Arab Journal of Administrative Sciences

2010, Vol. 17, No. 3, 511- 535

FINANCIAL AND BANKING DEVELOPMENT IN SELECTED MENA COUNTRIES

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Key Words

Financial System Development; Economic Growth; GMM model.

Abstract

This study examines the impact of the financial (stock market) and banking development on economic growth for a sample of selected Middle East and North African countries (MENA) during the period of 1987-2007. Financial and stock market development is measured by discretionary accruals. Bank credit ratio is used in this study as an indicator for bank development. Using the Generalized Method of Moment (GMM), the results indicate the significant role of Bank Credit Ratio in monitoring banking development. Further analysis shows that stock market is significant and positively affects economic growth; this result is consistent with other studies (Levine, 1991) which state that liquidity in stock markets ease investment in the long run, thereby improving the allocation of capital and enhancing prospects for long term growth.

Introduction

The global market crisis of 2008 has claimed a vast body of research on financial challenges and corporate control. In corporations, finance and banking are usually separated. However, this separation poses two conflicts.

First, more liquid stock markets may reduce saving rates enough to slow growth (Bencivenga & Smith, 1991). Second, liquidity improves the allocation of capital and enhances prospects for long- term growth (Levine, 1991).

This paper examines the recent banking and stock market trends in selected MENA countries; it also tries to explain the major determinants of their overall economic performance by providing an in-depth analysis of financial sector growth in selected MENA member countries over the last two decades, focusing on the role of the stock market.

This paper will also selectively discuss recent empirical work on the

Submitted December 2008, accepted August 2009.

controversial issue of whether financial systems play a critical role in determining long-run rates of economic growth. Building on work by: (McKinnon, 1973; Goldsmith, 1969; Gurley and Shaw, 1955; Schumpeter, 1912; and Bagehot, 1873), recent research has employed different econometric methodologies and data sets to assess the role of the financial sector in stimulating economic growth.

The endogenous growth literature provides ample evidence that financial development is a major determinant of economic growth. Theory links these two factors based on the argument that a well-developed financial system performs several critical functions to enhance intermediation efficiency. Ultimately, enhanced financial intermediation efficiency causes economic growth (Pagano, 1993). It thus follows that economic growth rarely occurs without a well-functioning financial system (Levine and Beck, 2004).

We will focus on two classes of empirical studies: (i) pure cross-country growth regressions, (ii) panel techniques that exploit both the cross-country and time-series dimensions of the data. However, this paper does not discuss the theory surrounding the role of financial contracts, markets, and intermediaries in economic growth[(1)].

Each of the different statistical procedures that brought to bear on the finance-growth debate has methodological shortcomings, which emphasizes the need for additional research to clarify the relationship between finance and growth. From this point of view, we examine the dynamic relationship between stock market and bank development on economic growth in MENA countries. We address this issue by using the Generalized Method of Moments (GMM) through analyzing the relationship between the continuous growth rates of real GDP and the indicators of stock market and bank development. Accordingly, this study focus on the effect of both the stock market and bank development on economic growth.

In our study, we take into consideration four control variables; inflation, government consumption, the degree of openness of an economy, and the lag of real per capita GDP growth rate. This paper's techniques improve significantly over existing studies on the link between banks, stock markets and economic growth. By using average values and using instrumental variables to extract the

(1) For a review of the theory of finance and growth and a discussion of the case-study literature, see (Levine, 1997).

exogenous component of bank and stock market development, it controls any biasness induced by simultaneity. Furthermore, this research suggests that it is important to use alternative specifications of the system panel estimator in drawing results.

The body of existing work motivates research into the determinants of financial development. If financial development is crucial for growth, how can selected MENA countries face the current financial crises and how to develop well-functioning systems? What regulatory, and policy changes would foster the emergence of growth-enhancing financial markets and intermediaries? While we do not discuss this emerging literature, we point to some recent ideas on these questions in the conclusion.

The remainder of this paper is structured as follows; a brief overview of the financial and banking sector in the selected MENA countries, then the theoretical background, followed by the stock-bank and economic growth literature, then data and methodology, and finally, the main results and conclusions of this paper.

The Financial and Banking Sector in MENA Countries

This section briefly describes the financial system reforms implemented in selected MENA member countries during the past few decades, and assesses the impact of latest world financial crises on the region's economy.

The Financial System

We present below an overview of the financial systems in the six selected countries, namely; Amman Stock Exchange (ASE) in Jordan, Casablanca Stock Exchange (CSE) in Morocco, Muscat Securities Market (MSM) in Oman, Tunisian Stock Exchange in Tunisia (TSE), Cairo and Alexandria Stock Exchange (CASE) in Egypt, and Istanbul Stock Exchange (ISE) in Turkey.

Stock exchanges ensure the proper operation of its members and protect the interests of both the public and the investing community. The oldest stock exchange among the selected MENA countries is CASE in 1883; ASE is known as one of the largest stock exchanges in the region that permits foreign investment, followed by CSE; which started in the year 1929 and is considered as the third oldest stock exchange in Africa. ISE started in 1986, and in the year 1989 both MSM and TSE were established in Oman and Tunisia, respectively. Most countries enjoy a high degree of self-regulation of the stock exchange markets and include electronic quotation system.

A review of the bank history of liberalization in the MENA countries reveals that a comprehensive liberal-

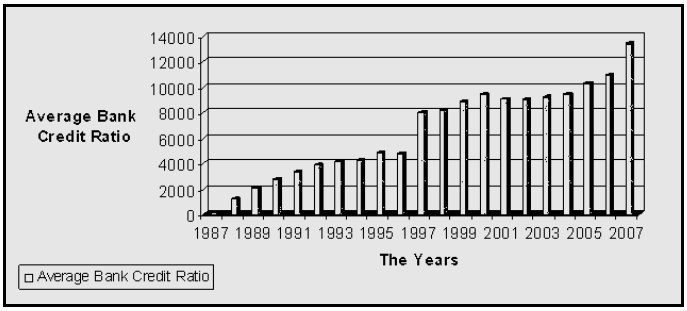

Figure (1) Bank Credit ratios in the Six Countries Over the Period 1987-2007*

Source: Directory of Arab Banks and Financial Institutions.

* *% BCR = (BC/GDP)*100, Where BCR is the Bank Credit ratio, and BC is the value of loans made by deposit money bank to the private sector.*

ization process did not start before the 1980s. Actually, the liberalization process in the financial sector started, when authorities took several steps in response to the IMF and World Bank economic adjustment program. In the early 1990s, restrictions on interest rates were lifted, government direct lending was reduced, product deregulation was expanded, and restrictions on foreign transactions decreased; allowing a higher degree of foreign investment. Several empirical studies found that the liberalization reforms implemented in MENA countries were followed by higher degrees of efficiency and better management (Lee, 2002).

This development in the banking system led to an increase in number of loans among banks which can be measured using the Bank Credit Indicator (BCR). According to the annual data for the markets of Jordan, Morocco, Oman, Tunisia, Egypt and Turkey; BCR has witnessed an increase through the last ten years (See figure 1).

The structure of the banking system countries is introduced in Table 1.

Table 1
Structure of the Banking System in Selected MENA Countries, 2005*

	Jordan	Morocco	Oman	Tunisia	Egypt	Turkey
Commercial banks	15	16	12	12	34	33
Of which foreign banks	3	9	9	9	15	10
Investment banks	5	8	3	6	15	4
Specialized banks	3	4	2	3	5	6
Islamic banks	2	1	3	2	3	3
Total	25	29	20	23	57	46

* Figures are from Central Bank of Jordan, www.cbj.gov.jo, Source: Directory of Arab Banks and Financial Institutions.

The Impact of the Global Financial Crises

The global environment is changing fast and businesses based in the MENA region are facing a new set of unprecedented challenges, such as pressures of globalization and the impact of the latest world financial crises on region economy. As a result, businesses are already experiencing new sets of challenges. The urgent need to identify and diminish risks therefore could not be over emphasized, particularly in this region where there is a short of credible data to rely upon, skilled talents to carry out risk analysis and propose remedies, or the organization structure and processes to facilitate the procedures.

The global credit crisis has already impacted the growth in some countries of the region by reducing the level of investment, reducing the growth potential, delaying or canceling some major projects. The consequence of this has an affect on all regional businesses small and large. Such impacts include: (a) the availability and cost of private investment for regional and international companies operating in the region will be undermined (b) business growth will slow down as a result, lower liquidity which reduces confidence and impede investment, (c) decreasing in the Bank Credit Indicator and (d) appreciating local currencies combined with lower commodity prices will cause inflation to drop.

An Optimistic Outlook

The current crisis is anticipated to be short-lived and the region is expected to start recovering and see drastic changes by early 2010. Higher costs of interest, combined with tightness of lending conditions, have significant effect on the companies that need to raise finance. However, some regional companies and investors are cash-rich and therefore in the position to meet short-term funding requirements without the need for borrowing. Also prices have decreased significantly across a range of commodities, from industrial raw material to food products to precious metals. Prices of most petrochemical products have declined drastically. Collapsing prices and the increased cost of financing, combined with the falling demands have resulted in many infrastructure projects in the region to be put on hold.

Export-oriented businesses, such as manufacturing, are more at risk from the credit crisis. However, domestically-focused businesses such as retail and telecoms will be less affected. The industrial and service sectors within the region have been the main drivers of economic growth in recent years, as they have benefited

from the recent investment boom. The outlook for such sectors has been misleading due to reduced consumer confidence, fueled by reduced oil prices and the collapse in the regional stock markets.

On a positive note, the region has survived many domestic and international uncertainties. Nothing suggests that the current set of challenges could dampen the regional business leaders' determination. Every downturn creates opportunities for strong businesses with healthy financial and the institutional capacity to act rapidly. These are unusual times and leaders are bound to come up with a new game-plan to meet alarming threats in such a changing and unpredictable world. In spite of the negative bearing of the current global financial crisis on the regional businesses, a window of opportunity exists to reconsolidate, strategize and search for new opportunities for long-term sustained growth.

Theoretical Background

Recent theoretical and empirical finance literature has addressed the question of whether the financial structure affects growth. A substantive body of research has examined the relative strengths and weaknesses of bank-based and market-based financial systems in the process of economic development. Proponents of bank-based systems generally emphasize the weaknesses of markets in providing the basic functions of financial intermediation (Stiglitz, 1985).

The effect of the financial and banking sector on economic development is inarticulate in the previous literature. The traditional theory disagrees about the impact of the financial sector on economic growth. Some do not even consider finance worth discussing. Nobel Prize winner, Merton Miller, recently remarked that financial markets contribute to economic growth is a proposition almost too obvious for serious discussion. As a second view, Nobel Laureate, Robert Lucas, states that the role of finance in economic growth has been "over-stressed" by the growth literature. Resolving the debate about the importance of financial development for economic growth is important for distinguishing among theoretical models. More importantly, information on the importance of finance for growth will affect the intensity with which researchers and policymakers attempt to identify and construct appropriate financial sector reforms around the world.

Thus, under the convergence of interest hypothesis, financial markets can be seen as a mechanism to ease the opportunistic behavior of managers and, therefore, the discretionary ac-

cruals (a proxy of financial performance) is predicted to be positively associated with country economic growth (Shleifer and Vishny, 1998).

This may also have a negative impact on a country's economic performance. Advocates of a market-based system, in contrast, claim that powerful banks are able to extract rents from firms. This reduces the efforts of firms to seek the most profitable investment opportunities (Rajan, 1992).

Bank's performance will depend on the nature of the economic shocks and on its business strategy (John Krainer, 2007). Even then, a bank's risk management and general business practices, as well as its customer base, may end up being more important than general economic conditions in accounting for the variability of its performance. Furthermore, close ties between banks (bank managers) and firms may impede the functioning of corporate control mechanisms and may thus exert a negative impact on the overall resource allocation in an economy (Levine, 1991).

In contrast, when there is narrow separation between banks (bank managers) and firms, firms face more pressure from financial markets to signal the firm value to the market and they pay more consideration to the short-term financial report (Jensen, 1986); therefore, highly developed banks are more likely to influence economic conditions.

Literature Review

Previous studies show evidence that financial intermediation promotes economic growth because it allows a higher rate of return to be earned on capital, and therefore financial markets help in attracting foreign investments, which may help in transferring technology and knowledge to the country (Alfaro, 2006). Thus, financial intermediation and economic growth are linked in accord with the Gold Smith-McKinnon on economic development(2).

The financial system facilities trade by extending credit and guaranteeing payments. In addition, it allocates resources, monitors managers, and can be used for hedging, diversifying, and pooling of risk, and exerts corporate control, mobilizes savings, and facilitates the exchange of goods and services, and therefore enhances the local economy (Levine, 1997). Levine, Zervos (1998) have found that both the initial level of stock market liquid-

(2) The essential tent of The Gold Smith-McKinnon hypothesis (1991) is that a low or negative real interest rate will discourage saving. This will reduce the availability of loan able funds for investment, which in turn, will lower the rate of economic growth.

ity (measured by the turnover ratio) and the initial level of banking development (measured by bank credit to the private sector as a share of GDP) were robustly correlated with future economic growth. They have found that the stock market size, (measured by market capitalization divided by GDP), in contrast, showed no significant correlation with growth. Their results did not deal explicitly with the issue of causality. In order to fill this gap, Levine *et al.* (2000) found evidence of a strong link between financial development (measured by private credit) and economic growth.

In a panel study that included both developed and developing countries, Rioja and Valve (2004) found a non-linear impact of financial development on growth; poor countries with underdeveloped financial markets gained very little from small improvements in financial intermediation. For middle-income countries that had reached a certain threshold of financial development, the effect was much larger. In addition to cross-country and panel studies, a substantial amount of literature has employed time-series techniques to investigate the finance growth relationship. Using basically Granger-type causality tests and vector autoregressive procedures, the majority of these studies provided support for the hypothesis that causality runs from financial development to growth (Christopoulos and Tsionas, 2004). Overall, recent empirical evidence from cross-country, panel and time-series studies suggest that financial development is an important determinant of economic growth.

Research Design

In this section we will develop the study hypotheses, describe the main models used in this research, explain the procedures of sample selection, and clarify the data and methodology used.

Hypotheses and Research Model

The aim of this study is to test the association between financial and stock market and economic growth and to examine if this association differs between samples of selected MENA countries. The standard assumption is that stock markets provide different service from banks in the MENA countries (Levine and Beck, 2002), (Levine and Zervos, 1998).

We examine whether each of the bank and stock markets indicators (bank credit ratio, market capitalization ratio, value traded ratio, and turnover ratio) is associated with economic growth after controlling for factors that are likely to impact economic growth such as inflation, government consumption, and the degree of openness of an economy. Our primary hypothesis (stated in null form)

is as follows: there is a positive and significant relationship between both stock market development and bank development and the economic growth in the MENA countries.

We employ the following model to examine the above mentioned hypothesis:

$$PCGDP_{it} = \alpha_1 + \alpha_2 MCR_{it} + \alpha_3 VTR_{it} + \alpha_4 TR_{it} + \alpha_5 BCR_{it} + \alpha_6 \text{Cont}_{it} + \varepsilon_{it} \quad (1)$$

Where, PCGDP_{it} is the real per capita GDP growth rate, MCR_{it} is the market capitalization ratio, VTR_{it} is the value traded ratio, and TR_{it} is the turnover ratio, BCR_{it} is the bank credit ratio, and Con_{it} stands for control variables and ε_{it} is the error term. (i), (t) refers to country and time respectively. α_n is a constant coefficients on the variables, where n = (0,1,..,6).

To examine the above mentioned tests, Ordinary Least Squares (OLS) estimation may be used in this study. However, Hsiao (1985) shows that in the presence of firm specific effects, OLS coefficients are biased assuming that co-variances between the independent variables and the firm specific variable and the disturbance terms$\varepsilon_{it}$are nonzero. If variables are endogenous, using OLS estimates may lead to inconsistency. Therefore, we employ a dynamic panel, the Generalized Method of Moment (GMM) estimator proposed by Arellano and Bond (1991).

Under GMM, the consistency of the estimator depends on the validity of the instruments and the assumption that the differenced error terms do not exhibit second order serial correlation. To test these assumptions, Arellano and Bond proposed a Sargan test of over identifying restrictions, which tested the overall validity of the instruments by analyzing the sample analog of the moment conditions used in the estimation procedure (Liu and Hsu, 2006). Besides, they also tested the assumption of no second-order serial correlation; we use Serial Correlation LM Test. Failure to reject the null hypotheses of both tests gives support to our estimation procedure (Baltagi, 2008).

All regressors are treated as strictly exogenous except the lagged dependent variables. Therefore, we conduct the analyses with lagged independent variables and earlier together with the lagged changes of endogenous variables, and exogenous variables used as instruments variables.

Sample Selection

The sample used in this study comprised of the listed members in the Aghadeer Agreement signed in February of 2004 between Jordan, Egypt, Morocco and Tunisia, which came into force in March 2007. Agha-

deer Agreement stressed the need for the partner countries to work together and foster trade relations with the European Union (EU). The agreement was designed to create an integrated market of 120 million people and allow industries in the signing countries to cooperate in exporting to large economic powers such as the EU and the US, providing an even larger market. The ideal is meant to promote mutual investment among member states, and to make their shared economic space more attractive. Therefore, understanding the characteristics and performance of listed members in the Aghadeer Agreement is vital to enhance the reliability and transparency of financial reports, and therefore improve the ability of investors to determine the fair value.

The deal was to reduce the effects of the global financial crises, private sectors in the pact's member states; Jordan, Egypt, Morocco and Tunisia, to be more engaged in the deal and take advantage of the distinguished and excellent incentives provided by the agreement. This means that even if Jordanian input into a product is not large enough for that product to be exported freely from Jordan to EU, Egyptian, Tunisian or Moroccan input can be added, so that the required value added percentage is reached and the product can enter the EU market and enjoy the same privileges. In light of the current difficult situation, regional integration between the member states of the Aghadeer Agreement can be a positive response to the financial crisis.

After a tedious selection process by checking data from different databases, we have added two additional emerging markets, Turkey and Oman which showed major progress in the banking and economic sector during the last twenty years.

Data and Methodology

The Data: Our data set includes information from six of the MENA countries, and covers the period from 1987 to 2007. The selection process was based in light of the member states of the Aghadeer Agreement; which left our data set to include: Jordan, Morocco, Oman, Tunisia, Egypt and Turkey.

In order to provide a comprehensive assessment of the role of market and stock development in the six MENA countries profiled over the past two decades, three different indicators were considered; market capitalization MCR; the value traded VTR; and turnover TR. On the other hand bank credit BCR was used as a measure of financial development. Variables are calculated as a share of GDP.

BCR was extracted from International Financial Statistics (IFS) published by the International Monetary

Table 3
Summary Descriptive Statistics of Bank Stock Indicators & Economic Growth Rates*

	Growth	MCR	VTR	TR	BCR
Descriptive statistics					
Mean	17.3	721.9	123.5	43.7	6536.2
Median	9.9	34.4	9.3	17.0	51.7
Maximum	143.5	4850.4	1360.2	399.3	80259.5
Minimum	-11.1	1.9	0.1	1.0	14.5
Std. Dev.	24.7	1440.3	233.3	63.7	16986.0
No. of observations	126	126	126	126	126
Correlations					
Growth	1	0.00	0.34	0.41	0.42
MCR	0.00	1	0.60	-0.21	0.52
VTR	0.34	0.60	1	0.06	0.54
TR	0.41	-0.21	0.06	1	-0.10
BCR	0.42	0.52	0.54	-0.10	1

* Growth is the real per capita GDP growth rate, MCR is the market capitalization ratio, VTR is the value traded ratio, TR Turnover ratio and BCR is the Bank Credit Ratio. Where all are variables are calculated as a ratio to GDP. The construction of variables refers to Appendix A. Statistics for all variables are based on annual data for the markets of Jordan, Morocco, Oman, Tunisia, Egypt and Turkey (countries in MENA region).

Fund; other yearly data are extracted from DataStream International Financial and Statistical Service which is published at Princeton University. (www.princeton.edu/econlib/econdatabasescompare).

Given that countries' accruals economic growth are likely to be influenced by factors other than the three stock market indicators (MCR, VTR, TR) or the financial indictor (BCR), several control variables are introduced to capture the incentives that have been found to influence economic growth expansion.

The control variables included in this paper are firm ($PCGDP_{t-1}$), inflation (INF), government consumption (GC), and the degree of openness of an economy (OT); all are taken from International Financial Statistics published by International Monetary Fund(3).

Table 3 includes summary descriptive statistics of bank stock indicators and economic growth rates. The maximum and minimum value of PCGDP is 143.5% and -11.1% respectively with a standard deviation of 24.7%. Going back to the original data in our

(3) See Appendix A for more details about data and description.

countries, the study sees that Turkey had the maximum PCGDP of 143.5%, and Oman had the minimum PCGDP of -11.1%, the turnover TR ratio ranges from 1% to 399.3% with a standard deviation of 63.7%. Going back to the original data in our countries, the study sees that Tunisia and Turkey had a TR of 1% and 399%, respectively. On the other hand, the maximum value for VTR is 123.5% and the maximum value of bank credit ratio BCR is 80259.5% with a minimum of 14.5%.

The Methodology- GMM Estimators for Dynamic Panel Models: The method used for examining the relationship between banks, stock markets and economic growth uses panel data set. We use two Generalized Method of Moments (GMM) dynamic panel estimators that correct inherent problems with the purely cross-sectional estimator. Specifically, these estimators address the econometric problems induced by country-specific effects, endogenous behavior, and the routine use of lagged dependent variables in growth regressions (Arrellano and Bond, 1991; Holtz-Eakin *et al*., 1990).

In the first GMM panel estimator, the strategy for addressing possible omitted variable bias created by country-specific effects is to difference the regression equation, thus, we first take differences to eliminate country-specific effects and thereby remove omitted variable bias. Next, we instrument the right-hand-side variables (the differenced values of the original regressors) using lagged values of the original regressors (measured in levels) as instruments. This last step removes the inconsistency arising from simultaneity bias, including biasness induced by the differenced lagged dependent variable. This difference dynamic-panel estimator has increasingly been used in studies of growth (Easterly *et al*., 1997; Caselli *et al*., 1996).

The second GMM dynamic panel estimator goes beyond the difference dynamic-panel estimator. The problem with the difference estimator is that it generally suffers from weak instruments, which yields large biasness in finite samples and poor precision even asymptotically (Arrellano *et al*., 1996; Bond *et al*., 1977). Specifically, lagged values of the levels of the original regressors frequently make weak instruments for the differenced values of the regressors used in the dynamic-panel equation. This occurs in the current setting if lagged values of financial development do not forecast changes in financial development. To diminish this problem, we use a system estimator. Besides the differ-

ence dynamic-panel equations where the instruments are lagged levels of the original regressors, we simultaneously estimate the original, levels equation where the instruments are lagged values of the differenced regressors (Arrellano and Bover, 1995).

By mitigating the weak instruments problem, this system estimator offers dramatic improvements in both efficiency and consistency (Blundell and Bond, 1997).

To address the dynamic relationship between stock market and bank development on economic growth in MENA countries, we use the GMM dynamic panel estimator that control for unobserved country-specific effects, the endogenous behavior of explanatory variables, time-specific effects, and the use of lagged dependent variables.

Consider the following regression equation,

$$(y_{i,t} - y_{i,t-1}) = \alpha y_{i,t-1} + \beta' X_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where y is the logarithm of real per capita GDP, X represents the set of explanatory variables, (other than lagged per capita GDP and including our indicators of stock market and bank development), ε is the error term, and the subscripts i and t represent country and time period, respectively.

The usual method of dealing with the country-specific effect in the context of panel data has been to first-difference the regression equation (Anderson and Hsiao, 1981). In this way the specific effect is directly eliminated from the estimation process. First-differencing equation (1), we obtain

$$(y_{i,t} - y_{i,t-1}) - (y_{i,t-1} - y_{i,t-2}) = \alpha(y_{i,t-1} - y_{i,t-2})y + \beta'(X_{i,t} - X_{i,t-1}) + (\varepsilon_{i,t} - \varepsilon_{i,t-1}) \quad (2)$$

Differencing introduces a new bias; by construction the new error term, $\varepsilon_{i,t} = \varepsilon_{i,t-1}$ that is correlated with the lagged dependent variable, $y_{i,t-1} = y_{i,t-2}$.

Under the assumptions that (a) the error term ε is not serially correlated, and (b) the explanatory variables X are weakly exogenous.

The following moment conditions apply to the lagged dependent variable and the set of explanatory variables:

$$E[y_{i,t-1}, (\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0 \quad (3)$$

$$E[X_{i,t-1}, (\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0 \quad (4)$$

We use a consistent GMM estimator based on these moment conditions. We refer to this estimator as the *difference* estimator.

Using these moment conditions, Arrellano and Bond (1991) propose a two-step GMM estimator. In the first step the error terms are assumed to be independent and homoskedastic across countries and over time. In the second step, the residuals obtained in the first step are used to construct a consistent estimate of the variance-covariance matrix, thus relaxing the assumptions of independence and homoskedasticity(4).

The two-step estimator is more efficient in relation to the first step estimator. We refer to the GMM estimator based on these conditions as the difference estimator. This is the estimator that Rousseau and Wachtel (2000) use with annual data to examine the relationship between stock markets, banks, and economic growth. Then, we use the moment conditions presented in equations (3) and (4) and employ the system panel estimator to generate consistent and efficient parameter estimates(5).

The Results of One and Two-Step Estimator

The results in Table 4 show that (i) the development of both stock markets and banks has a statistically and economically large impact on economic growth, and (ii) The p-values in parentheses in Panel A are from the one-step estimator, while in Panel B are from the two-step estimator. Table 4 indicates the significance of stock market and bank development for both the two-step and one-step estimators.

Table 4 yields some useful information regarding the relationship between growth and bank-stock market development as well as the validity of including the other variables in the model. The fact that the coefficient of MCR is statistically insignificant in model 1, this indicates that market credit ratio does not enter significantly when controlling for either *government consumption* or *inflation*, these two control variables have negative affects on economic. Inflation disrupts financial intermediation by discouraging long-term contracting, by exacerbating informational problems, and by increasing moral hazard problems in the banking sector (McKinnon, 1991). Therefore, high uncertainty makes the financial system both more inefficient in allocating resources (risky lending) and more fragile (high default risk). By creating uncertainty, high inflation disrupts the maturity

(4) For more details about the assumptions and practical application for this method; one can refer to: Arellano, Manuel 2003.Modeling Optimal Instrumental Variables for Dynamic Panel Data Models. CEMFI, Madrid.

(5) GMM Description is specified in Appendix B.

Table 4
Statistical Analysis Using the GMM in MENA Countries

	Stock Market and Bank development & Economic Growth	
	Panel A	**Panel B**
Constant	7.2015	(0.001)*
	3.72601	(0.000)*
MCR	0.02102	(0.000)*
	0.00518	(0.116)
VTR	0.13052	(0.000)*
	0.12487	(0.000)*
TR	0.03175	(0.000)*
	0.13375	(0.100)**
BCR	0.00216	(0.100)**
	3.20093	(0.002)*
Sargan Test (df)	7.723(5)	7.434(5)*
Serial Correlation LM Test	95.28468	(0.800)
	93.56607	(0.832)
Ramsey test	1.53784	(0.726)
	1.43278	(0.783)
R^2	0.9095	1.0000
DW	1.9392	2.1661
J .statistic	0.0223	0.0363

In Model 1 the interaction effect of stock market development and bank development on the economic growth is examined through finding wither there is a relation between market capitalization ratio and economic growth , value traded ratio and economic growth, and between turnover ratio and economic growth. And the interaction effect of bank development and the economic growth is examined through finding wither there is a relation between bank credit ratio and economic growth. The entire stock market-bank development variables are included at ones. The model is examined using GMM estimation. Sargan test of overidentifying restrictions which is asymptotically distributed as chi-square under the null of instruments validity. The null hypothesis of the Serial Correlation LM Test is (no serial correlation in the residuals); which according to the probability can't be rejected. All estimations were carried out using the E-Views program.

*, ** Significant at 0.05 and 0.10 respectively.

transformation role of the financial system, thus limiting long-term investment and the growth process.

TR and *BCR* both enter positively in the regression by using the one-step and the two-step estimators. The one-step estimator, however, indicates that bank credit ratio enter less significant when controlling for inflation. Our specification tests according to Ramsey test as the results appear in Table 4 indicate that we cannot reject the null-hypothesis of no second-order serial correlation in the differenced

error-term and that our instruments are adequate.

The two-step results in Table 4 are not only statistically, but also economically significant. The two-step results yield a significant positive coefficient of *BCR*, as expected, and statistically significant. Consistent with the economic theory, the results of two-step suggest that bank credit ratio positively influences the change in economic growth. As an indicator for bank development; bank credit ratio can lead to efficiency improvement and development of economic growth due to the fact that bank credit ratio is an instrument for creating investment and consuming opportunities. Further more, bank credit ratio enables developing countries to tap in to foreign investments and opens the doors to global networks. Thus, possible implications for MENA countries would be to develop and explore the possible channels through which finance influences will foster economical growth.

Many studies have proved that various measures of the level of financial development are strongly associated with real per capita GDP growth, the rate of physical capital accumulation, and improvements in the efficiency of which economies employ physical capital. Furthermore, the predetermined component of financial development is robustly correlated with future rates of economic growth, physical capital accumulation, and economic efficiency improvements (Levine and Ross, 1993).

This result is consistent with different studies for empirical evidence of the positive impact of financial development. According to King and Levine (1993), these results focus on economic growth. If Jordan's turnover ratio had been at the average of the MENA countries 42% instead of the actual 16% during the period 1987-2007, it would have grown 0.6 percentage points faster per year. These results suggest that both bank and stock market development have an economically large impact on economic growth. Both bank development and stock market development enter individually significantly.

Panel B in table 4, shows also a significant and positive relationship between TR and growth. According to the two-step results, TR has a positive coefficient of which reflects the important affect of turnover ratio on growth. Turnover ratio measures the value of equity transactions relative to the size of equity market and it complements the measure of stock market size since markets could be large and not active. High turnover ratio can be used as an indicator for low transaction costs; as a result, it can motivate investments by creating oppor-

tunities. This result is consistent with different studies (Levine and Beck, 2002), (Levine and Zervos, 1998).

Overall, these results suggest an independent link between growth and both stock market (turnover, value traded) and bank development (bank credit). Therefore the two-step system estimator seems to offer a particularly useful assessment of the stock market, bank and growth relationship.

Conclusions and Recommendations

This study analyzes the effect of stock market development and bank development on economic growth in six countries in the MENA region during the period 1987-2007, using the GMM Method. In sum, the results strongly reject the notion that overall financial development is not important or harmful for economic growth. Using panel specification, the data rejects the hypothesis that financial development is unrelated to growth. Stock market development and bank development enter the economic growth regression significantly using alternative conditioning information sets and alternative panel estimators. The results are consistent with theories that emphasize an important positive role for financial development in the process of economic growth.

The findings suggest that banks provide different financial services from those provided by stock markets in the selected MENA countries, which provides evidence of the complementary relationship between stock markets and banks. The result is consistent with results in previous research (Levine and Beck, 2002), (Levine and Zervos, 1998).

The weak significance between financial development and economic growth (using the one-step estimator) can be explained by the threshold effects, which indicates that most of the MENA countries are still in the transition period and need to reach a certain level of financial development (a threshold) before there is a strong effect on economic growth.

Further research on this topic is important. Researchers could extend the sample by using sufficiently low-frequency data; despite that the two-step system estimator seems to offer a particularly useful assessment of the stock market, bank and growth relationship; two-step results can break down the relation between bank credit and growth when moving to annual data. Given recent work, however, this conclusion is not surprising. Loayza and Ranciere (2002) find that short-run dynamics in bank credit are good predictors of banking crises and slow growth, while high levels of bank

credit over the long-run are associated with economic growth.

In addition to extending research, excessive efforts should concentrate on activating the credits for private sector in MENA region. Despite the current financial crisis; economic stimulus - coming from rising regional governments spending, the ever expanding private business sector is becoming the growth engine. Inspired by emerging economic reforms, both private and foreign investors are gradually increasing across all sectors, including financial services, and the economic cities. If the rate of economic reform is maintained, the prospects for sustained private investment growth may prove to be promising.

Therefore, setting policies to encourage the private sector to become more involved and participate in economic development for MENA countries, is considered an objective that can be achieved through decreasing interest rates on loans to allow and encourage the private sector to become involved in the economic development process which will be reflected on the long run growth in these countries.

Moreover, data problems plague the study of finance and growth in general. Perhaps the biggest data problem involves the empirical proxies of "financial development," because it is difficult to construct accurate, consistent measures of financial development for a broad cross-section of countries.

Thus, more microeconomic-based studies that explore the possible channels through which finance influences growth will foster a better understanding of the finance-growth nexus. Without ignoring the weaknesses of existing work and the need for future research, the consistency of existing empirical results across different data sets and statistical procedures suggests that finance plays an important role in the process of economic growth.

Appendix A

Table (2)
Descriptions and Sources of the Variables

Variable	Descriptions and data sources
Dependent variable	
GDP growth rate (PCGDP)	PCGDP = $[(GDP_t - GDP_{t-1})/GDP_{t-1}]$* 100 Subscript t denotes time period t. Where PCGDP is the real per capita GDP growth rate, GDP_t is the per capita GDP in current year (t). And GDP_{t-1} is the per capita GDP in (t-1) the previous year. The GDP time series are constant prices and, for the markets of Jordan, Morocco, Oman, Tunisia, Egypt and Turkey (countries in MENA region), all series are seasonally adjusted. The yearly GDP series are taken from International Financial Statistics (IFS), DataStream International and from International Finance Corporation
Independent variables	
A) Stock Market Indicators *Indicators of market size*	
Market capitalization ratio (MCR)	%MCR = (MC_i/GDP) *100 Where MC_i Subscript i denotes country. MC_i is the value of listed domestic shares on the market. This indicator is expected to be positively correlated with the ability to mobilize capital, diversify risk. The data are taken from International Financial Statistics (IFS), DataStream International, and from the IFC.
Indicators of market liquidity	
Turnover Ratio (TR)	%TR = (VT/MC)*100 Where TR is Turnover ratio, VT is the value of trade in domestic shares. MC is the value of listed domestic shares. This Indicator measures the value of equity transactions relative to the size of equity market and it complements the measure of stock market size since markets could be large and not active. Turnover also complements the measure of value traded since markets could be small but liquid. In addition, high turnover ratio will be used as an indicator of low transaction costs.
Value traded ratio (VTR)	%VTR = (VT/GDP)*100 Where VTR is Turnover ratio, VT is the value traded ratio, where domestic VT is the value of trade in domestic shares. And GDP as mentioned above is the gross domestic product. This indicator measures the value of equity transactions, it captures trading relative to the size of the economy, turnover measures complements the measure of value traded, thus, small liquid market will have higher turnover and smaller value traded.

Variable	Descriptions and data sources
B) Bank Development Indicators	
Bank Credit Ratio (BCR)	%BCR = (BC/GDP)*100, Where BCR is Bank Credit Ratio. BC is the value of loans made by deposit money bank to the private sector. And GDP is gross domestic product. Bank credit ratio equals the value of loans made by deposit money banks to the private sector divided by GDP. Bank Credit ratio improves upon traditional financial depth ratio measures of banking development by isolating credit issued by banks to the private sector as opposed to credit issued to governments or other intermediaries, and by identifying credit to the private sector as opposed to the credit issued to the governments.
Control Variables	
Macroeconomic Stability Indicators	
Inflation	The yearly rate of inflation equals to the change in consumer price index.
Government Consumption Ratio	%GCR = (GC/GDP)*100, Where GCR is the government consumption ratio. GC is the government consumption. And GDP is the gross domestic product. So GCR is equal to the government consumption as a share of GDP.
The Degree of Openness of an Economy	% OTR = (EX + IM)/GDP*100, Where OTR is the openness of trade ratio, EX is exports of goods and service, while IM is imports of goods and service. And GDP is gross domestic product. This measure is used, as a control variable since the study believes that openness of trade is an important determinant of economic growth.

Appendix B

Description of the GMM estimation

Generalized Method of Moments (GMM): GMM was proposed by (Hansen, 1982), (Hansen and West, 2002) they have considered the contribution to the analysis of economic time series of the GMM estimator.

Unlike maximum likelihood estimation, the GMM is a robust estimator because it does not require information of the exact distribution of the disturbances. It only requires some specification of certain moment conditions. A main requirement of the GMM estimation is to write the moment condition as an orthogonality condition between an expression including the parameters and a set of instrumental variables. The GMM estimator selects parameter estimates so that the sample correlations between the instruments and disturbances are as close to zero as possible. The estimated parameters are consistent and asymptotical normal.

The starting point of GMM estimation is a theoretical relation that the parameters should satisfy. The idea is to choose the parameter estimates so that the theoretical relation is satisfied as "closely" as possible. The theoretical relation is replaced by its sample counterpart and the estimates are chosen to minimize the weighted distance between the theoretical and actual values. GMM is a robust estimator in that, unlike maximum likelihood estimation, it does not require information of the exact distribution of the disturbances. In fact, many common estimators in econometrics can be considered as special cases of GMM.

The theoretical relation that the parameters should satisfy are usually orthogonality conditions between some (possibly nonlinear) function of the parameters $f(\theta)$ and a set of instrumental variables z_t:

$$E(f(\theta)'Z) = 0,$$

Where θ are the parameters to be estimated.

The GMM estimator selects parameter estimates so that the sample correlations between the instruments and the function f are as close to zero as possible, as defined by the criterion function:

$$J(\theta) = (m(\theta))'Am(\theta)$$

Where $m(\theta) = f(\theta)'Z$ and A is a weighting matrix. Any symmetric positive definite matrix A will yield a consistent estimate of q. However, it can be shown that a necessary (but not sufficient) condition to obtain an (asymptotically) efficient estimate of is to set A equal to the inverse of the covariance matrix of the sample moments m.

Many standard estimators, including all of the system estimators provided in EViews, can be set up as special cases of GMM. For example, the ordinary least squares estimator can be viewed as a GMM estimator, based upon the conditions that each of the right-hand variables is uncorrelated with the residual(6).

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(6) The [EVIEWS 5 Users Guide] pdf describes the technical use of "Generalized Method of Moments (GMM)" in greater detail.

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الملخص

التطور المالي والمصرفي في عينة من دول الشرق الأوسط وشمالي أفريقيا

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تختبر هذه الدراسة تأثير تطور القطاع المالي والمصرفي على النمو الاقتصادي لعينة من الدول المختارة من الشرق الأوسط وشمالي أفريقيا (MENA)، وذلك خلال الفترة (١٩٨٧–٢٠٠٧). ويتم قياس تطور القطاع المالي وسوق الأسهم من خلال (Discretionary Accruals)، حيث تستخدم الدراسة نسبة الائتمان المصرفي مؤشراً للتطور المصرفي. وباستخدام طريقة العزوم المعممة (GMM)، تشير النتائج الى الدور المهم لنسبة الائتمان المصرفي في مراقبة التطور المصرفي. كما أظهر المزيد من التحليل أن سوق الأسهم ذات تأثير مهم في النمو الاقتصادي؛ وهذه النتيجة متوافقة مع دراسة (Levine, 1991) التي تنص على أن السيولة في سوق الأسهم تسهل الاستثمار طويل الأجل، والذي بدوره يحسن من تخصيص رأس المال، وهو الأمر الذي يحفز النمو في المدى الطويل.

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