

NOTE DE RECHERCHE

Technological and Regulatory Changes in the Financial In- dustry in the MENA Region: Competitiveness and Growth

Anastassios Gentzoglanis

2007-07

Adresse postale

CIRST
Université du Québec à Montréal
C.P. 8888, Succursale Centre-ville
Montréal (Québec)
Canada, H3C 3P8

Adresse civique

CIRST
Université du Québec à Montréal
Pavillon Thérèse-Casgrain, 3e étage
455, boul. René-Lévesque Est, Bureau
W-3042
Montréal (Québec) Canada
H2L 4Y2

Pour nous joindre

Téléphone : (514) 987-4018
Télécopieur : (514) 987-7726
Courrier électronique : cirst@uqam.ca
Site Internet : www.cirst.uqam.ca

Conception graphique : Marie-Andrée Desgagnés

ISBN-13 978-2-923333-32-8

Dépôt légal - Bibliothèque et Archives nationales du Québec, 2007

Dépôt légal - Bibliothèque et Archives Canada, 2007

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Résumé

Cette recherche examine la relation entre l'activité boursière et la croissance économique dans les pays industrialisés et ceux dans la région MENA (Middle East et North Africa). Des indices mesurant le niveau d'ouverture des marchés financiers et leur croissance sont construits et utilisés afin d'établir les tests de causalité à la Granger et d'identifier des signes précurseurs de croissance économique. Les résultats indiquent que la relation existe seulement pour les pays industrialisés et cette relation n'est pas forte pour les pays de la région MENA. La privatisation, à elle toute seule, quoiqu'essentielle, n'est pas suffisante pour provoquer une croissance économique. L'établissement des institutions solides et des politiques réglementaires claires est nécessaire afin de protéger les intérêts des investisseurs et les inciter à investir dans des actifs réels et financiers dans la région MENA.

Abstract

This article examines the link between stock markets and economic growth in advanced and emerging economies in the MENA region. Indices measuring the degree of financial openness and market development are constructed and used to perform various Granger causality tests to identify predictors of current growth rates. It is found that the link exists only in the group of high income countries but this relationship is rather weak for the low income MENA economies. Privatization alone, although necessary, is not enough to spur economic growth. The establishment of sound institutions and well-defined regulatory policies are needed to protect investors' rights and entice them to invest in real and financial assets in the MENA region.

JEL Classification: F3; F4; G14; G15

1. Introduction

There is a growing theoretical and empirical literature dealing with the effects of privatization on a country's financial system (Kogut and Spicer, 2001; Morgenstern, 1995). The growth of the latter is associated with the country's economic development (Filer et al, 1999; Ross and Zervos, 1996; Klaus and Kugler, 1998). Regulatory reforms and corporate governance are deemed necessary to the creation of an investment environment that attracts foreign capital and local investment (Gentzoglanis, A, 2000, 2001). MENA countries privatized a number of firms during the 90s and in the past few years privatized large-scale infrastructure companies such as telecommunications, energy and transport. As a result of these privatizations, stock market capitalization has dramatically increased, and with it the financial bond markets. Nevertheless, stock markets in these countries are not particularly active and without any further reforms of the banking and financial system most of the stock exchanges will eventually decline and/or shut down altogether. This may affect their future economic growth.

Apparently, countries with better-developed financial systems tend to grow faster than countries with poor and relatively less liquid stock exchanges and weak financial and banking sectors (Levine, 2003). Nevertheless, empirical studies (Levine and Zervos, 1998) have demonstrated that the mere size of the stock market is not enough to foster economic growth. Simply listing privatized companies on the stock exchanges is not enough to spur further real economic activity. It is rather liquidity of stock exchanges that fosters resource allocation and growth. Developed economies such as the United States and France, have a turnover ratio (an

index of stock exchange's liquidity) of approximately 0.5 (or 50%), while less developed economies such as MENA countries (Egypt, Morocco, Turkey, etc.) have a turnover ratio hardly equal to 0.06 (or 6%). While the turnover ratio (domestic stock transactions on a country's national stock exchanges) may be less important for large firms in developed economies, it is particularly relevant for MENA countries mostly dominated by SMEs which heavily rely on *local markets* for their financial needs for expansion (Kmeir, 2003). As economies become more financially integrated and large firms list and issue stocks on foreign exchanges, the development and the location of the stock market are important for the provision of liquidity. MENA countries cannot rely on foreign exchanges to satisfy the liquidity needs of their vulnerable industrial firms. A fundamental question then arises. If economic growth heavily depends on a country's financial development, what are the policies for MENA countries to develop a well-functioning financial system? What are the legal, regulatory and policy changes that would foster the emergence of growth-enhancing financial markets and intermediaries in MENA region?

This paper tackles these issues for a selected number of MENA countries by adopting an empirical approach. The remainder of the paper proceeds as follows. The next section discusses the theoretical underpinnings of the empirical relation that exists between financial development and economic growth. The third section develops the empirical model to be examined for a sample of MENA countries, the data and the econometric techniques to be used. The fourth section presents the results and reports on their quality for MENA countries. Lastly, the final section concludes and offers some policy recommendations.

2. Theoretical underpinnings of the financial effects of liberalisation and the cost of capital for MENA countries

2.1 The theoretical model

Theoretical work has demonstrated the link between a country's financial liberalization and the cost of capital. When a MENA country liberalizes its equity market, its cost of capital will be reduced. Firms' in MENA countries can thus get greater financing opportunities at better terms increasing thereby their international competitiveness. To demonstrate the link, we use Stulz's (1999) partial equilibrium model.

Let's suppose a small MENA economy whose equity market is isolated from the world equity markets (before liberalization of its local financial market). Suppose as well that investors care about the expected return and variance of their investment. Letting $E(\bar{R}_M)$ represent the equilibrium required rate of return on the aggregate domestic stock market before liberalization and r_f the domestic risk-free interest rate. Following traditional mean-variance model formulation, the price of risk is the aggregate risk premium [$E(\bar{R}_M) - r_f$] divided by the variance $\text{VAR}(\bar{R}_M)$ of the aggregate return on the market. The price of risk in a MENA country before liberalization is a constant T and

$$E(\bar{R}_M) = r_f + T \text{VAR}(\bar{R}_M) \quad (1)$$

This required rate of return will change once the domestic financial market is liberalized and the small MENA economy allows its residents to invest abroad and foreigners are allowed to invest locally. Let's suppose that the mean and variance of domestic dividends remain the same after liberalization and the required rate of return on the market after

liberalization is $E(\bar{R}_M^*)$, while the required rate of return on the world equity market is $E(\bar{R}_W)$. With liberalized equity markets, the relevant risk-free interest rate is the world risk-free rate r_f^* .

With liberalized markets, two factors will determine the risk premium on the domestic stock markets: a) the world risk premium [$E(\bar{R}_W) - r_f^*$] and; b) the beta of the domestic stock market with the world stock market (β_{MW}), i.e.,

$$E(\bar{R}_M^*) = r_f^* + \beta_{MW} [E(\bar{R}_W) - r_f^*] \quad (2)$$

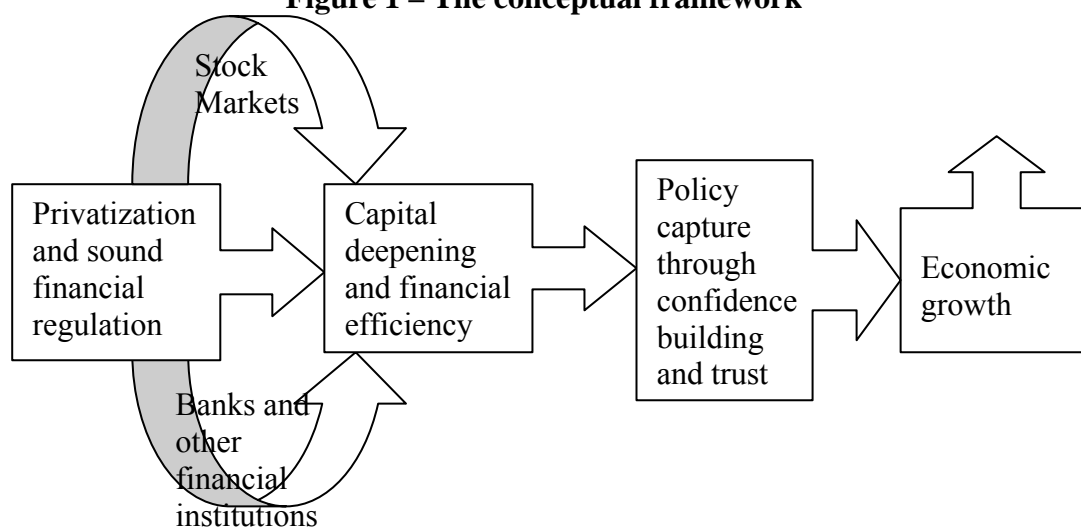
Given the negligible size of the local stock market, the risk premium of the world's portfolio is barely affected by the addition of the stock market of a MENA economy to the world's stock market. Then, [$E(\bar{R}_W) - r_f^*$] = T VAR(\bar{R}_W) and after some mathematical manipulations, we can establish that the required rate of return on the domestic stock market after liberalization is:

$$E(\bar{R}_M^*) = r_f^* + \text{TCOV}(\bar{R}_M, \bar{R}_W) \quad (3)$$

Subtracting equation (1) from (3) we get:

$$\Delta E(\bar{R}_M) = (r_f^* - r_f) + \text{TCOV}(\bar{R}_M, \bar{R}_W) - \text{VAR}(\bar{R}_M) \quad (4)$$

Given the differences in capital endowments between rich and poor countries, it is reasonable to expect ($r_f > r_f^*$), therefore, the first term of the equation is negative. The change in the risk premium is negative as well since the covariance of the local market with the world market, $\text{COV}(\bar{R}_M, \bar{R}_W)$, is necessarily less than the variance of the local market, $\text{VAR}(\bar{R}_M)$. The net result is a reduction in the cost of capital after financial liberalization. Thus, from a theoretical point of view, MENA countries can enjoy a reduction in the cost of capital and local firms can get better financing once their capital markets are liberalized. This is the main thrust behind regulatory reforms and restructuring programmes. This relationship can be captured schematically.

Figure 1 – The conceptual framework

Source: A. Gentzoglani (2003)

Privatization increases the deepening of the stock exchanges while sound financial regulation contributes to the increase of the efficiency of the whole financial system. This results in an efficient capital allocation, higher productivity and finally faster economic growth. Privatization and regulatory reforms create efficient domestic capital markets which can funnel savings to private sector investments (Bekaert, Harvey and Lundblad, 2002) decreasing thereby the cost of borrowed capital given that there is abundance of it for equity issues. It is then expected that, debt finance will decrease. As a result, operational efficiency, competitiveness and solvency are bound to improve. The issue whether the financial activity has any impact on real economic variables is heavily debated among economic theorists and practitioners (Lucas, 1988; Miller, 1999). Recent empirical research tries to resolve this quadron by employing a number of econometric techniques and financial data for developed and developing countries (Levine, 2001, 2002, 2003; Gentzoglani, 2003). In spite of the large number of empirical studies on this issue, there is no unanimity on this debate (Henry, 2003).

2.2 Financial markets and economic growth – Some empirical facts

Emerging and developed stock markets have experienced rapid growth rates during the last decade. Market capitalization in emerging countries has risen from \$488 billion in 1988 to \$2,439 billion by 1999, while the annual trading on their exchanges rose from \$411 billion in 1988 to \$2,439 billion by mid-1999 (IFC, 2002). It is alleged that important structural, technological and institutional changes have triggered the exceptional growth rates in stock markets and in economic development of both developed and emerging economies during this decade. It is important, however, to make a distinction in the way the above changes have affected differently both groups of countries.

Emerging economies, especially the ones in MENA region, have departed from a different economic environment than the industrialized economies. Some MENA countries have adopted liberalization and privatization policies that dramatically affected the structure and performance of their whole economies. Financial liberalization is one policy aiming at promoting market development, which further results in a reduction of the cost of capital for large and small firms (Henry, 2000b; Bekaert and Harvey, 2000). Liberalization policy, although necessary, it is not sufficient to increase growth. Other policies are necessary to achieve this goal. For instance, building institutions and developing the necessary

enforcement mechanisms such as competition authorities and regulatory agencies are deemed necessary for confidence building and the creation of markets that will attract capital to assure sustained levels of high economic growth and the development of capital markets.

There is some evidence that privatization and financial liberalization result in a gradual financial integration because higher returns of local capital markets attract new investments that enhance economic growth. Henry (2000b), reports that the excess returns on the announcement of liberalization policies are around 6% in the first month and 26% in the following 8 months but for some countries these excess returns last longer. Nevertheless, some countries fail to attract investment despite the privatization policies and the liberalization of their financial markets. It is hypothesized in the theoretical and empirical literature that the failure of privatizations to create sustained levels of high economic growth is due to lack of strong institutional and regulatory mechanisms that protect investors. Market reforms cannot create viable financial markets and economic growth. Only the creation of institutions and regulations can.

It is true that the main goal behind the reforms is to spur economic growth. Nevertheless, there is an enduring theoretical debate whether financial developments are the cause of economic growth or the consequence of increased economic activity. There is a scant empirical literature establishing the link between financial development and growth in general and stock markets in particular. These studies regress average growth rates in per capita output across countries on a set of variables controlling for initial conditions and country characteristics as well as measures of financial development (Levine and Zervos, 1996, 1998; Harris, 1977 and King and Levine, 1993). These studies are beset with the notorious problems of causality and unmeasured cross-country heterogeneity in factors such as savings rates and financial sector differences (Caselli et al., 1996).

Admittedly, industrialized countries have more efficient capital markets than MENA and other emerging economies. In an efficient equity market stocks are forward-looking in a sense that current prices reflect the present discounted value of future profits. Future growth rates are thus reflected in initial stock prices. The empirical examination of the link between stock prices and market development should take into account this causality problem. The development of indicators of market development that are independent of stock prices is indicative in this case. Some recent empirical studies (Rajan and Zingales, 1998) tried to circumvent the causality problem by using a number of alternative indicators such as the turnover velocity (the ratio of turnover to market capitalization) and financial deepening (the percentage increase in the number of listed companies). Their findings are consistent with the hypothesis that active capital markets are important engines of growth in emerging economies and the creation and fostering of such markets has an important impact on long-term growth and development.

This article hypothesizes that privatization increases capital deepening which may further lead to economic growth. Privatization alone is not enough though to guarantee such a development. Efficient regulations and the establishment of a playing level field for domestic and foreign business are necessary for the development of active capital markets.

Some MENA countries have gone to a process of massive privatizations which contributed to the deepening of their capital markets significantly. Privatization opened up the market to competition and attracted foreign direct investment in many industrial sectors in general and in the finance and in the banking industries in particular. Yet the performance of

these countries varies significantly despite their privatization policies. We argue that the differences in performance is mainly due to the different regulatory regimes adopted by each country for their banking and financial markets. An empirical comparison of the difference in performance is done for two groups of countries, industrialized and MENA economies. Although differences may exist among countries in the same group, the classification is made according to World Bank's 2001 classification index. It is then possible to have low performers and high performers within the same group of countries.

3. Capital Markets and Regulatory Reforms in MENA Countries

MENA countries have initiated their restructuring and privatization policies since the early 90s. After the timid policies of privatization of some of their manufacturing industries, they went ahead with the privatization of the financial sector and the creation of capital markets borrowing a lot from the European and the USA models. Privatization of major infrastructure industries, such as telecommunications, electricity, gas, water and transport, is a more recent phenomenon.

Table 1
GDP growth rates for regions and countries (1999-2003)

Percentage growth	1999	2000	2001	2002	2003 (forecast)
World production	3.6	4.7	2	2.4	3.5
Industrialized Countries	3.4	3.8	0.7	1.4	2.5
United States	4.1	4.1	0.3	2.3	3
Japan	0.7	2.2	-0.1	-0.4	1
<i>European Union</i>	2.6	3.4	1.5	1.0	2
Germany	1.8	3	0.6	0.5	1.9
United Kingdom	2.1	2.9	1.9	1.6	2.9
France	3	3.6	1.8	1.3	2.5
Italy	1.6	2.9	1.8	0.8	2.3
<i>Emerging Countries</i>	3.9	5.7	3.6	3.8	4.8
Emerging Asia	6.1	6.7	5.2	5.6	6
Latin America	0.2	4	0.1	-1.4	2.8
<i>Central and East Europe</i>	3.6	6.6	4.5	3.2	3.7
Africa	2.6	3	2.4	3	3.1
<i>Middle East (including Turkey)</i>	1.2	6.1	1.5	3	3.5
World trade	5.3	12.6	-0.1	2.1	6.1

Source: <http://www.trading-safely.com/sitecwp/ceen.nsf/vwNL/E8B9CB5DB1B811EAC1256C4E004CB698>

Table 1 compares the performance of some countries in terms of GDP growth in the past few years. MENA countries as a group has managed to realize some important gains in growth but other regions and countries have managed better results at the same period.

Not all countries in MENA have had equal success. Jordan is probably the single MENA country in the group that has managed to do better than the others. Economic growth can be sustained not only by reforming capital markets but by also restructuring the real economy, by promoting SMEs and by attracting more FDI. Tunisia, Egypt and Morocco are lagging behind in restructuring of the real economy and, together with Turkey, have very low levels of FDI despite the almost finalized privatization of their banking sector. As a result, large banks in

these countries have now excess liquidity and difficulties to lend to creditworthy domestic customers. There is a credit crunch which seriously inhibits economic growth.

The importance of institutional mechanisms of government regulation and trust in the creation of well functioning markets is becoming evident from the experiences of the two largest economies, Egypt and Turkey. Not only have these countries failed to experience any respectable positive growth, they have even lost roughly half of their pre-restructuring GDP. They have weak prudent governance with limited competition and regulation and supervision, although formally advanced, remain poorly enforced.

MENA countries have gone through the process of modernization of their stock markets and the establishment of regulatory institutions. Some of the reformers, mainly Jordan, managed to increase the depth of their financial markets and reduce the cost of equity at competitive levels, enough to attract international investments. Table 2 compares the financial market openness of selected MENA countries.

Table 2
Openness of equity markets in selected MENA countries

Country	Liberalization date	1st ADR introduction	Description of liberalization of the capital markets in MENA
Egypt	1992	11/1996	No restrictions on foreign investment in the stock exchange. Foreign investors have full access to Egypt's capital markets (Capital Market Law 95)
Jordan	12/1995	12/1997	Foreign investors are allowed to buy stocks without government approval
Morocco	06/1988	04/1996	Foreign investors were allowed to subscribe to two Treasury bond issues (June 1988); unrestricted repatriation of capital and income from investment
Tunisia	06/1995	02/1998	Partial privatization of inward portfolio investments
Turkey	08/1989	07/1990	Foreign investors can purchase listed securities without restrictions and pay no taxes on capital gains as long as they are register with the Capital Market Board and the Treasury

Source: <http://www.worldbank.org/data>

Egypt The liberalisation and deregulation programmes greatly managed to reform Egypt's financial sector especially after the 1994 privatization of major banks and their listing to Cairo's Stock Exchange. Despite these reforms, the financial market is still dominated by four biggest state banks¹ which control more than half of market activity. In 2001, the privatization of the financial sector was hit by a serious setback when the government announced a banning

¹ MISR, the National Bank of Egypt (NBE), the Bank of Cairo and the Bank of Alexandria.

for joint-venture banks to hold shares in the four biggest banks. Four biggest state-owned insurance companies also dominate the insurance sector². They control much of the market. The 1998 law allows a 100% foreign ownership of insurance companies.

Foreign operations are allowed in Egypt's stock exchange but share performance has been very weak especially after the 11 September attacks and the world economic slowdown. Foreign brokers' transactions fell to a mere 6% in March 2002 from a total 25%. The new Cairo and Alexandria Stock Exchange (CASE) is very narrowly based with just only 100 truly active stocks of the 1 129 listed. The Hermes share index is at its lowest level for eight years.

Morocco Despite the privatization programme, Morocco's stock exchange performs poorly. Such a weak performance is attributed to a number of factors; the government's failure to float some capital of privatized companies on the national stock exchange; the lack of investor interest in emerging markets; the poor results of listed companies; and Morocco's dependence on traditional bank funding. The launch of new indexes³ in January 2002, failed to increase interest in stocks and the stock market failed to revive⁴. In 2001, and despite the government efforts to offer tax incentives, the Casablanca stock exchange remained sluggish. The main share index (IGB) fell 7.4 per cent, after a 15.3 per cent decline in 2000, with 31 per cent fewer transactions (60 per cent fewer in 2000).

Morocco's determination to boost growth through structural reforms is reflected in its efforts to increase transparency in public services by simplifying procedures, obliging government bodies to give account of their decisions, establishing an ombudsman's office, *Al Wassit* (the mediator) and abolishing the privileges of top government officials. Despite the progress, a lot remains to be done⁵.

Tunisia The structural adjustment programme dates back to January 1987 but progress has been slow and the reforms in the financial system are still going on. The banking sector is dominated by many players⁶ and given the small number of savers and investors in the country, business opportunities and banks' profitability is low. However, the new strategy of many secondary development and commercial banks to find market niches and increase their specialization brought some interesting results increasing thereby their holdings of all financial assets in 63.6% in 2000 (in contrast, the development banks held less than 4% in 2000). The commercial banking industry is highly concentrated and the two main state-owned commercial banks (the *Banque Nationale Agricole* and the *Société Tunisienne de Banque*) control more than 40% of all deposits. The *Banque Tunisienne de Solidarité* is the most recent arrival in the sector specializing in micro-credit.

The insurance sector was also reformed by a number of laws in 1992, 1994 and 1997. These reforms aimed at encouraging households to increase their savings rate but these non-

² There are 11 in total.

³ Two new indexes were launched in January 2002; the Moroccan All Share Index (MASI) of 55 quoted companies and the Moroccan Most Active Share Index (MADEX).

⁴ The new indexes, MASI and MADEX fell by 15% and 24% respectively between January 2002 and the end of September. In the first half of 2002, trading volume fell 33% (year-on-year basis).

⁵ On its first national conference on administrative reform entitled *The Moroccan public sector and the challenges of 2010* in May 2002, officials stressed the degree of corruption and disorganisation that still plagues public bodies.

⁶ There are 14 deposit (or commercial) banks, six development (or investment) banks, eight offshore and two merchant banks and about 20 finance companies.

bank financial institutions didn't grow much and currently they do not play a big part in the country's financial system.

The stock exchange activity is very limited and approximately 90% of issues on the primary market are government stocks and debentures of large firms. Lack of interest of foreign investors, the general lack of local interest in financial products and the predominance of small family run firms in Tunisia are some factors that may explain its relatively weak market activity. Table 3 presents the capital market characteristics for MENA countries.

Table 3
Capital Markets development in selected MENA countries in 2001

Capital Market characteristics	Developing countries	Egypt	Jordan	Morocco	Tunisia	Turkey
Market capitalization of listed companies (% of GDP)	38%	28.9%	58.4%	32.7%	14.5%	35%
Stocks traded, total value (% of GDP)	33.5%	11.2%	4.9	3.3	3.2	89.9
S&P/IFC investable index (annual % change)	--	-45.6%	-24.5	-19.1	9	-51.2

Source: <http://www.worldbank.org/data/>

Jordan: Among emerging stock markets, Jordan's is one of the most open to foreign investors⁷ and the most sophisticated among the Arab countries. The Amman Financial Market (AFM) is the fastest growing stock market in the region with a market capitalization close to US\$ 5 billion, representing a market capitalization to GDP close to 77%. The growth rate of market capitalization has been rising by 158% over the last five years. The banking and finance sector leads the market with 54.4% of total market capitalization while the industrial sector is second with 33% of capitalization, with the service and insurance sectors representing 10.3% and 1.5% respectively.

The performance of the stock market is greatly attributed to bold measures taken by the government in June 1997. Jordan introduced a modern Securities Law by which it separated the regulatory function from the technical side of the market. It created a regulatory body, the Jordan Securities and Exchange Commission (JSEC) to organize, develop and monitor the securities market according to internationally accepted and proven standards. This led to an increase in investors' confidence as well as in stocks' activity. The maintenance of a transparent flow of information among market institutions, participants and investors and the creation of sophisticated, professional and efficient organizational and administrative functions of market institutions helped to boost Jordan's financial sector in the region. To further enhance the competitiveness of Jordan's financial sector, the government created four other entities. The Jordan Stock Exchange (JSE), the Jordan Stock Depository (JSD), an

⁷ About 39% of market value is owned by non-Jordanians while the government of Jordan, through the Jordan Investment Corporation (JIC), owns approximately 18% of total market capitalization.

institute to provide proper training concerning dealing in securities, and an association to represent private sector participants in the securities industry in their dealings with the JSEC⁸.

4. Variables, Data and Empirical Methodology

4.1 Data and Variables

The data set used in this study consists of monthly time series observations spanning from 1996 to 2002. The data on stock markets and information on economic and institutional variables were taken from various sources (International Finance Corporation, International Financial Statistics (IMF), and National Stock Exchanges, Federation of European Stock Exchanges, World Federation of Exchanges, The Fraser Institute. Stock market development is measured by three variables: 1) market capitalization over GDP, 2) the variation of listed domestic shares, and 3) turnover velocity. We employ indicators of market development that are not dependent on stock prices. Indicators such as turnover velocity (the ratio of turnover to market capitalization), and financial deepening, i.e., the annual percentage increase in the number of listed companies, are better indicators than market capitalization over GDP for these purposes. Following Morck et al., (2000) and Durnev et al., (2001), we develop synchronicity indices which measure the correlation between individual share return variation with market return variation. Synchronicity indices are constructed for each of five MENA economies (Egypt, Jordan, Morocco, Tunisia and Turkey) and three developed economies (Spain, Italy, Sweden, Canada and France).

Financial markets are less vulnerable to “policy capture” when they are based on confidence and trust. Regulations that safeguard the interests of investors favour informed risk arbitrage in stocks and lead to *asynchronous* stock price movements. *Synchronicity*, a characteristic of less efficient capital markets, may be attributed to factors such as, the low degree of regulation of financial markets, the thinness of stock exchanges (the number of firms listed on the exchange) and institutional environment that poorly protects private property and the rights of individual and institutional investors. Synchronicity is associated with market inefficiencies and low rates of economic growth.

Given that the impact of stock market development on growth is likely to vary across levels of development, we divide our sample of countries into two groups according to per capita GDP (World Bank’s 2001 classification). Thus, in the high income group there are the three industrialized countries, Italy, Spain, Canada, France and Sweden; while in the low-middle income class are the five MENA countries.

Based on the indices on Economic freedom developed by the Fraser Institute and the Heritage Foundation/Wall Street Journal (2003), we calculate an index of *financial market openness* appropriate for examining the impact of regulation and privatization policies on stock market development and growth. The latter takes into account an array of institutional factors determining economic freedom and assigns a score to each of its ten categories (trade, fiscal burden, government intervention, monetary policy, foreign investment, banking and finance, wages/prices, regulation and black market). Although we recognize that all these categories are important and have an impact on a country’s classification as more open or less open, we only take into account the three sub-categories (regulation, foreign investment and banking) to construct an index of a country’s openness of its financial markets. Thus, countries with an average of below 2.5 are classified as having a more open financial market

⁸ A private sector depository and stock exchange.

while the ones with an average between 2.5 and 3.5 as medium financial openness and those above 3.5 are classified as having a less open financial market⁹. Under these criteria, Jordan falls into the second category, but for the purposes of our analysis, it is classified into the low-middle income class of countries.

Table 4
Sample characteristics

	Statistics	GDP growth	Turnover/ Mkt. Capitalization	Mkt. Capitalization/GDP	Change in No of companies
All Countries	Mean	2.26	45.68	0.49	-53.14
	Std. Error	(2.45)	(57.12)	(0.37)	(246.21)
High income	Mean	2.44	67.45	0.95	-24.79
	Std. Error	(1.94)	(65.75)	(0.74)	(132.67)
Low-Middle income	Mean	1.65	31.24	0.31	-113.37
	Std. Error	(1.61)	(30.67)	(0.39)	(176.35)
High Financial Openness	Mean	2.05	54.64	0.39	-28.67
	Std. Error	(3.6)	(59.09)	(0.26)	(254.19)
Low Financial Openness	Mean	3.49	24.53	0.24	7.99
	Std. Error	(3.51)	(21.12)	(0.16)	(24.36)

Table 4 presents the sample statistics for the key variables for the full sample and the subgroups according to per capita GDP and financial market openness. Over the time period under examination, countries with high financial openness grew less than the ones with low financial openness. Furthermore, high income countries have a higher turnover to market capitalization ratio and market capitalization over GDP ratio.

4.2 Empirical Methodology

To test for the direction of causality (stock market development and economic growth) we apply Granger's (1969) prototype causality model where the existence of causal ordering in Granger's sense implies predictability and exogeneity. The following causality analysis is used to detect the direction of information flow among the variables. Suppose X Granger-causes Y but Y does not Granger-cause X, then past values of X should be able to help predict future values of Y, but past values of Y should not be helpful in forecasting X. More specifically, let Y be the economic growth variable and X an indicator of stock market development, while the subscripts t and $t-i$ be the current and lagged values.

$$Y_t = \alpha_0 + \sum_{i=1}^{k_1} \alpha_i Y_{t-i} + \sum_{i=1}^{k_2} \beta_i X_{t-i} + \varepsilon_t \quad (1)$$

and

$$X_t = \gamma_0 + \sum_{i=1}^{k_3} \gamma_i Y_{t-i} + \sum_{i=1}^{k_4} \delta_i X_{t-i} + \xi_t \quad (2)$$

where k is the order of the lag for X and Y¹⁰ and ε_t is white noise vector ($k \times 1$) of random shocks which are independently, identically and normally distributed with mean zero and

⁹ As it must be expected, industrialized countries fall in the first category while the MENA countries into the second category.

¹⁰ The optimal length of the lag structure is tested applying various information criteria (Akaike, 1969; Hannan and Quinn, 1979) as suggested by Hsiao (1981), but we found that more than one lag in either Y or X was never optimal.

covariance Σ . The null hypothesis that X does not Granger-cause Y is that the coefficients $\beta_i = 0$ for $i=1, 2, \dots, k$, which can be determined by a standard F-test.

In this paper the causality terminology is used to indicate the direction of the causal relation among variables. For example, if market capitalization is found to be Granger causing economic growth then it is interpreted as the ability of the market capitalization to contain information on the future course of that variable. In this analysis, we do not claim that Granger type causality should be necessarily interpreted as evidence for a structural causality from the stock market variables to the economic growth.

5. Results

Table 5 reports the results of the empirical estimations. As it might be expected, lagged growth rates are, in general, significant predictors of current growth rates. This is particularly true for high income economies but for low-middle income economies this effect is rather weak. This may be explained by the fact that the low-middle income economies in our sample have experienced unstable macroeconomic conditions and uncertain political outcomes. These countries have difficulties in attracting foreign and local investors alike.

As far as the link between financial variables and growth is concerned, there is a positive relationship between the ratio of market capitalization/GDP and future economic growth. This is what it is expected to happen especially in high income countries which have more efficient capital markets and stocks incorporate future earnings into current prices and therefore market capitalization.

Table 5
Tests of Granger Causality Running from Financial Variables to Growth
(Countries classified by income)

Group of countries		X=Turnover/ Mkt. Capitalization		X = Mkt. Capitalization/GDP		X=Change in No of companies	
		Lagged Y	Lagged X	Lagged Y	Lagged X	Lagged Y	Lagged X
All Countries	Total	0.738** (0.035)	0.004* (0.001)	0.963** (0.014)	0.956** (0.489)	0.597** (0.027)	-0.008* (0.0001)
	Between	0.869** (0.258)	0.009 (0.002)	0.977** (0.067)	1.96** (0.362)	0.786** (0.054)	-0.003 (0.004)
	Within	0.163** (0.064)	0.008** (0.002)	0.75** (0.049)	1.96* (0.658)	0.584** (0.048)	0.00005 (0.00001)
High income	Total	0.573** (0.058)	0.008* (0.003)	0.857** (0.057)	0.825* (0.297)	0.588** (0.076)	-0.0008 (0.002)
	Between	1.218** (0.322)	-0.009 (0.652)	1.337** (0.39)	-0.767 (0.651)	0.947** (0.058)	0.009 (0.004)
	Within	0.778** (0.091)	0.011** (0.005)	0.649** (0.056)	1.897** (0.482)	0.934** (0.068)	0.0008 (0.004)
Low-Middle income	Total	0.759** (0.066)	0.009 (0.045)	0.564** (0.059)	4.716** (0.686)	0.744** (0.067)	-0.0006** (0.0005)
	Between	0.892 (0.692)	-0.009 (0.043)	-0.355 (0.542)	6.936** (1.576)	0.852** (0.0582)	-0.0007 (0.009)
	Within	0.777+ (0.088)	0.054 (0.012)	0.554+ (0.073)	-0.987 (1.943)	0.7310** (0.0721)	-0.00005 (0.00001)

** = Significant at the 1% confidence level

* = Significant at the 5% confidence level

+ = Significant at the 10% confidence level

The link between turnover velocity and future economic growth is present for high-income countries but not for low-middle income countries. Thus, a higher turnover velocity Granger-causes growth but the location of the effect is not the same for low and high income

economies. For the latter category the effect is within countries while for the first group this effect is between countries. This is particularly important for this group of countries suggesting that a more active stock market is associated with growth rates far more significant compared to the presence of less active stock markets. Low income countries can thus increase their growth rates by creating active stock markets. The latter is more likely to happen when these countries abide to strong regulatory and institutional frameworks and judicial systems. It is thus important that the institutional changes initiated by these countries take root and continue to work towards the adoption of more market oriented mechanisms and adopt policies favouring regional and international integration of their markets.

It is time to turn to the link between market deepening as it is measured by the number of listed domestic companies on the stock exchange and future economic growth. As table 5 reports, there is no evidence for such a link. If privatizations increase the number of listed firms on stock exchanges, the latter may not have an effect on growth. As it was mentioned earlier, privatization is a necessary but not a sufficient condition to spur economic growth. Institutional and sound regulatory changes are some other important factors to entice investors to actively participate in real and capital markets.

Table 6
Tests of Granger Causality Running from Financial Openness to Growth
(Countries classified by Financial Openness)

Group of countries		X=Turnover/ Mkt. Capitalization		X = Mkt. Capitalization/GDP		X=Change in No of companies	
		Lagged Y	Lagged X	Lagged Y	Lagged X	Lagged Y	Lagged X
All Countries	Total	0.621** (0.035)	0.010* (0.005)	0.675** (0.041)	1.246** (0.548)	0.875** (0.077)	-0.007* (0.0002)
	Between	0.893** (0.351)	0.008 (0.005)	0.893** (0.074)	1.891** (0.872)	0.979** (0.042)	-0.008 (0.003)
	Within	0.1953** (0.059)	0.008** (0.002)	0.675** (0.072)	1.932* (0.638)	0.679** (0.037)	0.000002 (0.00001)
Highly Opened Financial Markets	Total	0.538** (0.061)	0.007* (0.002)	0.672** (0.097)	0.874* (0.956)	0.697** (0.095)	-0.007 (0.0004)
	Between	0.853** (0.069)	0.010 (0.0005)	0.879** (0.007)	1.793 (0.759)	0.926** (0.034)	-0.006 (0.003)
	Within	0.674** (0.087)	0.009** (0.003)	0.639** (0.069)	1.446** (0.761)	0.656** (0.091)	-0.008 (0.003)
Low Openness	Total	0.5497 (0.837)	-0.097 (0.067)	0.486+ (0.096)	1.956 (2.976)	0.673* (0.052)	-0.0083 (0.074)
	Between	1.854* (0.768)	-0.032 (0.095)	1.598* (0.642)	-2.763 (2.964)	0.879** (0.056)	0.0058 (0.035)
	Within	0.0739 (0.867)	0.054 (0.039)	0.008 (0.341)	-3.881+ (1.759)	-0.074 (0.237)	0.0039 (0.004)

** = Significant at the 1% confidence level

* = Significant at the 5% confidence level

+ = Significant at the 10% confidence level

Table 6 reports the results when the variables representing the openness of financial markets are taken into account. Active stock markets in countries with less open financial markets, do not contribute to economic growth. On the contrary, active stock markets in these countries are used for entrenchment purposes given that corruption is quite prevalent. Stock markets can have a positive effect on growth when they function normally and efficiently. The latter can be safeguarded when these countries can enact sound regulations and institutions. These results are confirmed by a similar study (Filler et al., 1999) realized to examine whether stock markets promote economic growth in emerging and advanced

economies but do not agree with the results found in a study by Harris (1977) which finds that the link between stock market and growth exist only for advanced economies.

6. Conclusions

This article examines the link between stock markets and economic growth in advanced and emerging economies in the MENA region. Indices measuring the degree of financial openness and market development are constructed and used to perform various Granger causality tests to identify predictors of current growth rates. It is found that the link exists only in the group of high income countries but this relationship is rather weak for the low income economies. Privatization alone, although necessary, is not enough to spur economic growth. The establishment of sound institutions and well-defined regulatory policies are needed to protect investors' rights and entice them to invest in real and financial assets in the MENA region. It is possible that in countries with lower openness of their financial system, active stock markets may even thwart growth.

Although the sample examined is rather small, the results are interesting and informative. The conclusions are of great interest to policy makers and civil servants. Capital markets must be assorted with institutions, sound regulations and enforcement mechanisms to provide confidence and trust to individual and institutional investors. Privatization alone, although increases the number of listed firms on the stock exchange, is not enough to provide incentives in investing in financial and real, productive assets of the economy. Economic growth is a more complex phenomenon to be explained with simple empirical models and more data and better empirical techniques are needed in order to be able to shed more light on this question. Nevertheless, this study is in the right direction.

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