regime 1%), which are shown in the table below.

Table 2. Stationarity test results

Variables	Augmented Dickey Fuller (ADF)			
	Unit root in the level		First difference	
	Test statistic	Critical value	Test statistic	Critical value
GDP	0.4351	-3.6394	-5.7091	-3.6463
EF	-1.1309	-3.6394	-5.7386	-3.6463
LL	0.5314	-3.6537	-3.6932	-3.6463
FDI	-3.0296	-3.6394	-8.0299	-3.6463
G	-1.7050	-3.6394	-4.0304	-3.6537

This table shows that all variables are non-stationary in level. If the test statistic is greater than the critical value at the threshold 1%, the variables are non-stationary. The examination of the statistical properties of the time series of all the variables by means of the Augmented Dickey-Fuller (ADF) unit root tests leads to the

conclusion that these variables are therefore integrated of order 1, denoted (I (1)), with derivatives which concern the constant. Thus, the ADF tests carried out in the first difference made the variables non-stationary in stationary variables.

#### 4.2. Estimation results and interpretations

Table 3. Impact of Economic Freedom and Financial Development on Economic Growth

Variables	(1)	(2)
Initial GDP per capita	0.938*** (16.265)	0.928*** (15.915)
FD	0.017* (0.030)	0.024* (0.037)
EF	0.206*** (3.200)	0.369 (0.257)
FDI	0.006* (0.670)	0.003* (0.283)
G	-0.083 (-0.997)	-0.076 (-0.956)
(FD*EF)	-	0.0152* (0.0405)
Constant	0.319* (1.963)	1.356 (0.522)
Durbin-Watson	2.527	2.520
R-squared	0.99	0.99

Notes: \*\*\* significance at 1%, \*\* significance at 5%, \* significance at 10%. The dependent variable is real per capita GDP. The GMM system is the estimator. The t-statistics are indicated in parentheses. The software used for the estimation is Eviews.

In general, according to the table above, there are variables that are statistically significant and others that are not and can be positively or negatively correlated with the dependent variable.

The results presented in the table clearly indicate that financial development (FD) has a positive influence on Tunisia's economic growth, given that its estimated coefficient is

always positive and statistically significant at 10%, suggesting that financial development favors Tunisia's economic growth. The ratio of liquid liabilities to GDP (LL/GDP) has a positive and significant coefficient, consistent with the idea that money supply contributes to growth by facilitating economic activity, which is consistent with the studies in the literature of financial development (Caporales, 2014).



Indeed, the coefficient of economic freedom (EF) bears a positive and statistically significant sign at 1%, which implies that economic performance is stronger when the variable of economic freedom is high because it makes investments more productive. The increase in the index of economic freedom is associated with smaller governments, stronger legal structure and security of property rights, access to sound money, greater freedom to exchange with foreigners, and more flexible regulations of credit, labor, and business. This result is consistent with the studies of Panahi (2014), Hristova (2012) and Azman-Saini et al. (2010), which have proved empirically that the coefficient of economic freedom is significantly positive and that economic freedom is crucial for economic growth.

According to our result, the estimated coefficient of the level of initial GDP per capita is always positive and statistically significant at 1%, which means that the real GDP per capita in year (t) depends positively on that of the year (t-1). Thus the GDP of the previous period has a positive and significant effect on the economic growth in Tunisia.

The estimation result also shows that the FDI variable has a positive impact on the Tunisian economy. The estimated coefficient of this variable is always positive and statistically significant at 10%, indicating a preponderant effect on economic growth.

The estimation of the public expenditure variable (G) does not have a positive effect on the economic growth of our country, because the coefficient of this variable is not statistically negative. The estimates show that in recent years the use of public spending in Tunisia has lost much of its attractiveness as a cyclical regulatory instrument, since it can be a source of distortions that could jeopardize economic growth.

After the revolution, the poor performance of employees and the increase in payroll, interest and subsidies, grants, social benefits, and other expenses such as rent and dividends in the public sector, are seen as some of the reasons for the deterioration of this sector, which adversely affect their profitability.

The objective of this analysis is to verify empirically the existence of a complementary relationship between financial development and the developed institutions and their combined effects on economic growth in Tunisia. To this end, column (2) presents the results of the regression which is based on the interaction specification using a term of interaction between financial development and economic freedom (DF\*EF). The first point to be noted is that the interaction term bears a positive and statistically significant sign at 10%, which means that a high degree of economic freedom reinforces the impact of financial development on economic growth. This result implies that a better contribution of financial development to economic growth requires taking into account a robust complementarity effect between economic freedom (institutional variable) and financial development. This result seems to corroborate the intuitive hypothesis of this paper where the effect of financial development on growth is conditioned by the degree of institutional development. In other words, the financial sector alone is incapable of guaranteeing a significant effect on the performance of the real sector and the incorporation of the developed institutions is necessary to ensure a positive effect on growth. The variable of public expenditure intervenes in the explanation of the economic growth by a negative sign and not significant result. In fact, this coefficient confirms the results of Barro et al. (1995) who suggest that several non-productive aspects of public spending, such as political corruption, may be at the root of slowing economic growth. And to achieve a high level of economic freedom, we must minimize the size of government by reducing public spending.

Moreover, the statistics displayed show that our model is globally significant with  $R^2 = 0.99$ , this means that the independent variables introduced in the model explained 99% of the dependent variable, in this case our model is acceptable and of good adjustment.

## 5. CONCLUSION

By way of conclusion, the literature has defined several approaches to explain the relationship between developed institutions, financial

development and economic growth. The case of Tunisia is very little studied in this context and a lack of studies has been observed. Thus, a theoretical model was developed and estimated, which empirically studied the relationship between financial development and the developed institutions and their effects on Tunisian economic growth, using the GMM technique applied to annual data (1980-2014). The results of the estimation of different equations are therefore more or less expected given the theoretical and empirical considerations already mentioned.

The essential findings of this empirical analysis reveal: financial development with a positive effect on economic growth in Tunisia and the estimated coefficient is positive and significant at 10%; public spending does not have a positive effect on growth; the coefficient of economic freedom bears a positive sign; the interaction term (FD\*EF) is positive and statistically significant, this implies that the financial development effect on economic growth is conditioned by the existence of developed institutions using the index of economic freedom as an institutional variable; and the positive effect of financial development and the negative effect of public spending on growth increase in a monotonous way with the importance of economic freedom in Tunisia.

In this sense, high levels of economic freedom generate positive economic results, leading to more developed institutions that improve the impact of financial development on economic growth. Thus, there is a complementary relationship between developed institutions and financial development.

Apart from the empirical results, which show that the developed institutions favor the relationship between financial development and economic growth, it seems that the institutions are not able to develop in Tunisia given the difficult conjunctures encountered by our country, especially in recent years after the revolution. To improve the quality of these institutions, it is necessary to build good informal institutions that influence the nature and quality of more formal institutions and the two together are likely to strengthen the relationship between financial development and economic growth. From my point of view,

improving the educational level is necessary in order to guarantee the quality of informal institutions and good governance. It stimulates the behavior of citizens, cultural theories and the patriotic consciousness which, by aggregating, produces or reproduces more developed institutions. If our country succeeds in building an efficient and high-quality education system, by providing them with efficient mechanisms for their implementation it can guarantee the quality of public goods such as air quality (pollution control), the security of goods and people (fight against crime and corruption, etc.) and avoid arbitrary administration of power, impunity, lack of access to justice, terrorism, fraud and smuggling, lack of due process, weak accountability structures, over taxation, corruption, regulation altering transactions and generating rents for the benefit of lobbies. The Tunisian economy must be liberated from governance problems. More transparent and accountable management, a reconsideration of the public sector's weight in the economy, and an improved business climate reduce corruption as well as greater competition. A healthier banking system will also be needed. Our country must provide its people with an effective opportunity to mobilize resources for productive investment and enhance the well-being. Thus it creates the optimal motivational conditions for economic agents and is conducive to developing the financial system and subsequently to sustained economic growth. We hope that this volume will inspire researchers in development and pave the way toward more rigorous study of this fascinating and so far under-researched field.

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