THE QUALITY OF INSTITUTIONS AND FINANCIAL DEVELOPMENT IN MENA COUNTRIES: AN EMPIRICAL INVESTIGATION

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Abstract

This paper provides new evidence that sheds light on the influence of institutional quality on financial development using data from Middle East and North African (MENA) countries over the period of 1984-2007. To measure institutional quality we construct a yearly composite index (INST) using the International Country Risk Guide's (ICRG). The results of both panel data and IV techniques of estimation show that the institutional quality is more relevant for banking sector than for stock market development. Examining the impact of five sub-indicators of the composite ICRG index on financial sector development, we find that some institutional aspects matter more than others do. While law and order are the most relevant determinant of banking sector development, corruption and investment profile are of secondary importance for banking sector development. We also find that, investment profile is the most relevant determinant of stock market development. It has a positive significant effect on market index and stock market liquidity.

Keywords: Banking Sector, Stock Market, Institutional Quality

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1 Introduction

Financial development, has received over the last decade, a great deal of attention as a source of economic growth. The theoretical argument for linking financial development to growth is that a well-developed financial system performs several critical functions to enhance the efficiency of intermediation by reducing information, transaction, and monitoring costs. Indeed, several previous studies on finance and development highlight that countries with better developed financial systems experience faster economic growth. In brief, there is agreement that countries should adopt appropriate macroeconomic policies, encourage competition within the financial sector, and develop a strong and transparent institutional and legal framework for financial sector activities.

Then, the question of what determines financial development becomes important and is the subject of a large and still growing research literature from which some general conclusions can be drawn. To address this question, an important strand of literature has paid special attention to a particular set of institutions, most notably the legal system. The strand of literature that looks at financial development from an institutional quality goes back to the seminal contributions of La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997/1998, henceforth LLSV) on how

the legal rules covering protection of corporate shareholders and creditors, the origin of these rules, and the quality of their enforcement affect financial development. Recently, this strand of literature was surveyed by Beck and Levine (2003) who argue that law and finance theory focuses on the role of legal institutions in explaining differences in financial development. Beck and Levine (2003) state that there are two parts of the law and finance theory: (i) the first part holds that legal institutions influence corporate finance and financial development; (ii) the second part traces the international differences in legal rules and in the quality of their enforcement to the origin of the legal system (Beck and Levine 2003 p. 3). In supporting the law and finance theory, LLSV (2000) argue that this view is a natural continuation of the development of corporate finance theory. Recently, Fergusson (2006) conclude that laws and their enforcement are critical in determining the rights of security holder and the functioning of financial systems. The theoretical model developed by Hemmelberg et al. (2000) predicts that higher effective investor protection reduces the cost of capital, improves its allocation and increases investment and growth. Galindo and Micco (2001) have developed an empirical model which captures the links between creditors' rights, credit market breadth and the credit cycle. The model suggests that an increase in creditor protection reduces the elasticity

of credit supply to exogenous shocks, and hence the amplitude of the credit cycle. In this vein Johnson et al. (2000) present evidence of the importance of the legal protection afforded creditors and minority shareholders. Their findings also show that the weakness of legal institutions plays an important role in explaining the extent of depreciation and stock market decline in the "Asian Crisis" (1997-1998).

This study aims at contributing to the literature on the institutional determinants of financial development. More precisely the contribution of this paper is to investigate the role of institutional environment in determining financial development in MENA countries. In fact, MENA countries have embarked on economic reform and structural adjustment programs. However, they have not yet emerged as economics powers, which might explain the lack of research on MENA capital markets (Ben Naceur et al. 2007). From a geographical perspective, relatively little of the recent research in financial development has been directed at the MENA region.

The scope of our study covers 18 MENA countries during the 1984-2007 periods. We employ data on institutional environment, banking sector size, banking sector activity, and equity market size and equity market liquidity. The results of ordinary least squares (OLS), panel data and instrumental variable (IV) techniques of estimation show that banking sector and stock market are affected differently by the public institutions. Thus, while the public institutions appear relevant for banking sector development, they do not affect the stock market. The rest of the paper proceeds as follows: Section 2 reviews the literature exploring the connection between institutions and financial development. Section 3 describes the data, presents the empirical strategy, and reports the main results and the robustness tests. Section 4 concludes.

2 Related literature

The empirical investigations about the relationship between financial sector development and economic growth began to appear with the LLSV series of papers (in particular LLSV 1997, 1998) who have examined the question of the legal determinants of financial development from an empirical view point. To this end, they have assembled a data set covering legal rules pertaining to the rights of investors, and to the quality of enforcement of these rules, in 49 countries that have publicly traded companies. Their finding stresses the importance of legal origin in determining financial development. Their results show that compared with common law countries, the civil law countries have; (i) the weakest investor protection, (ii) the least developed capital markets, and (iii) the worst protection of investors.

Applying the propositions of LLSV (1997, 1998) to the transitions economies, Pistor et al. (2000) find that the effectiveness of legal institutions has a much stronger impact in equity and credit market

development. In an extension, Beck et al. (2003) have evaluated empirically the law and endowments theories of financial development. Using cross-country regressions on a sample of 70 former colonies they have provided evidence for both theories. Thus both legal systems and country's initial endowments are important determinants of financial development.

Using a basic data set for 65 countries, 28 industries over 30 years (1963-1993) and the OLS estimates, Wurgler (2000) also found that the efficiency of capital allocation is positively correlated with the legal protection of minority investors. In particular, strong minority investor rights appear to court overinvestment in declining industries.

Examining the bank-based, market-based financial services and law and finance theories of financial structure, the results of Beck and Levine (2001) support the financial services and law and finance views. Industries that are heavy users of external finance grow faster in countries with higher overall levels of financial development and in countries with efficient legal systems. Moreover, the findings show that the overall level of financial development along with effective contract enforcement mechanisms foster new establishment formation and more efficient capital allocation.

The study of Galindo and Micco (2001) emphasizes the role of institutions for credit cycles. In fact, using a sample of 38 countries, Galindo and Micco (2001) find that an improvement in effective creditor rights reduces the volatility of the credit cycle. Their findings have also shown that an improvement in effective creditor rights protects the size of the credit market.

Additional empirical studies indicate that the countries with legal institutions that enforce rights for outside investors have financial systems that reallocate capital across countries more efficiently. Using firm-level data from 38 countries, Hemmelberg et al. (2002) provide evidence in support of their theoretical model, showing that higher effective investor protection reduces the cost of capital, improves it allocation and increases investment and growth.

To examine the relation between the development of a country's financial and legal institutions and the size of the largest private firms, Beck et al. (2003) used a cross panel data analysis for a sample of 44 countries, both developing and developed over 1988-1997. They found that large firms are larger in countries with more efficient legal systems.

Using a new sample of 125 countries over 25 years, Djankov et al. (2005) have found that both creditor protection through the legal system and information sharing institutions are associated with higher ratios of private credit to GDP. Their results show also that improvement in creditor rights or the introduction of credit registries leads to an increase in the private credit to GDP ratio. Finally they have

found that legal origins are important determinants of both creditors' rights and information sharing institutions.

The predictions of the theoretical model developed by Holder (2007) are consistent with the previous empirical works. His findings show that better property rights institutions make financial repression more costly for the elite and tend therefore to increase financial development. Their predictions also show that better contracting institutions lower the costs of financial transactions, which has countervailing effects on equilibrium financial development.

Using both OLS and 2SLS estimates for a sample of 129 High and Upper Middle Income countries over 1990s, Herger et al. (2007) find that institutions constraining the political elite from expropriating financiers exhibit a strong positive effect on the size of capital markets.

Baltagi et al.(2007) apply Arellano and Bond Dynamic panel GMM technique of estimations on several data sets over 1980-2003 periods, They provide evidence that institutions can explain a large part of the variation in financial development across countries and over time.

In a more recent study, Yartey (2008) has examined the macroeconomic and institutional determinants of stock market development. Using a panel data of 42 countries over 1990 to 2004 he provides empirical evidence that institutional factors such as law and order, political risk, and bureaucracy quality are important determinants of stock market development. Law and Habibullah (2009) also examine the macroeconomic and institutional determinants of financial development in 27 economies during 1980 – 2001. The results of GMM and PMG estimator provide evidence that institutions matter for financial development.

Siong Hook and Azman-Saini (2008) have extended the literature by examining the linear and the nonlinear institutional quality and financial development relationship. Two sets of financial development are considered, (i) private credit and; (ii) stock market capitalization. The indicators of institutional quality are from Kaufmann et al.(2008). Applying Dynamic panel system GMM estimators to a sample of 63 developed and developing countries over the 1996-2004, they and that while institutional appear relevant for banking sector development it has no effect on stock market development. Among six institutional quality indicators, the regulatory quality indicator depicts the U- shaped relationship with both banking sector and stock market development.

The contribution of Girma and Shortland (2008), to the strand of literature consists on evaluating the influence of the political system and legal origin in financial development. Using panel data on developed and developing countries from 1975-2000, their results show that the degree of democracy and political stability are significant explanatory factors in

determining the speed of financial development. These results are supported by Roe and Siegel (2009) findings. In fact, using four different indicators of political stability from different sources and different indicators of financial development they provide evidence that financial backwardness is significantly rooted in severe political instability. Their findings also show that current political instability explains the level of financial development more than historical legal origin.

Besides the legal framework discussed above, in the recent years, informal institutions began to gain some attention among economists. Calderon et al. (2001) exploit the link between trust and both the structure and development of financial system. Examining the simple correlation analysis for a sample of 48 countries during 1980-1995, they find that trust is positively linked with both financial development and efficient financial structure. When they use the ordinary least squares regressions they have found that trust and rule of law are strongly related to financial system indicators. They have also found that trust appears to have an impact on the financial system on several grounds; it may positively affect financial deepening in the economy as well as generate more activity (in the form of credit). Additionally, they have found that trust may enhance the competitiveness and efficiency of the system (by reducing overhead costs, interest spreads and deregulating system) and may help develop stock and equity markets. Thus higher trust might generate higher efficiency in the financial system (in the form of smaller overhead costs and lower interest margins). Using microeconomic data on Italian households and firms in 1989, 1991, 1993, and 1995, Guison et al. (2000)'s results support the hypothesis that trust and financial development measures are highly correlated. In particular, higher levels of trust are correlated with lower levels of shareholder investment in cash, higher investments in stocks, more use of checks, higher access to institutional credit and less informal credit. Their findings show that the effect of trust is more important where legal enforcement is weaker and among less educated people.

3 Data and econometric methodology

The approach taken in this paper is to model the impact of institutional environment on financial development in MENA countries.

3.1 The Data

Data are extracted from various sources. Employing the November 2008 Beck et al. (2000) database on financial development and structure, stock market and financial system indicators from 1984 to 2007 are extracted. Other information related to macroeconomic stability, income and traded openness rates are collected from the World Development

Indicators (World Bank 2007) database. The institutional indicators are collected from the International Country Risk Guide (ICRG) compiled by the Political Risk Services (PRS Group). These indicators rely exclusively on polls of experts. The main advantages of these datasets are that they are available for a considerable time span; thus allowing to test the dynamics and relevance of institutions in affecting financial development (Daude and Stein (2007)).

3.1.1 Financial development variables

Following the previous studies (Levine and Zervos (1998), Rousseau Wachtel (2000), Beck and Levine (2004), Boyd et al. (2001), Beck et al. (2003), Ben Naceur and Ghazouani (2007), Law and Habibullah (2009), and Girma and Shortland (2008)), we consider indicators of both financial intermediaries and stock market development as indicators of financial sector development, which are the most widely used measures of financial development.

3.1.1.1 Banking data set

We consider three indicators of banking sector development. They cover 18 MENA countries[1] over the 1984-2007 period:

- The first indicator of banking sector development is private credit *(PRIVCRE)*. Some authors argue that is a good proxy for banking sector development. In fact, as argued by Boyd et al. (2001) "*private credit is not merely a measure of size. It isolates credits to the private sector and excludes credits issued to the government, government agencies and public enterprises*". It is an indicator of financial intermediary's activity.

- Liquid liabilities *(LIABILITIES)*: is the ratio of liquid liabilities of the financial sector to GDP. It is a general indicator of the size of financial intermediaries relative to the size of the economy.

- Bank assets *(ASSETS)*: equals the ratio of total domestic assets of deposit money banks divided by GDP. It is an indicator of the overall size of banking sector.

Thus, taken together, these three measures of bank development provide more information on the banking sector than if one uses only a single indicator. We construct a conglomerate index of banking sector development *(BANKINDEX)* using a formula[2], which is similar to the algorithm developed by Dermiguç-Kunt and Levine (1996). Specifically the construction of BANKINDEX follows a two-step procedure. First, for each country i and each time t, transformed

variables of private credit, liquid liabilities and bank assets ratios are computed. We define the transformed value of each variable X as follows[3]:

$$X_{it}^t = (X_{it} - \overline{X})/|\overline{X}| \qquad (1)$$

$\overline{X}$ is the average value of variable X across all countries in the panel over the period of observation for each one. Second, we take a simple average of the transformed value of private credit, liquid liabilities and bank assets ratios obtained by expression (1) in order to provide the overall bank index (BANKINDEX).

3.1.1.2 Stock market data set:

The stock market data set focuses on measures of stock market development. It covers 13 MENA countries[4] over the 1984-2007 periods.

- To measure market size, we use the ratio of stock market capitalization to GDP *(MCAP)*. It is equals to the ratio of the value of domestic equities (that are traded on domestic exchanges) to GDP. Many observers use the market capitalization ratio as an indicator of market development (Yartey 2008, and Garcia and Liu 1999).

- Value traded equals the total value of domestic equities traded on each country's major stock exchanges as a percentage of GDP *(TRADED)*. It is a measure of stock market liquidity.

- The turnover ratio *(TURNOVER)* is also a measure of stock market liquidity. It equals the total value of domestic shares traded divided by market capitalization. The turnover ratio may be importantly different from the value traded ratio. While the turnover ratio measure captures trading relative to the size of market, value traded measures trading relative to the size of the economy. Thus, a small, liquid market will have a high turnover ratio but a small total value traded to GDP ratio.

We use the three indicators of stock market development to construct the overall stock market index *SMINDEX* based on a formula that is similar to the one developed to obtain a bank index (expression (1) above).

3.1.2 Institutional quality

As argued by Alfaro et al. (2008) the measurement of institutional quality is a challenge task. Acemoglu et al. (2001pp 1371-1372) argue that "*There is a 'cluster of institutions', including constraints on government*

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[1] Algeria, Bahrain, Egypt, Iran, Djibouti, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabic, Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen.
[2] This formula is also adopted by Ben Naceur and Ghazouani (2007) to construct a composite stock market and banking indexes.

[3] X indicates variables *PRIVCRE, LIABILITIES or ASSETS*
[4] Our initial intention was to cover all countries in the MENA region, but given that some countries have not yet established stock markets (for example: Djibouti, Libya, Syria, and Yemen) and other countries have established stock markets recently (for example, Algeria), the sample included are only 13 MENA countries: Bahrain, Egypt, Iran, Israel, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, SaudiArabia, Tunisia and UAE

expropriation, independent judiciary, property rights enforcement and institutions providing equal rights and ensuring civil liberties, that are important to encourage investment and growth". Thus we construct a yearly composite index *(INST)* using the International Country Risk Guide's (ICRG) variables produced by Political Risk Services (PRS). The measure of INST is an average of five PRS indicators.

Following Knack and Keefer (1995) and Law and Habibullah (2009) we consider (i) bureaucracy quality, (ii) law and order, (iii) corruption and (iv) investment profile[5] to measure overall institutional quality. Building in Yartey (2007/2008)[6] and Girma and Shortland (2008)[7] studies we introduce also democratic quality in our composite index of institutional quality *(INST)*. To enable comparability we standardize all sub-indicator of our institutional index to range between (0-1) where higher values indicate higher quality:

- Bureaucracy quality: A 0-4 index where "high scores are given to countries where the bureaucracy the strength and expertise to govern without drastic changes in policy or interruptions in government services. The bureaucracy variable measures to which extent a bureaucracy is independent from political power and government changes.

- Law and order: A 0-6 index where "high scores indicate sound political institutions, a strong count system, and provisions for an orderly succession of power. Lower scores indicate a tradition of depending on physical forces or illegal means to settle claims".

- Corruption: A 0-6 index refers to corruption in the political system. Countries that have low levels of corruption have high values of the index and vice versa.

- Democratic quality: A 0-6 index. This is a measure of how responsive government is to its people, on the basis that the less responsive it is, the more likely it is that the government will fall, peacefully in a democratic society, but possibly violently in a non democratic one.

- Investment profile: A 0-12 index. This is an assessment of factors affecting the risk to investment that are not covered by other political, economic and financial risk components. The risk rating assigned is the sum of three subcomponents, (i) Contract Viability/Expropriation, (ii) Profits Repatriation and (iii) Payment Delays. A score of 4 points equates to Very Low Risk and a score of 0 points to Very High Risk.

In our robustness analysis we construct a composite index of institutional index using an alternative set of institutional quality from Kaufmann et al. (1999). Unlike those of ICRG, these indicators rely exclusively on poll of experts.

3.1.3 Macroeconomic factors

Our macroeconomic controls include two variables that are frequently used to control for the level of development: the logarithm of the real per capita GDP and the ratio of secondary school enrollments (% gross)[8]. We use the rate of current inflation as indicator of macroeconomic stability. To relate our results to one of the propositions put forward by Rajan and Zingales (2003)[9], we consider also control variables for both trade and financial openness. We use the ratio of exports plus imports to GDP *(TO)* to capture the degree of openness of an economy and the ratio of capital inflows *(FDI* and *FPI)* to GDP to measure capital account openness (Chin and Ito 2008). Studies found that current and capital account openness have a positive effect on financial sector development. These data are collected from the World Development Indicators (2008)[10].

3.1.4 Descriptive statistics

Table 1 (A) presents correlations matrix banking set for 18 countries over the period 1984-2007. Our institutional index *(INST)* is positively and significantly correlated with each indicator of banking sector development as well as the composite indicator *BANKINDEX* at the 5% confidence level. The highest coefficient of correlation is between the institutional index and deposit money bank assets (48%). These coefficients are 46%, 45% and 22% for bank index, private credit, and liquid liabilities respectively. All the financial variables are positively and significantly correlated with each other at high confidence levels. When we look to macroeconomic controls variables we find that both trade and financial openness are positively and significantly correlated with all indicators of banking sector development. The two indicators of development (income and secondary school enrollment) are positively and significantly correlated with the composite bank index, private credit and deposit money bank assets. Macroeconomic stability which is proxy by inflation is negatively and significantly correlated with private credit and deposit money bank assets.

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[5] The previous ICRG classification (1982-1995) included risk of repudiation of contracts and risk of expropriation. After 1995 these variables are reported under ICRG's investment profile category (Alfaro et al. 2008).
[6] This measure is chosen because of it importance in past results. In fact, Yartey (2007/2008) show that besides law and order, bureaucracy quality and corruption, democracy accountability play an important role in determining financial development.
[7] Girma and Shortland (2008) stress the importance of democratic quality in promoting banking sector development.

[8] Boyd et al. (2001) have used these variables to control for the level of development.
[9] They test the hypothesis: "*For any given level of demand for financing, a country's domestic financial development should be positively correlated with trade openness at a time when the world is open to cross-border capital flows*". Rajan and Zingales (2003, p 26).
[10] World Bank.

Table 1 (B) presents means and median on 18 MENA countries from the period 1984-2007. Private credit has a mean of 42% with a standard deviation of 23%. Deposit money bank has a mean of 53% with a standard deviation of 25% and liquid liabilities have a mean of 63% with a standard deviation of (23%). *BANKINDEX* has a mean of (5.5%) with a standard deviation of 40%.

Table 2 (A) presents a correlations matrix among the stock markets variables, institutions and macroeconomic control variables for 13 MENA countries over 1984-2007. Among the indicators of stock market development, only market capitalization and total value traded are significantly and positively correlated with composite institutional index at (10%) level. The latest coefficients of correlation are (24%) and (14%) respectively. Although the composite stock market index *SMINDEX*, and turnover ratio are positively correlated with the institutional composite index, the simple correlations are weak and are not significant at 10% level. The income level and capital openness are positively and significantly correlated with all indicators of stock market development.

Table 2 (B) presents means and medians for stock market variables. Market capitalization has a mean of (43%) with a standard deviation of (41%). Value traded has the mean of (18%) with a standard deviation of 40%. Turnover ratio has the mean of (25%) and (25%) as standard deviation. The composite stock market index has (-5.4%) as mean and (1.19) as standard deviation.

Tables 1 (B) and 2 (B) show that cross-country institutional performance differs enormously among MENA countries. For example the composite institutional index ranges from (11%) (in Lebanon in 1990[11]) to (83%) (in Israel at various years).

3.2 Empirical methodology

In this section we empirically assess the relationships between institutional quality and the development of financial system in MENA countries over the period from 1984-2007.

In order to perform this analysis we employ the following relationship:

$$FD_{it} = \alpha_{it} + \beta\, INST_{it} + \theta X_{it} + \mu_i, \quad \text{for } i=1, 2\ldots N,\ t=1, 2\ldots N \qquad (2)$$

Where *FD$_{it}$* is defined as the dependant variable referring either to the indicators of banking sector development (*BANKINDEX, PRIVCRE, ASSETS* and *LIABILITIES*) or stock market development (*SMINDEX, MCAP, TRADED* and *TURNOVER*).

INST$_{it}$ is the indicator of institutional quality and X_{it} is a set of macroeconomic controls variables (log of the real GDP per capita, secondary school enrollment, the current inflation rate, trade openness and capital openness).

α_{it} is the unobserved country specific fixed effects, μ_i is the error term for each observation.

Fixed effects as well as random effects models are considered in this study. We use the Hausman test to select the appropriate estimator. If the Hausman test rejects the null hypothesis that the individual effects are not correlated with the explanatory variables, the most suitable estimation would then be the fixed-effects model[12].

While the panel data techniques (fixed effects and random effects specifications) account for time-invariant country characteristics and time trends that may influence financial system development, fixed and random effects models are not a panacea, since the endogeneity and measurement error might still plague the estimates. Thus, to account reverse causality, we build on the institutions and development literature (LLSV 1998; Acemoglu et al. 2001, 2002) and applied the instrumental variable (IV) estimates which besides endogeneity[13], accounts for measurement error in the institutional quality proxies. Doing so, we avoid the shortcoming of the existing literature in this area. Following these literature we adopt two different instrumentation strategies: legal origin and ethnic heterogeneity.

3.2.1 Legal origin

This variable is drawn from the Law and Finance literature (La Porta et al. 1997, 1998) which emphasizes the importance of the legal origin in determining a series of current institutions. Chong and Zanforlin (2000) find that countries with law tradition have lower levels of bureaucratic development, lower levels of credibility of the government and higher levels of corruption, while countries with English Common Law show a higher level of institutional quality. Thus, we consider a dummy variable legal origin as instrument of our institutional composite index *(INST),* which equals to 1 if the countries have the civil law tradition and 0 if the countries have the common law tradition.

3.2.2 Ethnic heterogeneity

Aghion et al. (2004) argue that racial fragmentation and institutions are not independent from each other. Montalvo et al. (2005) argue that the measure of ethnic heterogeneity appropriate to capture potential conflict should be a polarization measure[14]. In fact, in accordance to Horowitz (1985), Montalvo et al.

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[11] World Bank Indicators (2008) and author's calculations.

[12] Fixed effects model indicates that the individual effects are correlated with the explanatory variables.

[13] Aghion et al. (2004) argue that political institutions influence economic policy, but they are themselves endogenous since they are chosen, in some way, by members of the polity.

[14] In the fractionalization index, the size of each group has no effect on the weight of the probabilities of two individuals belonging to different groups, whereas in the polarization index these probabilities are weighted by the relative size of each group. See Montalvo et al. (2005) for more explications.

(2005) shows that the most severe conflicts arise in societies where a large ethnic minority faces on ethnic majority. The index of ethnic fractionalization is not able to capture this idea appropriately. As a result, in our study we use the ethnic polarization[15] from Montalvo et al. (2005) as an instrument of institutional quality.

4 Empirical results

The results are grouped and presented in three sub-sections: (a) panel data regressions results, (b) instrumental variables results, and (c) unbundling.

4.1 Panel data regressions results

Table 3 summarizes the results of the fixed and random effects models for the sample of the MENA countries from 1986 to 2007. In Models 1-4 banking data set are considered as proxies for financial development, where in Models 5-8 we use stock market data set as proxies for financial development.

To start with, it is important to note that the sign of estimated coefficients on institutional index *(INST)* are consistent with theory. As shown in Table 3, there is a positive and significant relationship between the institutional quality and the banking sector development in MENA countries. Institutional index has a significant and a positive effect in bank index at 1% level. A one –digit [16] improvement in the institutional quality index is associated with a (0.82) points increases in bank index (*BANKINDEX*). The usual measures of banking sector development are also affected positively and significantly by institutional quality. In fact, higher institutional quality is associated with a larger and deeper banking system (on form of higher liquid liabilities and higher deposit money bank assets to GDP ratios): A one-digit improvement in the institutional quality index is associated with a (0.40) and (0.17) points increases in bank assets (*ASSETS*) and liquid liabilities (*LIABILITIES*) respectively. Institutional quality is also strongly and positively associated with a more active banking system (where activity is approximated by the higher ratio of private credit to GDP): A one standard deviation of institutional quality would increase private credit (*PRIVCRE*) by (0.57) points controlling for economic development, trade and capital openness and macroeconomic stability. The results seem to demonstrate that institutional quality matters for financial development, a result which in line with previous findings by Chinn and Ito (2002) and Law and Habibullah (2009).

Looking to stock market data set, the main findings are that while the positive sign of estimated coefficients on institutional index (*INST*) are consistent with theory, the latest index appears a significant determinant only of stock market size *(MCAP)* at 5% level. A one digit-improvement in the institutional index is associated with (1.17) points increases in stock market capitalization to GDP ratio.

When we look to macroeconomic control variables, we find that banking sector in MENA countries is not affected significantly by income level (*INCOME*). Among the stock market variables only market capitalization is affected significantly by income level with the positive expected theoretical sign. Inflation does not appear a significant determinant of financial development in MENA countries. Banking sector activity (*PRIVCRE*) and stock market liquidity (*TURNOVER*) are affected positively by secondary school enrolment (*SSCE*). While all stock market variables are affected positively and significantly by trade openness, the latest has a positive and a significant effect only on liquid liabilities.

This finding suggests that the impact of trade openness on financial development is more apparent in the capital market. The results reveal also that capital account liberalization it is not significant in delivering the development of financial market. However, it is a significant determinant of banking sector development.

4.2 Instrumental variables regressions

Table 4 (A and B) reports results of instrumental variables (IV) estimations using the two instruments defined above (*legal origin* and *ethnic polarization*) as instruments for institutional development. This approach is the most efficient since it helps obtain a stronger first stage fit and more properly isolate the exogenous components of institutions. It is also helpful, since having more than one instrument; one can test for instrument validity performing. We use Hansen's over identification test (J-test) to check the null hypothesis of whether the instruments for institutions we choose are valid. For the banking data the results are robust to panel data estimations. Indeed, the composite index of institutional quality is associated positively and significantly with the composite bank index (*BANKINDEX)* and both size (liquid liabilities and deposit money bank assets to GDP ratios) and activity (private credit to GDP ratio) indicators of banking sector in MENA countries. A one standard increase in the institutional quality would increase composite bank index, private credit, deposit money bank and liquid liabilities by (1.36), (0.82), (0.24) and (1.08) points respectively when we control the economic development, trade and financial openness and macroeconomic stability. Looking to stock market development, the results (Table 4 (B)) are not consistent with those of panel data

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[15] Papaionnou, E .(2009) has used ethnic polarization as instrument of institutional quality.
[16] As defined by Faria and Mauro (2009 p 375) "*in the institutional quality scale, one digit is approximately equal to one standard deviation within the full countries sample*".

estimations. In fact, while institutional index appear only a significant determinant of market size in the panel data regressions results, it has a positive significant effect on both the market composite index and the three usual measures of stock market development. Indeed, a one standard deviation in institutional index would increase stock market index of development, market capitalization, total value traded and turnover ratios by (4.79), (1.86), (1.29) and (0.81) points respectively.

Taking a look to p-values of the Hansen J-test over-identifying restrictions (22%, 25%, 26% and 17% in composite bank index, private credit regression, deposit money bank and liquid liabilities regressions respectively and 66%, 23%, 52% and 35% in stock market index, market capitalization, trade and turnover ratio regressions respectively)[17] we find that we cannot reject the null hypothesis of instrument validity.

4.3 Unbundling

The composite institutional index has a problem that it gives us very little about which aspects of institutions policy should be directed towards (Yartey, 2008). Thus we study the impact of five sub-indicators of the composite ICRG index on financial sector development. The results are reported in tables 6 and 7.

In model (1) Tables (5 and 6) we use bureaucracy quality index (*BUREAUCRACY*). Good quality bureaucracy enhances the regulatory capacity of countries and therefore should be positively associated financial development. The results show that bureaucracy has insignificant effect on banking variables. However, it appears to influence negatively both stock market index and stock market liquidity. These results do not confirm the expected theoretical sign. The coefficient on corruption is statistically significant determinant of both banking sector activity (*PRIVCRE*) and stock market size (*MCAP*) which confirm the theoretical expectation. In fact, corruption may deter doing business and may increase uncertainty (Daude and Stein 2007).

Model (3) Tables (5 and 6) adds a law and order index (*LAW*). Rule and Order enhances efficiency and restores credibility and confidence in the financial system, more specifically the banking sector development. Our results give support to the latest evidence. In fact, Law and Order affected positively and significantly banking sector development in MENA countries. However, only capital market size is affected positively and significantly by rule of law.

Democracy accountability does not appear to be an important determinant of financial development (Model 4 Tables 5 and 6). In model (5) we examine the investment profile index (*INVEST*). The results show that investment profile index appear more

relevant to stock market development, compared to banking development indicators. Indeed investment profile index has a positive and a significant effect on market index and stock market liquidity. However, only banking sector activity is affected positively and significantly by the latest index.

The mains findings of this subsection are that law and order are the most relevant determinant of banking sector development. The quality of institutions and transactions are improved with law and order, attracting more financial inflows and boosting confidence to increase deposits in the banking system. Corruption and investment profile are of secondary importance for banking sector development. In fact, these two latest indicators have a significant effect only in banking sector activity (*CREDIT*). However, investment profile is the most relevant determinant of stock market development. It has a positive significant effect on market index and stock market liquidity.

5 Robustness test: An Alternative Institutional Data Base

As cited above the measurement of institutional quality is a challenge task. In fact, besides endogeneity it accounts for measurement error in the institutional quality proxies. Therefore, to avoid to this shortcoming and for the robustness of our results we refers our analysis adopting another set of institutional variables developed by Kaufmann et al. (1999).

They construct six different indicators, each representing a different dimension of governance: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption. These variables have been rescaled to assume values between 0 and 1. In all cases, larger values indicate better institutions. We expect a positive relationship between financial development and the indicators of institutional quality.

To measure institutional quality, we construct an index of institutional quality (WGI)[18]. This variable is the simple average of the six institutional indicators described above.

In this part of study we consider only the 1996-2007 periods, given the availability of Kaufman et al. (1999)[19] institutional data base. Given also that these indicators are not available for all periods we use the OLS technique of estimation.

The results of OLS regressions are reported in Table 7 (Appendix). Our main findings are that in term of significance the results are consistent with those when we consider the ICRG index for banking sector variables. The WGI index has a significant and positive effect on the composite bank index and on

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[17] The P-values far exceed the conventional 5% significance level.

[18] Worldwide Governance indicators index (WGI)
[19] The Kaufmann et al.(1999) data base is available only for 1996-2007 periods.

the usual measures of banking sector development. A one standard deviation in the WGI index would increase composite bank index, private credit, liquid liabilities and assets by 3.23, 1.58, 1.53 and 2.01 respectively. For stock market development, the results are far from those observed when the ICRG index is considered. In fact, the WGI index does not appear a significant determinant of all indicators of stock market development.

In summary we can conclude that institutional quality is more relevant for banking sector than for stock market. Moreover, banking sectors are more vulnerable to institutional quality reflecting the more complex role they play in financial intermediation. In contrast, stock market activity is more dependent on market forces.

6 Conclusion

Financial development is regarded as a major driving force of economic growth. In this paper we have highlighted the role of institutional quality in determining financial development in MENA countries over 1984-2007. According to previous studies, institutional factors as political risk, law and order, democratic accountability and bureaucratic quality are important determinants of financial development in emerging markets. Hence, the resolution of political risk can increase investor confidence and propel the growth of the financial development in emerging economies.

In the first part, we have examined the theoretical and empirical contributions to this question. A growing strands of these contributions have stresses a broad variety of institutions, ranging from the legal framework to trust has been found to determine financial development.

In the second part of this study we examine empirically the institutional determinants of financial development in MENA countries over 1984-2007. We employ data on institutional environment, banking sector size, banking sector activity, and equity market size and equity market liquidity. The results of, panel data and IV techniques of estimation show that banking sector and stock market are affected differently by the public institutions. Indeed institutional quality appears more relevant for banking sector than for stock market. Examining the impact of five sub-indicators of the composite ICRG index on financial sector development, we find that some institutional aspects matter more than others do. Indeed, while law and order are the most relevant determinant of banking sector development, corruption and investment profile are of secondary importance for banking sector development. We also find that, investment profile is the most relevant determinant of stock market development. It has a positive significant effect on market index and stock market liquidity.

Overall, our results send strong signals regarding the role of institutional quality in promoting financial sector development. Therefore, MENA countries should improve their institutional framework because good institutions reduce political risk which is an important factor in investment decision.

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Appendix

Table A.1.A. Correlation Matrix Banking sector data set

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)BANKINDEX	1									
(2)PRIVCRE	0.8613*	1								
(3)LIABILITIES	0.8336*	0.5600*	1							
(4)ASSETS	0.8625*	0.5809*	0.6440*	1						
(5)INCOME	0.2315*	0.4338*	-0.0687	0.2125*	1					
(6)INF	-0.0836	-0.1995*	-0.0545	0.1459*	-0.3408*	1				
(7)TO	0.3620*	0.3815*	0.3037*	0.1814*	0.3865*	-0.1288*	1			
(8)KO	0.2167*	0.4537*	0.1144*	0.1608*	0.4570*	-0.1249*	0.5371*	1		
(9)SSCE	0.2404*	0.3101*	0.0265	0.2906*	0.6479*	-0.2468*	0.1723*	0.1541*	1	
(10)INST	0.4674*	0.4504*	0.2237*	0.4888*	0.3329*	-0.1835*	0.2138*	0.1293*	0.3028*	1

Table A.1.B. Summary Statistics: Banking sector data set

Variable	Obs	Mean	Std.Dev	Min	Max
BANKINDEX	262	.005	.406	-.739	1.059
PRIVCRE	262	.427	.230	.043	.999
LIABILITIES	259	.630	.232	.262	1.278
ASSETS	262	.536	.253	.086	1.215
INCOME	291	8.11118	1.184753	6.093714	10.17233
INF	331	.0904881	.1801361	-.1041586	1.770839
TO	355	.8277032	.3411676	.1377244	1.916102
KO	376	.721935	1.789819	-1.797522	2.539847
SSCE	126	.7298337	.2320229	.1068492	1.040407
INST	376	.5202998	.1140766	.1180556	.8388889

Table A.2.A. Correlation Matrix: Stock Market data set

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)SMINDEX	1									
(2)MCAP	0.8141*	1								
(3)TRADE	0.9865*	0.7497*	1							
(4)TURNOVER	0.9018*	0.5344*	0.8888*	1						
(5)INCOME	0.2881*	0.2923*	0.2789*	0.3448*	1					
(6)INF	-0.1455	-0.2644*	-0.1523*	-0.1002	-0.3408*	1				
(7)TO	0.2795*	0.5260*	0.2233*	0.0552	0.3865*	-0.1288*	1			
(8)KO	0.2812*	0.4032*	0.2038*	0.2051*	0.4570*	-0.1249*	0.5371*	1		
(9)SSCE	0.2090*	0.3685*	0.1988*	0.1689	0.6479*	-0.2468*	0.1723*	0.1541*	1	
(10)INST	0.1304	0.2404*	0.1478*	0.0835	0.3329*	-0.1835*	0.2138*	0.1293*	0.3028*	1

Table A.2.B. Summary Statistics: Stock market data set

	Obs	Mean	Std.Dev	Min	Max
SMINDEX	195	-.054	1.19	-.958	8.025
MCAP	177	.430	.409	.023	2.420
TRADE	183	.182	.408	.0007	3.49
TURNOVER	141	.2929056	.3511185	.0089	2.317428
INCOME	291	8.11118	1.184753	6.093714	10.17233
INF	331	.0904881	.1801361	-.1041586	1.770839
TO	355	.8277032	.3411676	.1377244	1.916102
KO	376	.721935	1.789819	-1.797522	2.539847
SSCE	126	.7298337	.2320229	.1068492	1.040407
INST	376	.5646409	.1285656	.1347222	.9388889

Table A.3. Results of Panel data estimations, the dependant variable: Financial Development (FD)

	(A) Banking data Set				(B) Stock Market Data Set			
	FD=BANKINDEX	**FD=PRIVCRE**	**FD=LIABILITIES**	**FD=ASSETS**	**FD=SMINDEX**	**FD=MCAP**	**FD=TRADE**	**FD=TURNOVER**
INCOME	.019	.086	-.039	-.007	.146	1.59*	.072	-.734
	(0.24)	(0.91)	(-0.71)	(-0.15)	(0.25)	(3.30)	(0.33)	(-1.44)
INF	.243	.471**	.041	-.175	-1.197	-.543	-.555	.278
	(0.67)	(2.62)	(0.17)	(-0.68)	(-0.20)	(-0.47)	(-0.24)	(0.20)
TO	-.052	.161**	.180**	-.0689	2.97**	1.37*	1.08***	.687***
	(-0.41)	(2.46)	(2.04)	(-0.76)	(2.28)	(4.64)	(2.16)	(1.94)
KO	.073*	.062*	.010	.034**	-.202	.028	-.104	.027
	(3.42)	(5.20)	(0.73)	(2.27)	(-0.89)	(0.56)	(-1.18)	(0.45)
SSCE	.430**	.101	.267**	.326*	4.27**	-2.26*	1.34***	1.81*
	(2.54)	(1.12)	(2.30)	(2.72)	(2.28)	(-3.37)	(1.85)	(3.55)
INST	.820*	.574*	.169***	.400**	2.20	1.17**	.497	.989
	(2.85)	(3.88)	(1.98)	(1.97)	(0.77)	(2.14)	(0.45)	(1.49)
CST	-.975	-.55	.481	.155	-7.98***	-12.83*	-2.47	3.77
	(-1.59)	(-0.78)	(1.14)	(0.40)	(-1.78)	(-3.68)	(-1.4)	(1.00)
R²	0.45	0.47	0.20	0.42	0.32	0.42	0.28	0.26
H-Statistic (Hausman Specification)	0.13 (RE)	0.000 (FE)	0.37 (RE)	0,27 (RE)	0.06 (RE)	0.004 (FE)	0.06 (RE)	0.0008 (FE)

Note: The dependant variables are: Conglomerate index of banking sector (BANKINDEX), Private credit to GDP ratio (PRIVCRE), liquid liabilities as a percentage of GDP (LIABILITIES), total assets of deposit money bank as a percentage of GDP (ASSETS), Conglomerate index of stock market (SMINDEX), market capitalization to GDP ratio (MCAP), TRADED = value of domestic equities traded on domestic exchanges as a percentage of GDP, TURNOVER= value of domestic equities traded. The explicative variables are: INCOME= Log of real GDP per capita, SSCE = the percentage of secondary school enrollment, INF= Log (1+ current inflation rate), INST = the composite index of institutional quality (IRCG group), with higher values indicating higher quality of institutional structure. T-statistics for coefficient in parentheses.*, **, *** denote significance at the 1%, 5% and 10% level respectively. H- statistics corresponds to Hausman test for comparison between fixed (FE) or random (RE) effects specification.

Table A.4. Results of Instrumental variables (IV) estimations, the dependant variable: Financial development (FD)

	(C) Banking data Set				(D) Stock Market Data Set			
	FD=BANKINDEX	FD=PRIVCRE	FD=LIABILITIES	FD = ASSETS	FD=SMINDEX	FD=MCAP	FD=TRADE	FD=TURNOVER
INCOME	-.090** (-2.09)	-.0005 (-0.03)	-.134* (-4.45)	-.030 (-0.90)	.346 (1.57)	-.014 (-0.22)	.131 (1.60)	.138* (3.38)
INF	-1.65** (-2.15)	-.151 (-0.45)	-1.13** (-2.31)	-1.48* (-2.63)	1.37 (0.40)	1.53 (1.55)	.530 (0.43)	-.327 (-0.49)
TO	.299** (2.09)	.212* (2.79)	.158 (1.52)	.078 (0.83)	1.02 (1.02)	.684** (2.33)	.400 (1.08)	-.115 (-0.79)
KO	.076** (2.01)	.034 (1.84)	.042*** (1.85)	.042*** (1.85)	.059 (0.46)	.115* (2.88)	.001 (0.04)	-.011 (-0.50)
SSCE	.540*** (1.84)	.206 (1.30)	.240 (1.51)	.401*** (1.83)	1.24 (1.37)	-.071 (-0.21)	.302 (1.01)	.453** (2.16)
INST	1.36** (2.07)	.822* (2.96)	1.08** (2.43)	.240*** (1.80)	4.79** (2.29)	1.86* (2.78)	1.29*** (1.77)	.815** (2.03)
CST	-.557 (-1.62)	-.321** (-2.11)	.862 (4.09)	.375*** (1.75)	-7.35* (-3.72)	-1.141** (-2.58)	-2.13* (-2.87)	-1.55* (-3.82)
R²	0.65	0.69	0.45	0.50	0.18	0.32	0.29	0.33
P-Value (J-Test)	0.22	0.17	0,25	0.26	0,66	0,38	0,52	0,35

Note: The dependant variables are: Conglomerate index of banking sector (BANKINDEX), Private credit to GDP ratio (PRIVCRE), liquid liabilities as a percentage of GDP (LIABILITIES), total assets of deposit money bank as a percentage of GDP (ASSETS), Conglomerate index of stock market (SMINDEX), market capitalization to GDP ratio (MCAP), TRADED = value of domestic equities traded on domestic exchanges as a percentage of GDP, TURNOVER= value of domestic equities traded. The explicative variables are: INCOME= Log of real GDP per capita, SSCE = the percentage of secondary school enrollment, INF= Log (1+ current inflation rate), TO= traded openness , KO = Capital Openness , INS T = the composite index of institutional quality (IRCG group), with higher values indicating higher quality of institutional structure. T-statistics for coefficient in parentheses.*, **, *** denote significance at the 1%, 5% and 10% level respectively. We use ethnic polarization and legal origin to instrument institutional quality . J-test correspond to Hansen's overidentification test.

Table A.5. Unbundling Institutional performance: Results of panel estimations of banking sector data set

	BANKINDEX					LIABILITIES					ASSETS					PRIVCRE				
INCOME	.087 (0.95)	.084 (0.86)	.026 (0.28)	.063 (0.66)	.073 (0.67)	-.024 (-0.41)	-.030 (-0.50)	-.038 (-0.61)	-.032 (-0.55)	-.017 (-0.26)	.031 (0.53)	.012 (0.21)	-.016 (-0.27)	.001 (0.03)	.019 (0.29)	.171 (1.64)	.116** (2.42)	.084*** (1.82)	.102** (2.06)	.088*** (1.65)
INF	.195 (0.51)	.12 (0.35)	.805** (2.23)	-.02 (-0.06)	.208 (0.54)	.033 (0.13)	.050 (0.21)	.25 (0.98)	-.067 (-0.25)	.004 (0.02)	-.15 (-0.61)	-.235 (-0.92)	.171 (0.66)	-.375 (-1.37)	-.302 (-1.13)	.413** (2.04)	.312*** (1.66)	.716* (3.80)	.289 (1.39)	.50** (2.55)
TO	-.049 (-0.36)	-.07 (-0.58)	-.017 (-0.15)	-.112 (-0.84)	-.073 (-0.54)	.182** (1.99)	.171** (1.97)	.199** (2.34)	.160*** (1.80)	.170*** (1.90)	-.051 (-0.55)	-.077 (-0.85)	-.041 (-0.49)	-.106 (-1.16)	-.104 (-1.11)	-.157*** (-1.94)	-.149** (-2.22)	-.122** (-1.98)	-.16** (	-.122*** (-1.77)
KO	-0.36* (3.03)	.068* (3.07)	.073* (3.69)	.071* (3.19)	.065* (2.96)	.009 (0.65)	.006 (0.42)	.010 (0.76)	.011 (0.77)	.008 (0.55)	.034** (2.22)	.032** (2.12)	.035** (2.48)	.035** (2.31)	.031** (2.09)	.054* (3.98)	.057* (5.08)	.058* (5.63)	.056* (4.73)	.053* (4.71)
SSCE	.379** (1.95)	.461* (2.60)	.127 (0.75)	.491* (2.74)	.417** (2.38)	.253*** (1.98)	.236** (2.02)	.155 (1.26)	.295** (2.47)	.270** (2.31)	.269** (2.03)	.351* (2.85)	.150 (1.22)	.380* (3.07)	.357* (2.93)	.047 (0.43)	.149*** (1.66)	-.06 (-0.72)	.126 (1.33)	.063 (0.71)
bureacracy	-.218 (-0.64)					-.05 (-0.24)					-.254 (-1.11)					-.152 (-0.68)				
corruption		.11 (0.80)					-.112 (-1.14)					.077 (0.75)					.172** (2.27)			
LAW			.501* (4.11)					.181** (2.06)					.300* (3.42)					.279* (4.39)		
democracy				.135 (1.20)					.066 (0.88)					.117 (1.50)					.048 (0.81)	
Investment profile					.039 (0.34)					-.016 (-0.22)					-.075 (-0.95)					.124** (2.12)
cst	-.925 (-1.36)	-1.10 (-1.43)	-.749 (-1.01)	-.929 (-1.26)	-.964 (-1.14)	.482 (1.10)	.573 (1.20)	.497 (1.03)	.480 (1.06)	.410 (0.79)	.211 (0.49)	.163 (0.34)	.335 (0.72)	.238 (0.54)	.212 (0.42)	-.802 (-0.96)	-.644*** (-1.69)	-.377 (-1.05)	-.444 (-1.16)	-.385 (-0.95)
R^2	0.20	0.25	0.30	0.33	0.26	0.10	0.10	0.15	0.20	0.10	0.14	0.28	0.29	0.38	0.25	0.25	0.35	0.35	0.34	0.34
H-Statistic (Hausman Specification)	0.13 (RE)	0.85 (RE)	090 (RE)	0.95 (RE)	0.95 (RE)	0.56 (RE)	0.96 (RE)	0.97 (RE)	0.88 (RE)	0.67 (RE)	0.14 (RE)	0.89 (RE)	0.82 (RE)	0.92 (RE)	0.89 (RE)	0.00 (FE)	0.92 (RE)	0.98 (RE)	0.85 (RE)	0.98 (RE)

Note: The dependant variables are: Conglomerate index of banking sector (BANKINDEX), Private credit to GDP ratio (PRIVCRE), liquid liabilities as a percentage of GDP (LIABILITIES), total assets of deposit money bank as a percentage of GDP (ASSETS). The explicative variables are: INCOME= Log of real GDP per capita, SSCE = the percentage of secondary school enrollment, INF= Log (1+ current inflation rate), TO= traded openness , KO = Capital Openness. The institutional variables are: bureaucracy quality, corruption, rule of law, democracy and investment profile, with higher values indicating higher quality of institutional structure. T-statistics for coefficient in parentheses.*, **, *** denote significance at the 1%, 5% and 10% level respectively. H- statistics corresponds to Hausman test for comparison between fixed (FE) or random (RE) effects specifications

Table A.6. Unbundling Institutional performance: Results of panel data estimations of Stock Market data set

	SMINDEX					MCAP					TRADE					TURNOVER				
INCOME	1.11 (1.46)	1.83 (0.70)	.23 (0.10)	.279 (0.48)	-.023 (-0.04)	1.86* (3.86)	3.07* (6.86)	1.92* (4.17)	2.00* (3.96)	.11 (0.70)	2.63* (3.06)	.834 (0.81)	.231 (0.25)	.107 (0.49)	-.747 (-0.81)	.825*** (1.82)	.07 (0.64)	-.481 (-0.98)	.090 (0.75)	-1.31* (-3.10)
INF	-.85 (-0.15)	-3.46 (-0.53)	-3.98 (-0.54)	-1.03 (-0.17)	4.68 (0.80)	-1.21 (-1.06)	-.825 (-.825)	.156 (0.13)	-.98 (-0.83)	.73 (0.61)	-1.69 (-0.83)	-1.45 (-0.57)	-1.91 (-0.66)	-.314 (-0.14)	.94 (0.37)	-.284 (-0.26)	-.46 (-0.39)	-.27 (-0.18)	-.105 (-0.08)	1.99*** (1.69)
TO	3.12** (2.33)	5.59* (3.26)	5.38* (3.10)	3.13** (2.37)	3.42* (2.73)	1.31* (4.30)	1.39* (5.67)	1.30* (4.50)	1.32* (4.33)	1.40* (5.22)	1.62* (2.99)	2.14* (3.21)	2.06* (3.05)	1.16** (2.29)	2.36* (3.72)	.391 (1.37)	.132 (0.48)	.630*** (1.75)	.168 (0.61)	.887* (3.04)
KO	-.097 (-0.44)	-.211 (-0.77)	-.23 (-0.82)	-.257 (-1.14)	-.224 (-1.07)	.059 (1.22)	.011 (0.30)	.014 (0.31)	-.023 (-0.46)	.055 (1.19)	-.07 (-0.81)	-.113 (-1.05)	-.126 (-1.14)	-.119 (-1.37)	-.074 (-0.72)	.025 (0.54)	-.045 (-0.94)	-.003 (-0.05)	-.051 (-1.11)	.038 (0.82)
SSCE	1.51 (0.69)	4.28*** (1.73)	4.64*** (1.71)	-0.17** (2.17)	3.79** (2.14)	-2.32* (-3.35)	-3.13* (-5.42)	-3.07* (-4.21)	-2.46* (-3.46)	-.52 (-1.00)	-3.82* (-3.09)	1.24 (1.29)	1.46 (1.39)	1.27*** (1.74)	1.57*** (1.75)	-1.1*** (-1.71)	1.20* (3.06)	1.70* (3.03)	1.14* (2.92)	1.86* (4.49)
Bureaucracy	-10.63* (-2.57)					-.25 (-0.22)					-13.7* (-5.39)					-7.44* (-5.52)				
corruption		2.9 (1.32)					1.77* (5.37)					1.15 (1.30)					.021 (0.05)			
LAW			.072 (0.04)					.681** (2.45)					-.102 (-0.16)					.004 (0.01)		
democracy				-.692 (-0.75)					-.17 (-0.94)					-.271 (-0.76)					-.198 (-1.04)	
Investment profile					3.51* (3.13)					.565** (2.51)					1.34* (2.84)					1.15* (5.32)
cst	-6.99 (-1.34)	-24.2 (-1.16)	-9.7 (-0.53)	-7.41*** (-1.65)	-8.02*** (-1.76)	-1.74 (-1.42)	-24.51* (-7.15)	-14.6* (-4.34)	-15.1* (-4.11)	-1.68 (-1.44)	-12.2** (-2.11)	-9.83 (-1.20)	-4.31 (-0.61)	-2.35 (-1.40)	2.31 (0.33)	-1.90 (-0.62)	-1.36 (-1.39)	2.43 (0.65)	-1.36 (-1.46)	-1.31 (-1.33)
R^2	0.10	0.15	0.08	0.10	0.10	0.26	0.26	0.25	0.28	0.44	0.10	0.10	0.15	0.11	0.10	0.12	0.13	0.16	0.13	0.21
H-Statistic (Hausman Specification)	0.15 (RE)	0.009 (FE)	0.000 (FE)	0.17 (RE)	0.13 (RE)	0.00 (FE)	0.00 (FE)	0.00 (FE)	0.00 (FE)	0.25 (FE)	0.00 (FE)	0.011 (FE)	0.000 (FE)	0.13 (RE)	0.038 (FE)	0.000 (FE)	0.21 (RE)	0.00 (FE)	0.32 (RE)	0.000 (FE)

Note: The dependant variables are: Conglomerate stock market index (SMINDEX), Market capitalization to GDP ratio (MCAP), TRADED = value of domestic equities traded on domestic exchanges as a percentage of GDP, TURNOVER= value of domestic equities traded. The explicative variables are: INCOME= Log of real GDP per capita, SSCE = the percentage of secondary school enrollment, INF= Log (1+ current inflation rate). TO= traded openness , KO = Capital Openness . The institutional variables are: bureaucracy quality, corruption, rule of law, democracy and investment profile, with higher values indicating higher quality of institutional structure. T-statistics for coefficient in parentheses.*, **, *** denote significance at the 1%, 5% and 10% level respectively.

Table A.7. Alternative Institutional data base: Results of OLS estimations, the dependant variable: Financial Development (FD)

	(A) Banking sector development				(B) Stock Market Development			
	FD=BANKINDEX	FD=PRIVCRE	FD=LIABILITIES	FD=ASSETS	FD=SMINDEX	FD=MCAP	FD=TRADE	FD=TURNOVER
INCOME	-.274***	-.077	-.202***	-.172**	.431	.039	.144	.157
	(-2.20)	(-1.24)	(-2.19)	(-2.79)	(0.61)	(0.28)	(0.63)	(1.01)
INF	-.669	.457	-1.04	-.799	-16.8	.427	-6.44	-5.33
	(-0.49)	(0.63)	(-1.11)	(-0.94)	(-1.23)	(0.11)	(-1.46)	(-1.81)
TO	-.515	-.104	-.255	-.468**	-.603	.561	-.172	-.454
	(-1.75)	(-0.84)	(-1.23)	(-3.06)	(-0.23)	(1.35)	(-0.20)	(-0.74)
KO	.035	-.004	.037	.030	.028	.154	-.023	-.038
	(0.66)	(-0.19)	(0.78)	(1.01)	(0.07)	(0.93)	(-0.17)	(-0.47)
SSCE	1.31***	.531***	.730	.816**	1.77	-.571	.709	.751
	(2.22)	(2.02)	(1.55)	(3.04)	(0.49)	(-0.39)	(0.63)	(1.07)
IINSINDEX	3.32*	1.57*	1.53**	2.01*	-5.28	-.293	-2.16	-1.49
	(4.97)	(4.67)	(3.01)	(5.62)	(-0.79)	(-0.18)	(-0.98)	(-0.99)
cst	.191	.044	1.24**	.814**	-1.13	.199	-.051	-.270
	(0.30)	(0.15)	(2.70)	(2.46)	(-0.29)	(0.23)	(-0.04)	(-0.31)
R^2	0.73	0.76	0.57	0.77	0.51	0.61	0.52	0.71

Note: The dependant variables are: Conglomerate index of banking sector (BANKINDEX), Private credit to GDP ratio (PRIVCRE), liquid liabilities as a percentage of GDP (LIABILITIES), total assets of deposit money bank as a percentage of GDP (ASSETS), Conglomerate stock market (SMINDEX), market capitalization to GDP ratio (MCAP), TRADED = value of domestic equities traded on domestic exchanges as a percentage of GDP, TURNOVER= value of domestic equities traded. The explicative variables are: INCOME= Log of real GDP per capita, SSCE = the percentage of secondary school enrollment, INF= Log (1+ current inflation rate), , INSTINDEX is the average of voice and accountability, political stability and lack of violence, rule of law, control of corruption, government effectiveness, and regulatory quality (Worldwide governance indicators) with higher values indicating higher quality of institutional structure. T-statistics for coefficient in parentheses.*, **, *** denote significance at the 1%, 5% and 10% level respectively.