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Abstract

This paper investigates the effect of institutional quality on the finance-growth nexus. To this end, an empirical model with linear interaction between financial development and institutional quality is estimated. Our main findings show that while most indicators of financial development have a significantly negative effect on economic growth, the sign of the coefficients of interaction variables are significantly positive, which provides strong evidence that institutional quality mitigates the negative effect of financial development on economic growth. Looking to the subcomponents of our institutional index, our findings show that a development of the banking sector in a country with an important score in Law and Order, Bureaucracy and Investment Profile facilitate growth. Also, countries with an important score of investment profile can benefit from stock market development in terms of economic growth. These results suggest that to benefit from financial development, financial systems in MENA countries must be embedded within a sound institutional framework.

JEL Classification: C23, G10, G20, O16, O43

Keywords: Banking sector development, stock market development, economic growth, institutional quality, MENA countries

ملخص

تبحث هذه الدراسة في تأثير نوعية المؤسسات المالية على العلاقة بالنمو .تحقيقا لهذه الغاية، يتم تقدير نموذج تجريبي للتفاعل الخطي بين التنمية المالية ونوعية المؤسسات .تظهر نتائجنا الاساسية أنه في حين أن معظم مؤشرات التنمية المالية يكون لها تأثير سلبي كبير على النمو الاقتصادي، فان علامة التفاعل لمعاملات المتغيرات إيجابية بشكل كبير، والتي تقدم دليلا قويا على أن نوعية المؤسسات تخفف من التأثير السلبي للتنمية المالية على النمو الاقتصادي .وبالنظر إلى المكونات الفرعية من فهرسنا المؤسسي، نجد أن النتائج التي توصلنا إليها تظهر أن تطور القطاع المصرفي في دولة يكون لديها نقاط في القانون والنظام والبيروقراطية وتسهيل الاستثمار فان ذلك يسهل عملية النمو .أيضا، يمكن للبلدان التي لديها نقاط فى الاستثمار الشخصي، الاستفادة من تنمية سوق الأوراق المالية وبالتالى النمو الاقتصادي .هذه النتائج تشير إلى أن الاستفادة من التنمية المالية، يجب أن تكون جزءا لا يتجزأ من النظم المالية في بلدان المنطقة ضمن إطار مؤسسي سليم.

1. Introduction

The fundamental question in economic growth that has preoccupied researchers is why countries grow at different rates. Addressing this question, an important strand of literature has paid special attention to the role of the financial system in the growth process. On the theoretical side, an important battery of models articulates mechanisms by which the financial system affects economic growth (e.g. McKinnon (1973), Shaw (1973), Pagano (1993) and King and Levine (1993a), King and Levine (1993b)). These studies support Schumpeter's view, which emphasizes the positive role of financial development in determining economic growth.

However, Robinson (1952) provides a skeptical view stressing that financial development follows economic growth by declaring that "where enterprise leads finance follows" Robinson (1952, 86). This view is echoed by Lucas (1988) who believes that the finance-growth relationship is not important. Hence, he asserts that economists tend to overemphasize the role of financial factors in economic growth. Theory also provides conflicting predictions about the role of different sub-components of the financial system on economic growth. Some theories emphasize the relevance of the banking system on economic growth, while others highlight the benefits of stock markets (Allen and Gale 1999, Boot and Thakor 1997).

On the empirical side, using different econometric methodologies, empirical results provide evidence that a range of financial indicators have a significant and positive effect on economic growth[1].

Our research extends previous evidence by investigating the conditional finance-growth relationship in Middle East and North African (MENA) countries. Specifically, we examine whether the finance-growth nexus is affected by institutional quality. Several reasons motivate the choice of MENA countries to perform our empirical investigations. Indeed, few studies have focused on this region, and the main findings of these studies are that while MENA countries have embarked since the mid-1980 on financial reforms, financial development has not worked as an engine of economic development in this region (Ben Naceur and Ghazouani 2007). The growth performance of the MENA region over the past two decades or so has been rather disappointing. The region as a whole experienced the weakest real per capita growth performance among all regions in the world (Nabli and Véganzonès- Varoudakis 2004; Bhattacharya and Wolde 2010).

The rest of this study proceeds as follows. Section 2 reviews the literature exploring the connection between financial development and economic growth. Section 3 describes the data and presents the empirical methodology. Section 4 reports the main results. Section 5 concludes.

2. Literature Review

In the theoretical Arrow-Debreu World, characterized by a state-contingent claim framework, with no information or transaction costs there is no need for a financial system "*that expends resources researching projects, scrutinizing managers, or designing arrangements to ease risk management and facilitate transaction*" (Levine 1997, 690). A financial system becomes essential once frictions are introduced in the Arrow-Debreu model. Therefore financial intermediaries and markets emerge to ameliorate the problems of asymmetric information and high transaction costs. The ability of the financial system to relax these frictions can lead to facilitating the allocation of resources over space and time (Merton and Bodie 1995, Levine 1997/2005). Thus, in easing information, enforcement, and transactions costs,

[1] The early empirical evidence include: King and Levine (1993a) King and Levine (1993b), Goldsmith (1969), Atje and Jovanic (1993. The recent empirical evidences include: Beck and Levine (2004), Dematriades and Law (2006), Hasan et al;(2009 a, b), Hassan et al;(2011).

financial systems provide five broad categories of services to the economy. In a couple of papers, Levine (1997) and Levine (2005) classifies the functions of financial systems into five categories: (1) producing information and allocation of capital, (2) monitoring firms exerting corporate control (3) risk amelioration (4) pooling of savings and (5) easing exchange.

Theoreticians hold different perspectives on the link between financial developments and economic growth. While the earliest theoretical studies have focused on the effect of financial development on economic growth, as an important extension, some studies have interested the relative merits of a bank-based financial system and a market-based financial system on economic growth. Another strand of studies has also extended this theory by stressing the nonlinearity of finance-growth nexus.

The notable early works on finance and development along the Schumpeterian lines include Gurley and Shaw (1955), Goldsmith (1969). They argue that financial development is crucial in determining economic growth.

Building on the work of Schumpeter, McKinnon (1973) and Shaw (1973) propounded the 'financial liberalization' thesis in 1973 suggesting that a higher level of financial development which can be the result of financial liberalization, will lead to increased output growth. They argued that the financial sector could raise the volume of savings as well as the quantity and quality of investment. In the early 1990s the endogenous financial development and growth models[2] emerged. These models point out that financial development leads to long-run economic growth. Similarly, financial distortion reduces the rate of economic growth.

Building on theoretical evidence, a number of empirical studies focusing on examining the relationship between financial development and economic growth emerged. These studies have proceeded from using country-level data, to using industry and firm-level data. The econometric methodologies on this subject can be broadly categorized into four groups (i) pure cross-country, (ii) instrumental variable, (iii) times series, (iv) firm and household-level approaches.

Empirical investigations on the relationship between finance and growth come back to the seminal contribution of Goldsmith (1969). He sought to assess whether finance exerts a causal influence on growth and whether the mixture of markets and intermediaries operating in an economy influence it. To this end he considered data on the assets of financial intermediaries relative to GNP and data on the sum of net issues of bonds and securities plus changes in loans relative to GNP for 35 countries over the period 1860 to 1963. Applying both OLS and graphical analysis, Goldsmith (1969) finds a clear relationship between financial development and economic growth. However, as cited in Levine (1997, 704) and Levine (2005, 40) this study suffers from several weaknesses. Thus, several researchers have taken steps to address some of these caveats. King and Levine (1993a) adopt a sample of 77 countries over the period 1960-1989 and control for other factors affecting long-run growth. The findings of the study provide some support for the Schumpeterian view—that finance matters for growth. King and Levine (1993b) confirm also this finding. In fact, using alternative econometric methods and considering both the financial and growth indicators defined by King and Levine (1993a) for a sample of 80 countries King and Levine (1993b) find that financial development promotes economic growth.

While the studies cited above focus on the finance-growth relationship through the impact of the banking sector on economic growth, an important strand of studies attempts to examine the role of stock markets on economic growth. These studies started with the contribution of

[2] Pagano (1993), King and Levine (1993b), Bencivenga et al. (1995).

Atje and Jovanovic (1993) who investigate the impact of both stock markets and bank on economic growth. Based an annual observations for 94 countries over the period of 1960-1985 and using a OLS analysis, Atje and Jovanovic (1993) find that while stock markets have both positive levels and growth effects on economic activity, they fail to find a similar effect for bank lending. Building on Atje and Jovanovic (1993) study, Levine and Zervos (1998) examined whether banking and stock market indicators are both robustly correlate with current and future rates of economic growth, capital accumulation, productivity improvements, and private savings. Applying the OLS technique of estimation to a sample of 49 countries for the period 1960-1989 Levine and Zervos (1998) find that while stock market liquidity is positively and significantly correlated with current and future rates of economic growth, capital accumulation, and productivity growth, stock market size, volatility, and integration are not robustly linked with growth. Their findings also show that the initial levels of both stock market liquidity and banking sector development predict future rates of growth, capital accumulation, and productivity growth.

To overcome the biases related to OLS, the classical approach adopted in cross-country growth regressions is to identify an instrumental variable that explains cross-country differences in financial development but is uncorrelated with economic growth beyond its link with financial development and other growth determinants. Therefore, in contrast to traditional cross-country investigations, Levine (1998) examines whether cross-country variations in the exogenous component of banking sector development explain cross-country variations in the rate of economic development. Thus, he uses the legal determinants of banking development as instrumental variables for the banking sector development indicator. As a result he finds that the exogenous component of banking development is positively associated with all indicators of economic growth. In line with Levine (1998), Levine et al. (2000) find that the exogenous component of financial intermediary development is positively associated with economic growth.

To account explicitly for biases induced by the inclusion of the lagged dependent variable and to control for the potential endogeneity of all explanatory variables researchers have utilized dynamic panel regressions as an alternative to cross-sectional instrumental variable (IV) regressions. To our knowledge, Levine (1999), Rousseau and Wachtel (2000), Beck et al. (2000b), Levine et al. (2000) are among the first studies to use the dynamic panel analysis. More specifically they consider the Generalized Method- of-Moments (GMM) estimators developed by Holtz-Eakin et al. (1998), Arellano and Bond (1991), and Arellano and Bover (1995). Moreover, besides the traditional cross-section instrumental variable procedures (described above), Levine et al. (2000) use the recent dynamic panel techniques "*system estimator*" to examine the relationship between financial intermediary and growth. As with the traditional cross-section, the results of dynamic panel data show that exogenous changes in financial intermediary development imply large changes in economic growth. Constructing a panel dataset with data averaged over each of the seven 5-year periods between 1960 and 1995 and considering the GMM panel estimator, together they provide a strong positive relationship between financial intermediary and both economic growth and total factor productivity growth. In the same vein Beck and Levine (2004) examine the relationship between growth and both stock markets and bank development. Their findings show that stock markets and banks affect positively and significantly economic growth and that these effects are not due to potential biases induced by simultaneity, omitted variables or unobserved country-specific effects.

In a more recent paper, Kar et al. (2011) examine the finance-growth nexus in MENA countries. Specifically they examine the direction of causality between finance and growth. To this end, they apply the recently proposed panel causality testing approach which takes into account cross-sectional dependence across countries. Using a sample of 15 MENA

countries over 1980-2007, they find that there is no clear consensus on the direction of causality between financial development and economic growth for all measurements of financial development and they also observe that the findings are country and financial development specific.

Hasan et al. (2009) contribute to this line of research by analyzing the role of legal institutions, financial deepening and political pluralism on growth rates at the regional level, specifically in China. The results show that while capital market, legal environment, awareness of property rights and political pluralism have a strong influence on growth, the impact of bank lending is not significant and is sometimes negative.

To investigate the finance and growth relationship, Loayza and Ranciere (2006) and Demetriades and Law (2006) adopt the Pooled Mean Group (PMG) estimators proposed by Pesaran et al. (1999) with its advantage of controlling for country heterogeneity in the finance-growth nexus. Using a sample of 75 countries and annual data during for the period 1960-2000 and based on the PMG estimator, Loayza and Ranciere (2006) find that while economic growth is affected positively and significantly by financial intermediation in the long run, this effect is significantly negative in the short run. Demetriades and Law (2006) use data from 72 countries for the period 1976-2000 and adopt both cross- section and panel data econometric methods (MG and PMG). Their findings provide evidence that financial development has an important effect on GDP per capita when the financial system is embedded within a sound institutional framework.

The first contribution in the finance-growth relationship literature that employs panel data cointegration techniques is the study of Christopoulos and Tsionas (2004). Using a sample of 10 developing countries over the period 1970-2000, their empirical results support the hypothesis that the only cointegrating relation implies unidirectional causality from financial depth to growth. Apergis et al. (2007) contribute to the relevant literature by using a large and heterogeneous sample of 65 countries over the period 1975-2000. Applying the panel cointegration techniques developed by Pedroni (1999), Apergis et al. (2007) provide evidence that there is a strong, positive and statistically significant equilibrium relation between financial development and economic growth. Also, they point out that there is a strong bi-directional causality between financial development and economic growth.

In a time series setting, Ghirmay (2005) explores the causal links between financial development and economic growth in a sample of 13 sub-Saharan African countries. He finds that there is a long-run relationship between financial development and economic growth in almost all (12 out of 13) of the countries. The evidence points to the causality running from financial development to economic growth, again in eight of the countries.

Hondroyiannis et al. (2005) examine the relationship between the development of the banking system and stock market and economic performance for the case of Greece over the period 1986-1999. Applying VAR models their findings show that both bank and stock market financing can promote economic growth in the long run, although their effect is small. However, the contribution of the stock market to growth is limited compared to bank finance which can be explained by the minor role traditionally played by the stock market in Greece.

Thangavelu and James (2004) empirically examine the dynamic relationship between financial development and economic growth in Australia in terms of bank-based and market-based financial structure. Therefore, to estimate the relationship, Thangavelu and James (2004) employ time series methodology using a vector autoregressive (VAR) model and the Granger causality test. The time span of this study covers the period 1960-1999, and uses quarterly data. Their results suggest that financial intermediaries (bank-based system) and financial markets (market-based system) tend to have different roles in promoting growth in

an economy. Indeed, the empirical results using financial intermediaries' indicators are consistent with Robinson's (1952) hypothesis that economic growth promotes financial development. However, the results of using financial market indicators are consistent with Schumpeter's view that a market-based system promotes economic growth in the Australian economy.

An important strand of empirical studies examines the non-linear relationship between financial and economic development. In fact, these studies suggest that the finance-growth relationship is very likely to be nonlinear in the sense that the growth effect of finance may vary with alternative macroeconomic and institutional conditions. Applying a threshold regression model to King and Levine's (1993b) dataset which covers 119 countries over the period 1960-1989 Deidda and Fattouh (2002) empirically examine the non-linear relationship between financial and economic development. Their results provide evidence consistent with the non-monotonic relationship implied by their empirical model. There is no significant relationship between financial depth and economic growth in low income countries. Using a sample of 74 countries over the 1960-1995 period, and applying the GMM dynamic panel data techniques, Rioja and Valev's (2004) results support the non-linear relationship between financial development and economic growth view.

To characterize how inflation affects the influence of finance on growth, Rousseau and Wachtel (2000) apply the rolling panel data regression technique to a sample of 84 countries from 1960 to 1995. The study provides evidence that there is an inflation threshold for the finance-growth relationship. In fact, when inflation exceeds the 13% to 25% range, financial deepening ceases to increase economic growth. In a more recent study, Huang et al. (2010) explore whether an inflation threshold exists in the finance growth nexus. To this end, they employ the threshold regression with the instrumental variables of Caner and Hansen (2004). Using Levine et al. (2000) dataset, they find strong evidence of a nonlinear inflation threshold in the finance-growth, below which financial development exerts a significantly positive effect on economic growth, while, above which the growth effect of finance appears to be non-significant. In a similar vein, Demetriades and Law (2006) investigate the effect of institutions on the finance-growth nexus. Applying both a cross-sectional estimation and a panel data estimation to a sample of 72 countries for the period 1978-2000, Demetriades and Law (2006) find that financial development has a larger effect on long-run economic development when the financial system is embedded within a sound institutional framework. However, if institutional quality is low, more finance may not generate significant benefit in economic growth. Our study is related to this last study's objective—examining the effect of institutional quality on the finance-growth nexus—and also the adoption of the empirical model with interaction variables. However, our study differs from previous work by determining an institutional threshold beyond which financial development can accelerate economic growth.

3. Econometric Model

An empirical specification that allows one to test that the responsiveness of economic growth to financial development depends up on an indicator of institutional quality has the following form:

$$GROWTH_{it} = \alpha_i + \beta_0 FD_{it} + \beta_1 (FD_{it} * INST_{it}) + \varphi INST_{it} + \gamma Z_{it} + \varepsilon_{it} \quad (1)$$

Where $GROWTH_{it}$ refers to the growth of real per capita GDP in the *i*th country for some time-period, which is our measure of economic growth. FD_{it} includes variables that measure stock markets and banking development, Z_{it} represents a matrix of control variables, α_i is an unobserved country specific effect, and ε_{it} is the error term of each observation.

Equation (1) permits us to assess whether financial development has a different influence on growth in countries with high values of institutional quality and countries with low values. In this specification, the responsiveness of the steady state level of economic growth to financial development is δ (equation 2). Specifically, differentiate equation (1) with respect to financial development to obtain the marginal effect of financial development on economic growth:

$$\delta = \frac{\partial GROWTH}{\partial FD} = \beta_0 + \beta_1 * INST \quad (2)$$

Our conditional hypotheses center around the coefficients β_0 and β_1 . Four possibilities are created. They are:

- If $\beta_0 > 0$ and $\beta_1 > 0$, financial development has a positive impact on economic growth, and institutional conditions favorably affect that positive impact.
- If $\beta_0 > 0$ and $\beta_1 < 0$, financial development has a positive impact on economic growth, and institutional conditions adversely affect that positive impact (institutional quality lessens this positive effect).
- If $\beta_0 < 0$ and $\beta_1 > 0$, financial development has a negative impact on economic growth, and institutional conditions mitigates the negative effect of financial development.
- If $\beta_0 < 0$ and $\beta_1 < 0$, financial development has a negative impact on economic growth, and institutional conditions aggravate the negative effect of financial development.

Equation (2) allows us to calculate the threshold level of institutional quality beyond which financial development can accelerate economic growth. Thus, the positive effect of financial development on economic growth is observed when:

$\delta > 0$

$\beta_0 + \beta_1 * INST > 0$

Therefore the threshold level of institutional quality is given by the following expression:

$INST > (-\beta_0/\beta_1)$

4. Data

Financial development indicators are extracted from the Beck et al. (2000a) revised database[3]. Our data covers a sample of 18 MENA countries[4][5]. Other information related to control variables such as macroeconomic stability, trade openness... is collected from the World Development Indicators (World Development Indicators 2008) database. However, the data is not available for a uniform period of time for each country. Therefore, the number of observations is expected to vary across countries leading to estimations over an unbalanced panel data.

4.1 Data on financial development

We consider four indicators for banking sector development and four indictors for stock market development. The banking sector indicators are: (i) private credit (PRIVCRE) equals banking institution credit to private sector as a percent of GDP. It is considered an indicator for financial intermediaries' activity (Demirgüç-Kunt and Levine 1999) (ii) liquid liabilities (LIABILITIES) is the ratio of liquid liabilities of the financial system (currency plus demand and interest-bearing liabilities of banks and non-bank financial intermediaries) divided by

[3] The financial structure database is updated on November 2008.

[4] Algeria, Bahrain, Djibouti, Egypt, Iran, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen.

[5] When stock market data is considered, the sample contains only 13 MENA countries: Bahrain, Egypt, Iran, Israel, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia and United Arab Emirates.

GDP. It is a general indicator for the size of financial intermediaries relative to the size of the economy; (iii) bank assets (ASSETS) equals the ratio of the total assets of deposit money banks divided by GDP, it provides a measure of the overall size of banking sector; and (iv) a bank index (BANKINDEX)[6] which is an index of banking sector development that aggregates the information contained in the individual indicators. The stock market indicators are: (i) market capitalization (MCAP) as an indicator of market size which is equal to the ratio of value of domestic equities (traded on domestic exchanges) to GDP; (ii) total value traded (TRADED) as a measure of stock market liquidity which is equal to the total value of domestic equities traded in each country's major stock exchanges as a percentage of GDP; (iii) turnover ratio (TURNOVER) is also a measure of stock market liquidity. It is equal to the total value of domestic shares traded divided by market capitalization; and (iv) a market index (MARKETINDEX) which is an index of stock market development that aggregates the information contained in the individual indicators.

4.2 Data on Other Variables

To assess the strength of the independent link between financial development and economic growth, we control for other potential determinants of economic growth in our regression. Specifically we consider the most used variables in the empirical growth theory defined as follows: (i) initial level of development (IIC) equals the logarithm of initial income per capita, which will provide evidence of any convergence effects; (ii) trade openness (TO), proxied by the ratio of the sum of exports and imports to GDP, since the empirical growth literature has shown that openness to international trade is an important determinant of economic growth; (iii) government consumption (GC) where we control for the level of government consumption by using the ratio of government consumption to GDP; and (iv) inflation (INF) proxied by the annual inflation rate, which is included as an indicator for macroeconomic stability.

To measure institutional quality we construct a composite index of institutional quality using the International Country Risk Guide (ICRG) variables from the Political Risk Services (PRS) Group. The composite index is the sum of five indicators which are: (i) quality of bureaucracy (ranges 0-4) which measures institutional strength, quality of bureaucracy as well as the autonomy from political pressure; (ii) law and order (ranges 0-6) which reflects the strength and impartiality of the legal system and popular observance of the law; (iii) corruption (ranges 0-6) which refers to corruption in the political system. Countries with low levels of corruption have high index values and vice versa; (iv) democratic accountability (ranges 0-6) which measures how responsive a government is to its people; and (v) investment profile (ranges 0-12) which is an assessment of factors affecting the risk to investment that are not covered by other political, economic and financial risk component. To enable comparability we standardize all sub-indicator of our institutional index to range between 0-1, where higher values indicate higher quality.

5. Empirical Results

We use the GMM estimators developed for dynamic panel data for a sample of 18 MENA countries over the period 1984-2007. Tables in Appendix B present equations with annual data estimated using the Blundell and Bond (1998) dynamic panel data estimation technique, i.e., two-step system GMM estimations. In addition, we use four-year average data to prevent any biased estimates and to abstract from the business cycle phenomena. This transformation entails that four-year data for all countries exist (1984-1987, 1988-1991, 1992-1995, 1996-1999, 2000-2003, 2004-2007) which make for six non-overlapping periods. We report the GMM estimates based on four-year average variables in tables of Appendix B. Table 1 (Appendix B) provides descriptive statistics.

[6] Detailed calculations are presented in Appendix A.

The GMM system regressions satisfy both the Sargan test of over-identifying restrictions and the serial correlation test. In all our model specifications, the Hansen test cannot reject the null hypothesis that our instruments are valid. Moreover, the AR2 test fails to reject the null hypothesis that there is no second order autocorrelation in the differentiated residuals.

5.1 Institutional quality and the bank-growth relationship

Table 2 (Appendix B) reports the results of regressions analyzing the effect of institutions on the relationship between banking sector and economic growth. In columns (1 and 2) the composite index BANKINDEX is included as the indicator of banking sector development with the interaction term (BANKINDEX*INST). The estimated results show that while BANKINDEX remains significantly negative, the additional interaction variable (BANKINDEX*INST) is significantly positive suggesting that institutional development may very well mitigate the negative effect of BANKINDEX. That is, while an increase in the BANKINDEX decreases growth, the negative effect is reduced in countries with more developed institutional environment. Our results are similar both when the equation is estimated using annual data or four-year average data. The results illustrate that, in order for banking sector development to contribute to economic growth, MENA countries must possess a level of institutional development greater than the threshold level of 0.55 (0.58/1.06 = 0.55) (Table 1 column 1), when we base on annual data estimates. Based on estimates using four-year average data, the corresponding threshold is 0.66 (0.129 / 0.194 = 0.66) (Table 1 column 2).

The negative effect of banking sector development on economic growth in the MENA countries is significant because of the low level of institutional development in this region (the average value of institutional quality in MENA countries is 0.52 which is lower than 0.55 and 0.66 threshold levels seen from the estimations with annual and four-year average data respectively.

Tunisia (as an example) has increased the level of banking sector development from -0.007 to 0.10 between 1989 and 2007. Given that its institutional level of 0.52 is much lower than the threshold of 0.66, the increase in banking sector development would reduce the growth rate by 0,003% (0.003% = [-0.129 + (0.194*0.52)] (0. 10 + 0. 007)*)* annually. On the other hand Israel (where the average value of institutional quality (0.76) is greater than the threshold level (0.66) will on average benefit from banking sector development.

Figure 1 represents the marginal effect of a one unit increase in BANKINDEX on economic growth based on each country's INST value. The countries are placed in order of magnitude of the total effect of a one unit increase in BANKINDEX. Only in Israel does banking sector development have a positive effect on economic growth because it has attained a threshold level of institutional development, whereas the underdeveloped institutional infrastructure of the rest of MENA countries may hamper economic growth.

Looking at the measures of banking sector development, LIABILITIES, ASSETS and PRIVCRE, in most regressions, the institutional variable displays similar results to those when banking development is proxied by BANKINDEX. In fact, the three interaction terms (LIABILITIES*INST, ASSETS*INST and PRIVCRE*INST) are significantly positive when we consider annual data (Table 1). The coefficients for LIABILITIES and ASSETS are significantly negative suggesting that while a larger and deeper banking system decreases growth, this negative effect is reduced in countries with a more developed institutional environment. On the other hand, when we look at estimates based on four-year average data we find that while the results are consistent with results of annual data for LIABILITIES, the coefficients for both ASSETS and the interactive term ASSETS*INST does not appear to be statistically significant. The last line in Table 2 illustrates that when the indicator

LIABILITIES is considered, the threshold levels are 0.53 and 0.42 for the annual and four-year average data respectively.

Considering the proxies of banking sector activity (PRIVCRE), the results displayed in Table 2 (columns 7, 8) indicate that the coefficients of PRIVCRE are negative but no longer significant. On the other hand, the coefficients of (PRIVCRE*INST) are positive and significant at the 1% and 10% level (1.52 and 0.73) when we use annual and four-year average data respectively. The consistent threshold levels of institutional quality are 0.56 for annual data and 0.55 for averaged data.

Tables 3, 4, 5, 6 and 7 (Appendix B) summarize the results of the regressions that are run with each of the components of the institutional index[7] included individually and interactively (i.e, FD*BURO, FD*CORR, FD*DEMOC, FD*LAW and FD*INVEST). The main findings suggest that not all dimensions of the institutional framework have the same direct importance for bank growth. In fact, while BURO, LAW and INVEST display qualitatively the same results as those regressions with INST (Table 2), in most regressions including all indicators of banking sector development, CORR does not matter in the banking sector growth nexus[8].

Generally, when we refer to BANKINDEX, banking sector development leads to economic growth only when the measures of BURO, LAW and INVEST are higher than the threshold levels (0.60, 0.68, 0.54 respectively) when based on annual data. The consistent thresholds are 0.60, 0.57 and 0.59 respectively when the four-year average dataset is considered.

Democratic accountability (DEMOC) seems to matter only when BANKINDEX is considered. That is to say, to benefit from financial intermediaries' development MENA countries must attain a score of DEMOC higher than the threshold levels (0.49 and 0.55) when we consider annual and averaged data respectively.

5.2 Institutional quality and the stock market-growth relationship

The results of GMM estimators of economic growth on the four indicators of stock market development and the interaction terms between institutional indicators and the four indicators of stock market development are reported in Table 8 (Appendix B) using annual and four-year average data respectively.

Similar to banking sector regressions, the evidence from Table 8 (Appendix B) shows that while the four proxies of stock markets development (MARKETINDEX, MCAP, TRADED, TURNOVER) remain significantly negative, the interaction terms (MARKETINDEX*INST, MCAP*INST,TRADED*INST, and TURNOVER*INST) have a significantly positive effect on economic growth. This evidence confirms the third possibility (as described above) suggesting the importance of institutional quality in mitigating the negative effect of financial development on economic growth.

When we consider the estimations with four-year average data the results are consistent with those of the regressions with annual data when we use MARKETINDEX and TRADED as proxies of stock market development (Table 8). In fact, the significantly positive coefficients of the interaction variables (MARKET*INST and TRADED*INST) outline the importance of institutional quality in mitigating the negative effect of stock market on economic growth. However, the coefficients of MCAP and TRNOVER and both the interaction terms (MCAP*INST and (TURNOVER*INST) are statistically insignificant.

[7] Quality of bureaucracy (BURO), law and order (LAW), corruption (CORR), democratic accountability (DEMOC) and investment profile (INVEST).

[8] We do not find an important significance in the interaction terms of banking sector indicators and CORR.

Considering MARKETINDEX, results from Table 8 (columns 1, 2) illustrate that in order for stock markets to promote economic growth in the MENA region, countries must have a level of institutional development greater than the threshold level of 0.56 and 0.53 based on estimates with annual and four-year average data respectively. Building on these results, the significantly negative effect of stock market development on economic growth in MENA countries can be explained by the low level of institutional quality in this region, which is lower than the threshold levels (0.56 and 0.53 for estimates with annual and four-year average data respectively).

When we refer to TRADED, the corresponding thresholds are 0.59, 0.52 based on annual and averaged data respectively.

The visual picture of the marginal effect of a one unit increase in MARKETINDEX based on each country is depicted in figure (2). As seen with BANKINDEX, countries that demonstrate positive effects of stock market development are those countries that have attained the threshold level of institutional development such as Israel. Whereas an underdeveloped institutional infrastructure may hamper economic growth, as is the case of most MENA countries (for example, Syrian Arab Republic, Tunisia, Qatar).

We do not find statistical support to the view that a well-developed institutional environment promotes economic growth. When we consider both the banking and stock markets development indicators, institutional indicator (INST) comes with a sign that runs counter to theoretical predictions in most regressions.

Looking at the regressions run with each of the components of the institutional index (INST), our results (Tables 9, 10, 11, 12 and 13) show that only the coefficients of INVEST appear to be qualitatively the same as those of the regressions with INST (see Table 13). Thus, stock market development can promote economic growth only when the INVEST measure is higher than the threshold level 0.85 based on the regression with MARKETINDEX. When we consider MCAP, TRADED and TURNOVER the corresponding thresholds are 0.77, 0.57, and 0.91 respectively (when based on annual data). Based on four-year average data, the threshold levels are 0.47 and 0.78 for MCAP and TRADED respectively (Table 12).

While they appear relevant in the bank-growth nexus, BURO, DEMOC and LAW do not matter in the stock market-growth nexus. Generally, INVEST is the most relevant indicator of institutional quality in the finance-growth nexus in MENA countries.

In summary, our main findings are that the coefficients of financial indicators alone have a negative sign, however the interaction terms have significant positive coefficients in most regressions suggesting that financial development alone may hamper economic growth, but it can be avoided only if the countries are characterized by a reasonable level of institutional quality. Thus, our results provide empirical evidence that there is a conditional relationship between financial development and economic growth in MENA countries and in fact, institutional quality affects the finance-growth nexus.

The more developed institutional environment mitigates the negative effect of financial development on economic growth in MENA countries. These results are in line with Levine et al. (2000) who have stressed that growth prospects are enhanced because a sound legal environment encourages the development of financial intermediation.

6. Conclusion

In this paper, we re-investigate how financial development affects economic growth in MENA countries. Specifically, we examine whether the results are affected by institutional quality.

Based on a model which introduces a linear interaction between the indicator of financial development and institutional index (FD*INST), we find that there is a conditional relationship between financial development and economic growth. In fact, institutional quality mitigates the negative effect of financial development on economic growth when both the banking sector and the stock markets are considered as indicators of financial development. Moreover, the negative effect of financial development on economic growth can be explained by the fact that the level of institutional quality is lower than the threshold level.

These results reflect on policy implications: to benefit from financial development the financial system in MENA countries has to be embedded into a sound institutional framework. Our results are in line with Demetriades and Law (2006) who have stressed the importance of institutional quality in the finance-growth nexus. Moreover reform must be embarked in the end to promote financial system. However, they need to do significantly more to reinforce the institutional environment.

References

Allen, F. and D. Gale. 1999. Diversity of opinion and financing of new technologies. *Journal of Financial Intermediation* 8 (1-2): 68–89.

Apergis, N., I. Filippidis, and C Economidou. 2007. Financial deepening and economic growth linkages: A panel data analysis. *Review of World Economics* 143 (1): 179–98.

Arellano, M., and S. Bond. 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies* 58 (2): 277–97.

Arellano, M., and O. Bover. 1995. Another look at the instrumental-variable estimation of error components models. *Journal of Econometrics* 68 (1): 29–52.

Atje, R., and B. Jovanovic. 1993. Stock markets and development. *European Economic Review* 37 (2-3): 632–40.

Beck, T., A. Demirguç-Kunt, and R. Levine. 2000a. A new database on financial development and structure. *World Bank Economic Review* 14 (3): 597–605.

Beck, T., R. Levine, and L. Norman. 2000b. Finance and the sources of growth. *Journal of Financial Economics* 58 (1-2): 261–300.

Beck , T., and R. Levine. 2004. Stock markets, banks and growth: Panel evidence. *Journal of Banking and Finance* 28 (3): 423–42.

Bhattacharya, R., and H. Wolde. 2010. Constraints on growth in the MENA region. IMF Working Paper (10/30).

Bencivenga, V. R., B.D. Smith, and R.M. Starr. 1995. Transactions Costs, Technological Choice, and Endogenous Growth. *Journal of Economic Theory* 67 (1): 53–177.

Ben Naceur, S., and S. Ghazouani. 2007. Stocks markets, banks, and economic growth: Empirical evidence from the MENA region. *Research in International Business and Finance* 21 (2): 297–315.

Blundell, R. and S. Bond 1998. Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics* 87 (1): 115-143.

Boot, A. W. A., and A. Thakor. 1997. Financial system architecture. *Review of Financial Studies* 10 (3): 693–733.

Caner,M., and B.E. Hansen .2004. Instrumental variable estimation of a threshold model. *Econometric Theory* 20 (5): 813–43.

Christopoulos, D. K., and E.G Tsionas. 2004. Financial development and economic growth: Evidence from panel unit root and cointegration tests. *Journal of Development Economics* 73 (1): 55–74.

Deiddaa, L., and B. Fattouh. 2002. Non-linearity between finance and growth. *Economics Letters* 74 (3): 339–45.

Demetriades, P., and S. H. Law. 2006. Finance, institutions and economic development. *International Journal of Finance and Economics* 11 (3): 245–60.

Demirgüç-Kunt and R. Levine .1999. Bank-based and market-based financial systems: Cross-country comparisons. *World Bank Policy Research Working Paper Series* 2143.

Hasan, I., P. Wachtel, and M. Zhou. 2009. Institutional development, financial deepening and economic growth: Evidence from china. *Journal of Banking and Finance* 33 (1): 157–70.

Hassan, M.K., B. Sanchez, and J.S. Yu. 2011. Financial development and economic growth: New evidence from panel data. *The Quarterly Review of Economics and Finance* 51: 88–104.

Holtz-Eakin, D., W. Newey, and H. S. Rosen. 1988. Estimating vector autoregressions with panel data. *Econometrica* 56 (6): 1371–95.

Hondroyiannis, G., S. Lolos, and E. Papapetrou. 2005. Financial markets and economic growth in Greece, 1986-1999. *Journal of International Financial Markets, Institutions and Money* 15 (2): 173–88.

Huang, H-C., S-C. Lin, D-H. Kim, and C-C. Yeh. 2010. Inflation and the finance-growth nexus. Economic Modelling, 27 (1), 229-236.

Ghirmay, T. 2005. Financial development and economic growth in sub-Sahran African countries: Evidence from time series analysis. *African Development Bank* 16 (3), 415–32.

Greenwood, J. and B.D. Smith (1996). Financial markets in development, and the development of financial markets. *Journal of Economic Dynamics and Control* 21(1): 145-181;

Goldsmith, R. W. 1969. *Financial structure and development.* Yale University Press.

Gurley, J. G., and E. Shaw. 1955. Financial aspects of economic development. *The American Economic Review* 45 (3): 515–38.

Kar, M., Ş. Nazlıoğlu, and H. Ağır. 2011. Financial development and economic growth nexus in the MENA countries: Bootstrap panel granger causality analysis. *Economic Modelling* 28: 685–93.

King, R. G., and R. Levine. 1993a. Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics* 108 (3): 717–37.

King, R. G., and R. Levine. 1993b. Finance, entrepreneurship, and growth: Theory and evidence. *Journal of Monetary Economics* 32 (3): 513–42.

Levine, R. 1997. Financial development and economic growth: Views and agenda. *Journal of Economic Literature* 2: 688–726.

Levine, R. 1998. The legal environments, banks, and long-run economic growth. *Journal of Money, Credit and Banking* (30): 596–613.

Levine, R. 1999. Law, finance, and economic growth. *Journal of Financial Intermediation* 8 (1-2): 8–35.

Levine, R. 2005. Finance and growth: Theory and evidence. In *Handbook of economic growth*, 865–934. Elsevier.

Levine, R., N. Loayza, and T. Beck. 2000. Financial intermediation and growth: Causality and causes. *Journal of Monetary Economics* 46 (1): 31–77.

Levine, R., and S. Zervos. 1998. Stock markets, banks, and economic growth. *American Economic Review* 88 (3): 537–58.

Lucas, R. E. 1988. On the mechanisms of economic development. *Journal of Monetary Economics* 22 (1): 3–42.

Loayza, N. V., and R. Ranciere. 2006. Financial development, financial fragility, and growth. *Journal of Money, Credit and Banking* 38 (4): 1051–76.

McKinnon, R. I. 1973. *Money and capital in economic development*. Brookings Institution Press.

Merton, R. C., and Z. Bodie. 1995. A conceptual framework for analyzing the financial environment. In *The global financial system: A functional perspective,* 263–82. Harvard Business School Press.

Nabli, M. K., and M.-A.Véganzonès- Varoudakis. 2004. Reforms and growth in the MENA countries: New empirical evidences. Middle East and North Africa Working Paper Series no. 36.

Pagano, M. 1993. Financial markets and growth: An overview. *European Economic Review* 37 (2 -3): 613–22.

Pedroni, P. 1999. Critical values for cointegration tests in heterogeneous panels with multiple regressors. *Oxford Bulletin of Economics and Statistics* 61 (S1): 653-670.

Pesaran, M. H., Yongcheol, S., and P.S. Ron. 1999. Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American Statistical Association*, 94(446): 621-634.

Rioja, F. and Valev, N.(2004). Does one size fit all? A reexamination of the finance and growth relationship. *Journal of Development Economics*, 74 (2): 429-447.

Robinson, J. 1952. The Generalization of the General Theory, in *The Rate of Interest and Other Essays.* London: Macmillan.

Rousseau, P.L., and P. Wachtel. 2000. Equity market and growth: Cross country evidence on timing and outcomes 1980-1995. *Journal of Banking and Finance* 24 (12):1933-1957

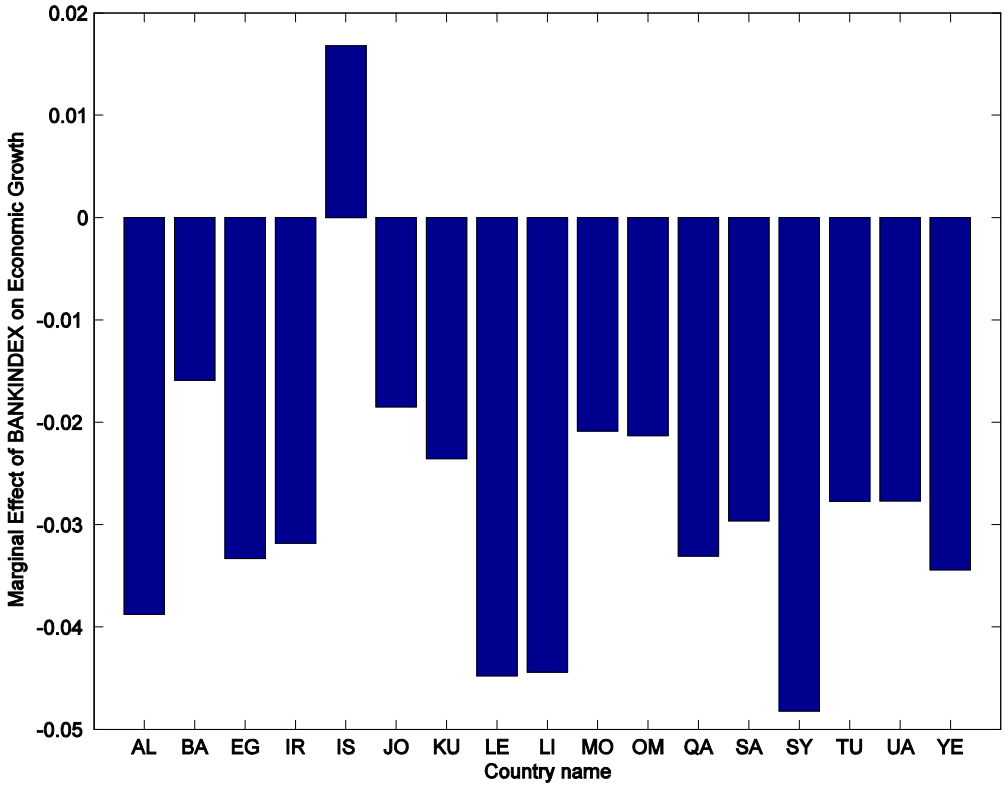
Shaw, E. S. 1973. *Financial deepening in economic development*. New York: Oxford University Press.

Shen, C.-H., and C.-C. Lee. 2006. Same financial development yet different economic growth: Why? *Journal of Money, Credit and Banking* 38 (7): 1907–44.

Thangavelu, S. M., and A. B. J. James. 2004. Financial development and economic growth in Australia: An empirical analysis. *Empirical Economics* 29 (2): 247–60.

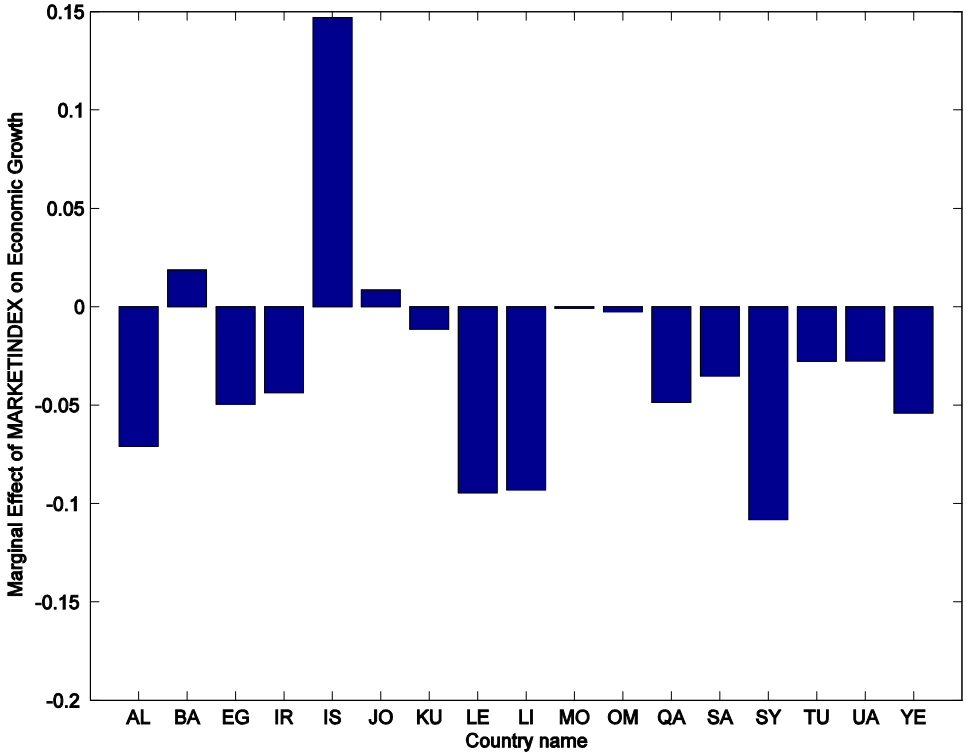
World Development Indicators .2008.*World Bank database.*

Figure 1: Marginal Effect of BANKINDEX on Economic Growth[9]



[9] AL= Algeria, BA= Bahrain, EG= Egypt, IR= Iran, IS= Israel, JO= Jordan, KU= Kuwait, LE= Lebanon, LI= Libya, MO= Morocco, OM= Oman, QA= Qatar, SA= Saudi Arabia, SY= Syrian Arab Republic, TU= Tunisia, UAE= United Arab Emirates, YE= Yemen.

Figure 2: Marginal Effect of MARKETINDEX on Economic Growth



Appendices

Appendix A: The financial index calculation

We construct a conglomerate index of banking sector development *(BANKINDEX)* using a formula[10], 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[11]:

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

$\overline{X}$ 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 equation (1) in order to provide the overall bank index (BANKINDEX).

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 (equation (1) above).

[10] This formula is also adopted by Ben Naceur and Ghazouani (2007) to construct a composite stock market and banking indices.

[11] X indicates variables *PRIVCRE, LIABILITIES or ASSETS.*

Appendix B: Empirical Results

Table 1: Summary Statistics

Variable	Obs	Mean	Std .Dev	Min	Max
GROWTH	346	.0111	.057	-.428	.346
BANKINDEX	248	-.036	.411	-1	.945
LIABILITIES	238	.646	.235	.262	1.31
ASSETS	240	.590	.251	.089	1.35
PRIVCRE	239	.449	.228	.0439	1.02
MARKETINDEX	134	.011	1.383	-.950	8.75
MCAP	182	.481	.486	.021	2.984
TRADED	183	.182	.408	.0007	3.496
TURNOVER	141	.292	.3511	.0089	2.31
IIC	343	3.519	.509	2.646	4.546
INF	331	.090	.180	-.104	1.77
TO	355	.827	.341	.137	1.91
GC	317	.211	.0747	.01	.762
INST	376	.564	.128	.134	.938

Table 2: The Effect of Institutional Quality on the Bank-Growth Relationship

	FD= BANKINDEX		FD=LIABILITIES		FD=ASSETS		FD=PRIVCRE	
	(1) Annual data	(2) 4-year average data	(3) Annual data	(4) 4-year average data	(5) Annual data	(6) 4-year average data	(7) Annual data	(8) 4-year average data
BANKINDEX	-.581*	-.129**						
	(-4.09)	(-2.03)						
LIQUIDLIABILITIES			-.456*	-.547**				
			(-3.01)	(-2.48)				
BANKASSETS					-.708**	.051		
					(-2.19)	(1.41)		
PRIVATECREDIT							-.153	-.401
							(-0.63)	(-1.11)
INST	-.019	.188**	-.554*	-.967*	-.990**	.242	-.992*	-.348*
	(-0.34)	(2.07)	(-3.3)	(-2.62)	(-2.32)	(1.31)	(-3.41)	(-2.61)
BANKINDEX*INST	1.06*	.194***						
	(5.11)	(1.65)						
LIQUIDLIABILITIES*INST			.863*	1.31*				
			(3.31)	(2.68)				
BANKASSETS*INST					1.49**	-.024		
					(2.32)	(-0.27)		
PRIVCRE*INST							1.52*	.739***
							(3.29)	(1.85)
IIC	.035	.001	.0401	.053	.084***	.053	-.0049	.068*
	(1.01)	(0.04)	(1.49)	(0.93)	(1.92)	(1.37)	(-0.08)	(3.20)
INFLATION	.0006	-.0084	.023**	.046*	-.023	-.0081	.187*	.016
	(0.04)	(-0.37)	(2.09)	(3.25)	(-0.55)	(-0.38)	(2.91)	(0.27)
TO	.024	.016	.010	-.008	-.0013	-.008	-.0361***	.0032
	(1.00)	(0.73)	(0.57)	(-0.35)	(-0.04)	(-0.35)	(-1.70)	(0.13)
GC	-.565*	-.211***	-.471*	-.558*	.836*	-.555*	-1.17*	-.456**
	(-2.86)	(-1.72)	(-3.73)	(-3.97)	(-3.76)	(-4.82)	(-5.58)	(-2.46)
cst	-.023	-.066	.246**	.355	.344	-.199	.490***	.0495
	(-0.41)	(-0.68)	(2.06)	(1.13)	(1.26)	(-1.27)	(1.84)	(0.42)
AR(2)	0.664	0.169	0.703	0.240	0.719	0.550	0.645	0.370
Sargan	0.245	0.713	0.591	0.889	0.692	0.887	0.075	0.649
Hansen	0.516	0.599	0.691	0.494	0.991	0.316	0. 399	0.761
N	222	64	220	63	222	64	222	64
Threshold level of INST	55%	66%	53%	42%	48%	na	56%	55%

Notes: N refers to number of observations included in the estimation. For Sargan test, the null hypothesis is that the instruments are not correlated with the residuals. Hansen statistic tests the validity of our instruments. For the test for autocorrelation AR(2), the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation. T-statistics for coefficient in parentheses ***, **, * refer to the 1, 5 and 10% levels of significance respectively.

Table 3: The Effect of Bureaucracy Quality on the Bank-growth relationship

Variable	FD= BANKINDEX		FD=LIABILITIES		FD=ASSETS		FD=PRIVCRE	
	(1) Annual data	(2) 4-year average data	(3) Annual data	(4) 4-year average data	(5) Annual data	(6) 4-year average data	(7) Annual data	(8) 4-year average data
BANKINDEX	-.367*	-.104*						
	(-3.29)	(-3.10)						
LIABILITIES			-.708	-.013**				
			(-0.85)	(-2.14)				
ASSETS					.339	.042		
					(0.63)	(1.12)		
PRIVCRE							-.699**	-.122
							(-2.39)	(-1.54)
BURO	.090	.0059	-.650	.007	.452	-.009	-.271**	-.135***
	(1.50)	(0.49)	(-0.93)	(0.64)	(1.12)	(-0.33)	(-2.69)	(-1.94)
BANKINDEX*BURO	.613*	.174*						
	(2.47)	(4.48)						
LIABILITIES*BURO			1.22	.037*				
			(0.98)	(38.36)				
ASSETS*BURO					-.735	-.001		
					(-0.95)	(-0.04)		
PRIVCRE*BURO							.751**	.310***
							(3.01)	(1.86)
IIC	-.054	.043	-.227	.003	.147	.050*	.115*	.024
	(-0.94)	(1.13)	(-0.99)	(1.11)	(1.26)	(4.79)	(2.71)	(1.57)
INF	-.022	-.161	-.074	-.104*	.097***	-.141*	-.075	-.178*
	(-0.72)	(-3.65)	(-0.90)	(-5.92)	(1.81)	(-3.82)	(-1.49)	(-3.46)
TO	.043**	.004	.067	-.005	-.025	-.0054	.058	-.004
		(0.55)	(0.93)	(-1.47)	(-0.32)	(-0.71)	(1.33)	(-0.43)
	(2.80)							
GC	-.206	-.346**	.646	-.028	-.850***	-.384*	-.573**	-.360*
	(-1.09)	(-2.51)	(0.61)	(-0.49)	(-1.93)	(-9.66)	(-2.70)	(-3.46)
Cst	.145	-.068	1.012	.015***	-.527	-.086*	-.037	.067
	(0.99)	(-0.65)	(1.00)	(1.89)	(-1.01)	(-3.09)	(-0.33)	(1.52)
AR(2)	0.887	0.653	0.753	0.362	0.843	0.845	0.978	0.580
Sargan	0.262	0.885	0.834	0.694	0.531	0.980	0.374	0.911
Hansen	0.577	0.184	0.808	0.460	0.392	0.783	0.694	0.272
N	210	60	208	54	210	59	210	0.59
Threshold level of BURO	60%	60%	na	35%	Na	na	93%	39%

Notes: N refers to number of observations included in the estimation. For Sargan test, the null hypothesis is that the instruments are not correlated with the residuals. Hansen statistic tests the validity of our instruments. For the test for autocorrelation AR(2), the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation. T-statistics for coefficient in parentheses ***, **, * refer to the 1, 5 and 10% levels of significance respectively.

Table 4: The Effect of Corruption on the Bank-Growth Relationship

Variable	FD= BANKINDEX		FD=LIABILITIES		FD=ASSETS		FD=PRIVCRE	
	(1) Annual data	(2) 4-year average data	(3) Annual data	(4) 4-year average data	(5) Annual data	(6) 4-year average data	(7) Annual data	(8) 4-year average data
BANKINDEX	-.042	.046						
	(-0.79)	(1.66)						
LIABILITIES			.632	.185				
			(0.68)	(1.45)				
ASSETS					.001	.152		
					(0.02)	(1.01)		
PRIVCRE							-.135	.135
							(-0.28)	(1.22)
CORR	.0044	-.029	.673	.155	-.099	.236	-.089	.117
	(0.08)	(-1.38)	(0.60)	(0.93)	(-1.42)	(1.05)	(-0.26)	(1.27)
BANKINDEX*CORR	.182**	-.034						
	(2.72)	(-0.52)						
LIABILITIES*CORR			-.699	-.253				
			(-0.41)	(-0.84)				
ASSETS*CORR					.186***	-.414		
					(1.81)	(-1.15)		
PRIVCRE*CORR							.243	-.273
							(0.30)	(-1.26)
IIC	-.0040	.052*	.235	.0312	-.034	.113**	.044	.065*
	(-0.10)	(4.01)	(1.29)	(1.76)	(-0.95)	(2.63)	(0.56)	(3.15)
INF	.002	.051	-.116	.010	-.014	.077***	.0041	.029
	(0.16)	(1.58)	(-0.93)	(0.24)	(-0.74)	(1.93)	(0.13)	(1.19)
TO	.022	.004	-.275	.009	.018	-.010	.013	-.002
	(0.80)	(0.30)	(-1.54)	(0.46)	(1.27)	(-1.14)	(0.87)	(-0.29)
GC	-.348	-.408*	-1.15	-.254**	-.367***	-.407*	-.335	-.419*
	(-1.60)	(-6.65)	(-1.10)	(-2.91)	(-1.85)	(-5.26)	(-1.60)	(-8.18)
Cst	.073	-.080***	-.843	-.166	.194***	-.389***	-.031	-.187**
	(0.66)	(-1.94)	(-1.61)	(-1.50)	(2.11)	(-1.99)	(-0.24)	(-2.24)
AR(2)	0.672	0.892	0.796	0.857	0.674	0.108	0.760	0.904
Sargan	0.074	0.060	0.804	0.378	0.573	0.389	0.217	0.671
Hansen	0.770	0.629	0.429	0.435	0.498	0.526	0.719	0.620
N	210	64	208	63	210	63	210	63
Threshold level of CORR	23%	na	na	na	Na	na	na	Na

Notes: N refers to number of observations included in the estimation. For Sargan test, the null hypothesis is that the instruments are not correlated with the residuals. Hansen statistic tests the validity of our instruments. For the test for autocorrelation AR(2, the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation. T-statistics for coefficient in parentheses ***, **, * refer to the 1, 5 and 10% levels of significance respectively.

Table 5: The Effect of Democratic Accountability on the Bank-Growth Relationship

Variable	FD= BANKINDEX		FD=LIABILITIES		FD=ASSETS		FD=PRIVCRE	
	(1) Annual data	(2) 4-year average data	(3) Annual data	(4) 4-year average data	(5) Annual data	(6) 4-year average data	(7) Annual data	(8) 4-year average data
BANKINDEX	-.288**	-.164*						
	(-2.68)	(-3.10)						
LIABILITIES			-.145	-.002				
			(-0.56)	(-0.02)				
ASSETS					.0410	.037		
					(-0.23)	(1.01)		
PRIVCRE							-.110	-.136**
							(-0.42)	(-2.24)
DEMOC	-.027	-.0057	.021	-.094	.0150	.0113	-.058	-.167**
	(-0.88)	(-0.24)	(0.11)	(-1.32)	(0.06)	(0.14)	(-0.30)	(-2.45)
BANKINDEX*DEMOC	.595**	.299*						
	(4.55)	(4.21)						
LIABILITIES*DEMOC			.039	.126				
			(0.12)	(1.00)				
ASSETS*DEMOC					.019	-.0132		
					(0.06)	(-0.11)		
PRIVCRE*DEMOC							.164	.307**
							(0.44)	(2.39)
IIC	.070	.027	-.009	.066**	.025	.0250	.016	.090*
	(0.99)	(1.01)	(-0.20)	(2.56)	(0.59)	(0.79)	(0.28)	(4.00)
INF	.029	-.027	-.031	.0236	-.005	-.025	-.0008	.076*
	(0.81)	(-0.68)	(-1.18)	(0.91)	(-0.30)	(-0.88)	(-0.02)	(3.56)
TO	.00007	.007	.047	-.0135	.0119	.010**	.027	.002
	(0.00)	(0.38)	(1.38)	(-1.10)	(0.56)	(2.43)	(0.91)	(0.28)
GC	-.889***	-.365*	-.130	-.422**	-.313	-.280*	-.290***	-.531*
	(-1.98)	(-3.09)	(-0.70)	(-4.30)	(-1.30)	(-6.31)	(-1.99)	(-12.57)
Cst	-.061	-.019	.110	-.118	-.015	-.047	.0317	-.131**
	(-0.41)	(-0.33)	(0.43)	(-1.37)	(-0.10)	(-0.38)	(0.19)	(-2.82)
AR(2)	0.929	0.320	0.834	0.856	0.805	0.340	0.765	0.370
Sargan	0.172	0.177	0.863	0.350	0.572	0.074	0.591	0.739
Hansen	0.568	0.258	0.939	0.481	0.839	0.313	0.771	0.536
N	210	65	208	63	210	64	210	65
Threshold level of DEMOC	49%	55%	na	na	Na	na	na	45%

Notes: N refers to number of observations included in the estimation. For Sargan test, the null hypothesis is that the instruments are not correlated with the residuals. Hansen statistic tests the validity of our instruments. For the test for autocorrelation AR(2), the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation. T-statistics for coefficient in parentheses ***, **, * refer to the 1, 5 and 10% levels of significance respectively.

Table 6: The Effect of Law and Order on the Bank-Growth Relationship

Variable	FD= BANKINDEX		FD=LIABILITIES		FD=ASSETS		FD=PRIVCRE	
	(1) Annual data	(2) 4-year average data	(3) Annual data	(4) 4-year average data	(5) Annual data	(6) 4-year average data	(7) Annual data	(8) 4-year average data
BANKINDEX	-.159**	-.200*						
	(-2.48)	(-8.08)						
LIABILITIES			-.243***	-.335*				
			(-1.78)	(-3.27)				
ASSETS					-.441***	.022		
					(-1.96)	(0.73)		
PRIVCRE							-.341*	-.168
							(-4.07)	(-1.09)
LAW	.075	.008	-.291***	-.347*	-.753***	.006	-.170**	-.202**
	(1.20)	(0.49)	(-2.00)	(-3.84)	(-2.09)	(0.44)	(-2.78)	(-2.30)
BANKINDEX*LAW	.233*	.349*						
	(3.92)	(11.08)						
LIABILITIES*LAW			.416***	.566*				
			(1.99)	(4.42)				
ASSETS*LAW					1.33**	.0207		
					(2.26)	(0.70)		
PRIVCRE*LAW							.427*	.451***
							(3.31)	(1.94)
IIC	-.080	.045**	.115**	.086*	.187*	.0183	.067**	.042*
	(-0.68)	(2.84)	(2.60)	(3.56)	(3.84)	(1.72)	(2.80)	(4.31)
INF	.015	.019	.031**	.032	.044	-.023	.014	.036
	(0.90)	(0.78)	(2.96)	(1.04)	(1.32)	(-0.84)	(0.58)	(0.211)
TO	.010	.0061	.004	-.011	-.074	.0051	.011	-.005
	(0.39)	(0.56)	(0.64)	(-1.12)	(-1.34)	(0.81)	(0.38)	(-1.26)
GGEX	.177	-.332*	-.767*	-.505*	-.980**	-.265*	-.449*	-.458*
	(0.36)	(-5.24)	(-3.17)	(-4.47)	(-2.21)	(-9.01)	(-4.71)	(-8.18)
Cst	.195	-.097**	-.069	.028	-.130	-.0233	-.010	.026
	(0.74)	(-2.37)	(-0.57)	(0.43)	(-1.02)	(-0.60)	(-0.14)	(0.40)
AR(2)	0.703	0.194	0.938	0.272	0.691	0.313	0.829	0.384
Sargan	0.218	0.062	0.843	0.397	0.740	0.247	0.655	0.993
Hansen	0.285	0.305	0.834	0.341	0.791	0.551	0.726	0.910
N	210	65	208	63	210	64	210	64
Threshold level of LAW	68%	57%	58%	60%	34%	na	80%	40%

Notes: N refers to number of observations included in the estimation. For Sargan test, the null hypothesis is that the instruments are not correlated with the residuals. Hansen statistic tests the validity of our instruments. For the test for autocorrelation AR(2), the null hypothesis is that the errors in the first difference regression exhibit no second-order serial correlation. T-statistics for coefficient in parentheses ***, **, * refer to the 1, 5 and 10% levels of significance respectively.

Table 7: The Effect of Investment Profile on the Bank-Growth Relationship

Variable	FD= BANKINDEX		FD=LIABILITIES		FD=ASSETS		FD=PRIVCRE	
	(1) Annual data	(2) 4-year average data	(3) Annual data	(4) 4-year average data	(5) Annual data	(6) 4-year average data	(7) Annual data	(8) 4-year average data
BANKINDEX	-.179***	-.089*						
	(-1.84)	(-3.45)						
LIABILITIES			-.258**	-.106				
			(-2.79)	(-1.30)				
ASSETS					-.504*	-.027		
					(-3.39)	(-0.91)		
PRIVCRE							-1.07*	-.151**
							(-3.28)	(-2.66)
INVEST	.079	.056**	-.453*	-.117	-.561*	.068	-.802**	-.065
	(1.04)	(2.70)	(-3.56)	(-1.59)	(-5.34)	(1.77)	(-2.64)	(-0.95)
BANKINDEX*INVEST	.336***	.152**						
	(2.07)	(2.83)						
LIABILITIES*INVEST			.640*	.230**				
			(4.27)	(2.59)				
ASSETS*INVEST					.941*	.032		
					(4.68)	(0.63)		
PRIVCRE*INVEST							1.68*	.265**
							(2.80)	(2.38)
IIC	-.107	.0018	.176*	.044	.123*	-.025	.115	.0229
	(-0.92)	(0.09)	(3.19)	(0.78)	(3.25)	(-1.72)	(1.33)	(0.74)
INF	.015	-.0011	.052*	.028	.035	-.0008	-.015	.005
	(1.13)	(-0.05)	(3.68)	(1.50)	(1.67)	(-0.06)	(-0.48)	(0.19)
TO	.050*	.0183*	-.016	.001	.014	.0207**	.052	.010
	(3.13)	(3.28)	(-0.61)	(0.06)	(0.57)	(2.86)	(1.65)	(1.07)
GC	.227	-.143	-1.09*	-.352	-.804*	-.0413	-.695**	-.219
	(0.46)	(-1.51)	(-3.93)	(-1.53)	(-3.82)	(-0.72)	(-2.41)	(-1.30)
Cst	.252	-.012	-.190	-.0214	.021	.0611	.199	.002
	(0.95)	(-0.26)	(-1.55)	(-0.14)	(0.15)	(1.35)	(0.64)	(0.04)
AR(2)	0.849	0.063	0.704	0.955	0.615	0.114	0.462	0.052
Sargan	0.397	0.088	0.880	0.390	0.874	0.205	0.688	0.485
Hansen	0.428	0.601	0.594	0.585	0.664	0.232	0.604	0.388
N	210	65	208	63	210	64	210	64
Threshold level of INST	54%	59%	41%	47%	53%	84%	64%	57%

Notes: N refers to number of observations included in the estimation. For Sargan test, the null hypothesis is that the instruments are not correlated with the residuals. Hansen statistic tests the validity of our instruments. For the test for autocorrelation AR(2), the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation. T-statistics for coefficient in parentheses ***, **, * refer to the 1, 5 and 10% levels of significance respectively.

Table 8: The Effect of Institutional Quality on the Stock Market -Growth Relationship

	FD= MARKETINDEX		FD=MARKETCAP		FD=TRADED		FD=TURNOVER	
	(1) Annual data	(2) 4-year average data	(3) Annual data	(4) 4-year average data	(5) Annual data	(6) 4-year average data	(7) Annual data	(8) 4-year average data
MARKETINDEX	-.425*	-.037						
	(-2.73)	(-1.40)						
MARKETCAP			-1.14***	.1002				
			(-1.86)	(0.82)				
TRADED					-.426**	-.215***		
					(-3.54)	(-1.87)		
TURNOVER							-1.57**	-.099
							(-2.41)	(-0.49)
INST	.088	.0923*	-.119	.073	-.128	-.061	-.449	-.002
	(1.13)	(3.57)	(-0.91)	(0.77)	(-1.41)	(-0.44)	(-1.11)	(-0.03)
MARKETINDEX*INST	.761*	.072***						
	(2.77)	(1.77)						
MARKETCAP*INST			1.855***	-.147				
			(1.89)	(-0.68)				
TRADED*INST					.747*	.415***		
					(3.15)	(2.01)		
TURNOVER*INST							2.77**	.299
							(2.37)	(0.84)
IIC	-.025	.0065	-.508***	.066**	.133***	.016	.174	-.016
	(-0.42)	(0.13)	(-1.80)	(2.30)	(1.88)	(0.78)	(0.93)	(-0.42)
INFLATION	-.171	-.228**	-.701**	-.130	-.081	-.150	-.026	-.278**
	(-1.50)	(-2.12)	(-1.96)	(-1.22)	(-0.59)	(-0.55)	(-0.10)	(-2.09)
TO	-.0075	-.022	.101***	-.030**	-.036	-.023	.038	-.007
	(-0.18)	(-1.12)	(1.91)	(-2.54)	(-0.78)	(-0.75)	(1.23)	(-0.45)
GC	-.567**	-.343	.519	-.502**	-.783**	-.262*	-1.44***	-.365
	(-2.18)	(-1.26)	(1.13)	(-3.26)	(-2.45)	(-6.16)	(-1.85)	(-2.89)
Cst	.182	.0434	1.747***	-.128***	-.190	.072	-.084	.157
	(1.02)	(0.36)	(1.86)	(-1.75)	(-1.16)	(1.28)	(-0.15)	(1.11)
AR(2)	0.488	0.533	0.458	0.695	0.220	0.495	0.548	0.274
Sargan	0.740	0.292	0.533	0.497	0.104	0.597	0.263	0.625
Hansen	0.974	0.251	0.989	0.863	0.837	0.503	0.798	0.755
N	222	42	145	45	152	44	222	43
Threshold level of INST	56%	53%	62%	na	59%	52%	57%	na

Notes: N refers to number of observations included in the estimation. For Sargan test, the null hypothesis is that the instruments are not correlated with the residuals. Hansen statistic tests the validity of our instruments. For the test for autocorrelation AR(2), the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation. T-statistics for coefficient in parentheses ***, **, * refer to the 1, 5 and 10% levels of significance respectively.

Table 9: The Effect Of Bureaucracy Quality on the Stock Market Growth Relationship

Variable	FD=MARKETINDEX		FD=MCAP		FD=TRADED		FD=TURNOVER	
	(1) Annual data	(2) 4-year average data	(3) Annual data	(4) 4-year average data	(5) Annual data	(6) 4-year average data	(7) Annual data	(8) 4-year average data
MARKETINDEX	-.020	.002						
	(-0.25)	(0.12)						
MCAP			.058	-.0013				
			(0.24)	(-0.01)				
TRADED					.037	.330		
					(0.06)	(0.89)		
TURNOVER							-.203	.100
							(-1.55)	(1.53)
BURO	.094	.137	.084	-.058	.076	.487	-.173	.068
	(0.82)	(1.38)	(0.27)	(-0.15)	(0.28)	(1.37)	(-1.53)	(0.89)
MARKETINDEX*BURO	.044	-.013						
	(0.26)	(-0.40)						
MCAP*BURO			-.065	.014				
			(-0.14)	(0.03)				
TRADED*BURO					-.033	-.378		
					(-0.03)	(-0.63)		
TURNOVER*BURO							.297	-.081
							(1.48)	(-0.50)
IIC	-.073	.053***	.023	.160**	.014	-.435	.202**	.007
	(-0.48)	(1.99)	(0.35)	(2.20)	(0.72)	(-1.82)	(2.70)	(0.17)
INF	-.177	-.248***	-.183	-.093	-.12	-.683	-.012	-.345**
	(-0.76)	(-1.97)	(-1.20)	(-0.47)	(0.213)	(-1.53)	(-0.12)	(-2.68)
TO	.023	.027	-.001	-.030	.005	.059	-.015	-.0224
	(1.45)	(0.70)	(-0.04)	(-0.66)	(0.65)	(1.10)	(-0.29)	(-1.77)
GC	-.052	-1.04**	-.417***	-.793*	-.411*	1.07	-1.05*	-.326**
	(-0.11)	(-2.99)	(-2.18)	(-4.76)	(-4.21)	(1.79)	(-3.96)	(-2.70)
Cst	.227	-.042	-.024	-.324	.005	1.04***	-.367**	.048
	(0.58)	(-0.50)	(-0.14)	(-1.59)	(0.04)	(1.92)	(-2.28)	(0.30)
AR(2)	0.186	0.361	0.220	0.746	0.153	0.935	0.437	0.927
Sargan	0.858	0.479	0.957	0.947	0.543	0.130	0.821	0.485
Hansen	0.457	0.897	0.989	0.983	0.829	0.920	0.978	0.961
N	144	42	135	43	142	44	144	43
Threshold level of BURO	na	na	na	na	na	na	na	na

Notes: N refers to number of observations included in the estimation. For Sargan test, the null hypothesis is that the instruments are not correlated with the residuals. Hansen statistic tests the validity of our instruments. For the test for autocorrelation AR(2), the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation. T-statistics for coefficient in parentheses ***, **, * refer to the 1, 5 and 10% levels of significance respectively.

Table 10: The Effect of Corruption on The Stock Market-Growth Relationship

Variable	FD= MARKETINDEX		FD=MCAP		FD=TRADED		FD=TURNOVER	
	(1) Annual data	(2) 4-year average data	(3) Annual data	(4) 4-year average data	(5) Annual data	(6) 4-year average data	(7) Annual data	(8) 4-year average data
MARKETINDEX	.130	-.056**						
	(0.98)	(-2.82)						
MCAP			.399	.123				
			(0.96)	(1.43)				
TRADED					.258	.012		
					(1.32)	(0.13)		
TURNOVER							.129	.021
							(1.07)	(0.69)
CORR	-.058	.169**	.375	.150	.176	.057	.151***	.054
	(-0.42)	(2.42)	(1.25)	(1.50)	(1.81)	(0.77)	(1.89)	(0.49)
MARKETINDEX*COR	-.320	.151**						
R	(-0.93)	(2.65)						
MCAP*CORR			-.820	-.265				
			(-0.89)	(-1.22)				
TRADED*CORR					-.766	.089		
					(-1.33)	(0.32)		
TURNOVER*CORR							-.347	.008
							(-0.94)	(0.13)
IIC	-.055	.078	-.0030	.040	.090**	.015	.0506	.145**
	(-0.42)	(0.36)	(-0.05)	(0.33)	(2.38)	(0.32)	(0.58)	(3.03)
INF	-.103	-.163	-.309***	-.262	-.170***	-.300	-.067	-.037
	(-1.17)	(-0.81)	(-2.05)	(-1.30)	(-2.02)	(-1.64)	(-0.62)	(-0.09)
TO	.024	-.0005	.016	-.011	.037	-.044***	-.004	-.036
	(0.55)	(-0.01)	(0.33)	(-0.32)	(0.81)	(-2.20)	(-0.20)	(-1.01)
GC	.206	-1.16***	-.274	-.432	-.652**	-.323	-.378	-.837**
	(0.24)	(-2.20)	(-0.97)	(-0.89)	(-2.70)	(-1.60)	(-0.57)	(-2.83)
Cst	.182	-.090	-.095	-.086	-.258	.049	-.139	-.328**
	(0.56)	(-0.14)	(-0.51)	(-0.28)	(-1.82)	(0.37)	(-0.75)	(-2.47)
AR(2)	0.416	0.200	0.338	0.722	0.254	0.309	0.251	0.609
Sargan	0.841	0.088	0.963	0.734	0.547	0.185	0.639	0.296
Hansen	0.916	0.868	0.944	0.759	0.880	0.940	0.789	0.914
N	144	42	144	43	138	44	144	43
Threshold level of CORR	na	30%	na	na	na	na	na	na

Notes: N refers to number of observations included in the estimation. For Sargan test, the null hypothesis is that the instruments are not correlated with the residuals. Hansen statistic tests the validity of our instruments. For the test for autocorrelation AR(2), the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation. T-statistics for coefficient in parentheses ***, **, * refer to the 1, 5 and 10% levels of significance respectively.

Table 11: The Effect of Democracy Accountability on the Stock Market Growth Relationship

Variable	FD= MARKETINDEX		FD=MCAP		FD=TRADED		FD=TURNOVER	
	(1) Annual data	(2) 4-year average data	(3) Annual data	(4) 4-year average data	(5) Annual data	(6) 4-year average data	(7) Annual data	(8) 4-year average data
MARKETINDEX	.130	-.007						
	(0.98)	(-1.02)						
MCAP			.631	-.181				
			(0.72)	(-0.46)				
TRADED					.049	.024		
					(0.26)	(0.45)		
TURNOVER							.146	.053
							(1.30)	(1.00)
DEMOC	-.058	.007	.432	-.214	.157***	-.004	.162***	.052
	(-0.42)	(0.20)	(0.80)	(-0.51)	(1.90)	(-0.13)	(2.14)	(0.68)
MARKETINDEX*DEMOC	-.320	.023						
	(-0.93)	(1.09)						
MCAP*DEMOC			-1.36	.404				
			(-0.74)	(0.52)				
TRADED*DEMOC					-.229	.047		
					(-0.43)	(0.47)		
TURNOVER*DEMOC							-.395	-.101
							(-1.15)	(-0.35)
IIC	-.055	.047	.185	.051	.148**	.016	.041	.115
	(-0.42)	(0.19)	(1.25)	(0.92)	(3.00)	(0.32)	(0.47)	(0.71)
INF	-.103	-.221	.128	-.024	-.227***	-.225	-.067	-.150
	(-1.17)	(-0.63)	(0.58)	(-0.11)	(-2.21)	(-1.25)	(-0.60)	(-0.56)
TO	.024	.011	.008	-.015	.034	-.031*	-.004	-.035***
	(0.55)	(0.17)	(0.51)	(-0.39)	(0.65)	(-3.51)	(-0.21)	(-1.97)
GC	.206	-.943***	.035	-.451	-1.06*	-.291	-.318	-.603
	(0.24)	(-1.97)	(0.03)	(-1.43)	(-3.27)	(-1.53)	(-0.49)	(-1.61)
Cst	.182	.042	-.859	.049	-.369**	.055	-.122	-.252
	(0.56)	(0.06)	(-1.81)	(0.22)	(-2.30)	(0.36)	(-0.64)	(-0.51)
AR(2)	0.416	0.309	0.387	0.644	0.257	0.341	0.258	0.755
Sargan	0.841	0.082	0.988	0.545	0.708	0.240	0.738	0.747
Hansen	0.916	0.832	0.962	0.853	0.988	0.970	0.910	0.979
N	144	42	131	43	138	44	144	43
Threshold level of DEMOC	na	na	na	na	na	na	na	Na

Notes: N refers to number of observations included in the estimation. For Sargan test, the null hypothesis is that the instruments are not correlated with the residuals. Hansen statistic tests the validity of our instruments. For the test for autocorrelation AR(2), the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation. T-statistics for coefficient in parentheses ***, **, * refer to the 1, 5 and 10% levels of significance respectively.

Table 12: The Effect of Law and Order on the Stock Market-Growth Relationship

Variable	FD= MARKETINDEX		FD=MCAP		FD=TRADED		FD=TURNOVER	
	(1) Annual data	(2) 4-year average data	(3) Annual data	(4) 4-year average data	(5) Annual data	(6) 4-year average data	(7) Annual data	(8) 4-year average data
MARKETINDEX	-.076	-.006						
	(-1.21)	(-0.36)						
MCAP			-.070	.099				
			(-0.14)	(1.67)				
TRADED					-.450	.564		
					(-0.46)	(1.75)		
TURNOVER							-.049	-.037
							(-0.34)	(-0.31)
LAW	.376	-.058***	-.045	-.014	-.096	.015	-.136	-.013
	(1.78)	(-1.88)	(-0.28)	(-0.45)	(-0.46)	(0.33)	(-1.64)	(-0.16)
MARKETINDEX*LAW	.121	.007						
	(1.39)	(0.30)						
MCAP*LAW			.127	-.133				
			(0.19)	(-1.31)				
TRADED*LAW					.533	-.662		
					(0.46)	(-1.77)		
TURNOVER*LAW							.318	.044
							(1.41)	(0.26)
IIC	-.156	.069*	.012	.073	.142	-.008	.054	.023
	(-1.16)	(4.62)	(0.13)	(1.34)	(0.49)	(-0.15)	(0.84)	(0.12)
INF	1.92	-.204	-.170**	-.179	-.067	-.161	-.063	-.147
	(1.77)	(-1.33)	(-2.18)	(-1.07)	(-0.27)	(-1.27)	(-1.04)	(-0.92)
TO	.140	.011	-.0138	-.029	-.010	-.038	-.013	-.037**
	(1.52)	(0.34)	(-0.18)	(-1.72)	(-0.26)	(-1.72)	(-0.31)	(-2.15)
GC	.794	-.935**	-.519***	-.534***	-.847	.107	-.757*	-.289
	(0.98)	(-2.72)	(-1.95)	(-2.03)	(-0.63)	(-0.38)	(-3.30)	(-0.32)
Cst	-.086	.007	.123	-.089	-.228	.094	.033	.049
	(-0.59)	(0.11)	(0.40)	(-0.62)	(-0.36)	(0.76)	(0.23)	(0.10)
AR(2)	0.848	0.607	0.252	0.618	0.362	0.332	0.325	0.559
Sargan	0.686	0.066	0.877	0.502	0.183	0.380	0.269	0.559
Hansen	0.980	0.882	0.980	0.817	0.874	0.510	0.921	0.491
N	144	42	135	43	142	44	144	42
Threshold level of LAW	na	na	na	na	Na	na	na	na

Notes: N refers to number of observations included in the estimation. For Sargan test, the null hypothesis is that the instruments are not correlated with the residuals. Hansen statistic tests the validity of our instruments. For the test for autocorrelation AR(2), the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation. T-statistics for coefficient in parentheses ***, **, * refer to the 1, 5 and 10% levels of significance respectively.

Table 13: The Effect of Investment Profile on the Stock Market-Growth Relationship

Variable	FD= MARKETINDEX		FD=MCAP		FD=TRADED		FD=TURNOVER	
	(1) Annual data	(2) 4-year average data	(3) Annual data	(4) 4-year average data	(5) Annual data	(6) 4-year average data	(7) Annual data	(8) 4-year average data
MARKETINDEX	-.154***	.012						
	(-2.03)	(0.62)						
MCAP			-.632***	-.123				
			(-2.18)	(-1.74)				
TRADED					-.192	-.412		
					(-0.92)	(-1.77)		
TURNOVER							-.848**	.0004
							(-2.26)	(0.00)
INVEST	-.017	.086	-.335***	-.073	-.209	-.099	-.154	.205
	(-0.38)	(0.80)	(-1.84)	(-0.95)	(-1.41)	(-0.94)	(-0.98)	(1.17)
MARKETINDEX*INVEST	.180***	.001						
	(2.11)	(0.04)						
MCAP*INVEST			.813**	.267***				
			(2.38)	(2.33)				
TRADED*INVEST					.338***	.526***		
					(1.89)	(1.87)		
TURNOVER*INVEST							.928**	-.032
							(2.38)	(-0.19)
IIC	-.225	-.003	-.022	-.031	.255	.068	.120	-.126
	(-1.10)	(-0.11)	(-0.30)	(-1.21)	(1.41)	(0.79)	(0.81)	(-0.86)
INF	-1.45***	.051	-.365***	-.198	-.039	-.362	-.004	-.059
	(-2.04)	(0.13)	(-2.08)	(-1.30)	(-0.37)	(-1.78)	(-0.03)	(-0.36)
TO	.036	-.052	.051	-.062**	-.096	-.029	-.012	-.0003
	(0.97)	(-0.93)	(1.19)	(-2.50)	(-0.94)	(-1.74)	(-0.32)	(-0.01)
GC	.264	.344	.144	.053	.015	-.468	-.435	.370
	(-0.86)	(0.43)	(0.47)	(0.44)	(0.03)	(-1.27)	(-0.59)	(0.54)
Cst	.915	-.048	.283	.205***	-.686	-.016	.159	.276
	(1.36)	(-0.23)	(1.65)	(1.95)	(-1.14)	(-0.09)	(-0.53)	(1.05)
AR(2)	0.389	0.556	0.273	0.437	0.305	0.988	0.866	0.953
Sargan	0.330	0.186	0.642	0.066	0.572	0.595	0.448	0.553
Hansen	0.800	0.985	0.872	0.912	0.999	0.877	0.764	0.738
N	144	42	135	43	142	44	144	43
Threshold level of INST	85%	na	77%	47%	57%	78%	91%	na

Notes: N refers to number of observations included in the estimation. For Sargan test, the null hypothesis is that the instruments are not correlated with the residuals. Hansen statistic tests the validity of our instruments. For the test for autocorrelation AR(2), the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation. T-statistics for coefficient in parentheses ***, **, * refer to the 1, 5 and 10% levels of significance respectively.