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Financial Development, Economic Growth And Poverty Alleviation In Mena Region

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FINAL REPORT

FINANCIAL DEVELOPMENT, ECONOMIC GROWTH AND POVERTY ALLEVIATION IN MENA REGION

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Abstract

Part 1: Financial development in MENA region, in contrast to Eastern Europe

Using the narrower measures of financial depth[1], the results of the first section demonstrate that in the last decade MENA countries have relatively a well developed financial system compared with the European Accession countries.

In fact, while the ratio of M2/GDP has fallen in MENA countries from 78% in 2004 to 60% in 2006, the financial system in MENA countries remains larger, relative to that in the European Accession countries. Similarly to the ratio of domestic credit in the banking system to GDP is larger in MENA countries, compared to that in the European accession countries. However, starting in 2005 efforts to press ahead with financial development has contributed to financial deepening in European accession countries, as measured by the ratio of broad money to GDP, which exceeded that in MENA countries by 7 percent. Similarly, the ratio of private credit to GDP has been growing much faster in European accession countries, relative to the MENA region. Therefore, since 2004 the ratio of private credit to GDP in Eurpean accession countries has exceeded that in MENA countries.

Indicators of the overall size of the financial system have also shown that while European Accession countries have a comparable level of financial development, the financial development level differs significantly across MENA countries.

The evolution of the interest rate spread over the last decade demonstrates that while European Accession countries have exhibited an important efficiency gain[2], MENA countries appear to have the most stable financial system. Since 2000, the efficiency of the financial system in European accession countries has exceeded its counterpart in MENA countries.

As for the development of the banking system, MENA countries are more developed than the European accession countries. In fact, penetration of the banking systems is different with banking sector asset volumes ranging from 44% to 58% in MENA countries. However, in European accession countries the ratio of deposit money bank assets to GDP increased from 30% to 44% in the last decade. Similarly, the ratio of banks' assets to GDP is higher in MENA countries, compared to Eastern Europe. In terms of private credit, MENA countries exhibit also a more developed banking sector compared with European Accession countries. However, the development of the banking sector has grown much faster in European Accessions countries than in the MENA countries. For example, the growth rate of deposit money bank assets to GDP is twice larger compared to its counterpart in MENA countries, which was around 30% in the last decade.

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[1] Three measures are under consideration: the ratio of broad money to GDP, the ratio of domestic credit in the banking sector to GDP, and the ratio of private credit to GDP.

[2] The interest rate spread has fallen from 31% in 1996 to less than 4% in 2006.

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When we consider the evolution of the two indicators of banking sector efficiency, the net interest margin and the overhead cost, we find that although both MENA and European Accession countries have experienced efficiency gains in the last decade, MENA countries remain to have a more efficient banking sector.

In terms of concentration, MENA countries have relatively the most concentrate banking sector compared with European Accession countries. However, since 2005 a reversed trend started to develop.

Following conventions, the development of stock market over time can be examined using the size and the liquidity of the stock market. The evolution of the indicator of stock market size (Market capitalization to GDP) demonstrates that MENA stock markets experienced a rapid expansion starting in 2002, reaching 88% of GDP in 2005, before shrinking close to 73% in 2006. Although they have shown an expansion since 2003, the European Accession countries stock markets remain very small compared with MENA countries. In 2006 the ratio of market capitalization to GDP in European Accession countries was around 25%.

To compare stock market liquidity two different measures are used: the value traded and Turnover ratios. When we consider the first indicator of liquidity, we find that similar to market capitalization, there is a pronounced increase since 2002 in MENA countries in value traded to GDP. However, the ratio has declined from 82% in 2005 to less than 55% in 2006. MENA stock markets are, however, more liquid than the European accession countries; the ratio of the stock market value traded to GDP went from 3% to 9% in the last decade. The second indicator of stock market liquidity also shows that MENA countries have also more liquid stock market, compared with European accession countries. Since 2001 a large increase has been observed in the MENA turnover ratio. However, in Accession countries reverse trends have been observed. In fact, since 1997 the average of turnover ratio has declined from 58% to less than 30% in 2006.

In contrast to other financial sub-sector[3], the evolution of the two indicators of the insurance industry development[4] over the last decade shows that MENA countries have the less developed insurance industry compared with European accession countries. Although the indicators of insurance development have risen in both MENA and Accession European countries, the insurance industry remains very weak in the two regions.

Using the approach and indicators developed by Demirguc-Kunt and Levine (1999) we have examined whether the MENA and Accession economies are bank or market based. Our findings show that MENA countries have relatively the lowest measures of bank capitalization, implying that these economies are more markets-based than the European accession countries. This reflects that Accession European stock markets are very small, very inactive and under-developed, while the country lacks active banks. The measure of financial structure based on efficiency shows also that MENA countries have relatively the highest

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[3] Banking sector and equity markets
[4] Ratio of life insurance premium volume to GDP and the ratio of non-life insurance volume to GDP.

values of trading relative to interest margin, signifying that MENA countries stock markets are more active relative to accession countries.

Finally, when we consider the institutional environment, we find that MENA countries have relatively less developed institutional environment. In fact, MENA countries have the lowest scores of rule of law and corruption and the lowest protection of property rights. A notable decline has been observed in the three indicators of institutional quality in MENA countries, namely the property rights score has declined from 55% in 1997 to less than 38% in 2007.

Part 2: What drives financial sector development in the MENA region?

The study has considered determinants of financial sector development in the MENA region. Four indicators of financial development are under consideration: banks' indicators (liquid liabilities and credit to the private sector) and non-bank indicators (the size of the stock market and its depth). The determinants under consideration include macroeconomic fundamentals (real growth, price inflation, savings, investment, trade openness, and financial liberalization), a fiscal policy indicator (government consumption) and institutional quality indicators (bureaucracy, corruption, and democratic accountability).

In general, growth does not promote banking activity; it promotes development of the stock market. The difference indicates the underdevelopment of the banking system in MENA countries, implying limited efforts to press ahead with further development in response to higher growth. In contrast, a surge in stock market activity has been responsive to higher economic activity that creates opportunities for financial diversification in light of the underdevelopment of the banking system.

Another major difference between bank and non-bank development relates to the role of inflation, which discourages banking activity as agents fear the effect of inflation on the value of liquid assets in the banking system. Alternatively, agents seek more risky opportunities in the stock market as they may perceive potential return as an opportunity to hedge against the risk of higher inflation.

Apparently, the bulk of savings is absorbed outside the banking sector and the stock market. Various development indicators respond negatively to higher savings, implying more attractive opportunities in real estate and other physical assets. The effects of investment are in sharp contrast between bank and non-bank financial development. Higher investment mobilizes resources in the banking sector with positive effects on development indicators. In contrast, investment growth diverts resources away from stock market development.

The impact of trade openness is robust on indicators of bank and non-bank financial development. Across various specifications, openness promotes financial activity in support of more trade integration. Similarly, financial liberalization increases inflows that contribute to further financial development.

Higher government spending crowds out private activity, which hinders financial development. Institutional quality, particularly rule of law, promotes financial development by signalling confidence in the quality of the legal system in support of economic activity.

Overall, the results send strong signals regarding the role of macroeconomic fundamentals and institutional quality in promoting financial sector development. Bank and non-bank sectors appear, in general, complementary with respect to various determinants, necessitating parallel tracks in both sectors to maximize the value added of financial development on economic activity. A more developed financial system would support further growth, promoting even larger and deeper financial sector.

Part 3: The impact of financial sector development on Economic and total factor productivity growth

This project examined the effect of financial intermediary development on economic and productivity growth. We used three econometric approaches. The first, GMM in system dynamic panel estimators, are well designed to correct all the drawbacks of previous studies on finance and growth nexus: simultaneity and omitted variable bias. As a consistency check we use Pooled Mean Group and Mean Group estimators to control for the presence of business cycle. Further, we controlled for business cycle by using 5 year mean variable, we introduced capital market variables to have a complete picture of financial sector development and we excluded MENA oil countries to preserve homogeneity for our estimators.

To sum up, it seems that financial sector development and especially Credit to Private Sector by banks in the MENA region slow economic and total factor productivity growth. It means that reforms should be implemented in the banking sector in order to invert the impact. Additionally, stock markets in the MENA region are not sufficiently developed to positively impact growth and productivity. Therefore, reforms are needed to enable capital market to be growth conducive in the MENA region. Finally, the reduction of inflation and a reinforcement of trade openness are key elements to spur economic and productivity growth in the region.

Part 4: The Impact of Financial Sector Development on Inequality and Poverty: Evidence from MENA Region

The purpose of the study is to examine the linkage between financial development and poverty alleviation with a special focus on the MENA region. Although many empirical works highlight that financial development boost the growth rate of per capita GDP, this finding does not necessary imply that financial development helps the poor and reduces inequality. While data limitation presents a major hurdle, such conflicting predictions seem to hold in MENA countries where there is little evidence that greater financial development is associated with poverty alleviation. Future work needs to examine the linkages between particular policies toward better governance, financial development and poverty alleviation in the MENA region.

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Mondher Cherif, is a professor of International Finance and Economics at the Ecole Supériure de Commerce of Sfax (Tunisia) and the University of Reims (France). He is Associate Professor at EUROMED Management in Marseille. He obtained his Ph.D in Financial Economics and his HDR (habilitation to supervise research) from University of Paris 12. He is the author of many books and papers published in refereed journal with special focus on international finance and private equity.

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Mohamed Goaied is a professor of Econometrics and Applied Econometrics at the Institute of High business Studies in Carthage and Polytechnic School of Tunisia. He obtained his Ph.D in Mathematical Economics and Econometrics from University of Bougogne in Dijon (1988). He served as a Managing Director of The Institute of High Business Studies in Carthage (2002-2005) and is Director of the Laboratory of Applied Economics and Empirical finance at the University of 7 November in Carthage. He is the co-author of many papers published in refereed journal with special focus on Development economics, microeconometrics and empirical finance. He is a fellow of the Economic Research Forum for MENA countries.

Magda Kandil

Magda Kandil received her PHD, Economics degree in 1988. She was made Assistant Professor in 1988, in the Department of Economics, Southern Illinois University. In 1992, she was made Assistant Professor in the Department of Economics of the University of Wisconsin-Milwaukee, shortly after being made Associate Professor until 1997. During 1994 she had been Visiting Associate Professor to the Department of Economics, Justus-Liebig Universitat, Giessen, Germany. From 1997 until 2001 she was Professor at the University of Wisconsin-Milwaukee, and was Chair during 1998-99. Her work with the International

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Part 1:
Financial development in MENA region Vs.
Eastern European Countries

1. Introduction

New theoretical research works show that financial sector development might boost economic growth and empirical evidence tends to provide some support to this assertion. There are at least several ways in which financial system development contributes to economic growth (Pagano 1993, and Levine 1997&2002). First, financial intermediaries may lower the costs of gathering and processing information and thereby improve the allocation of resources. Second, monitoring managers and exerting corporate control will reduce credit rationing and thereby spur growth. Third, financial intermediaries and security markets provide vehicles for trading, pooling and diversifying risk. Finally, financial systems that encourage mobilizing savings by providing attractive instruments and saving vehicles, can profoundly affect economic development.

Recognizing the importance of strengthening and developing efficient financial system, most MENA countries have undertaken financial reforms over the past three decades.This study tries to provide an outline of financial system development in the MENA region in the last decade versus the development of financial system in the European Accession countries.

The first section of this study provides a general overview of financial system development in the MENA countries versus the European Accession countries using recent evidence and traditional financial aggregates. The second section examines banking sector issues in more detail in MENA versus European Accession countries banking sector. The third section briefly examines non-bank-finance, in particular stock market and insurance industry in MENA versus European Accession countries. Using the approach and indicators developed by Demirguc-Kunt and Levine (1999), section four examines whether the MENA and European Accession countries are bank or market based. Section five analyzes the institutional environment in MENA versus European Accession countries. The final section briefly summarizes.

2. Overview of financial systems: MENA versus European Accession countries

There is no uniformly accepted definition of financial development especially when one takes into account countries specifications. There are two main aspects of financial development. One is financial depth, the size of the financial system, and the other is its efficiency.

2.1. Financial depth

The measure proposed in the literature for financial depth has evolved over time, concentrating in the first stage on the banking system and then expanding to the capital markets. Among the narrower measures, the ratio of broad money to GDP (M2/GDP), domestic credit to GDP and the ratio of private credit to GDP.

M2/GDP

The ratio of M2/GDP provides a measure of the size and depth of the financial sector. An increase in this variable signifies a larger financial sector and therefore an expansion in financial intermediation relative to the rest of the economy.

Figure (1) illustrates the evolution of this aggregate over the years 1996-2006 in MENA and Accession countries respectively. MENA countries have relatively a well developed financial system and the M2/GDP ratio has grown much faster than in European accession countries.

While the ratio of M2/GDP has fallen from 78% in 2004 to 60% in 2004, MENA countries have a larger financial system than the Accession countries where the ratio is around 47% in 2004 (Figure 1)

Figure 1: Money and Quasi Money to GDP: MENA countries versus Accession countries
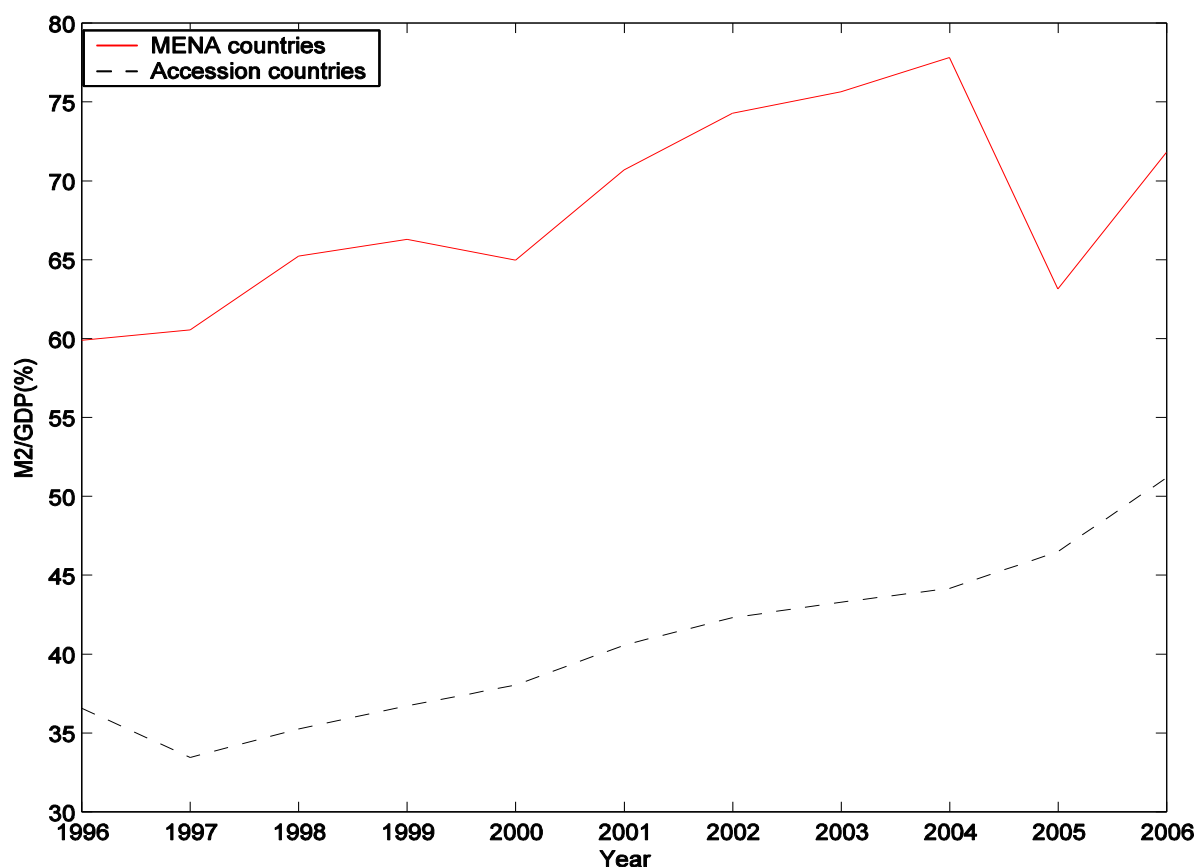
Figure (2) shows that there have been notable differences between MENA countries. In fact, in Lebanon which has relatively a deep financial system, the ratio of M2/GDP is thirteen times larger than in Sudan which was only around 17% in 2005.

However, accession countries have relatively a comparable level of financial development. In fact, in 2005 Czech Republic, which has relatively a deep financial system, the M2/GDP ratio is two times larger than this in Romania (30%) which has relatively the weakest financial system (Figure 3).

Figure 2: M2/GDP (%) MENA countries
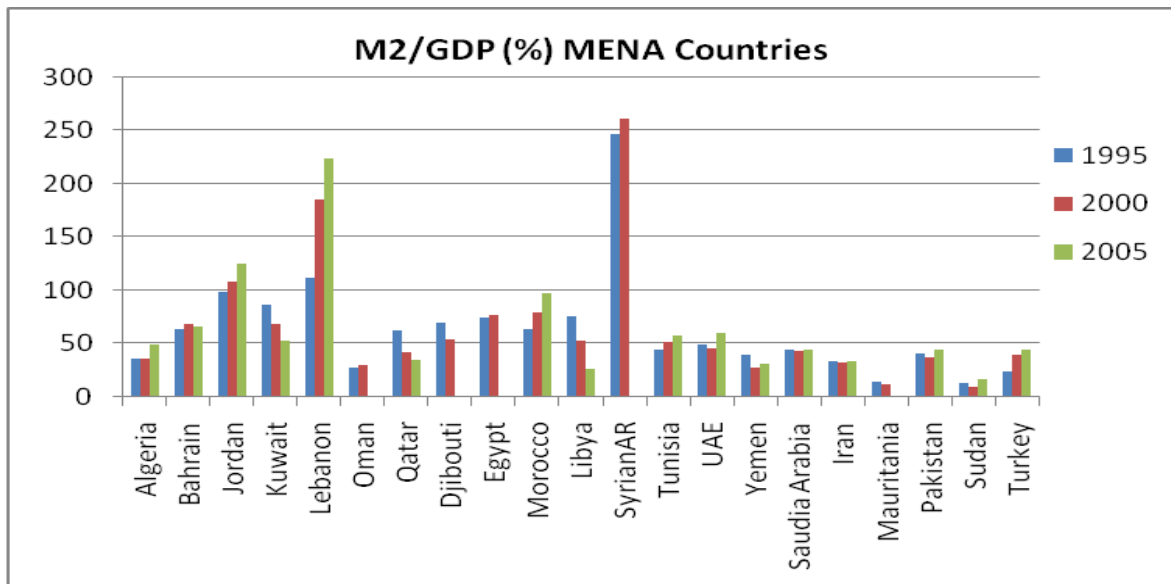
Figure 3: M2/GDP (%) Accession countries
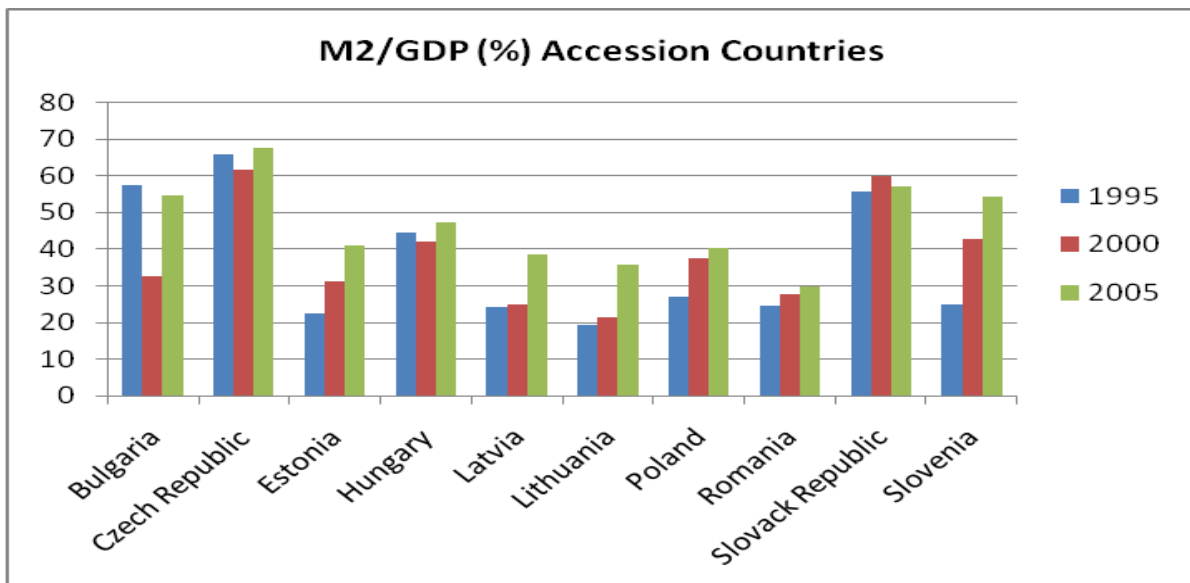
Domestic credit provided by banking sector to GDP

The second indicator of financial size and depth is the ratio of domestic credit provided by the banking sector relative to GDP. Figure (4) shows that in MENA countries the ratio of domestic credit provided by the banking sector to GDP is larger than its counterpart in European accession countries. However, since 2005 the reversed trend has been observed. In fact, the Accession countries ratio has exceeded this in MENA countries by around 7%.

Figure 4: Domestic credit provided by banking sector to GDP
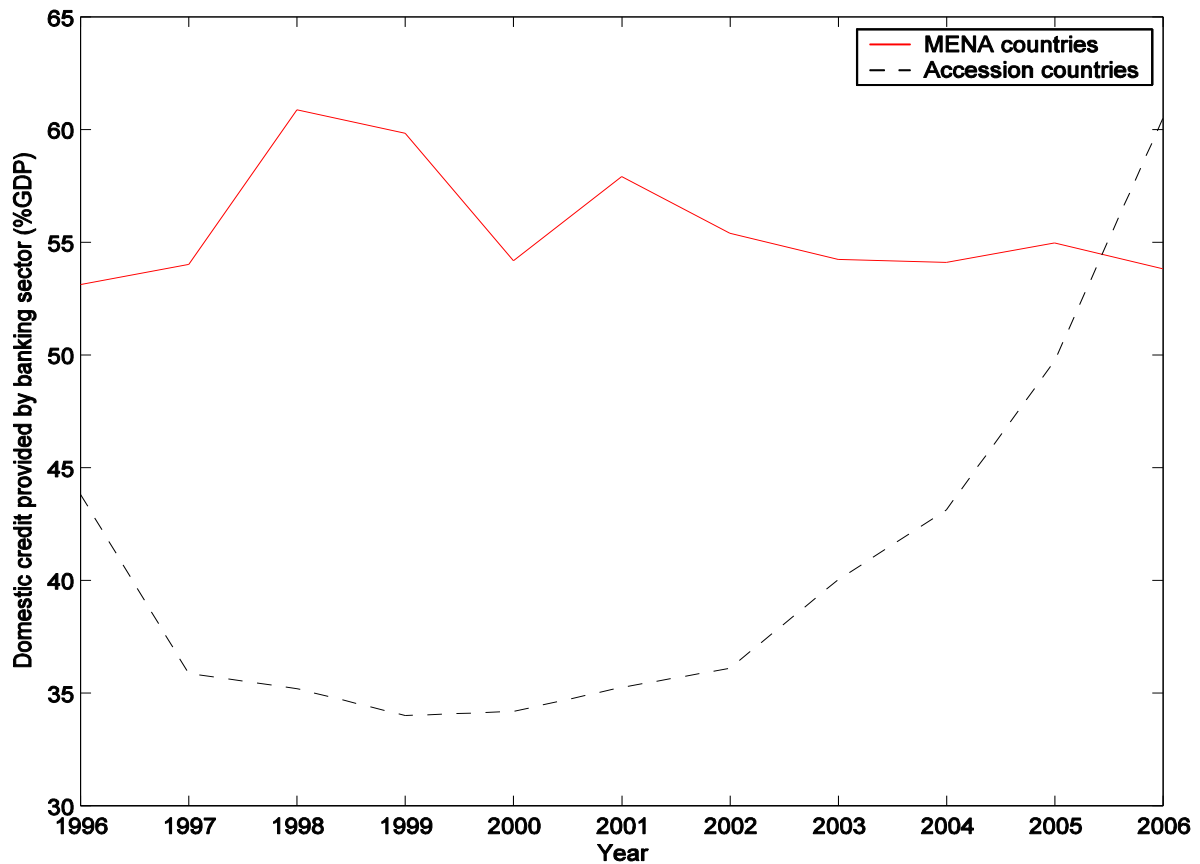
The figure above shows also that the ratio of domestic credit provided by the banking sector to GDP has risen in accession countries from 34% in 1999 to 60.5% in 2006. However, in MENA countries this ratio has declined from 58% in 2001 to 54% in 2006.

Figure 5: Domestic credit provided by banking sector (% of GDP)
MENA countries
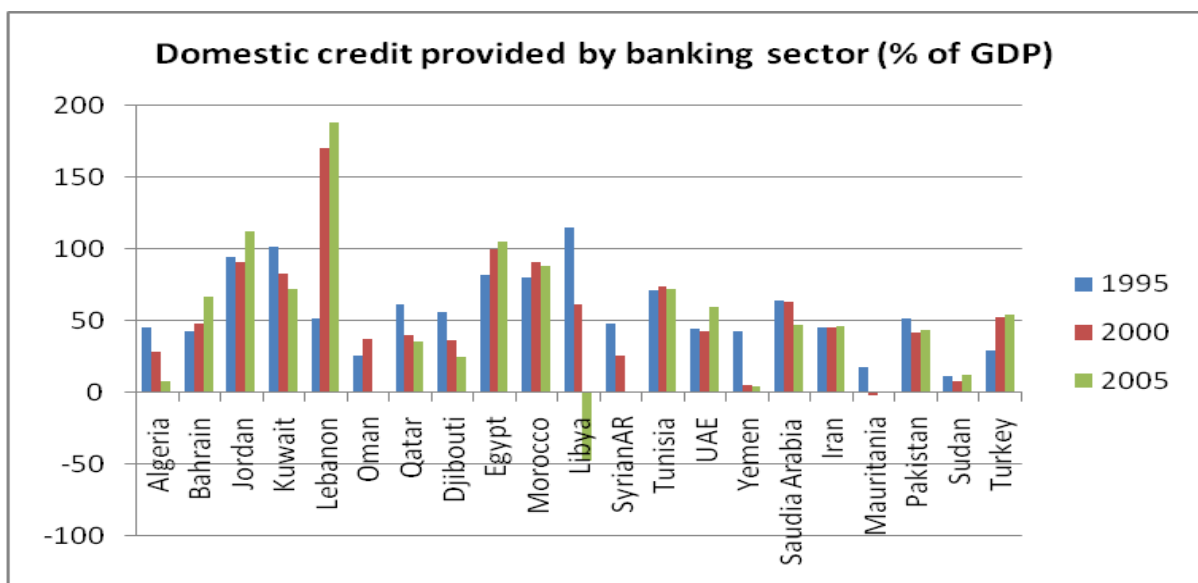
Figure 6: Domestic credit provided by banking sector (% of GDP)
Accession countries
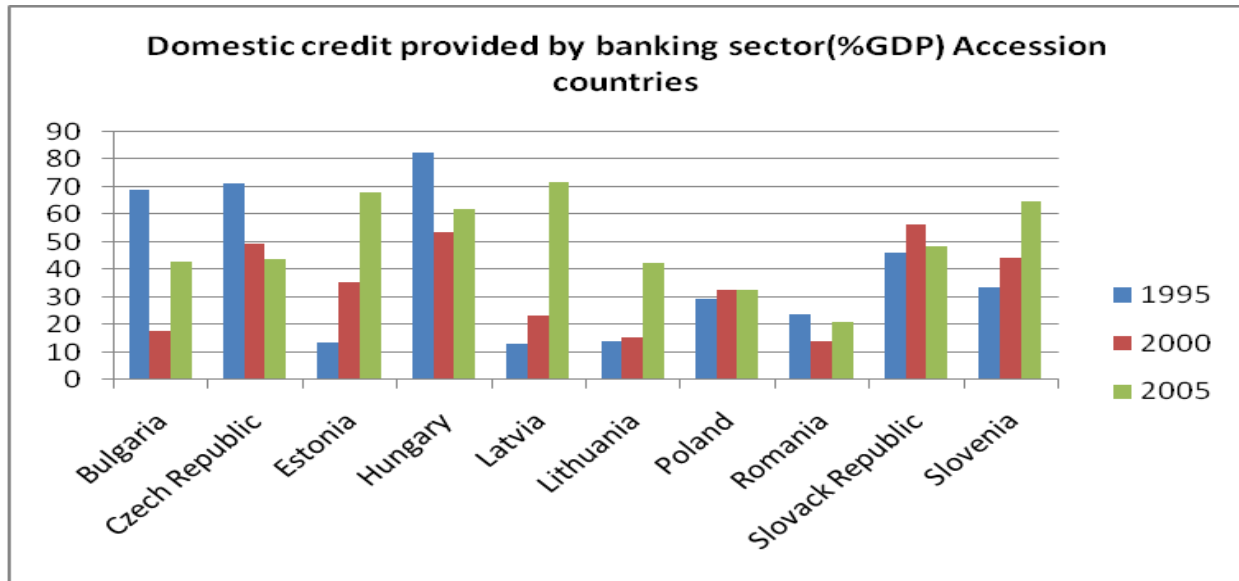
As shown in figure (5), there is a notable difference in the variation of the domestic credit provided by the banking sector to GDP in MENA countries. While the ratio has been increasing since 1995 in several countries such as Jordan, UAE and Turkey, it has been declining for others such as Kuwait, Qatar, Djibouti and Algeria and with a dramatic fall in Libya to -47% in 2005.

The levels of domestic credit provided by the banking sector to GDP are comparable in MENA and European accession countries. The ratio has been increasing in Estonia, Latvia, Lithuania, Poland and Slovenia. In Czech Republic, Bulgaria, and Hungary, the ratio has been decreasing.

Private Credit to GDP

Regarding the ratio of private credit to GDP, figure (7) shows that although this ratio has been growing much faster in European countries than in MENA countries, the latest remain higher which signifies that they have a well developed financial system. However, since 2005 the ratio of private credit to GDP in Eurpean accession countries has exceeded its counterpart in MENA countries. In fact, in 2006 this ratio in the former group was twice the counterpart in 2001, which was around (25%). In contrast, in MENA countries the ratio of credit to GDP fell to less than 40% of GDP in 2006.

Figure 7: Domestic credit to private sector to GDP
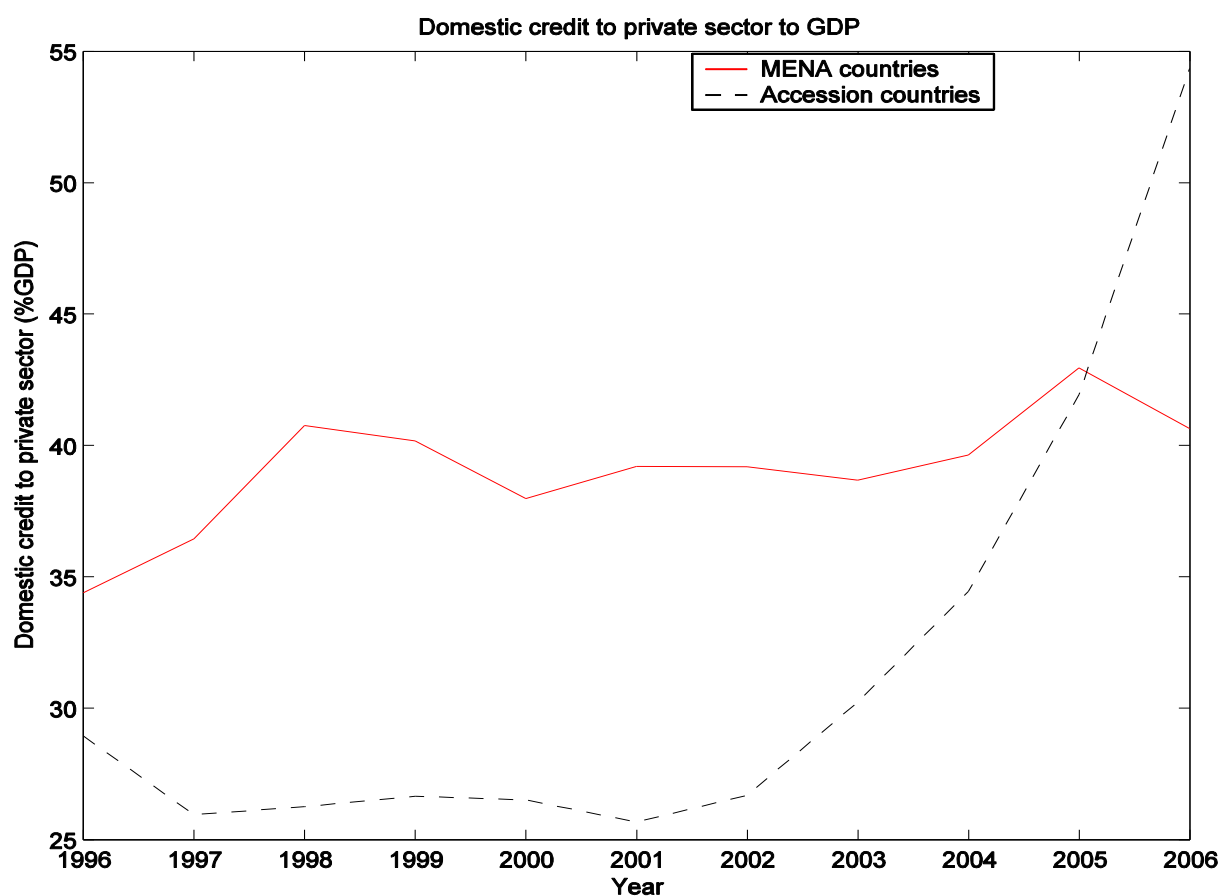
Differences among MENA financial systems are starkling when comparing domestic credit to private sector to GDP. They range from levels over 90% in Jordan and Lebanon to levels below 10% in the least financially developed group (Sudan and Mauritania) (Figure 8)

For the rest of countries, financial depth has fallen in Libya and Djibouti in the range of 20%-8%. In Morocco, UAE, Kuwait and Iran the financial depth has risen in the range of 60%-40%.

In Accession countries, financial depth has risen in Estonia, Hungary, Latvia, Lithuania and Slovenia in the range of 50%-58%. However, in Czech Republic domestic credit provided to private sector has fallen to less than 37% of GDP in 2005 (Figure 9).

Figure 8: Domestic credit to private sector (% of GDP) MENA countries
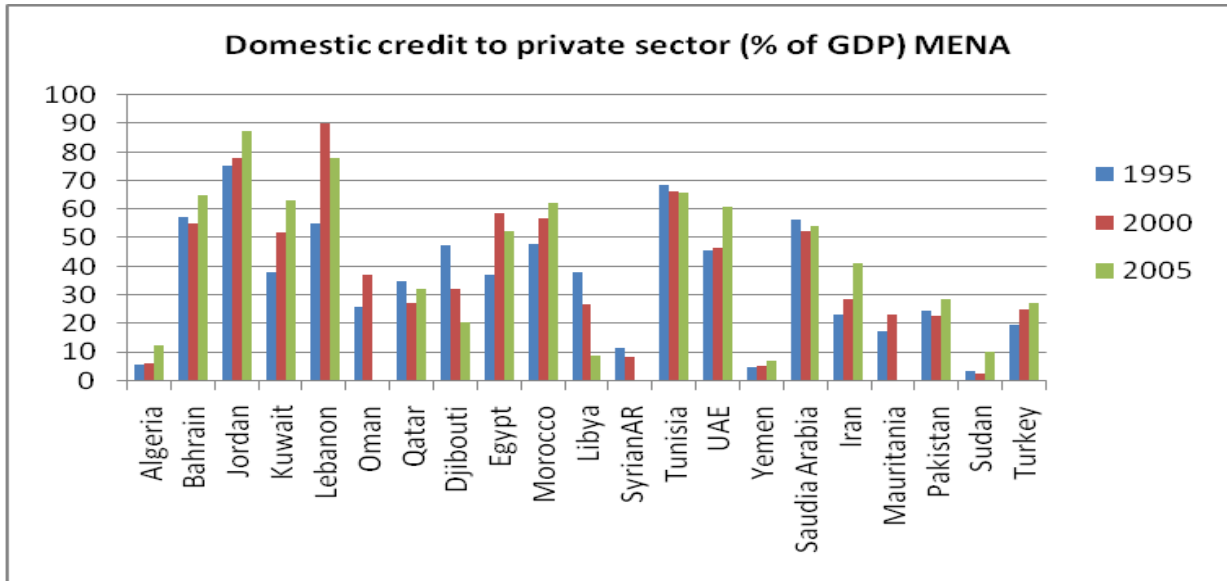
Figure 9: Domestic credit to private sector (% of GDP) Accession countries
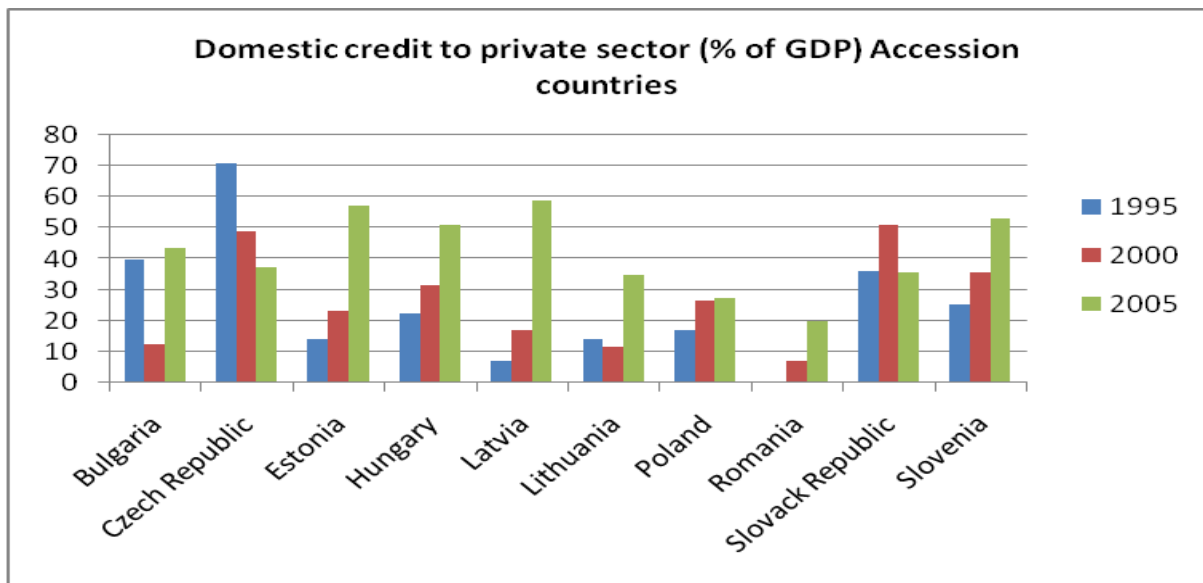
In summary, we can conclude that despite lack of important progress of financial depth in MENA countries, it still compares favorably with Accession countries where their financial system grew faster.

2.2. Financial system efficiency

We now concentrate on the competitiveness and efficiency of financial system. Interest rate spread can give a measure of financial system competitiveness and efficiency. Figure (10) illustrates the evolution of this aggregate over the last decade for MENA and Accession countries respectively. MENA countries appear to have relatively more stable financial system, while, European accession countries show the efficiency gains. In fact, the spread has

fallen from 31% in 1996 to less than 4% in 2006. Therefore, since 2000 Accession countries financial system efficiency has exceeded this in MENA countries.

Figure 10: Interest Rate Spread
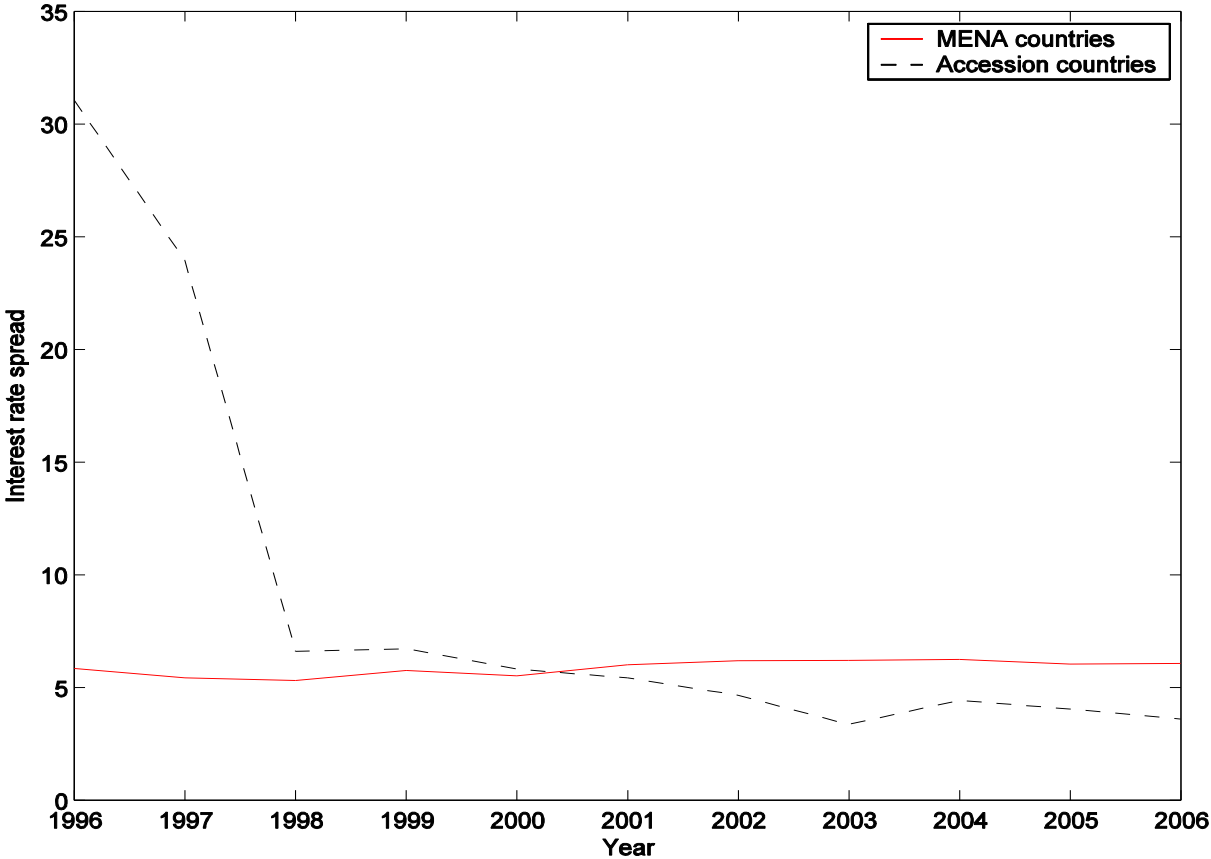
As shown in figure (11), except for Lebanon where the spread has been declining from 8% to less than 2% in the last decade, there is no sign of efficiency gains in the other MENA countries. In fact, the spread has increased in Algeria, Kuwait, and Syrian Arab Republic. Mauritania performs poorly in terms of financial system efficiency where the spread is around 13% in 2005.

However, figure (12) shows that the spread has been declining over the last decade in most Accession countries and especially in Bulgaria and the aggregate figure has declined from 43% in 1995 to less than 5.57% in 2006 this could be considered as efficiency gains.

Figure 11: Interest rate spread in MENA countries
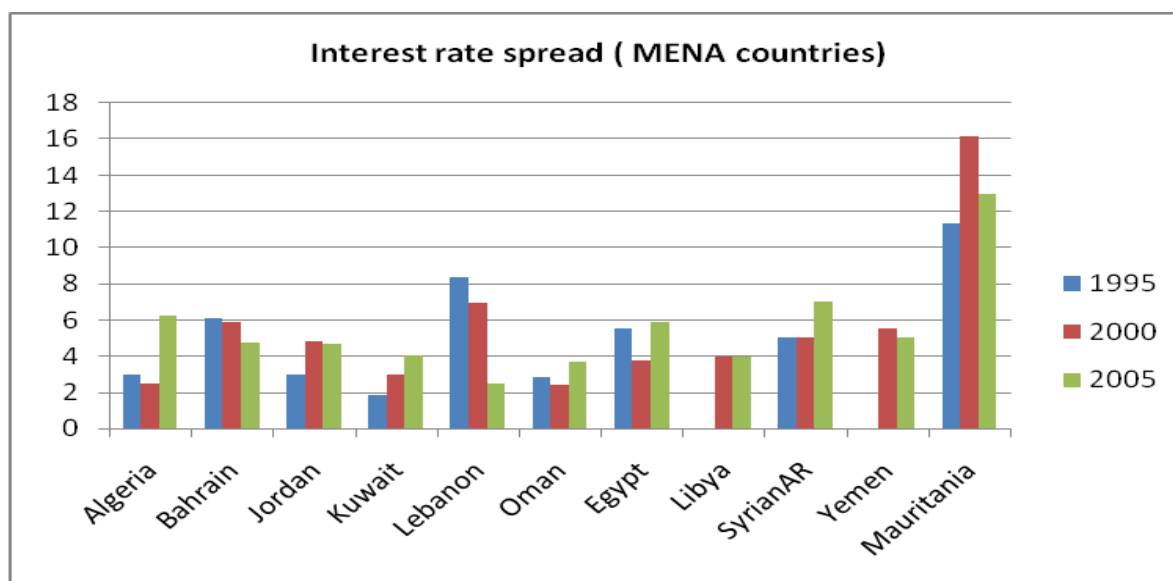
Figure 12 : Interest rate spread in Accession countries
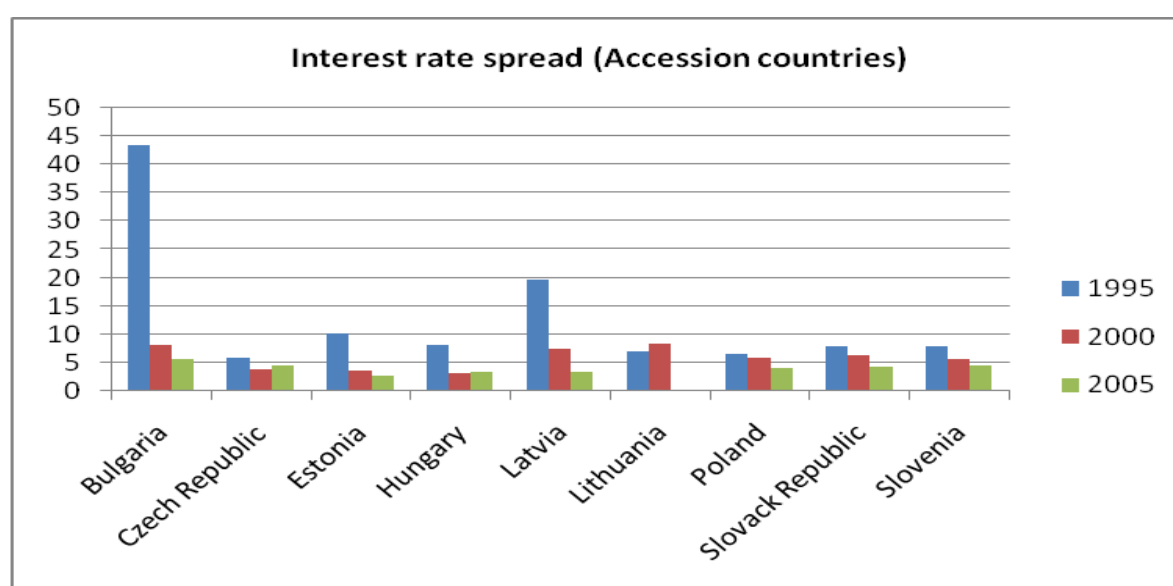
2.3. Banking Sector

Now, we concentrate on the banking sector and on measures of efficiency, assets quality rather than development.

2.3.1. Banking sector development

As regards banking system development, MENA countries are more developed than the European accession countries. In fact, penetration of banking systems is different with banking sector asset volumes ranging from 44% to 58% in MENA countries. However, in

European accession countries the ratio of assets in deposit banks to GDP increased from 30% to 44% in the last decade (Figure 13). Similarly, in MENA region the deposit to GDP ratio is the highest. In terms of private credit, MENA countries also show a more developed banking sector compared with Accession countries.

While MENA countries have a more developed banking sector, the development of the banking sector has progressed much faster in European countries than in the MENA region. In fact, the growth rate of financial assets in deposit banks to GDP in accession countries is twice its counterpart in the MENA region, around 30% in the last decade. As for private credit the growth rate is around 46% in MENA countries. In contrast, in European accession countries this rate was around 81% in the last decade.

Figure 13: Banking sector development
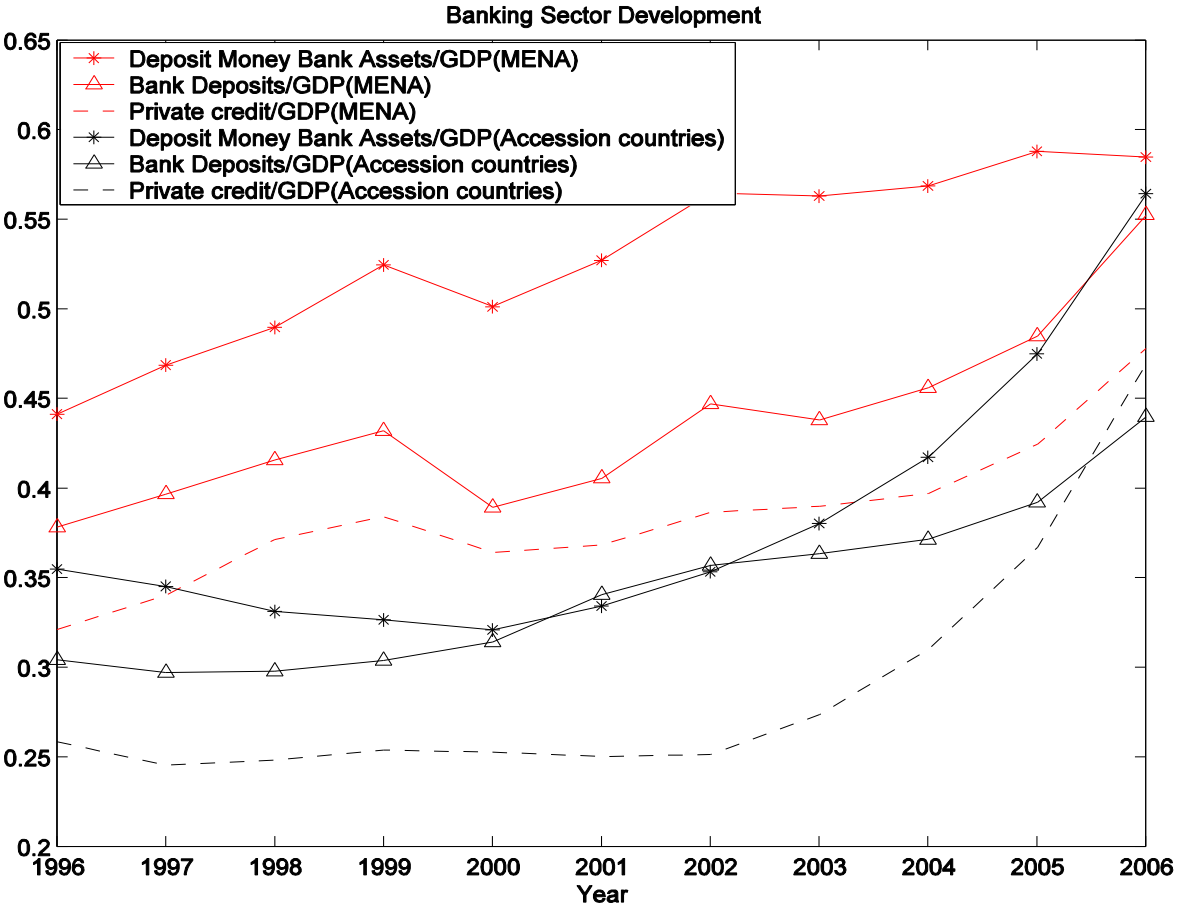
Figures (14 and 15) show that among the MENA countries, Jordan has relatively a well developed banking sector followed by Egypt and Iran. However, Mauritania and Sudan have relatively a weak banking sector. Tunisia and Morocco banking systems have moderate level of development, although the ratios of assets in deposit banks to GDP and bank deposits to GDP have risen in the last decade. Jordan has also the most developed banking sector in terms of private credit, followed by Tunisia, with a ratio of bank credit to GDP of around 62% in 2006. However, Algeria has the lowest ratio (Figure 16).

Figure 14: Deposit Money Assets/GDP in MENA countries
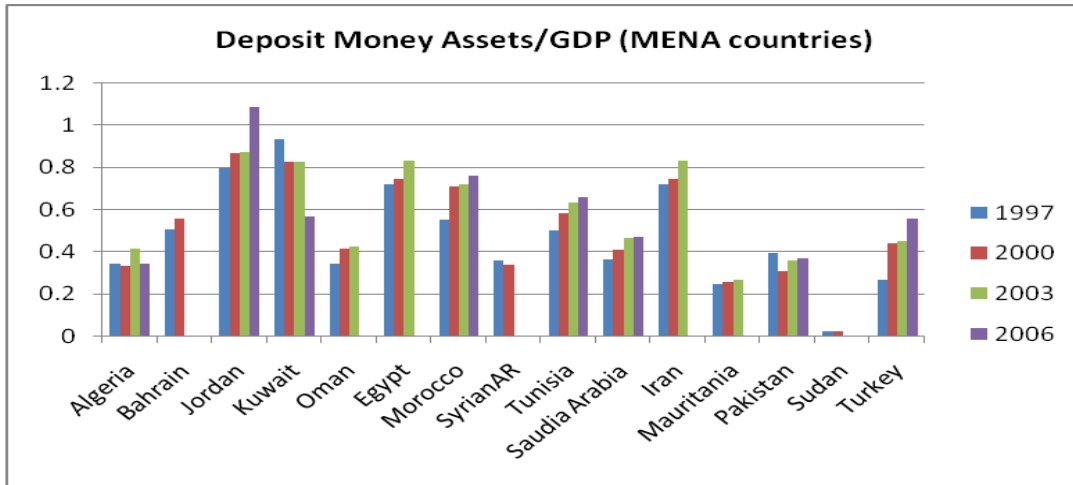
Figure 15 : Bank deposit/GDP in MENA countries
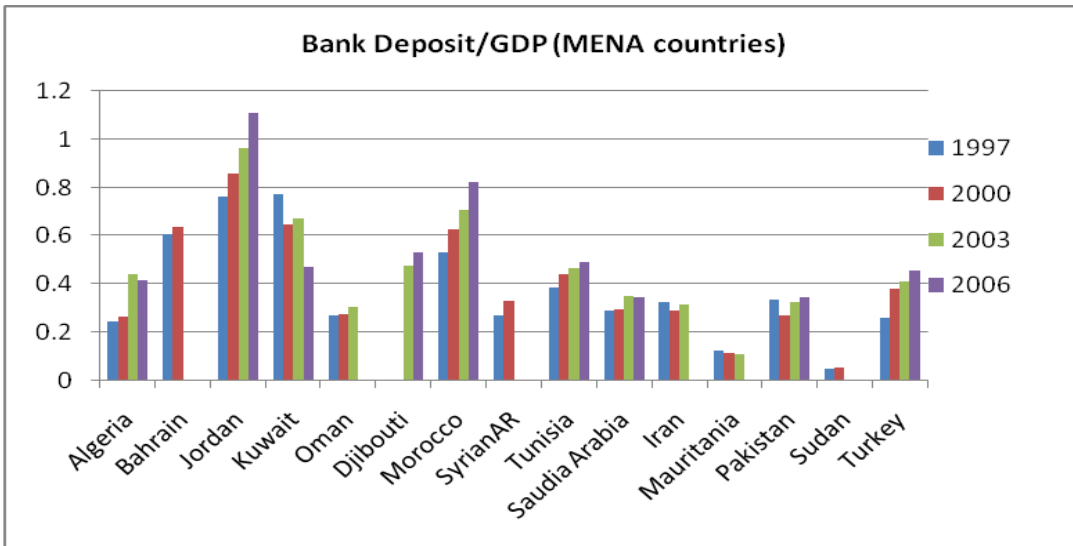
Figure 16: Private credit/GDP in MENA countries
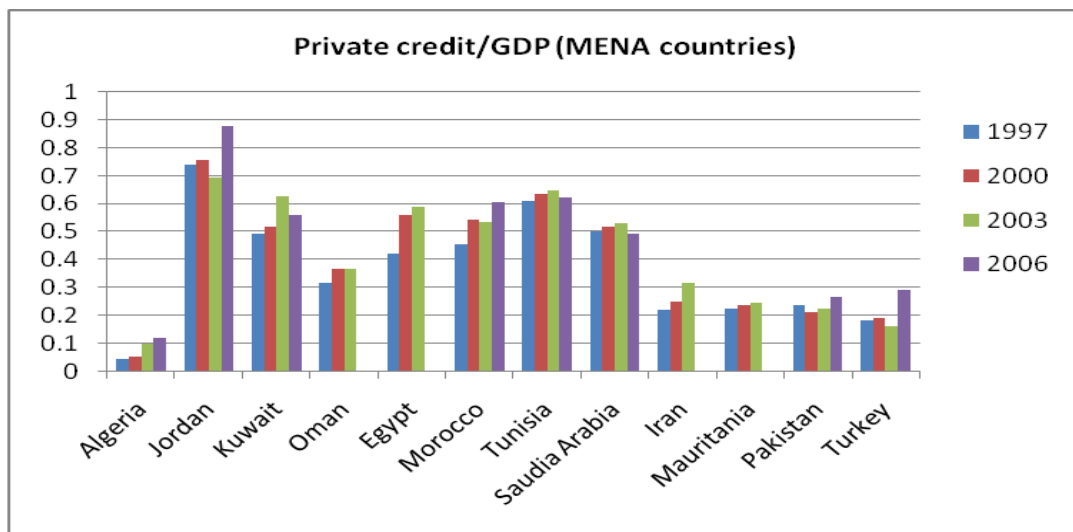
2.3.2. Bank Efficiency and competitiveness

According to Demitguc-Kunt and Levine (1999) we consider two measures of banking sector efficiency and competitiveness: the Bank Net Interest Margin and the Overhead Cost.

The Net Interest Margin

Net Interest Margin is given by the bank net interest margin income as a share of total assets. Higher values of net interest margin indicate a higher spread in deposit and lending rates and therefore lower efficiency.

Figure (17) illustrates the evolution of the net interest margin on average in MENA and European accession countries respectively over the last decade.

Compared to European countries, MENA countries have a more efficient banking system. In general, although the net interest margin has been increasing between 2000 and 2001, MENA countries have shown efficiency gains in the last decade. In fact, this indicator of bank efficiency has fallen from 0.046 in 2001 to less than 0.032 in 2006. In Accession countries the net interest margin has also declined from 0.055 in 2000 to less than 0.037 in 2006, which is a sign of an important efficiency gain.

Figure 17: Net Interest Margin MENA vs Accession countries
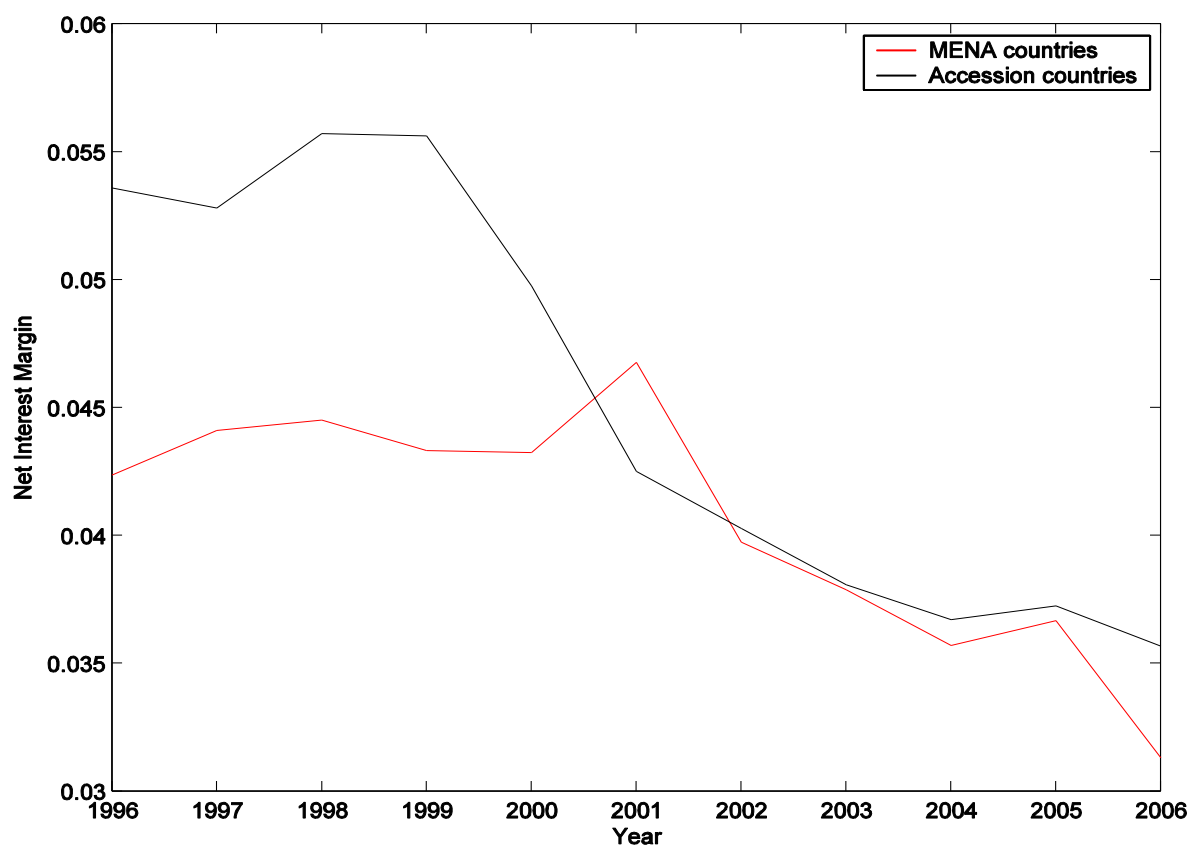
Among the MENA countries, Egypt has a more efficient banking system, followed by several Gulf countries such as Bahrain, Kuwait, Qatar and Saudi Arabia. Turkey has the least efficient banking sector, in spite of the decrease of the net interest margin since 1996 to less than 0.06 in 2006 (Figure 18).

Banking sector efficiency in Tunisia, Yemen and Jordan compares favorably with European accession countries. In 2006, the net interest margin has fallen in Morocco and Lebanon to less than 0.04 and 0.02 respectively.

Figure 18: Net interest margin in MENA countries
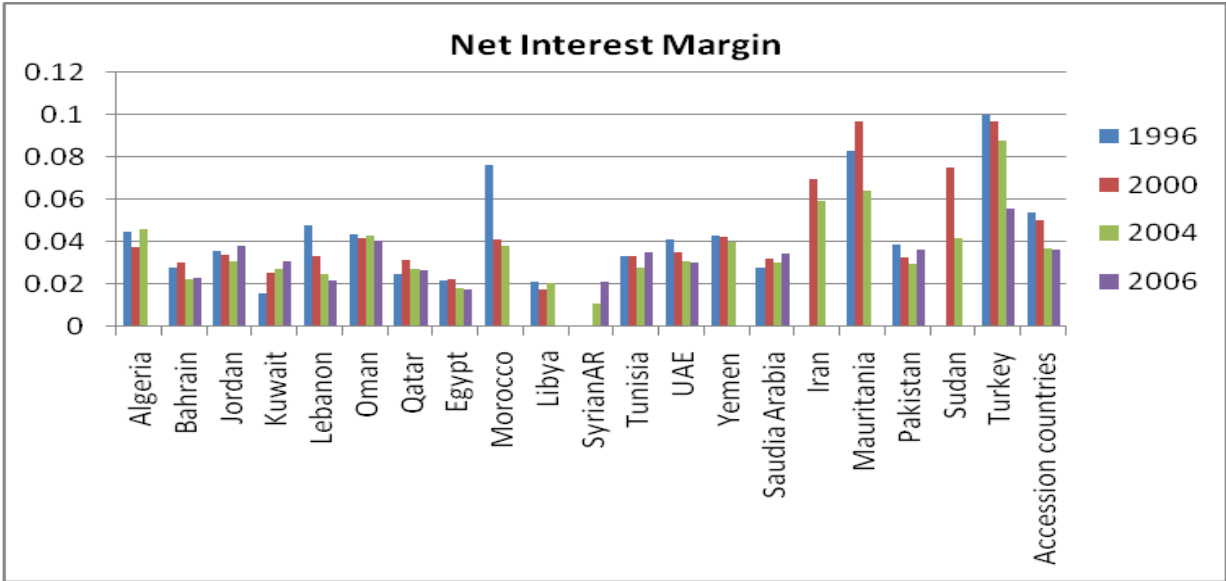
Bank Overhead Costs

The second indicator of banking sector efficiency is the Overhead Costs which equals the ratio of bank overhead costs to the total assets of the banks. We interpret lower overhead costs as a sign of greater efficiency.

As seen above, MENA countries have relatively a more efficient banking sector compared with the Accession countries. Since 2003 the MENA bank overhead costs/Total Assets ratio has declined to less than 0.021 in 2006 which is sign of efficiency gain.

Similar to MENA countries, the Accession countries shows also an efficiency gain. In fact, the ratio of overhead costs to total assets has declined to less than 0.032 in 2006 (Figure 19).

Figure 19: Bank overhead costs MENA vs Accession countries
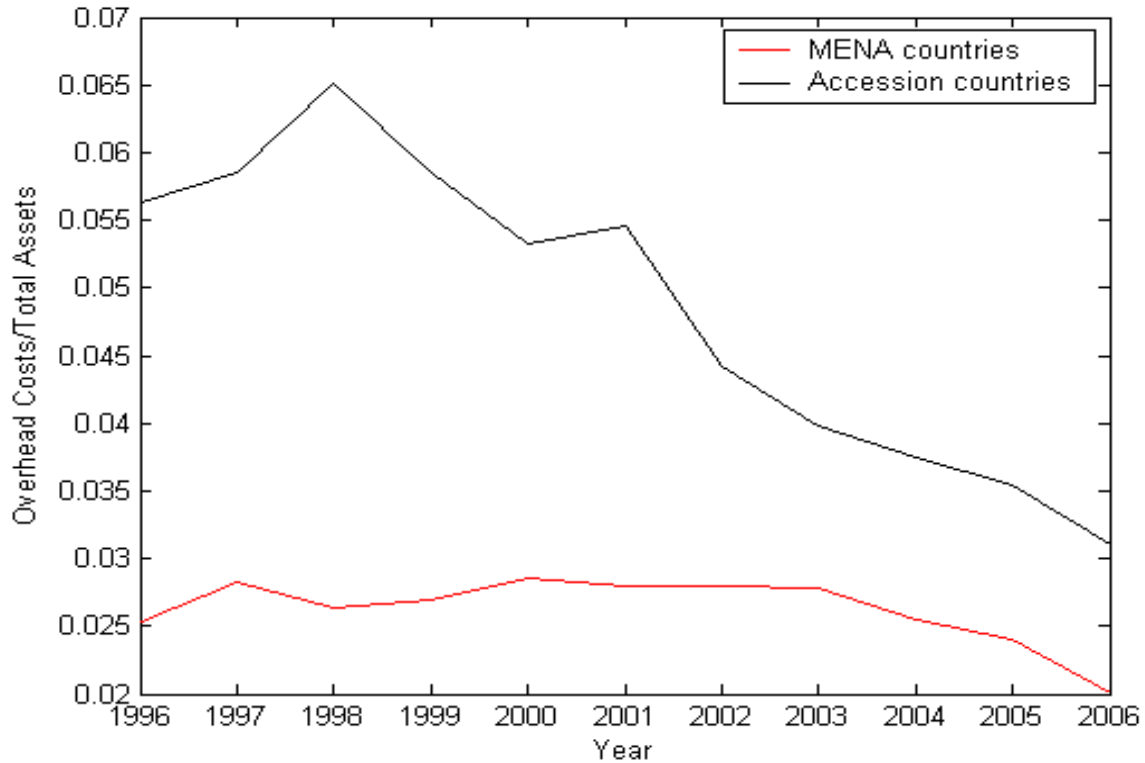
As shown in figure 20, Egypt and Gulf countries have relatively a more efficient and competitive banking system. However, Mauritania and Turkey have a low efficient one. Tunisia and Jordan also perform well in terms of banking sector efficiency.

In summary, we can conclude that MENA countries have the more efficient banking sector compared with accession countries.

Figure 20: Bank Overhead Costs/Total Assets in MENA Countries
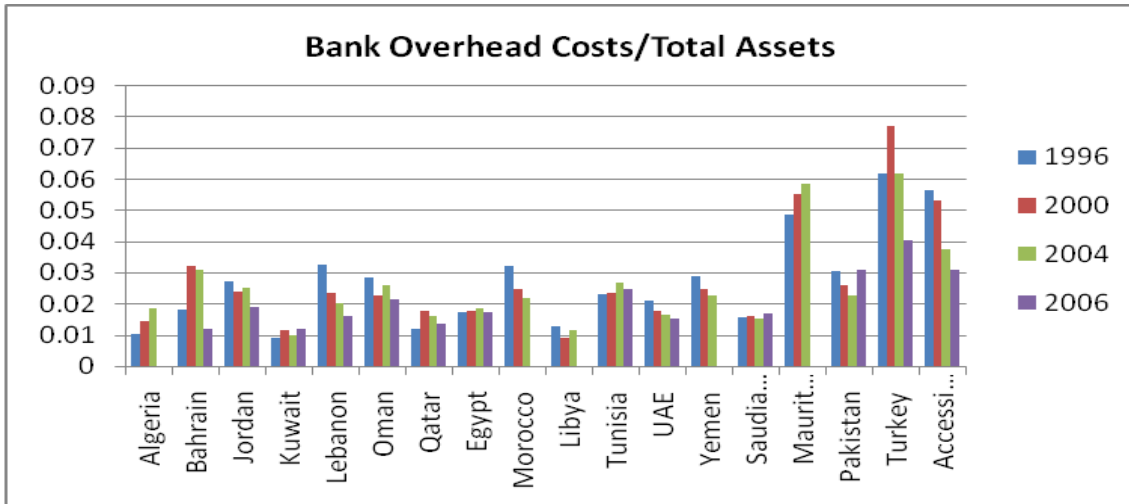
2.3.3. Banking assets quality

As indicator of banking assets quality we use a Nonperforming loans to total gross loans. As shown in figure (21), NPLs in MENA countries, as a share of total loans, were higher, compared to Accession countries, where the ratios fell from 11.35 to 4 percent, between 2000 and 2005. This trend can be explained by the level of the interest rate spread. In fact, the spread in MENA countries has exceeded the one in Accession countries since 2000 (See figure 10).

Figure 21: Non performing loans to total gross loans MENA vs Accession countries
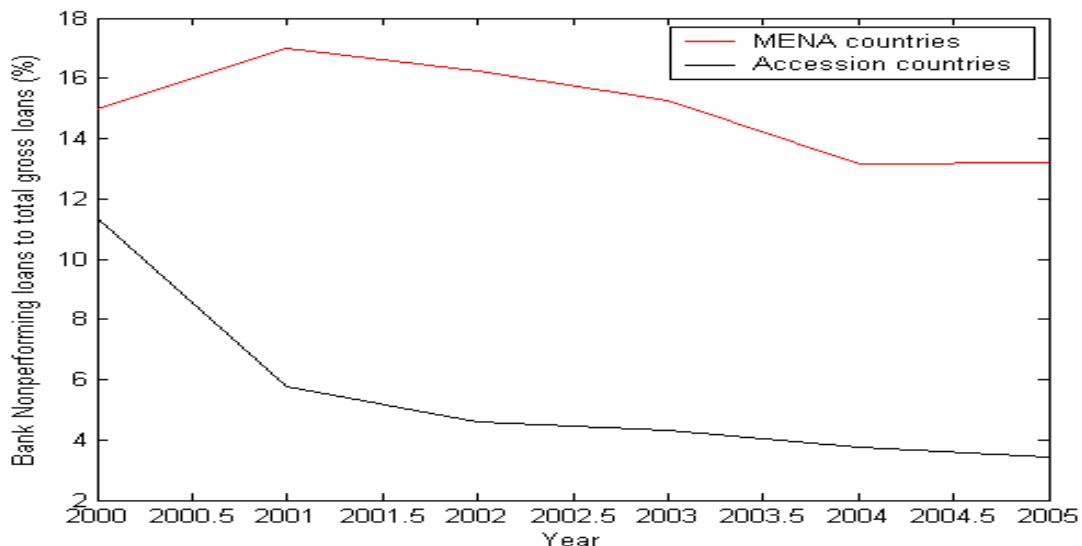
Figure (22) shows that the NPLs have risen in Egypt and Lebanon between 2000 and 2005. While in Kuwait the ratio has fallen from 19.2% in 2000 to 4.5% in 2005. Similar trends have been observed in all European accession countries. Tunisia NPLs are

characterized by their stagnation. In fact, in the last years this ratio has varied between 20% and 21%.

Figure 22: NPL to Total Gross Loans (%) in MENA countries

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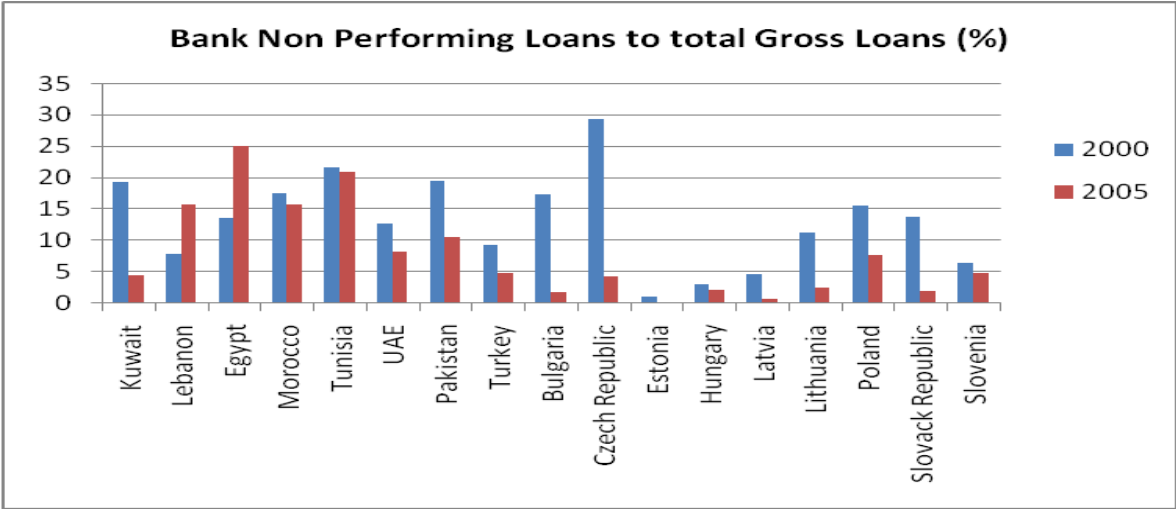
2.3.4. Banking Sector Concentration

Theory provides conflicting predictions regarding the relationship between commercial bank and financial sector development. Some argue that commercial bank concentration is positively associated with measures of banking sector efficiency and financial development. While others such Demirguç-Kunt and Levine (1999) does not provide support for the view that bank concentration is closely associated with banking sector efficiency, financial development, industrial competition, general institutional development, or the stability of banking system.

Figure (23) analyzes market concentration in the banking sector for the countries profiled in this study. Concentration is measured by the ratio of top three banks' assets to total assets.

The banking sector is more concentrated in the MENA region than in European accession countries. Since 2005 a reversed trend started to develop. In fact, the average of banking sector concentration in European countries (more than 75% in 2006) has exceeded MENA countries (less than 73% in 2006).

Figure 23: Bank concentration MENA vs Accession countries
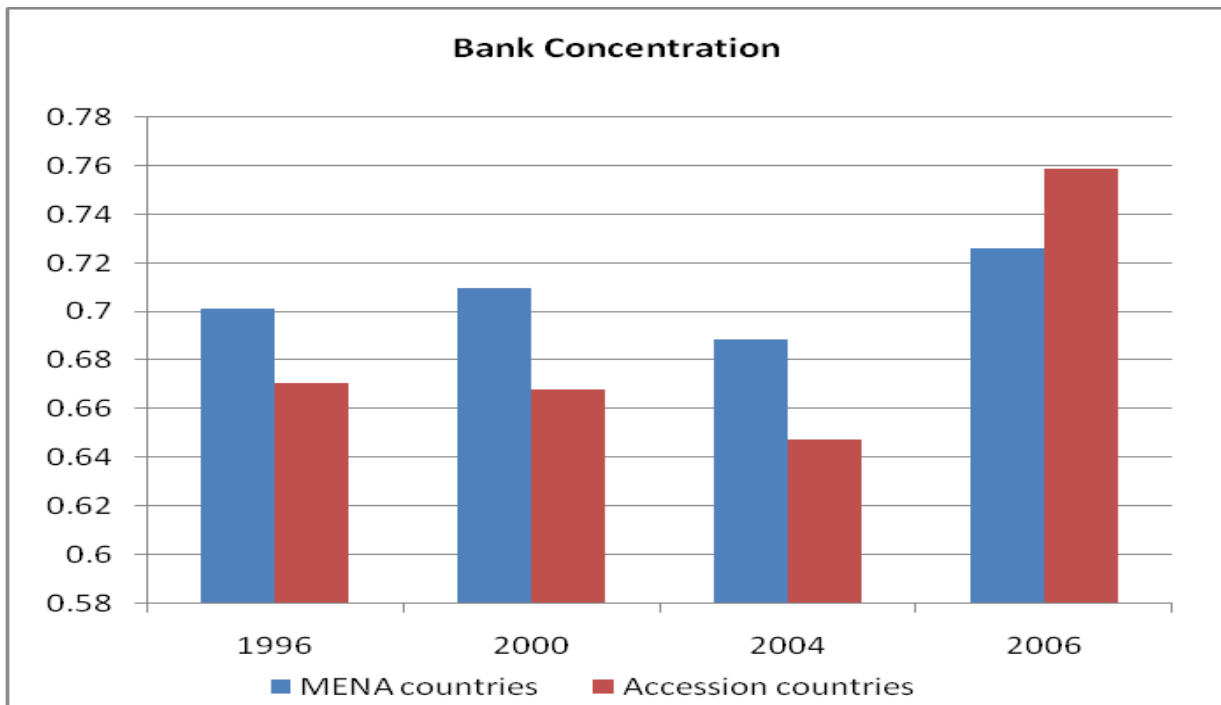
The following figure (Figure 24) indicate that Bahrain, Oman and Qatar have relatively the most concentrate banking sector (more than 85% in the last decade), suggesting more of an oligopolistic market structure in banking. In Lebanon, the bank concentration has risen since 2004 to more than 86% in 2006.

Figure 24: Bank concentration in MENA countries
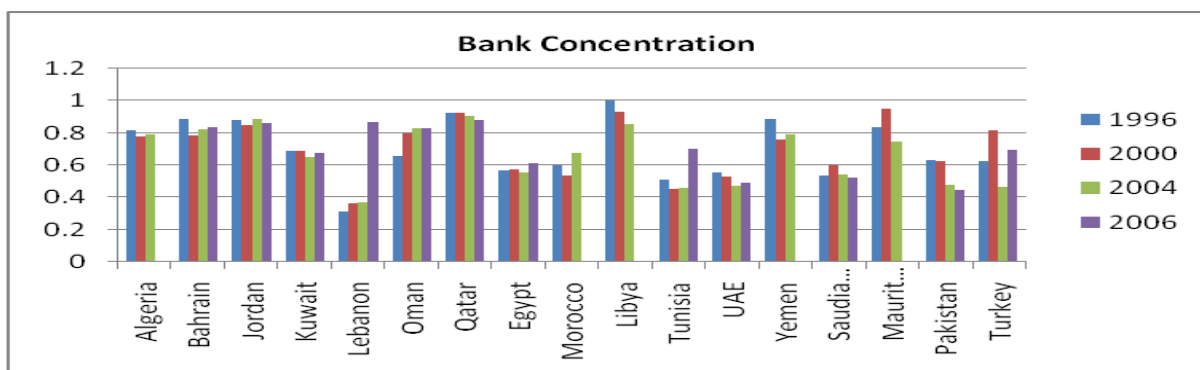
3. Stock Market

Following conventions, the development of Stock Market over time can be examined using the size and the liquidity of stock market.

3.1. Stock Market Size

Market capitalization is the value of listed shares on the domestic stock market divided by GDP. It is an indicator of the size of the stock market relative to the economy.

Figure (25) shows that MENA stock markets experienced a rapid expansion starting in 2002, about 88% of GDP in 2005 before shrinking to 73% in 2006. The European countries stock markets remain very small compared with MENA countries although they have shown an expansion since 2003.

Figure 25: Stock Market Capitalization to GDP MENA vs Accession countries
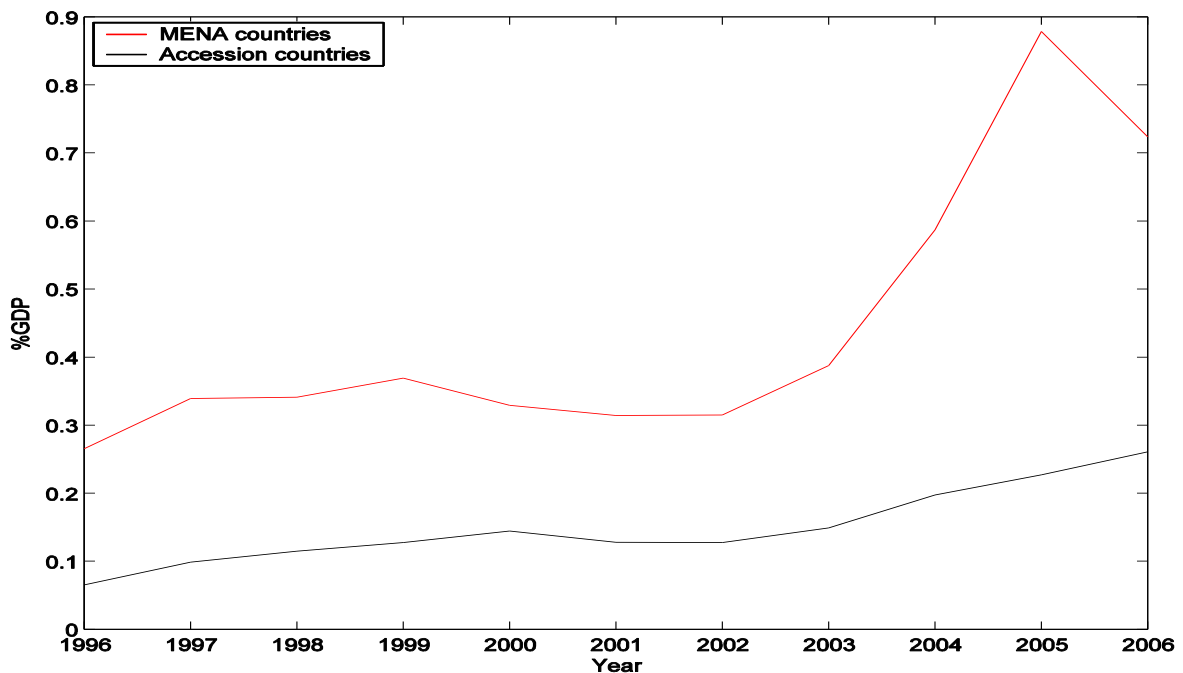
Figures 26 and 27 show that the stock market capitalization to GDP ratio has risen in several MENA countries with particularly large increase in Jordan. In fact, the ratio in 2006 is four times more than the one in 2000 (66%). Jordan has also relatively the largest stock market, followed by Egypt and Morocco. However, Tunisia, Iran, Lebanon and Oman have smaller stock markets.

Turkey and Pakistan have also small stock markets. In fact, the ratio of market capitalization to GDP is less than 45% in 2006 although, they compare favorably with accession countries[9].

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[9] Among the Accession countries, Poland has relatively the largest stock market whith a market capitalization to GDP around 40% in 2006.

Figure 26: Market Capitalization to GDP (MENA countries)
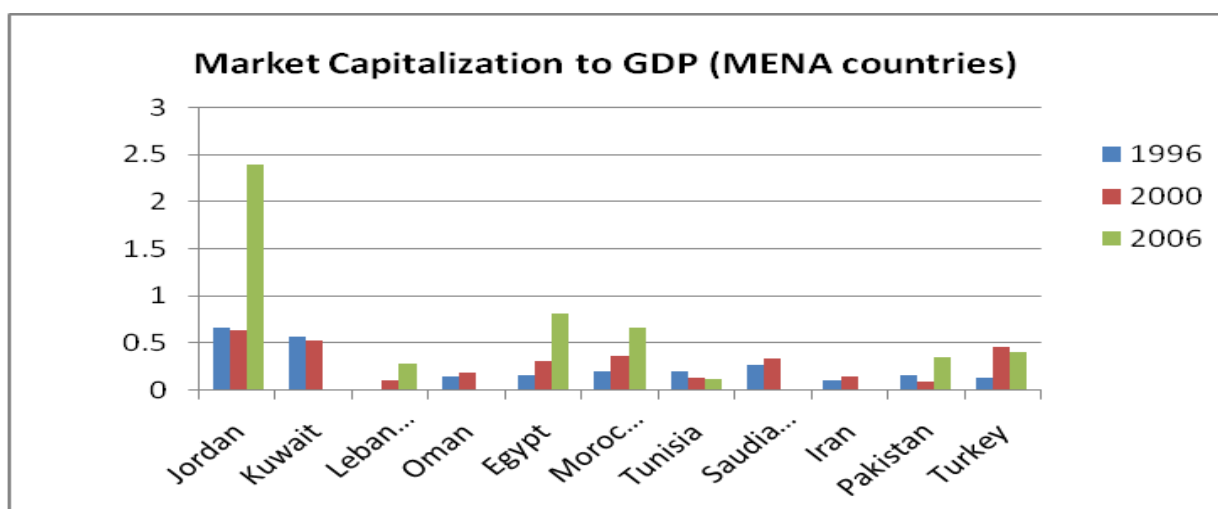
Figure 27: Market Capitalization to GDP (Accession countries)
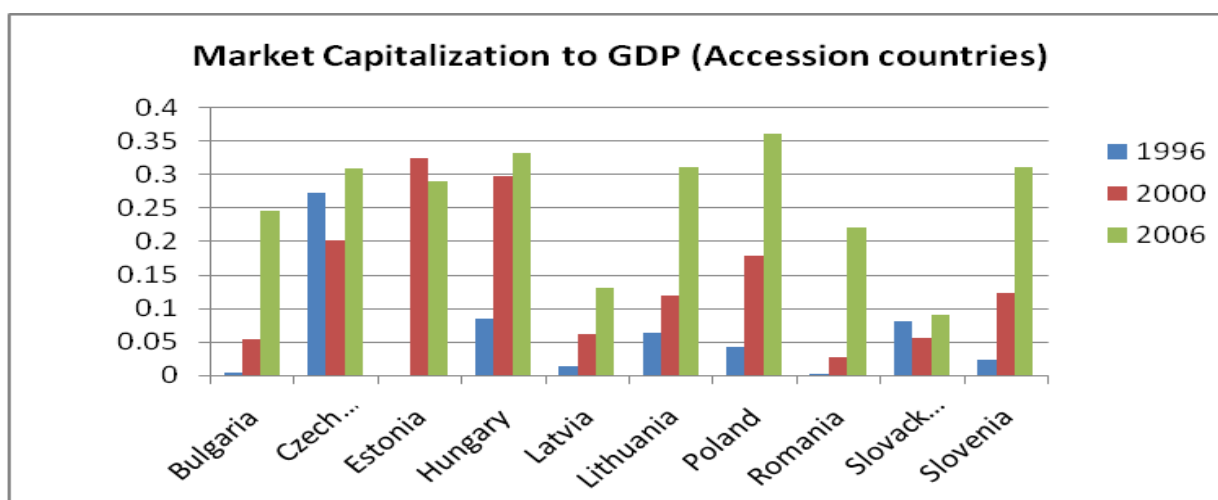
3.2. Stock Market Liquidity

To compare stock market liquidity two different measures are used: the value traded ratio and Turnover ratio. The value traded ratio equals the total value of domestic shares traded on the stock market exchange divided by GDP. The Turnover ratio equals the total value of domestic shares traded divided by market capitalization. While the value traded ratio captures trading relative to the size of the economy, the turnover ratio captures trading relative to the size of the stock market.

Figure (28) presents a time series for MENA and accession countries respectively. As expected, the MENA countries value traded increased considerably with the increase in capitalization since 2002.

Similar to market capitalization, there is a pronounced increase since 2002 in MENA countries value traded to GDP. However, the ratio has declined from 82% in 2005 to less than 55% in 2006. However, the MENA stock markets appear more liquid than the European accession countries, where the average of the ratio of the stock market value traded to GDP went from 3% to 9% in the last decade.

Figure 28: Value Traded over GDP in MENA vs Accession countries
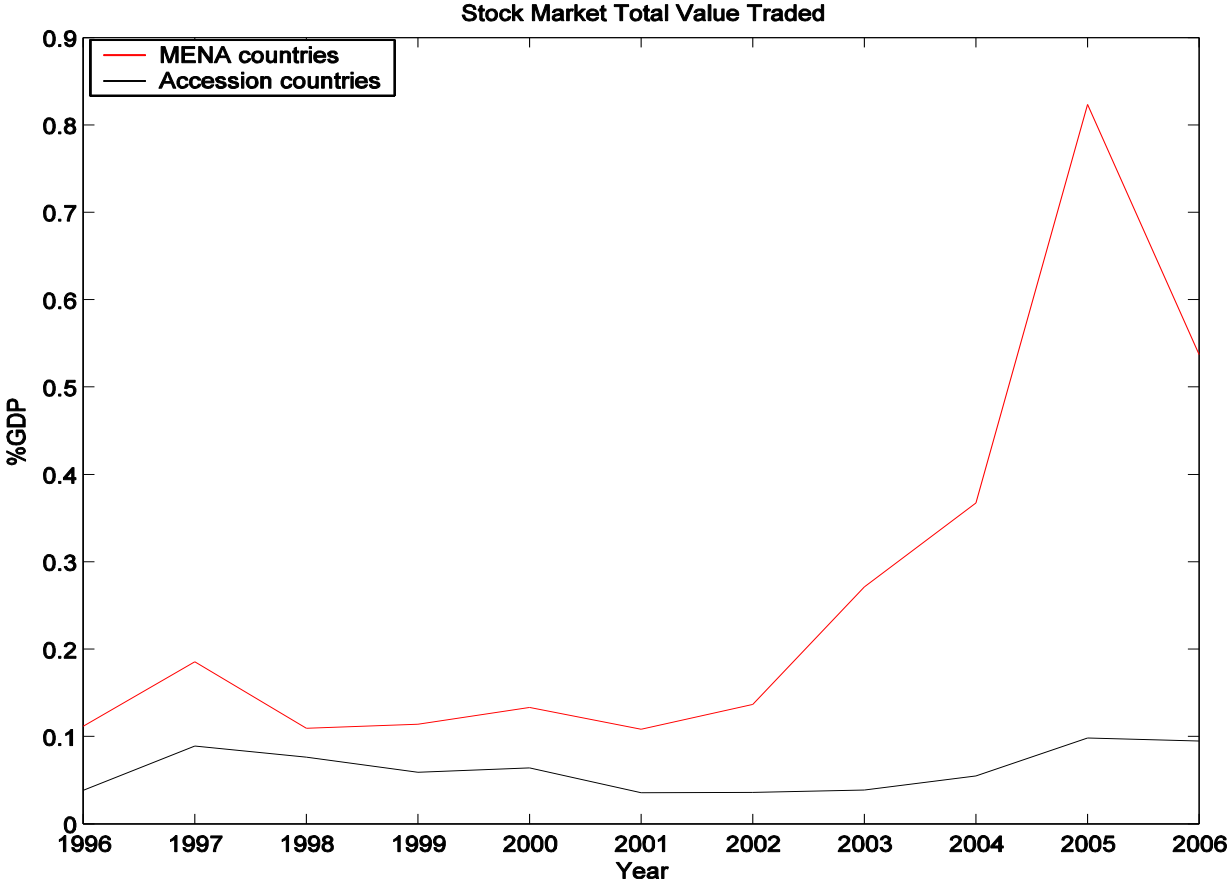
Similar to the stock market size, figure (29) shows that Jordan has relatively the more liquid stock market followed by Pakistan and Turkey. Tunisia, Oman, Iran and Saudi Arabia have relatively less liquid stock market. In Egypt and Morocco, stock markets liquidity compares favorably with Accession countries although they have a weak level of stock market liquidity.

Among the Accession countries, Hungary has relatively a more liquid stock market followed by Poland and Czech Republic (Figure 30).

Figure 29: Value Traded over GDP in MENA countries
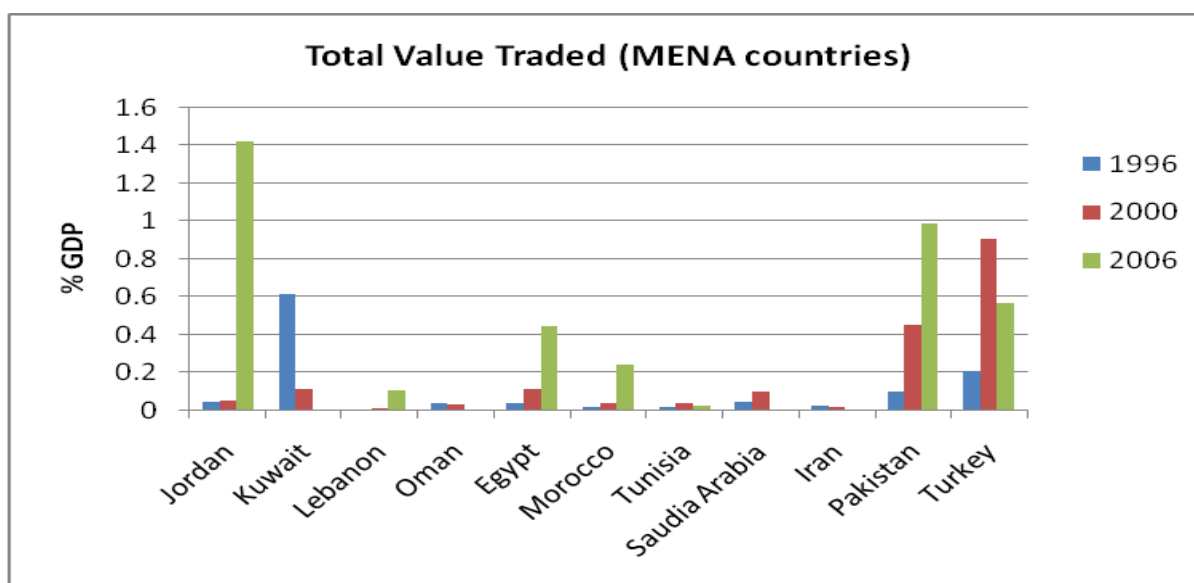
Figure 30: Value Traded over GDP in MENA vs Accession countries
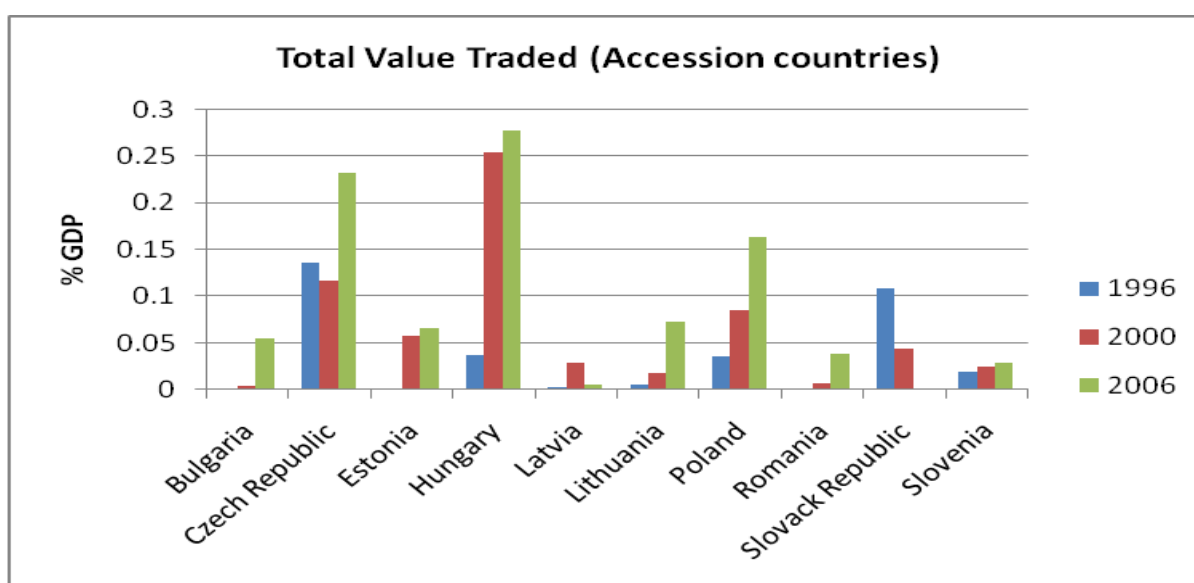
The second indicator of stock market liquidity shows that the MENA countries have also the more liquid stock market compared with European accession countries. In fact, since 1999 the MENA countries turnover ratio has exceeded that in European accession countries.

Figure (31) shows a large increase in the turnover ratio in MENA countries, especially since 2001. In fact, in 2006 the ratio of total value of domestic shares traded to GDP (80%) is two times larger than the ratio in 2001 (40%). However, in Accession countries the reversed trends have been observed. In fact, since 1997 the average turnover ratio has declined from 58% to less than 30% in 2006.

Figure 31: Turnover in MENA vs Accession countries
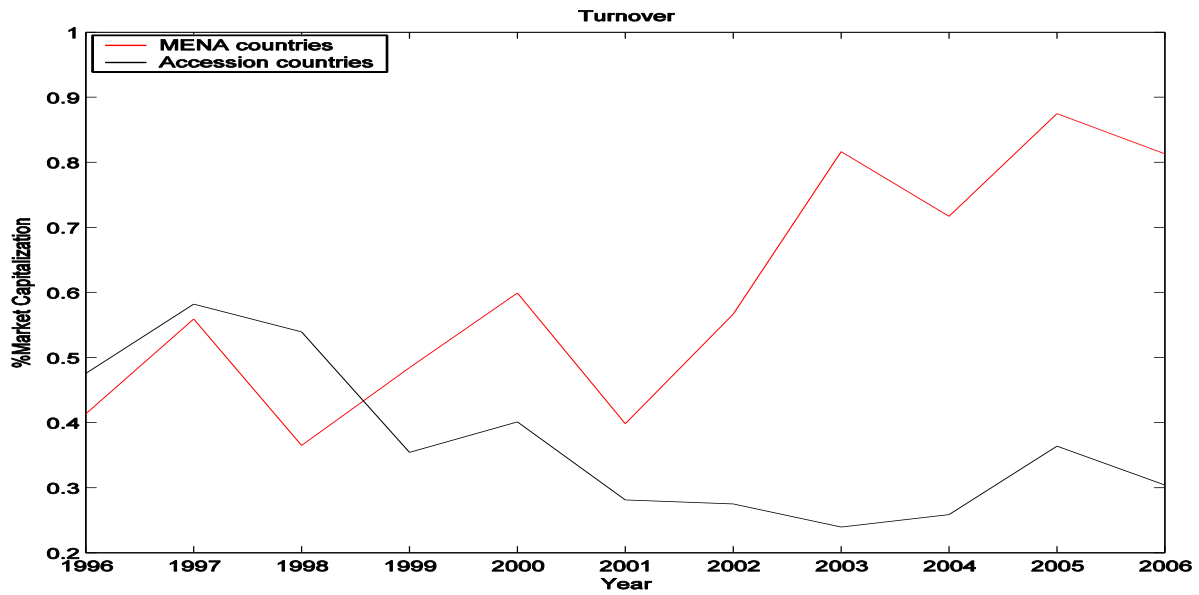
The following figure (32) shows that among the MENA countries Saudi Arabia has relatively the more liquid stock market where the turnover ratio has increased from 26% in 2000 to 284% in 2006, followed by Pakistan and Turkey. However the remaining countries have a very weak turnover ratio[10].

Figure: 32 Turnover in MENA countries
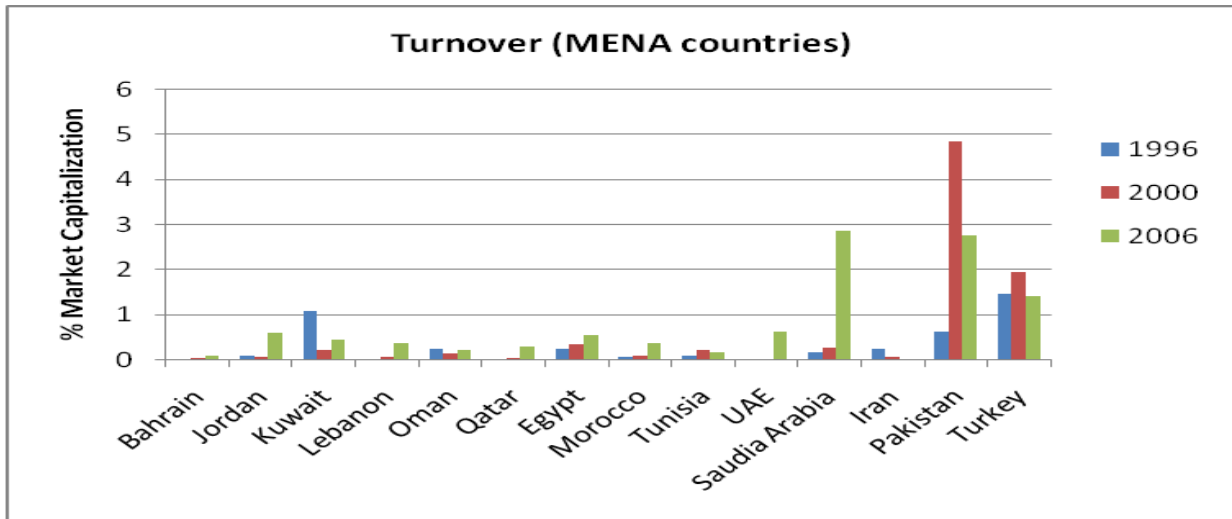
In summary, we can conclude that MENA countries have the well developed stock market compared with European accession countries.

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[10] Turnover ratio varies between 1% and 10% in the last decade.

4. Insurance Sector

The development of insurance industry could be measured by examining trends in the ratio of life insurance premium volume and non-life insurance volume to GDP. In contrast to other financial sub-sector (banking sector and equity markets), figure (33) shows that MENA countries have the less developed insurance industry compared with European accession countries. The non-Life insurance is more developed than the life-insurance in both MENA and European accession countries. In fact, the MENA countries non-life insurance premium volume to GDP ratio went from 0.9% in 1996 to 1.2%, in 2005, while the ratio of life insurance premium volume premium to GDP went from 0.18% in 1996 to 0.28% in 2005.

In general, we can conclude that the insurance industry remains very weak in MENA and European accession countries respectively, although the indicators of insurance development have risen in the last decade.

Figure 33: Insurance premium volume to GDP
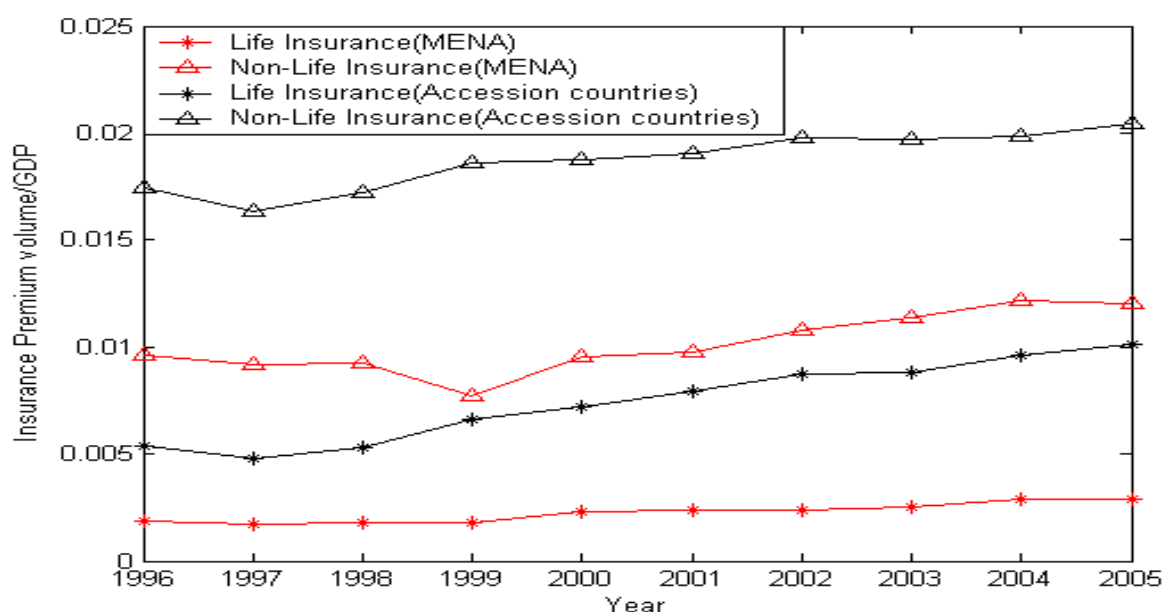
5. Bank Based or Market Based?

To analyze whether the MENA and Accession economies are bank or market based, we use the approach and indicators developed by Demirguc-Kunt and Levine (1999). The financial structure is based on three indexes: the size, the activity and the efficiency.

First, we consider the measures of financial structure based on size. Figure (34) shows the relative size index between the banking sector and the stock market. Relative size is equal to deposit money bank assets to stock market capitalization (Bank versus Capitalization). MENA countries have relatively the lowest measures of bank versus capitalization which indicate that these economies are more market-based than the European accession countries.

This occurs because stock markets are very small in European countries, not because they have a well-developed banking sector.

Figure 34: Bank over Capitalization in MENA vs Acession countries
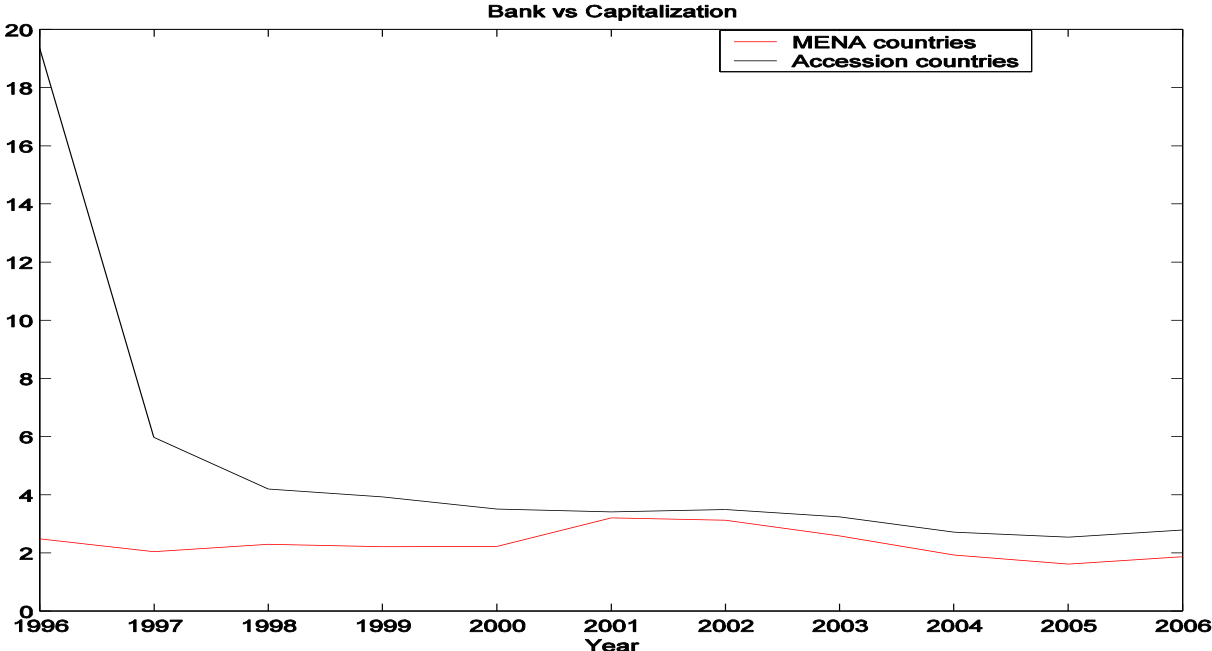
As shown in Figure 35, Tunisia, Iran and Pakistan have the largest value of bank capitalization, primarily due to small and under-developed stock markets, rather than well developed banks. On the other end of the spectrum for bank capitalization, the Gulf countries (Bahrain, Kuwait, Oman, and Saudi Arabia) and Jordan have the lowest values of capitalization, indicating a relatively larger stock market in these countries.

Figure 35: Bank over Capitalization in MENA countries
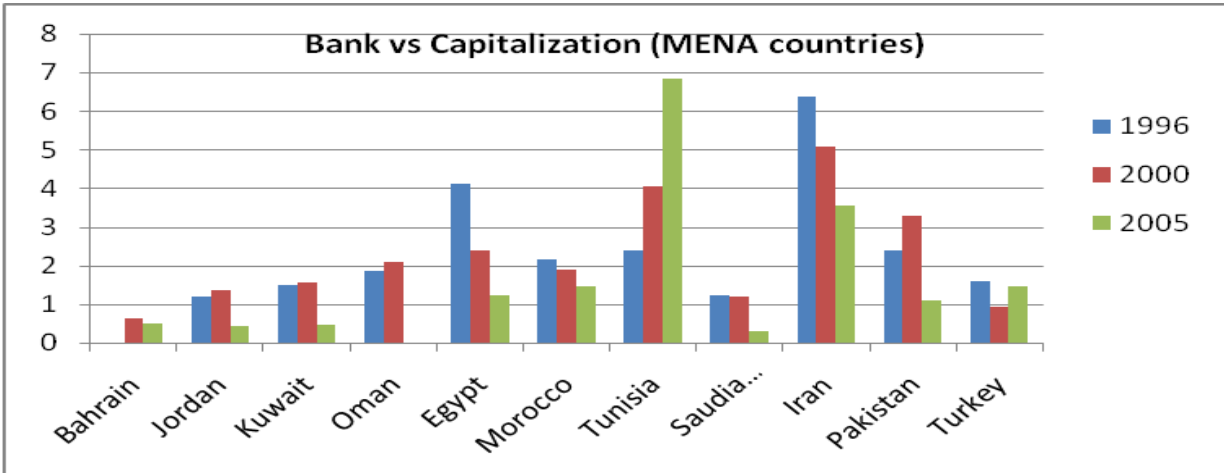
To measure the financial structure based on activity, we consider the ratio of private credit by deposit money banks relative to the total value of stock transactions. As seen in

figure (36), since 2003 the stock market began to play an increasing role in MENA countries which lowered the ratio of bank credit to value traded to less than 6% in 2005.

However, the reversed trend has been observed in European accession countries, where the ratio of bank credit to value traded has been increasing, especially since 2004, to more than 46 percent in 2006. Similar to the previous index, this result can be explained by the fact that European   stock markets are very inactive and under-developed, and not necessarily banks are more developed.

Figure 36: Private credit by deposit money banks/Value Traded in the Stock Market
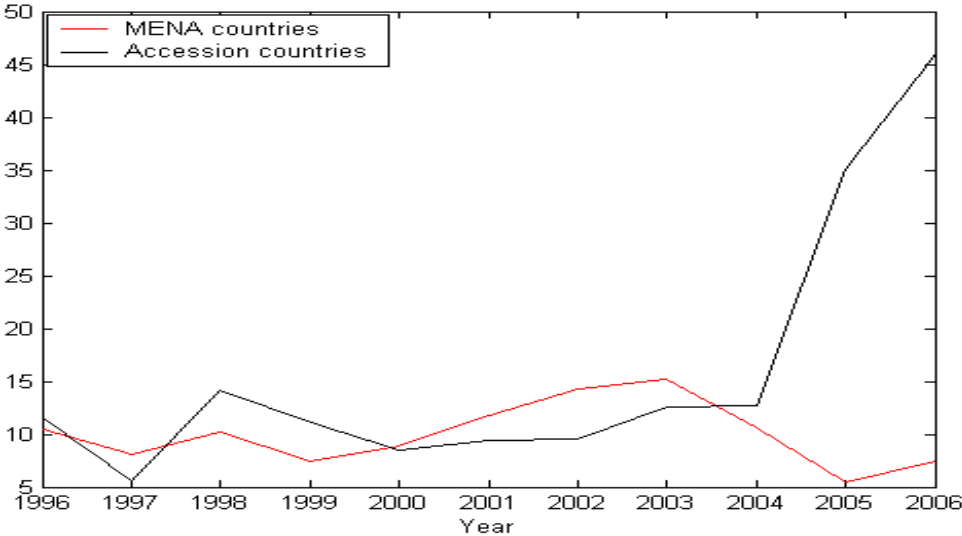
Tunisia appears to have a more active bank relative to the stock market. In fact, figure (37) shows that Tunisia has the largest value of bank credit compared to various Trading measures. This occurs because Tunisia has the least active stock market, not because it has a more active banking sector.

Figure 37: Bank Credit vs Value Traded in MENA countries
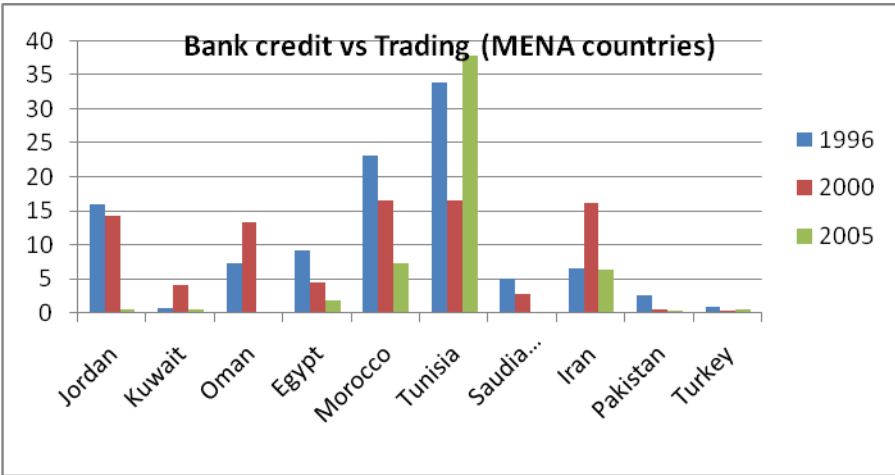
Finally, to measure financial structure based on efficiency, we use the trading versus interest margin which equals to total value traded to GDP multiplied by bank net interest margin.

Figure (38) shows that MENA countries have relatively the highest values of trading versus interest margin, which signifies that the MENA countries stock markets are more active than their counterparts in accession countries.

Figure 38: Value Traded / Net Interest Margin
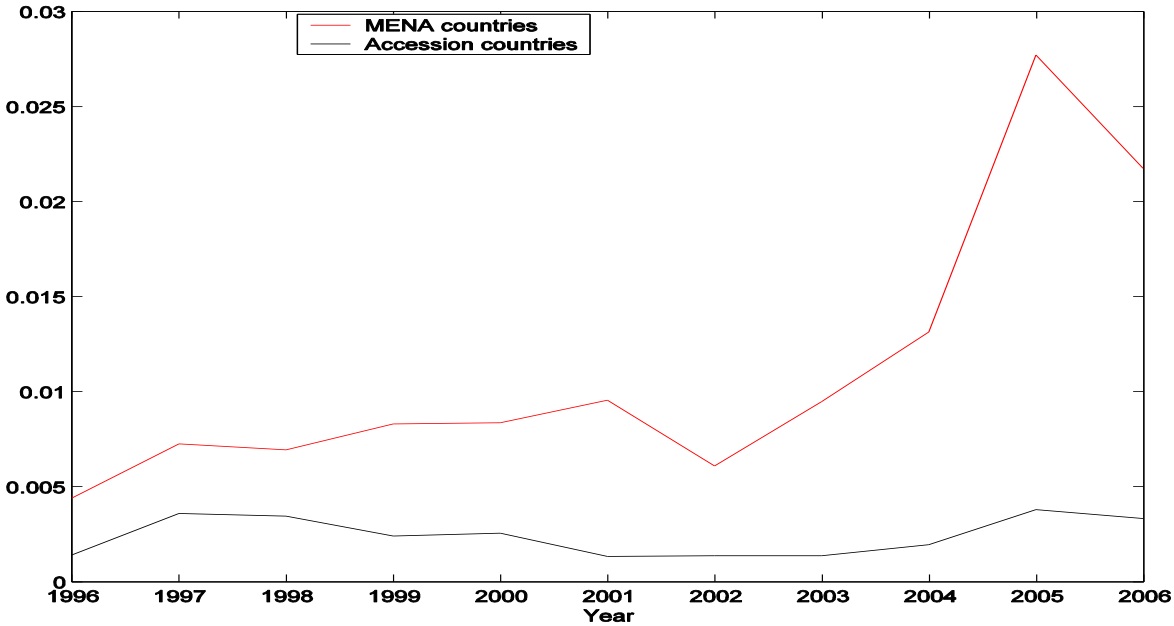
Figure (39) shows that Tunisia, Oman, Lebanon and Iran are classified as bank based although their banking system are not developed. However, Turkey, Jordan and Saudi Arabia appear to have active stock markets, relative to their banks, although they have smaller and relatively undeveloped stock markets.

Figure 39: Value Traded / Net Interest Margin in MENA countries

33
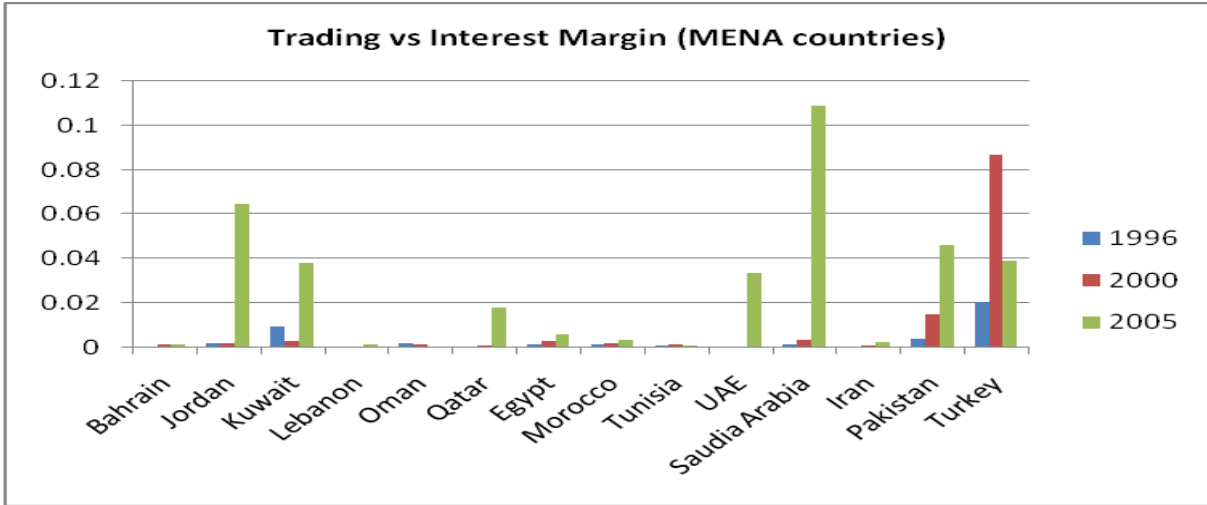
Over the last few decades, most of the MENA countries have engaged in implementing economic reforms and structural adjustment programs. The financial sector is no exception and much progress has been made, with many countries beginning comprehensive reforms at the beginning of the 1990s. European Accession countries have also come a long way in terms of financial development since the early 1990s.

The indicators of the overall size of financial system have shown that MENA countries have relatively larger financial system, compared with Accession European countries. However, apart from the M2 to GDP ratio, since 2004 the reversed trend has been observed in the evolution of the other indicators of financial develpment. In fact, both the ratios of private and domestic credit to GDP ratios in European Accession countries have exceeded their counterparts in MENA countries. Thus, since 2000 the financial system in European accession countries has become more efficient than financial systems in MENA counterparts.

While MENA countries have the more developed banking sector, the development of banking sector has grown much faster in European countries than in MENA region. In term of efficiency, MENA countries have relatively the more efficient banking sector.

Non-bank capital markets and finance in the MENA region remain undeveloped. For instance, stock markets in the region tend to be characterized by low levels of liquidity and small size. However, MENA countries remain to have the more developed stock markets compared with European Accession countries.

Although they have made progress, the efforts of both MENA and Accession European countries in promoting their financial systems have been eclipsed by faster reform and growth in other parts of the world. Against the backdrop of an increasingly globalized world, one of the challenges for MENA policymakers in moving away from financially repressive policies will be to create an enabling structural environment for financial development, including reduced government intervention in credit allocation and strengthened institutional quality particularly for the legal system.

6. The institutional determinants of financial development

6.1. Institutional environment: MENA versus European Accession countries

A sound institutional environment is essential to good economic systems. In fact, differences in institutions have proven empirically to be among the most important determinants of cross-country differences in rates of economic growth and investment.

In this section we search to analyze the institutional environment in MENA and European accession countries. To that end, we focus on the indeces of property rights, corruptions and rule of law as indicators of institutional quality.

Property rights

As seen in figure (40), protection of property rights in MENA countries is the lowest compared with the European accession countries, where the average violatin of property rights declined from 56% to 4% in the last decade. In MENA countries, violation of property rights has declined from 55% in 1997 to less than 38% in 2007.

Figure 40: Property rights score in MENA vs Accession countries
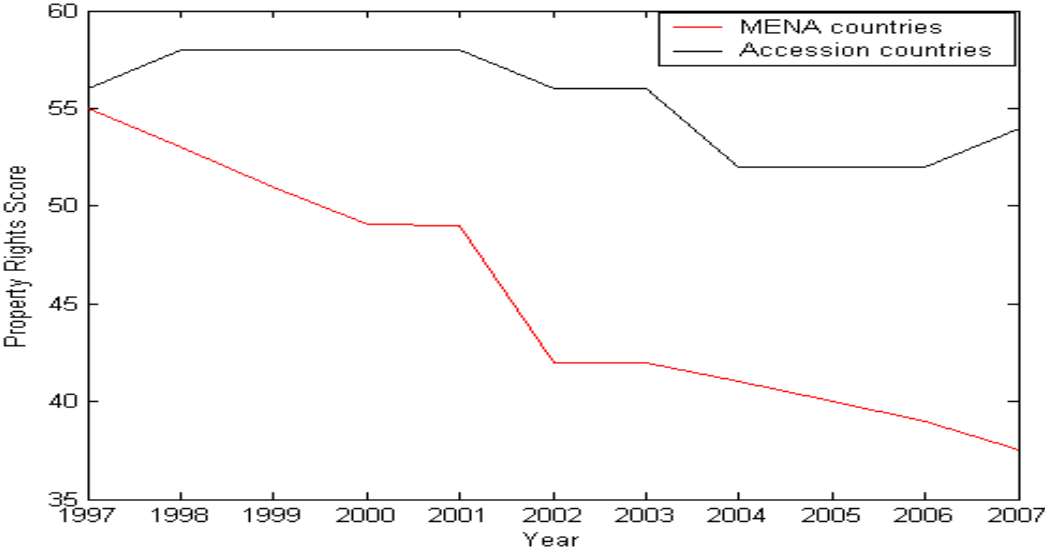
Figure (41) shows that violation of property rights has fallen in several MENA countries such as the UAE, Morocco and Djibouti. Bahrain has the best score for protection of property rights, although the property rights score has fallen from 90% in 2004 to 60% in 2007.

Following Bahrain, are Kuwait, Jordan, Oman, Qatar and Saudi Arabia where the score of property rights was 50% in 2007. Iran and Libya suffer from a poorest level of property rights protection, where their score was only around 10% in the last decade.

For the Accession countries, Estonia has the best score of property rights. In fact, this score has risen from 70% in 2004 to 90% in 2007, followed by Czech Republic and Hungary where the property rights ranks at 70% in the last decade. Romania and Bulgaria have the lowest property rights score.

Figure 41: Proprerty rights in MENA countries
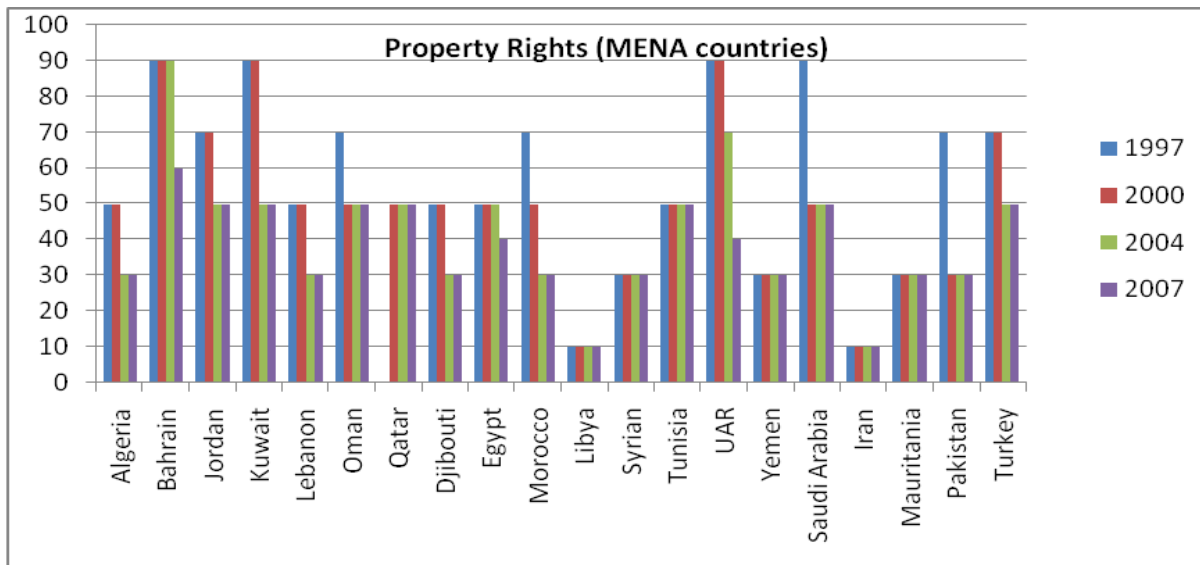
Figure 42 : Proprerty rights in Accession countries
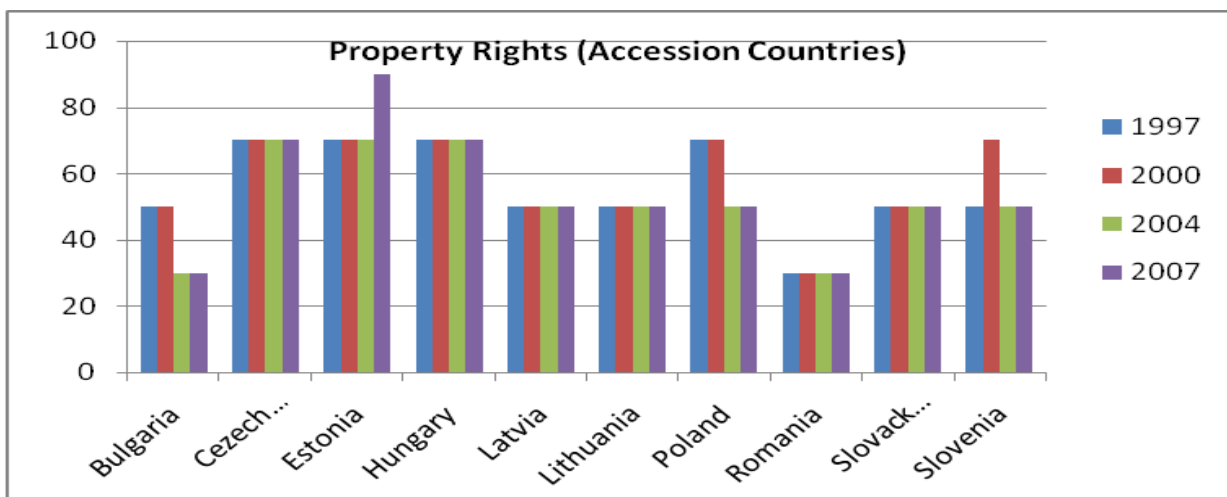
Corruption

Similar to the property rights protection, MENA countries have relatively lower levels of corruption score, compared with the European accession countries. Figure (43) shows that the MENA countries corruption score has declined from 43% to less than 40% in the last decade. Similar trends have been observed in European accession countries. In fact, the corruption score has been decreasing from 50% in 2000 to 45.5% in 2007.

Figure 43: Corruption Score in MENA vs Accession countries
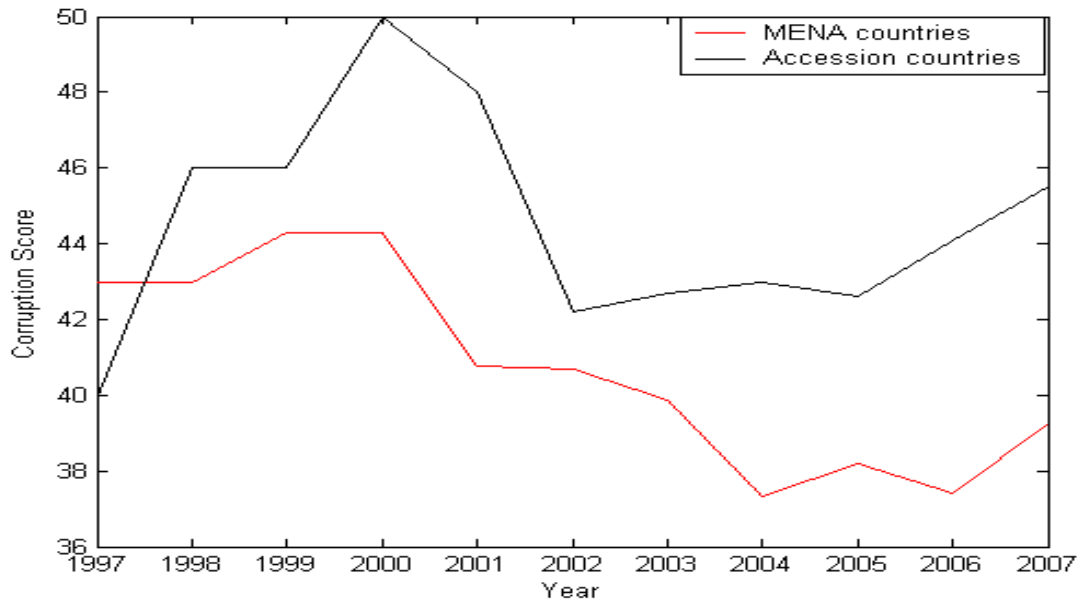
As shown in figure (44), MENA countries are characterized by different corruption scores which ranged in 2007 from 60% in UAE to 20% in Pakistan. This indicator has declined in most MENA countries such as Bahrain, Qatar, Morocco, Egypt, Saudi Arabia and Turkey. However, in Jordan this score has been increasing progressively from 30% in 1997 to more than 55% in 2007.

In summary, we can conclude that except of Iran, Yemen, Syrian Arab Republic, Libya, Djibouti, Lebanon and Algeria, the rest of MENA countries compare favorably with European accession countries.

Figure 44: Corruption Score in MENA countries
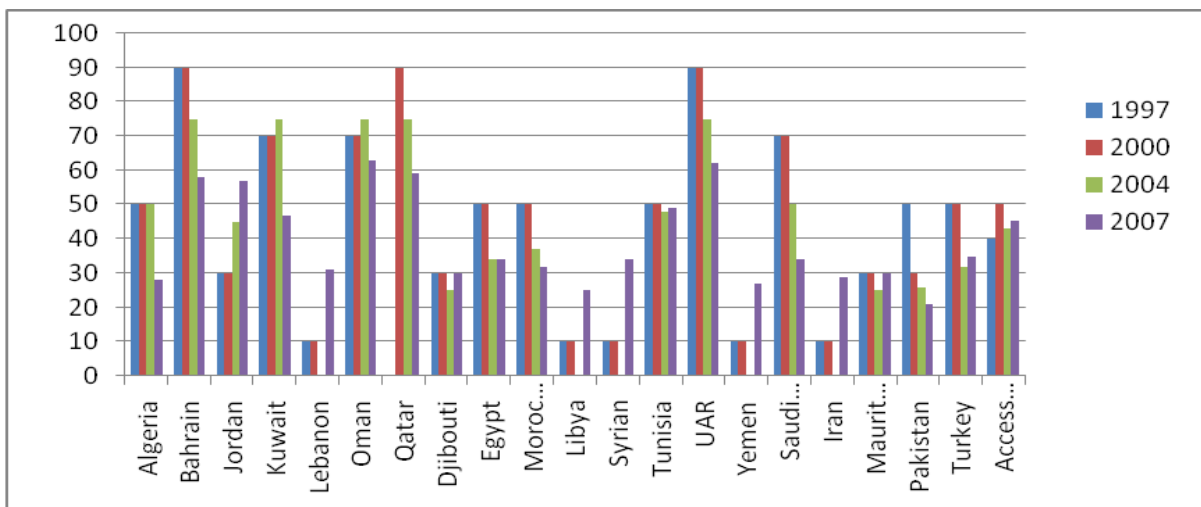
Rule of Law

Among the various indicators of institutional quality, the rule of law turns out to have the most explanatory power for investment and economic growth.

Figure (45) illustrates the evolution of the rule of law score in MENA and European accession countries. The MENA region has relatively the lowest scores for the rule of law. In fact, this score went from 45.9% to 46.73% in the last decade. However in European accession countries this score ranges between 65% and 67.8%.

Figure 45: Rule of Law score in MENA vs Accession countries
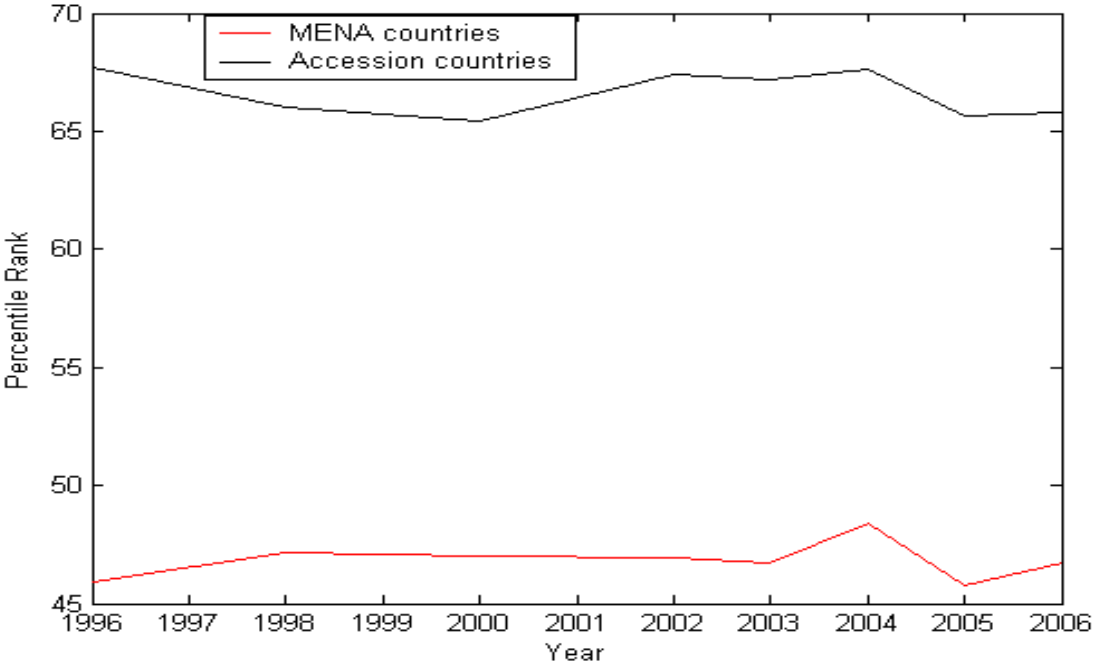
Similar to other indicators of institutional quality, most of thee Gulf countries (Qatar, Oman, UAR and Kuwait) have relatively the best score of maintenance of the rule of law. In fact, the rule of law score ranges between 65% and 81% in Gulf countries, followed by Turkey and Jordan. However, Sudan and Yemen have the poorest maintenance of the rule of law score. Syrian and Lebanon have also a poor rule of law score. In fact, this score is less than 40% in 2006 (Figure 46).

Among the European accession countries, Czech Republic have the best maintenance of the rule of law where this score is around 80.5% in 2006. However, Bulgaria has the poorest score which is around 50% in 2006 (Figure 47).

Figure 46: Rule of Law in MENA countries

Rule of Law (MENA countries)
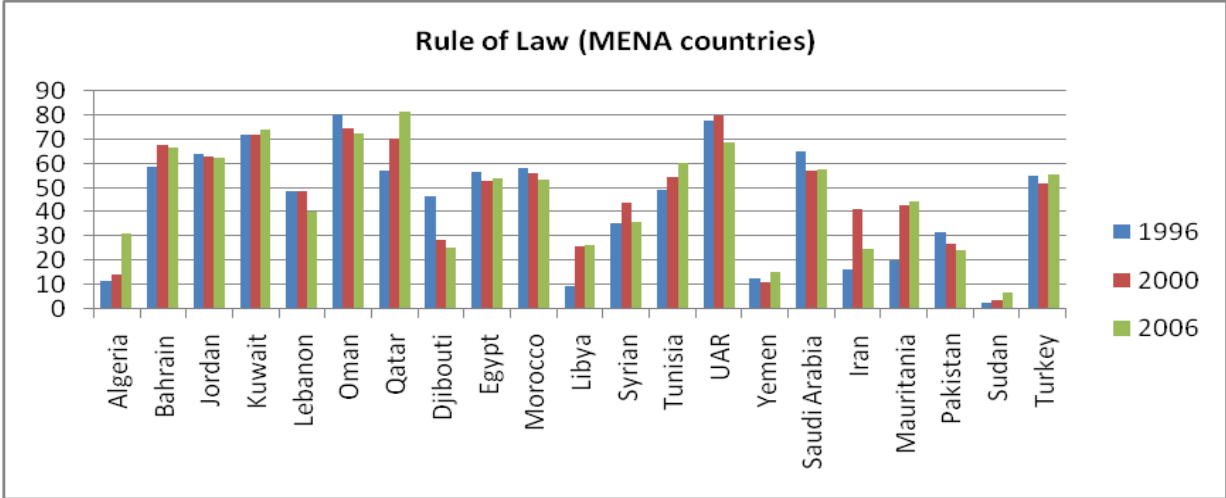
Figure 47 : Rule of Law in Accession countries

Rule of Law (Accession countries)
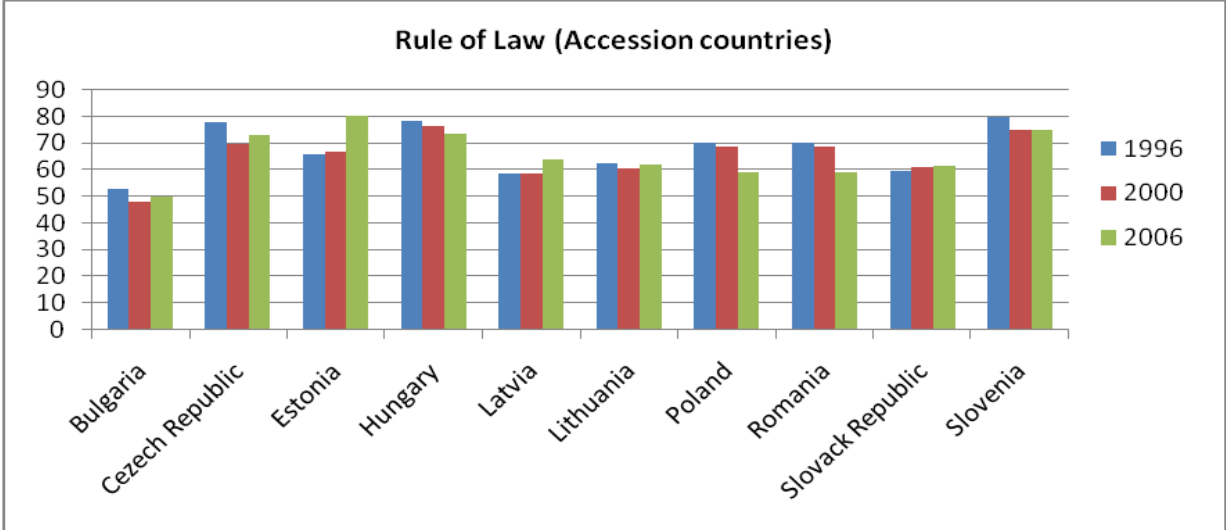
In summary we can conclude that MENA countries have a weaker institutional environment, compared with European accession countries. Furthermore, Gulf countries compare favorably to other MENA countries in terms of the institutional environment.

7.   Conclusion

Over the last few decade most of the MENA countries have engaged in implementing economic reform and structural adjustment programs. The financial sector is no exception and much progress has been made, with many countries beginning comprehensive reforms at the beginning of the 1990s. European Accession countries have also come a long way in terms of financial development since the early 1990s.

The indicators of the overall size of financial system have showed that MENA countries have relatively a well developed financial system compared with Accession European countries. However, since 2004 a reversed trend has been observed in the evolution of the both domestic credit provided by banking sector and the domestic credit to private sector to GDP ratios. For example, since 2005 the European Accession countries ratio of the domestic credit provided to banking sector has exceeded this in MENA countries by around 7%. These indicators have also showed that while European Accession countries have a comparable level of financial development, the financial development level differs significantly across MENA countries.

Using the interest rate spread as indicator of financial system efficiency, we have found that MENA countries have the more stable financial system. However, the European Accession countries have showed an important efficiency gains. Thus, since 2000 the European Accession countries efficiency has exceeded this in MENA countries.

In examining the banking sector issues in more details in MENA versus European Accession countries banking sector our main findings show that while the development of banking sector has grown much faster in European Accession countries, MENA countries remain to have the more developed banking sector. In fact, both deposit money bank assets and bank deposit to GDP ratios are the highest in MENA countries. When we consider the private credit, MENA countries show also a more developed banking system. In term of efficiency, MENA countries have also the more efficient banking system.

The evolution of the indicator of stock market size show that the European Accession stock markets remain very small compared with these in MENA countries. In 2006, the market capitalization to GDP ratio is around 73% and 25% in MENA and European countries respectively. Similarly, to stock market size, MENA countries present relatively the more liquid stock markets.

In contrast to other financial sub-sector, the evolution of the two indicators of the insurance industry development over the last decade shows that MENA countries have the less developed insurance industry compared with European accession countries. Although the indicators of insurance development have risen in both MENA and Accession European countries, the insurance industry remains very weak in the two regions.

Finally, we have found that MENA countries have relatively the less developed institutional environment compared with European Accession countries. In fact, MENA countries have the lowest scores of rule of law and corruption and the lowest protection of property rights.

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PART 2

WHAT DRIVES FINANCIAL SECTOR DEVELOPMENT IN THE MENA REGION?

1. Introduction

Development of the financial system is a corner stone of economic development. Indeed, the stage of development and the depth of the financial sector are key elements that differentiate developing and developed countries. In the latter group, the financial system is characterized by a sophisticated network of intermediaries that play a pivotal role in transmitting resources between lenders and borrowers and creating multiple layers of financial derivatives that deepen the financial system and reinforce the multiplier of credit growth. Nonetheless, lack of prudent measures may increase the risk of financial intermediation following a collapse in the value of financial assets, as the latest episode of global financial meltdown has illustrated.

The financial system is essential to an economy because it is responsible for resource allocation. Well-working financial intermediaries may affect positively economic development through four main channels: (i) reducing inflation and transactions, (ii) improving the allocation of resources (through fund pooling, risk diversification, liquidity management, screening, and monitoring), (iii) increasing saving rates, and (iv) promoting the development of markets and instruments that enable risk sharing and facilitate economic growth. Nonetheless, the financial crisis literature points to the destabilizing effect of financial liberalization as it leads to over-lending, which carries a higher risk potential due to limited monitoring capacity of regulatory agencies. During investment booms, banks are often unable to discriminate the quality of credit, which is further exacerbated by an explicit or implicit insurance against banking failures.

Despite the risk surrounding inefficient financial intermediation, economists remain in agreement regarding the need to establish a well functioning financial system to lead economic development and growth in many countries, including in the MENA region. The causal link between growth and financial development is clear. The controversy usually surrounds the direction of causality. Some argue that financial sector development ought to be in place to drive growth. Others argue, however, that growth leads to further development of the financial system and provides incentives to deepen and widen the system for financial intermediation. There are merits for both arguments and the empirical evidence points to bi-directional causality between financial sector development and economic growth.

This study aims at unveiling the linkage between financial sector development and growth in the MENA region. To what extent growth has contributed to further development of the financial system in the MENA region? To that end, the study analyzes development of the financial system in the MENA region, including banks and non-bank intermediation. The latter channel has been primarily attributed to the development of the stock market. Economic fundamentals, including macroeconomic policies, are important determinants of development of the financial system. Further, institutional settings and structural impediments have helped advance or hamper financial development across countries. Moreover, financial liberalization, by forcing a greater degree of global integration, may have advanced the development of the financial system to accommodate a surge in financial inflows. Along the same line, remittances have provided a steady stream of inflows to labour-exporting countries that have

eased financing constraints and supported the development of the financial system. The analysis will shed light on these linkages and evaluate the contribution of financial sector development to economic growth across countries of the MENA region.

2. **Related literature**

A number of papers have examined the institutional and macroeconomic determinants of stock market development. Demirguc-Kunt and Levine (1996) have found that most stock market indicators are highly correlated with banking sector development. Others have focused on the impact of institutional quality on stock market development and the link between the legal institutional framework and corporate finance. Erb et al (1996) show that expected returns are related to the magnitude of political risk. In both developing and developed countries, the lower the level of political risk the lower is required returns. Laporta et al (1997) find that countries with lower quality of legal rules and law enforcement have smaller and narrower capital markets and that the listed firms on their stock markets are characterized by more concentrated ownership. Demirguc-Kunt and Maksimovic (1998), show that firms in countries with effective legal system are able to grow faster, by relying more on external finance. Institutional and legal settings do have an important bearing on financial sector development. For example, the extent of creditor rights protection has an independent effect on financial sector development (see, e.g., La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998), Levine and Zervos (1998) and Djankov, Mcleish, Shleifer (2006)).

Empirical investigations provide evidence of a positive relationship between finance and economic growth. The first evidence that financial sector development promotes growth was reported by Goldsmith (1969) in a paper covering 35 countries. Nonetheless, the analysis did not control for initial conditions and country characteristics, nor did it permit any conclusion on causality or the relative strengths of the transmission channels. Subsequent empirical research has established, however, bi-directional causality between financial sector development and economic growth.

A number of investigations have produced evidence in support of higher growth in response to financial sector development. A more developed financial system mobilizes savings and enhances efficiency towards productive investment. Details of the specifics underlying this relationship can be found in King and Levine (1993), Rousseau and Wachtel (1998), Levine and Zervos (1998), Levine et al. (2000), Beck et al (2000a,b) and Rousseau and Sylla (2001). Conversely, banks' size and credit growth may be the best predictors for crises (e.g., Demirguc-Kunt and Degatriache (1998, 2000); Gourinchans et al. (1999). Since banking crises usually lead to recessions, an expansion of domestic credit would then be associated with growth pick up.

On the other hand, a number of investigations have focused on dependency of financial development on economic growth. Specifically, the financial sector is further developed during periods of economic expansion; implying financing needs force more development in response to real activity (Gurley and Shaw, 1967; Goldsmith, 1969). That is, economic growth increases profits in the financial sector, forcing a need for more sophistication to increase efficiency. Luintel and Khan (1999) reveal evidence of bi-

directional causality between financial development and economic growth in a sample of ten developing countries. Shan et al. (2001) confirm the finding in a sample of nine OECD countries.

Most of the evidence above has focused on bank-based measures of financial development, such as total lending by non-bank public per capita, and bank credit to GDP (Shan et al., 2001); and broad money to GDP (Rousseau and Sylla, 2001). Indeed, banks dominate financing in many developing, and even in most developed countries, and stock markets remain a small part of the overall financial system. However, development of the equity market is important towards further development of the financial system. The stock market increases flexibility in the financial intermediation process, as it provides investors with a clear exit strategy. Further, the stock market deepens the financial system by attracting foreign financial inflows. In addition, the stock market provides an important indicator for information sharing among investors, company valuation, and the prospect of macroeconomic fundamentals. With the growing importance of stock markets in the context of financial liberalization and global integration, a number of investigations have focused on stock market indicators and economic growth.

The empirical evidence linking stock market development to economic growth has been inconclusive, even though the balance of the evidence is in favour of a positive relationship.

Ajte and Jonanvic (1993) show that stock market trading, in contrast to bank credit, has a stronger link to economic growth. Levine and Zervos (1996, 1998) and Singh (1997) find that various measures of stock market activity are positively correlated with measures of real economic growth across countries and that the association is particularly strong for developing countries. Their results also show that after controlling for initial conditions and economic and political factors, measures of banking and stock market development are robustly correlated with current and future rates of economic growth and productivity improvement. Garcia and Liu (1999) examined the macroeconomic determinants of stock market development in a sample of fifteen industrial and developing countries in Latin America and Asia over the period 1980-1995. While real income, higher saving rate, financial development, and stock market liquidity are important predictors of stock market capitalization, macroeconomic stability appears less important. Equally important is the finding that banks and stock markets are complements, rather than substitutes.

Durham (2002) provides evidence that indicates stock market development has a more positive impact on growth for greater levels of GDP per capita, lower levels of country credit risk, and higher levels of legal development. Rousseau and Wachtel (2000) focus on two measures of stock market development, the ratio of market capitalization to GDP and the ratio of total value traded to GDP. The results show that the development of highly capitalized equity market accelerates growth. El-Wassal (2005) investigates the relationship between stock market growth and economic growth, financial liberalization, and foreign portfolio investment in 40 emerging markets between 1980 and 2000. The results show that economic growth, financial liberalization policies, and foreign portfolio investments are the leading

factors of the emerging stock markets growth. Yartey (2008) examines the relationship using a panel data of 42 emerging economies for the period 1990-2004. The results indicate that macroeconomic factors, such as income level, gross domestic investment, banking sector development, private sector flows, and stock market liquidity are important determinants of stock market development in emerging market countries. In addition, political risk, law and order, and bureaucratic quality are important determinants of stock market development because they enhance the viability of external finance.

Garcia and Liu (1999) examined the macroeconomic determinants of stock market development in a sample of Latin American and Asian countries. GDP growth, investment growth, and financial intermediary sector development are important factors. Yartey (2008) finds that a percentage point increase in financial intermediary sector development tends to increase stock market development in Africa by 0.6 points, controlling for macroeconomic stability, economic development and the quality of legal and political institutions.

Among macroeconomic indicators, inflation may prove to be an important determinant of financial sector development. Some research (see, e.g., Boyd, Levine, and Smith, 2001) has established a negative relationship between inflation and financial sector development. Simply put, inflation erodes the real value of savings in domestic currency, absent high interest rates. To avoid the inflationary risk, agents may opt to store their saving in alternative instruments, real or financial, that would provide a better hedge against inflationary pressures.

Another strand of the literature has focused on the role of financial liberalization in promoting stock market development. The degree of capital account openness and the liberalization of domestic financial systems help develop the financial sector (see, e.g., Demirguc-Kunt and Detragiache, 1998, and Chinn and Ito, 2002). Mishkin (2001) argued that financial liberalization promotes transparency and accountability, reducing adverse selection and moral hazard. These improvements tend to reduce the cost of borrowing in stock markets, which eventually increase liquidity and the size of the stock market.

Workers' remittances to developing countries have become the second largest type of flows, after FDI. Aggarwal, Demirguc-Kunt and Peria (2006) study the impact of remittances on financial sector development; in particular, whether remittances contribute to increasing the aggregate level of deposits and credit intermediated by the local banking sector. Their findings support the notion that remittances contribute to financial sector development in many developing countries. Recent studies (Giuliano and Ruiz-Arranz (2005) and Mundaca (2005)) show that the impact of remittances on growth could depend on the level of financial development, although with varying degrees across countries. Using a panel of more than 100 countries for the period 1975-2003, Giuliano and Ruiz-Arranz (2005) show that remittances help promote growth in less financially developed countries. Remittances help ease liquidity constraints by providing incentives to improve financial markets towards channelling resources towards productive usage and foster economic growth. In contrast, Mundaca establishes financial development as a prerequisite for growth-enhancing remittance flows. Using a panel data for countries in Central America, Mexico, and the Dominican Republic

over 1970-2003, Mundaca finds that controlling for financial development strengthens the positive impact of remittances on growth.

Financial systems perform a number of key economic functions and their development helps foster growth and reduces poverty (King and Levine, 1993; Beck, Levine, and Beck, Demirguc-Kunt and Levine, 2004). Banking remittance recipients will help multiply the development impact of remittance flows (see, e.g., Hinojosa-Ojeda, 2003; Terry and Wilson, 2005, and World Bank, 2006). Remittances can lead to financial development in developing countries. Specifically, remittances are money transferred through financial institutions, which paves the way for recipients to demand and gain access to other financial products and services, which may not be available otherwise (Orozco and Fedewa, 2005). Remittances transfers allow banks to reach out to unbanked recipients or recipients with limited financial intermediation. For example, remittances may have a positive impact on credit market development if banks, in light of robust inflows from abroad, become more willing to extend credit, increasing loanable funds. Absent a well developed financial system, remittance recipients may seek other avenues to save their funds, outside the banking system.

Some attention has also focused on a country's geography and initial endowment as important determinants of financial sector development (see, e.g., Acemoglu, Johnson, and Robinson, 2001, 2002). Other country characteristics have also been cited in this context, for example, the degree of ethnic diversity (Easterly and Levine, 1997), and the type of religion practices by the majority of the population (Stulz and Williamson, 2003). The former may encourage more inflows motivated by cross-border ethnic connections. Further, some religious beliefs may be viewed as too restrictive for free intermediation and financial development. Research that has attempted to quantify these effects has produced less robust evidence regarding their effect on financial development (Beck, Demirguck-Kunt, and Levine, 2003).

As for the economic impact of financial development, a strand of the literature (see, e.g., King and Levine (1993), Levine and Zervos (1998) and Beck, Levine, and Loayza (2000a, b)) documents how financial development is associated with greater growth across countries. Similar evidence also exists at the firm and industry levels (Demirguc-Kunt and Maksimovic, 1998, and Rajan and Zingales, 1998). More recently, Beck, Demirguc-Kunt and Levine (2004) have shown that financial development also leads to lower levels of poverty and inequality.

3. Data and variables

3.1. Data

Data were extracted from various sources. We consult the Beck and al. (2007) database on financial structure database to collect stock market and financial system indicators from 1960 to 2006. Other information related to economic growth, inflation, openness are collected form IFS and WDI databases. Our original intention was to include all MENA countries, but given that some countries have not yet created stock markets (e.g. Iraq,

Libya, Sudan, and Yemen), and other countries established stock markets very recently (UAE), the sample covered only twelve countries. Besides, data were not available for a uniform period for each country, and many countries have established their stock markets recently. Therefore, the number of observations is expected to vary across countries leading to estimations over an unbalanced panel data. A complete list of countries and time periods is given in Appendix 1. In summary, our data contains twelve MENA countries observed over the period of [1960–2006].

3.2. Variables

We empirically examine the factors that explain the difference in financial development in the MENA region by estimating a number of variants of equation (1), depending on the assumption made about the error term and the exogeneity of the independent variables:

$$\mathbf{FD_{i,t} = \alpha_{1+}\, \alpha_2 Macro_{i,t} + \alpha_3 Openess_{i,t} + \alpha_4\, Institutional_{i,t} + \eta_i + \varepsilon_{i,t}} \qquad (1)$$

Where i refers to the country and t refers to the time period from 1960 to 2006.

FD, financial development, refers either to the ratio of liquid liabilities as a percentage of GDP as a measure the size of the financial system or the ratio of bank credit to the private sector as a percentage of GDP, as a measure of banking sector development, or the stock market capitalization over GDP as a measure of the equity market size, or the stock transactions over market capitalization, as a measure of stock market liquidity. Data to construct these variables are form the Beck and al. (2007) database on financial structure database.

Macroeconomic data (Macro) is a standard set of conditioning variables that the literature has found to impact on financial development. It includes real GDP per capita growth to account for economic development. According to the demand driven hypothesis, the growth of an economy will create new demand for financial services. Such increase in demand will push for more sophisticated financial intermediaries able to satisfy the new demand for their services (Yartey, 2008).

Furthermore, we include the inflation rate (IR) and the ratio of government consumption to GDP (GC) as indicators of macroeconomic stability. Studies show that inflation impacts negatively on financial sector performance (Boyd et al. 2001 and Ben Naceur et al. (2007)). Financial intermediaries, intermediate savings to investment projects and mobilize savings, including by attracting a larger amount of capital flows through the financial sector. Thus, we expect savings and investment to be important determinants of financial sector development. We use gross domestic savings as percentage of GDP and gross domestic investment as a percentage of GDP (Yartey, 2008).

Openness variables refer to commercial and capital account liberalization measures. We use the ratio of exports plus imports to GDP (TO) to capture the degree of openness of an economy and the ratio of capital inflows (FDI and FPI) to GDP to measure capital account

openness (Chinn and Ito, 2002). Studies found that current and capital account openness have a positive effect on financial sector development (see also Chinn and Ito, 2002).

In the footstep of Yartey (2008), the paper studies also the impact of four of the components of political risk on stock market development: law and order, bureaucratic quality, democratic accountability, and corruption. Law and Order is an evaluation of the strength and independence of the legal system as well as the popular enforcement of law. It ranges from 0 to 6. Bureaucratic quality assesses the institutional force and quality of bureaucracy. High scores are given to countries where the bureaucracy is independent from political pressure. The variable ranges from 0 to 4. Democratic accountability measures how responsive the government is to its people, on the basis that the less responsive it is, the more likely it is that the government will fall. It ranges from 0 to 6. Corruption measures corruption in the political system. The value ranges from 0 to 6. The higher the value of the corruption index the lower the level of corruption. In other words, countries that have low levels of corruption have high values of the index and vice versa.

Finally, η_i is an unobserved country specific effect, and ε_{it} is the error term for each observation.

4. Empirical analysis

4.1. Univariate analysis

Table 1 provides descriptive statistics for the variables employed in the analysis: credit to the private sector relative to GDP, the size of the financial system as measured by a broad monetary aggregate, M3, relative to GDP, *lly*, the size of the stock market capitalization relative to GDP, *macap,* the degree of liquidity in the stock market as measured by the volume of transactions relative to GDP, *turn,* per capita GDP growth, *gdpg,* initial GDP per capita, *iic,* government consumption, *gc*, inflation, *inf,* savings relative to GDP, *sav,* investment rate, *inv, openness,* as measured by the size of imports and exports relative to GDP, the size of financial inflows relative to GDP as a measure of capital account liberalization, *cflow,* bureaucracy, *bur,* corruption, *corr,* democratic accountability, *demacc,* and law and order, *la.* The direction and size of correlations across these variables, using panel data, are demonstrated in Table 1.

Table 2 proves the mean, minimum and maximum values of selected financial indicators: liquid liabilities/GDP, private credit/GDP, market capitalization/GDP, and turnover/market capitalization.

The first measure, liquid liabilities/GDP, identifies the degree of risk banks may face in response to a sudden request to withdraw deposits. The highest risk is in Jordan and the lowest risk is in Turkey.

Credit to the private sector represents banks' contribution to private sector activity via intermediation. The highest contribution is in Jordan and the lowest contribution is in Syria. There are two factors that underlie these contributions. First, the degree by which economic activity generates private incentives and demand for credit. Second, are banks' decisions on

managing liquidity and assets allocation, balancing risk and return. In this context, fiscal dominance may shrink credit to the private sector, by decreasing the pool of resources and decreasing incentives for private lending.

Market capitalization indicates the size of the stock market. Larger size indicates more developed financial system that has the capacity to import inflows and energize financing, outside the banking system. Across the sample of countries, the highest capitalization is in Bahrain and the lowest is in Tunisia.

Turnover/market capitalization indicates how developed the stock market is, proxied by the size of transactions relative to market capitalization. Higher turnover would signal more activity, implying more confidence in the stock market and the integral role it plays in support of financial development and economic activity. The highest turnover ratio is in Turkey and the lowest is in Bahrain.

<center>**<Insert near here Tables 1 & 2>**</center>

4.2. **Multivariate analysis**

4.2.1. **Model presentation**

Pure cross-section regressions give inconsistent estimations because they suffer from both the omitted variable and endogeneity bias. Cross-section financial sector development analyses lead to biased estimates because the country-specific error term ε_i is likely to contain unobserved country effects as for example differences in the quality of economic policy, and is correlated with the lagged dependent variable. Therefore, cross-section regressions give inconsistent estimates as the assumption that the regressors and the error term are not correlated is violated.

Combining cross-section and time-series data is useful for three main reasons. First, it is necessary when analyzing the financial sector development because it varies over time, and the time-series dimension of the variables of interest provides a wealth of information ignored in cross-sectional studies. Secondly, the use of panel data allows increasing the sample size and the gain in degrees of freedom which is particularly relevant when a relatively large number of regressors and a small number of countries are used which is our case here. Thirdly, panel data estimation can improve upon the issues that cross-section regressions fail to take into consideration, such as potential endogeneity of the regressors, and controlling for country-specific effects.

One issue that may arise from the use of panel data is whether the individual effect is considered to be fixed or random. On the one hand, while random effects estimation addresses the endogeneity issue by incrementing potentially endogeneous variables, it also assumes that the individual firm effects are uncorrelated with the exogeneous variables. On the other hand, the fixed effect estimation deals successfully with the correlated effects problem, yet it fails to account for potential endogeneity of regressors. Further, as shown by Nickell [1981], due to the correlation between the time varying component of the error term and the lagged dependant variable, in a finite dynamic panel model with fixed T, the parameter estimates under fixed effects estimation will be biased and inconsistent.

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In order to test whether the firm-specific effect exists, we test the hypothesis that the constant terms are all equal by estimating separately two models: the fixed effects model and the pooled model, where all firms are restricted to having identical intercepts.

However, in a random effects model, the intercept is held constant and represents no longer an individual cross-sectional unit whereas ε_{it}, the stochastic error term, becomes the disturbance specific to cross-sectional unit: $\varepsilon_{it} = \mu_i + \upsilon_{it}$. It reflects the error component disturbances and has no longer a constant variance. The individual specific effects are random and normally distributed as $\mu_i \to IIN\left(0, \sigma_\mu^2\right)$. They are independent of the residual terms υ_{it} which are also normally distributed as $\upsilon_{it} \to IIN\left(0, \sigma_\upsilon^2\right)$. The estimation of the model is conducted by the feasible generalized least squares method. First, convergent estimates of the variances σ_μ^2 and σ_υ^2 are needed. $\hat{\upsilon}_{it}$ are the residuals issued from the estimation of the above fixed effects model and thereafter $\hat{u}_{it}$ are obtained from the estimation of the unit means regression. The second stage consists in the estimation by ordinary least squares of the following transformed regression model:

$$y_{it} + \left(\sqrt{\hat{\theta}_i} - 1\right)y_{i.} = \beta'\left(X_{it} + \left(\sqrt{\hat{\theta}_i} - 1\right)X_{i.}\right) + \varepsilon_{it} + \left(\sqrt{\hat{\theta}_i} - 1\right)\varepsilon_{i.}$$

with: $$\hat{\theta}_i = \frac{\hat{\sigma}_\upsilon^2}{\hat{\sigma}_\upsilon^2 + T_i\hat{\sigma}_\mu^2} \qquad i = 1, \cdots, N$$

Subsequently, Hausman test is performed so as to choose the most appropriate model (See Hausman [1978]). The test statistic is asymptotically distributed as chi-square under the null hypothesis that the correlation between the stochastic error term and explanatory variables is null and hence the random effects model is more suitable compared to the fixed effects model.

To verify the robustness of the FE and RE results obtained thus far we conduct a number of additional estimations. First, to control for common time effects, we run a two-way fixed and random effect model including country and time dummies. Second, to address the potential for reverse causation we conduct FE and RE estimations substituting regressors for their lags.

4.2.2. Estimation results

Table 3 summarizes the results explaining liquid liabilities using pooled data for countries in the MENA region. We estimate three model specifications; each has three versions. A summary of the results is as follows.

An increase in liquid liabilities indicates further development of the financial system. Across most specifications, the evidence indicates robust negative and significant effect of real growth on liquid liabilities in the financial system. Higher growth, while stimulating

economic activity and savings, does not contribute to the pool of resources for financial intermediation. Government spending crowds out private activity with adverse effects on financial development. The bulk of the evidence indicates that an increase in government consumption has a negative significant effect on financial sector development. Inflation erodes the purchasing power of savings, decreasing incentives for liquid asset accumulation and shrinking the pool of liquid liabilities for financial development. In support of this hypothesis is the negative and significant response of liquid liabilities to higher inflation, which is robust across most model specifications. A priori, one would expect a positive relationship between savings and liquid liabilities in the financial system. As agents accumulate more savings, they seek opportunities to mobilize these resources, including in the financial system. The evidence, however, suggests that concerns about the viability of financial savings dominate. Accordingly, liquid liabilities are not rising with savings; implying agents are aggressively seeking alternative viable opportunities outside the banking system.

The size of the financial system increases with investment opportunities. More opportunities increase banks' drive to expand and attract liquid liabilities. In support of this evidence is the positive and significant effect of investment on liquid liabilities and financial development across most model specifications.

Empirical models that include trade openness provide evidence in support of the positive effect of openness on liquid liabilities. An increase in the volume of trade increases opportunities for financial integration and economic growth. Both factors are bound to increase inflows and mobilize domestic savings, increasing liquid liabilities in support of financial system development. More direct evidence of the positive effect of financial liberalization is supported by the effect of financial inflows on financial development. More inflows increase liquid liabilities in the financial system, supporting further financial development.

Bureaucracy appears to influence financial development negatively, as evident by the negative significant sign in two specifications. Bureaucracy decreases efficiency, preventing further development of the financial system. The evidence regarding the effect of consumption on financial development appears to be mixed. Consistent with the negative sign for bureaucracy, the evidence in model (6) spells out a negative effect of corruption on financial development. Corruption decreases efficiency, hindering further development of the financial system. Nonetheless, the evidence is not robust across other specifications.Democracy accountability does not appear to be an important determinant of financial development. Contrary to expectations, where the evidence is significant the sign is negative, indicating contraction in liquid liabilities in response to improved accountability.The evidence supports improvement in financial development with rule of law. The quality of institutions and transactions is improved with rule of laws, attracting more financial inflows and boosting confidence to increase deposits in the banking system.

Overall, the evidence indicates the importance of growth to support financial development, underpinned by quality institutions and a high degree of trade openness and

financial integration. However, higher government spending and inflation could present a major deterrence to private activity, hindering financial development.

<Insert near here Table 3>

Table 4 presents the results of the models explaining credit to the private sector across various specifications. Higher growth increases incentives for private investment. However, higher growth and private incentives are not compatible with an expansion in credit to the private sector. The evidence is robust across most model specifications.

Higher government spending shrinks resource availability, crowding out private activity. Accordingly, higher government consumption has a negative and significant effect on credit growth to the private sector. Inflation discourages decisions for private activity as it increases inflationary expectations and encourages capital outflow. Accordingly, demand for credit decreases. Similarly, the supply of credit may be adversely affected due to a shrinking pool of financial savings as agents diversify away from liquid assets to avoid the risk of the inflationary tax. Consistent with the evidence for liquid liabilities, higher savings do not increase credit to the private sector. Higher savings are mobilized outside financial institutions, establishing a negative correlation with growth in credit to the private sector. In contrast, investment mobilizes resources in the banking system, resulting in an increase in private credit growth. More investment increases demand for credit, enhancing financial intermediation.

Trade openness stimulates financial inflows and economic activity. The former channel increases the pool of resources in the financial system in support of credit growth. Similarly, the latter channel increases demand for credit, resulting in significant increase in credit to the private sector. Similarly, financial flows increase available resources in the financial system, resulting in credit expansion. The evidence is limited, however to one model specification.

The negative effect of bureaucracy on credit growth is robust. Bureaucracy hampers financial development and credit growth. The effect of corruption on credit growth is mixed. The bulk of the evidence is positive, which confirms the expected outcome. Rule of law enhances efficiency and restores credibility and confidence in the financial system. Consistently, rule of law has a robust significant effect on credit growth.

<Insert near here Table 4>

Table 5 illustrates determinants of capital market development, proxied by the size of the stock market. Real growth helps to expand activity in the stock market by reviving confidence. The evidence supports this conjecture in most specifications.

Government consumption has a negative significant effect on stock market activity and the size of trading. Higher government spending crowds out private investment, shrinking the size of the stock market. In contrast to the evidence regarding financial development, inflation does appear to have a positive effect on capital market development. One possible explanation may be related to measuring market valuation, which is likely to be affected by

inflation. For example, as agents diversify away from liquid assets to hedge against inflation, they increase their possession of stock shares, increasing market valuation. The negative significant effect of savings on stock market valuation is evident in two specifications, while the positive effect is significant in one specification. The mixed evidence indicates that stock shares, similar to banks' deposits, do not grow in proportion to savings, implying a tendency to diversify away from financial assets, e.g., into real estate assets, as savings accumulate. The evidence regarding the effect of investment on stock market valuation is in sharp contrast to that on banking indicators. Where significant, investment has a negative effect on stock market valuation. Investment drives activity positively in the banking sector to avail necessary credit. In contrast, investment drives resources away from trading in the stock market. Credit to the private sector appears to be mostly growing with stock market valuation. The implication is that both are dependent on economic activity and real growth. Higher growth stimulates demand for credit and revives stock market activity.

Similarly, openness appears to be an important determinant of stock market valuation. Higher integration in the world economy through trade linkages increases opportunities to attract inflows and revive economic conditions. Both factors are likely to have positive spill overs on stock market activity and valuation. In the same vein, capital inflows have a clear positive effect on stock market development. Inflows increase the demand for portfolio investment, contributing to better valuation of equity shares.

The impact of institutional quality indicators appears less relevant to stock market development, compared to banking development indicators. The latter are more vulnerable to institutional quality, reflecting the more complex role they play in financial intermediation. In contrast, stock market activity is subject to less bureaucratic constraints and is more dependent on market forces. Specification (9) spells out a few interesting significant results of institutional relevance to stock market development. Corruption decreases stock market activity, while democratic and rule of law revive capital market development. These indicators provide important signals that guide investors' sentiment regarding potential risks and prudential responses.

Overall, stock market development, similar to financial sector development, improves with economic growth as well as trade and financial integration. Further, government consumption hampers development of both the banking system and the stock market. Important differences relate to the inflationary effect, which appears more detrimental to banking sector development, compared to stock market development. Moreover, investment is more relevant to reviving development in the banking system; investment is less relevant to stock market development, reflecting competition between financial and physical investment.

<center>**<Insert near here Table 5>**</center>

Table 6 presents the results explaining the second indicator of capital market development, market depth as measured by the ratio of turnover to market valuation. The evidence provides further support for the role of growth in reviving stock market development. In contrast to the previous results, government consumption has a positive effect on market depth. One possible explanation relates to government financing, which

deepens the financial market by availing government securities for trading. Investors may interchange government securities and equity shares in their portfolio, balancing out risk and return. A larger value of trading, relative to market size, establishes a positive relationship between government consumption and financial deepening.

Where the evidence is significant, inflation has a positive effect on financial deepening. Inflation forces a substitution away from liquid assets into alternative financial assets, including equity shares, increasing the size of trading the stock market and, therefore, financial deepening. Once again, the evidence demonstrates a negative significant relationship between savings and financial deepening. Higher savings are not passed through to financial assets, implying more dominance of physical assets, e.g., real estate, as a share of the savings pool. The relationship between investment and financial deepening is mostly negative. Higher investment, e.g., a real estate boom, absorbs liquid savings with negative effects on stock market trading and financial deepening. This relationship is further reinforced by the negative relationship between private credit and financial deepening. An increase in private credit avails opportunities from financing, shifting away from stock market financing, while absorbing a larger share of liquid assets.

The evidence remains robust regarding the positive relationship between openness and financial deepening. A larger trade value forces a larger degree of integration into the global economy. Subsequent increase in growth and savings help mobilize stock market activity. Surprisingly, however, none of the coefficients on financial flows are statistically significant, discounting the relevance of financial liberalization in boosting inflows and reinforcing financial deepening.

Institutional quality, as measured by rule of law, has a positive significant effect on financial deepening. Better laws and enforcement boost investors' confidence in the institutional support for stock market activity, stimulating further trading. In contrast, democracy accountability does not support a higher degree of financial deepening. The implication is promoting democracy does not have a direct bearing on financial deepening.

Overall, the evidence remains robust regarding the positive effects of growth and openness on financial development and deepening. Savings are mostly absorbed in non-financial assets that support investment. Credit to the private sector diverts resources away from the stock market. In contrast, government consumption boosts interest in financial investment, in support of further trading activity in the stock market. The rule of law is an important condition that increases investors' confidence in the legal and enforcement backing of economic transactions.

\<Insert near here Table 6\>

5. Conclusion

The study has considered determinants of financial sector development in the MENA region. Four indicators of financial development are under consideration: banks' indicators (liquid liabilities and credit to the private sector) and non-bank indicators (the size of the stock market and its depth). The determinants under consideration include macroeconomic fundamentals (real growth, price inflation, savings, investment, trade openness, and financial liberalization), a fiscal policy indicator (government consumption) and institutional quality indicators (bureaucracy, corruption, and democratic accountability).

In general, growth does not promote banking activity; it promotes development of the stock market. The difference indicates the underdevelopment of the banking system in MENA countries, implying limited efforts to press ahead with further development in response to higher growth. In contrast, a surge in stock market activity has been responsive to higher economic activity that creates opportunities for financial diversification in light of the underdevelopment of the banking system.

Another major difference between bank and non-bank development relates to the role of inflation. Inflation discourages banking activity as agents fear the effect of inflation on the value of liquid assets in the banking system. Alternatively, agents seek more risky opportunities in the stock market as they may perceive potential return as an opportunity to hedge against the risk of higher inflation.

Apparently, the bulk of savings is absorbed outside the banking sector and the stock market. Various development indicators respond negatively to higher savings, implying more attractive opportunities in real estate and other physical assets.

The effects of investment are in sharp contrast between bank and non-bank financial development. Higher investment mobilizes resources in the banking sector with positive effects on development indicators. In contrast, investment growth diverts resources away from stock market development.

The impact of trade openness is robust on indicators of bank and non-bank financial development. Across various specifications, openness promotes financial activity in support of more trade integration. Similarly, financial liberalization increases inflows that contribute to further financial development.

Increased government spending crowds out private activity, hindering financial development. Institutional quality, particularly rule of law, promotes financial development by signalling confidence in the quality of the legal system in support of economic activity.

Overall, the results send strong signals regarding the role of macroeconomic fundamentals and institutional quality in promoting financial sector development. Bank and non-bank sectors appear, in general, complementary with respect to various determinants, necessitating parallel tracks in both sectors to maximize the value added of financial development on economic activity. A more developed financial system would support further growth, promoting even larger and deeper financial sector.

Table 1: Descriptive Statistics, 1961-2006, 12 countries

	cps	lly	mcap	turn	gdpg	iic	gc	inf	sav	inv	trade	cflow	bur	corr	demacc	la
Mean	0.34	0.52	0.36	0.36	0.02	3.53	0.18	0.12	0.21	0.23	0.70	1.09	2.04	2.78	2.66	3.82
Std Deviation	0.21	0.24	0.36	0.50	0.06	4.37	0.05	0.16	0.14	0.07	0.38	1.68	0.55	.73	1.30	1.28
Minimum	0.02	0.05	0.01	0.01	-0.16	0.43	0.08	-0.01	-0.20	0.09	0.14	-1.61	0.42	1.42	0.00	1.00
Maximum	0.88	1.31	2.40	2.41	0.21	19.55	0.35	1.06	0.80	0.49	2.51	13.58	3.00	4.00	6.00	6.00
Correlation																
cps	1.00															
lly	0.74	1.00														
macap	0.56	0.60	1.00													
turn	-0.33	-0.22	0.21	1.00												
gdpg	-0.09	-0.19	-0.03	0.12	1.00											
iic	0.10	-0.05	0.40	0.29	-0.09	1.00										
gc	0.44	0.32	0.34	-0.07	-0.33	0.53	1.00									
inf	-0.65	-0.51	-0.26	0.48	-0.06	-0.16	-0.47	1.00								
sav	-0.46	-0.69	-0.36	0.10	0.08	0.36	-0.15	0.14	1.00							
inv	0.05	-0.01	-0.10	-0.20	0.10	-0.54	-0.29	0.17	-0.04	1.0000						
trade	0.77	0.60	0.60	-0.11	-0.15	0.20	0.61	-0.49	-0.47	0.06	1.00					
cflow	0.22	0.10	0.23	0.06	0.16	-0.19	-0.14	-0.06	-0.25	0.11	0.18	1.00				
bur	-0.30	-0.31	-0.10	0.16	0.02	0.01	0.02	0.36	0.13	0.09	-0.09	-0.11	1.00			
corr	-0.03	0.02	0.01	-0.18	-0.11	-0.18	0.10	0.04	-0.10	0.33	0.14	-0.10	0.39	1.00		
demacc	-0.25	0.02	0.12	0.24	0.08	-0.13	-0.35	0.46	-0.09	0.28	-0.15	0.06	0.21	0.32	1.00	
la	0.13	-0.09	0.16	0.13	0.11	0.32	0.18	-0.24	0.38	-0.14	0.01	0.03	0.16	0.11	-0.16	1.00

Table 2 : Indicators of Financial System Development in the MENA region

	Liquid Liabilities/GDP			Credit to Private Sector/GDP			Market Capitalization/GDP			Turnover/Market Capitalization		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Algeria	0.53	0.32	0.79	0.33	0.04	0.70						
Bahrain	0.64	0.45	0.78	0.48	0.28	0.62	0.96	0.87	1.06	0.05	0.03	0.06
Egypt	0.64	0.34	1.01	0.29	0.15	0.60	0.22	0.04	0.66	0.18	0.05	0.43
Iran	0.40	0.23	0.66	0.28	0.19	0.43	0.20	0.03	0.82	0.18	0.02	0.54
Jordan	0.99	0.63	1.31	0.64	0.32	0.88	0.71	0.15	2.40	0.19	0.05	0.85
Kuwait	0.75	0.51	0.95	0.58	0.37	0.71	0.80	0.53	1.23	0.76	0.21	1.44
Morocco	0.53	0.30	1.02	0.29	0.13	0.61	0.25	0.02	0.67	0.13	0.03	0.47
Oman	0.31	0.26	0.38	0.32	0.21	0.45	0.20	0.09	0.41	0.24	0.10	0.79
Saudi Arabia	0.35	0.05	0.52	0.43	0.02	0.74	0.49	0.28	1.54	0.60	0.07	2.32
Syria	0.44	0.23	0.71	0.09	0.03	0.23						
Tunisia	0.52	0.46	0.59	0.61	0.49	0.67	0.11	0.05	0.21	0.11	0.03	0.22
Turkey	0.29	0.19	0.50	0.16	0.13	0.29	0.16	0.01	0.46	1.00	0.01	2.41

Table 3: The Determinants of the Financial System Development (Liquid liabilities)

	FEM or REM			Two-ways FEM or REM			FEM or REM with lag		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
gdpg	-0.641	-0.906	-0.279	-0.378	-0.819	-0.299	-0.712	-0.858	-0.167
	(4.04)***	(5.52)***	(1.66)*	(3.02)***	(3.61)***	(1.55)	(4.60)***	(5.05)***	(0.90)
gc	-0.857	-1.236	1.073	-0.219	-0.443	0.151	-0.587	-0.833	1.342
	(3.60)***	(5.12)***	(3.95)***	(1.18)	(1.59)	(0.51)	(2.33)**	(3.30)***	(4.20)***
inf	-0.215	-0.139	-0.112	-0.137	-0.478	0.059	-0.178	-0.188	-0.103
	(2.60)***	(1.72)*	(1.80)*	(2.07)**	(7.04)***	(0.82)	(2.00)**	(2.20)**	(1.38)
sav	-0.457	-0.518	-0.524	-0.395	-0.970	-0.661	-0.185	-0.139	0.032
	(3.94)***	(3.51)***	(4.19)***	(4.13)***	(9.16)***	(4.88)***	(1.43)	(0.86)	(0.20)
inv	0.543	-0.014	0.066	0.574	1.037	0.741	0.611	-0.007	-0.546
	(3.42)***	(0.08)	(0.34)	(3.80)***	(4.65)***	(3.28)***	(3.84)***	(0.04)	(2.47)**
trade		0.369	0.347		0.183	-0.180		0.280	0.137
		(4.55)***	(4.99)***		(3.08)***	(1.97)*		(3.38)***	(1.67)*
cflow		0.011	0.003		-0.006	-0.001		0.022	0.013
		(1.96)**	(0.80)		(0.88)	(0.14)		(2.96)***	(2.28)**
bur			-0.066			0.012			-0.086
			(3.84)***			(0.65)			(4.40)***
corr			0.005			0.065			0.009
			(0.45)			(4.23)***			(0.70)
dem_acc			0.007			-0.036			0.000
			(0.89)			(3.86)***			(0.05)
l_a			0.023			0.086			0.024
			(3.45)***			(6.11)***			(3.07)***
Constant	0.712	0.656	0.315	0.237	0.446	0.125	0.582	0.576	0.482
	(9.24)***	(6.72)***	(4.06)***	(2.81)***	(4.17)***	(1.30)	(9.33)***	(6.68)***	(5.48)***
Nbr. Obs	331	258	186	331	258	186	309	243	171
Nbr. Countries	12	10	10	12	10	10	12	10	10
R² within	0.1137	0.2460	0.4540	0.6376	0.4848	0.6477	0.1105	0.1924	0.3500
R² between	0.2756	0.4435	0.3886	0.3509	0.5965	0.3633	0.2449	0.4003	0.1092
R² overall	0.2815	0.4642	0.4799	0.4754	0.6359	0.4803	0.2015	0.4138	0.2308
F test			43.40***	37.89***		59.79***	22.98***		36.08***
Wald test	44.47***	83.56***			375.52***			58.94***	
Hausman test	3.13	0.72	1043.45***	37.89***	2.20	138.90***	16.60***	8.67	1074***

Table 4: The Determinants of the Banking Sector Development (Credit to Private Sector)

	FEM or REM			Two-ways FEM or REM			FEM or REM with lag		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
gdpg	-0.458	-0.560	-0.249	-0.400	-0.639	-0.299	-0.491	-0.474	0.002
	(3.48)***	(3.61)***	(1.14)	(2.87)***	(2.86)***	(-1.55)*	(3.86)***	(3.08)***	(0.01)
gc	-0.541	-0.847	0.239	-0.289	-0.203	0.151	-0.511	-0.815	0.333
	(2.69)***	(3.67)***	(0.68)	(1.41)	(0.74)	(0.51)	(2.52)**	(3.49)***	(0.96)
inf	-0.310	-0.235	-0.141	-0.209	-0.269	0.058	-0.374	-0.321	-0.181
	(4.45)***	(3.05)***	(1.76)*	(2.83)***	(4.02)***	(0.82)	(5.19)***	(4.03)***	(2.25)**
sav	-0.561	-0.266	-0.512	-0.670	-0.107	-0.661	-0.382	-0.016	-0.285
	(5.65)***	(1.84)*	(3.17)***	(6.29)***	(1.03)	(-4.88)***	(3.69)***	(0.10)	(1.64)
inv	0.585	0.520	0.646	0.907	0.662	0.741	0.734	0.638	0.344
	(4.40)***	(3.07)***	(2.56)**	(5.39)***	(3.01)***	(3.28)***	(5.66)***	(3.70)***	(1.43)
trade		0.033	-0.018		0.366	-0.179		0.011	-0.139
		(0.41)	(0.20)		(6.25)***	(-1.97)**		(0.13)	(1.57)
cflow		0.008	0.004		0.009	-0.001		0.008	0.004
		(1.56)	(0.82)		(1.28)	(-0.14)		(1.17)	(0.67)
bur			-0.024			0.012			-0.060
			(1.08)			(0.65)			(2.83)***
corr			0.016			0.065			0.030
			(1.11)			(4.23)***			(2.04)**
dem_acc			-0.017			-0.035			-0.014
			(1.65)			(-3.86)***			(1.40)
l_a			0.040			0.086			0.047
			(4.59)***			(6.11)***			(5.61)***
Constant	0.511	0.424	0.222	0.215	0.038	0.124	0.450	0.379	0.321
	(6.85)***	(7.01)***	(2.22)**	(2.29)**	(0.33)	(1.30)	(5.92)***	(6.21)***	(3.37)***
Nbr. Obs	331	258	186	331	258	186	309	243	171
Nbr. Countries	12	10	10	12	10	10	12	10	10
R² within	0.1918	0.1375	0.2772	0.4098	0.1725	0.5782	0.1962	0.1575	0.3455
R² between	0.0442	0.1051	0.3134	0.1375	0.7532	0.0119	0.0899	0.0612	0.0847
R² overall	0.1148	0.2052	0.3561	0.2716	0.5232	0.1870	0.1513	0.1423	0.1685
F test		20.88***	21.52***	27.06***		6.17***		19.39***	23.13***
Wald test	74.50***				235.94***		72.51***		
Hausman test	0.5918	27.24***	77.93***	321.52***	33.82	36.38	2.84	32.80***	46.65***

Table 5: The Determinants of Capital Market Development (Market Size)

	FEM or REM			Two-ways FEM or REM			FEM or REM with lag		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
gdpg	1.084	0.260	0.376	0.383	2.504	0.376	1.514	1.282	0.835
	(2.17)**	(0.85)	(0.99)	(0.72)	(2.63)***	(0.99)	(2.97)***	(2.59)**	(1.48)
gc	-1.740	-2.107	-1.995	-1.929	2.096	-1.995	-1.056	-2.398	-2.146
	(2.69)***	(4.51)***	(3.41)***	(2.97)***	(2.20)**	(3.41)***	(1.28)	(2.86)***	(2.22)**
inf	0.084	0.121	0.120	0.428	1.430	0.120	0.238	0.333	0.377
	(0.46)	(1.05)	(0.84)	(2.54)**	(7.11)***	(0.84)	(1.07)	(1.61)	(1.57)
sav	-0.169	-0.506	-0.449	-1.029	-0.776	-0.449	0.927	-0.333	-0.511
	(0.52)	(1.91)*	(1.54)	(3.01)***	(2.17)**	(1.54)	(1.81)*	(0.63)	(0.88)
inv	0.133	-0.072	-0.075	0.108	-2.209	-0.075	-0.775	-1.163	-1.524
	(0.24)	(0.20)	(0.17)	(0.21)	(2.77)***	(0.17)	(1.35)	(2.02)**	(2.30)**
cps	1.387	0.852	0.776	0.328	-0.915	0.776	0.900	0.807	0.203
	(6.59)***	(5.94)***	(3.50)***	(1.19)	(2.86)***	(3.50)***	(4.01)***	(3.70)***	(0.60)
trade		0.639	0.646		0.512	0.646		0.768	0.420
		(5.21)***	(4.53)***		(2.43)**	(4.53)***		(3.55)***	(1.78)*
cflow		0.038	0.039		-0.011	0.039		0.006	-0.006
		(5.55)***	(5.38)***		(0.63)	(5.38)***		(0.44)	(0.43)
bur			-0.002			-0.002			-0.049
			(0.03)			(0.03)			(0.53)
corr			0.011			0.011			-0.164
			(0.37)			(0.37)			(3.60)***
dem_acc			-0.009			-0.009			0.080
			(0.50)			(0.50)			(2.93)***
l_a			0.013			0.013			0.086
			(0.65)			(0.65)			(2.74)***
Constant	0.065	-0.149	-0.204	1.370	-0.044	-0.204	0.109	0.084	0.660
	(0.27)	(1.06)	(0.97)	(4.89)***	(0.08)	(0.97)	(0.44)	(0.35)	(2.02)**
Nbr. Obs	154	137	128	154	134	128	147	132	122
Nbr Countries	10	8	8	10	8	8	10	8	8
R² within	0.3170	0.6193	0.5891	0.6601	0.7045	0.6823	0.2506	0.3294	0.3821
R² between	0.1324	0.1491	0.1931	0.1304	0.0682	0.1076	0.0888	0.2438	0.1781
R² overall	0.2256	0.3662	0.3566	0.1624	0.3959	0.3754	0.0269	0.3361	0.2167
F test		39.45***	27.43***	15.85***	27.28***	21.40***	9.75***	11.14***	6.83***
Wald test	64.34***								
Hausman test	6.10	171.63***	49.59***	142.37***	64.22***	151.89***	54.89***	15.80***	63.74***

Table 6: The Determinants of Capital Market Development (Market depth)

	FEM or REM			Two-ways FEM or REM			FEM or REM with lag		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
gdpg	2.401	1.747	1.715	1.830	1.839	2.070	1.215	1.329	1.111
	(2.89)***	(2.48)**	(2.29)**	(2.00)**	(2.34)**	(2.71)***	(1.57)	(1.98)*	(1.46)
gc	2.943	2.060	3.512	5.591	5.379	5.015	1.841	3.154	3.368
	(2.47)**	(1.90)*	(2.96)***	(4.68)***	(4.96)***	(4.53)***	(2.37)**	(2.76)***	(2.55)**
inf	0.119	0.324	0.041	0.209	-0.012	-0.069	1.390	0.817	0.554
	(0.38)	(1.20)	(0.15)	(0.72)	(0.05)	(0.26)	(5.16)***	(2.85)***	(1.68)*
sav	2.147	0.744	0.188	1.051	-0.084	-0.176	1.246	1.877	1.178
	(3.56)***	(1.21)	(0.32)	(1.79)*	(0.14)	(0.29)	(2.86)***	(2.61)**	(1.46)
inv	-1.428	-2.087	-0.575	-0.436	0.020	0.488	-1.478	-2.022	-1.459
	(1.49)	(2.50)**	(0.64)	(0.42)	(0.02)	(0.52)	(2.01)**	(2.57)**	(1.60)
cps	0.494	0.071	-1.340	-1.983	-1.721	-1.494	0.494	0.343	-0.372
	(1.33)	(0.22)	(3.07)***	(4.02)***	(4.06)***	(3.33)***	(1.78)*	(1.15)	(0.82)
trade		1.453	1.397		0.685	0.724		1.069	0.911
		(5.14)***	(4.97)***		(2.12)**	(2.20)**		(3.62)***	(2.82)***
cflow		0.024	0.024		-0.002	0.000		0.026	0.020
		(1.53)	(1.64)		(0.13)	(0.01)		(1.29)	(0.97)
bur			0.113			-0.077			0.080
			(0.98)			(0.62)			(0.63)
corr			-0.064			0.011			-0.089
			(1.08)			(0.17)			(1.44)
dem_acc			-0.071			-0.084			-0.036
			(2.12)**			(2.47)**			(0.97)
l_a			0.144			-0.075			0.062
			(3.68)***			(1.21)			(1.53)
Constant	-0.523	-0.927	-1.088	0.492	-0.934	-0.478	-0.336	-1.170	-0.767
	(1.32)	(2.72)***	(2.56)**	(1.00)	(2.21)**	(1.05)	(1.16)	(3.58)***	(1.71)*
Nbr. Obs	152	134	127	152	134	127	147	132	123
Nbr Countries	10	8	8	10	8	8	10	8	8
R² within	0.1326	0.2734	0.4280	0.5298	0.6124	0.6378	0.1309	0.2811	0.2655
R² between	0.0195	0.0001	0.0001	0.1281	0.0198	0.0069	0.5337	0.0196	0.0267
R² overall	0.0423	0.0001	0.0235	0.2643	0.1742	0.747	0.3617	0.0245	0.0471
F test	4.88***	8.95***	9.12***		12.25***	11.38***		5.15***	3.41***
Wald test				375.52***			37.12***		
Hausman test	45.55***	75.54***	84.69***	2.20	87.17***	137.08***	2.14	318.23****	26.30***

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PART 3

THE IMPACT OF FINANCIAL SECTOR DEVELOPMENT ON ECONOMIC AND TOTAL FACTOR PRODUCTIVITY GROWTH: EVIDENCE FROM MENA REGION

1.Introduction

Nowadays, the development of the financial sector is considered the most significant factor in enhancing the development of economies in both developed and emerging countries. This statement is true as observed in the majority of the world economies as well as reported by a long list of studies which tried to connect between the financial sector and economic development. This is accomplished through the accumulation of local savings that can be directed to investment and economic projects. In addition, a more developed financial system facilitates the transmission of FDI flows to the macroeconomy. Indeed, advanced economies are characterized by a sophisticated financial system. More recently, investment in the financial sector has surged in many Arab countries. The evidence indicates that many MENA countries have been expanding the financial system both vertically and horizontally as expressed by diversity of institutions, financial instruments, range of financial services and financial products. The financial sector includes both financial markets and financial institutions. Financial institutions include depository institutions and non-depository institutions, including commercial banks, development banks, insurance firms, pensions funds and corporations, retail brokers and brokerage firms, money changers firms, mortgage and housing financing corporations and financing Leasing firms.

The total bank lending in Arab countries (the main component of the MENA region) was about $ 18 billions in 2005, which was ahead of all other channels of capital flows including cross- boarder loans, bonds flow, and private debt flows (World Bank, Global Development finance, 2006a). On the other side, the size of the Arab economy has increased significantly since 2000. For example, Gross Domestic Product (GDP) has increased from $ 709 billion in 2000 to $ 1276 billion in 2006, which is mainly due to the increased value of exported oil from $ 243 billion to $ 660 billion over the same period. Concurrently, per capita GDP increased from $ 2540 to $ 4142 per capita (AMF, Economic report, 2000, and 2007). Nonetheless, the extent of economic development has varied across MENA countries, as evident by variation across a variety of indicators including human development capturing educational and health aspects (Sabri, 2008). For example, the majority of the Arab states have accomplished a significant increase in the human development index between 1975 and 2005, ranging between 10% and 40% (UNDP, 2006a). In addition, the UNDP Arab report (2006b) stated that Arab countries have undoubtedly attained significant achievements in the advancement of women.

Against this background, this study tries to trace the effect of financial sector development on economic development in the MENA world (adding Iran and Turkey to Arab states) using financial data from 1975 to 2005. The remainder of the paper is organized as follows. Section 2 reviews the literature on the subject. Section 4 presents the data and methodology. Section 4 discusses the findings and Section 5 concludes.

2.Relevant Literature

The review of the literature will be organized in two sections. First, we review the literature regarding development of the MENA financial sector, in general, and the banking sector, in particular, including major issues facing the MENA banking system. The second section is devoted to covering the relationship between the financial sector and economic growth in the MENA world.

2.1Development of the MENA financial system:

The majority of studies on the subject reported that the financial sector in MENA countries witnessed great improvements in all aspects of financial management, policies, and technical innovation, as well as in the degree of financial openness.

For example, Eltony (2003) reported that the implementation of financial reforms leads to improvement in the banking sectors in a number of MENA countries, including Syria, Algeria and Yemen. Islam (2003) reported that commercial banks in GCC economies are financially sound by international standards, and their operations can be characterized by satisfactory asset quality that goes beyond the minimum BIS capital/asset ratio. Bhattacharya (1995) reported that the banking and financial sector of the MENA Gulf region is characterized by deregulation, globalization, product innovation, and developments in technology. Wright (1995) study indicates that Middle Eastern banks possess significantly higher capital to assets ratios than both world and U.S. banks, and very few Middle Eastern banks failed to meet the Basel minimum capital ratio. Ramanathan (2007) shows that banks in four of the six GCC countries (Bahrain, Kuwait, Saudi Arabia and the UAE) registered productivity improvements during 2000-2004. Hassan et al. (2007) found that UAE banks are somewhat efficient in managing risk, risk identification, and risk assessment. Hassan et al. (2004) found that Bahrain banks have improved their efficiency levels, especially larger banks. Darrat, et al. (2003) indicated that all banks have improved their efficiency-levels and experienced some gains in productivity. However, the degree of improvement in this sector has varied from one MENA state to another and from Oil MENA states to Non- Oil MENA states. Moreover, the degree of efficiency of managing the MENA banks is different based on ownership, size, and legal entity bases. The perception in the MENA economy is that private banks are more efficient than public banks and foreign banks are more efficient than national banks.

For example, a recent study issued by the IMF examined the development of the banking sector and reported that, some MENA states may belong to the high level of financial development index including Bahrain, Lebanon, Jordan, Kuwait, UAE and, Saudi Arabia. Other MENA states may be ranked in a lower subcategory based on the financial development index: Oman, Qatar, Tunisia, Egypt, and Morocco (Creane, et al. 2004).

In addition, other studies concluded that there is further scope for financial sector development, especially on the technical front and risk management as these banks press ahead with financial openness. For example; Limam (2001) suggested that the efficiency and management of GCC banks can be improved by increasing bank size through resource consolidation, mergers and alliances with other banks. Presley (1992) concluded that there is a need for greater risk management, not only in terms of loan recovery, but also in relation to more effective portfolio management. Mostafa (2007) indicated that the performance of several banks is sub-optimal, suggesting the potential for significant improvements. Khalfan et al, (2006) found that the MENA Gulf banks have been slowing to launch e-banking services due to security and data confidentiality issues.

2.2   The role of financial sector development in economic growth

The role of the financial sector in economic growth has been long debated. The bulk of the literature has reached a consensus that financial development is an important determinant of economic growth. The consensus is based on a wide spread evidence of a positive correlation between banking development and economic growth, particularly among emerging and underdeveloped economies and, in some cases, among countries with a relatively more mature financial sector. While some studies have elaborated on the theoretical underpinnings of the relationship between financial development and economic growth, others have provided compelling empirical evidence.

For example, Cetorelli, and Gambera, (2001) stated there is an evidence of a positive relationship between the level of development of the banking system of an economy and its long-run growth. Patrick (1966) stated that the financial sector of the underdeveloped economies has great impact on economic growth. While investing in financial sector development stimulates economic growth, particularly in early stages of development, this role may become less effective over time. Theil (2001) reported that financial development is important to economic growth even in industrial countries. Levine, (2003) who reviewed the majority of the studies regarding this issue found that countries with better-developed financial systems tend to grow faster. Thangavely and Jiunn (2004) concluded that financial intermediaries and financial markets in Australia have different impacts on economic growth given their diverse roles in the domestic economy. Arestis et al. (2001) reported that both bank and stock market development lead to economic growth, but the impact of banking sector development is more than that of stock market development. Beck, and Levine, (2004) using a panel data set for the period 1976-98 and applying recent GMM techniques find that stock markets and banks positively influence economic growth. Shan, et al. (2001) present evidence of bidirectional causality between financial development and growth in half of the countries. Hondroyiannis et al. (2005) examine the relationship between the development of the banking system and economic performance in Greece and found that both bank and stock market financing can promote economic growth in the long run. Papaioannou, (2007) reports that financial development fosters aggregate growth in both emerging economies by lowering the cost of capital, and in advanced economies by raising total-factor-productivity.

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Similar findings were reported by studies that have considered the relationship between the financial system and economic growth in the MENA world. Nabi and Suliman (2007) considering twenty-two MENA countries over the period 1984-2004, reported that the contribution of banking development to economic growth is more intense in countries with more developed institutions. Ghannadian, and Goswami (2004) concluded that Islamic banking may help in promoting growth and economic development. Ghali, (1999) investigated empirically this issue in Tunisia and found a stable long-run relationship between the development of the financial sector and the evolution of per capita real output.

The impact of the financial sector on economic growth is also reported by studies that explored this issue across countries in various regions: Law, et al. (2007) found that finance in Malaysia as an open emerging market does play a crucial role in promoting economic growth. Khan and Qayyum, (2006) reported that both trade and financial policies play an important role in enhancing growth in Pakistan in the long-run. Christopoulos and Tsionas (2004) reported that there is a single equilibrium relation between financial depth, growth and ancillary variables, based on a study of ten developing countries. Balassa (1990) concluded that higher interest rates increase the extent of financial intermediation while increasing financial intermediation raises the rate of economic growth.

3.METHODOLOGY

3.1Data and measurement

Data were extracted from various sources. We consulted the Beck and al. (2007) database on financial structure database to collect stock market and financial system indicators from 1960 to 2006. Other information related to economic growth, inflation, openness are collected form IFS and WDI databases. Our original intention was to include all MENA countries, but given that some countries have not yet created stock markets (e.g., Iraq, Libya, Sudan, and Yemen), and other countries established stock markets very recently (UAE), the sample covered only 12 countries. Besides, data were not available for a uniform period for each country, and many countries have established their stock markets recently. Therefore, the number of observations is expected to vary across countries leading to estimations over an unbalanced panel data. In summary, our data contains 12 MENA countries observed over the period of [1960–2005]. We note that estimations will be done on one-year and 5 years non overlapping data in order to maximize the time-series content of our regressions for the annual regressions and to avoid the business cycle effects for the 5-year average regressions.

3.2Econometric investigations

Our econometric investigations pooling panel data are described in the next sub-section, using a regression specification given by:

$$y_{it} = \eta_i + \alpha' Z_{it} + \beta' F_{it} + \varepsilon_{it} \quad i = 1, \cdots, n \quad t = 1, \cdots, T_i$$

Where:

y_{it} is either Growth (The variable Growth equals the rate of real per capita GDP growth, where the underlying data are from the national accounts), Prod (Our measure of productivity growth, Prod, builds on the neoclassical production function with physical capital K, labor L, the level of total factor productivity A, and the capital share α, Saving (The data on private savings rates draw on a new saving database recently constructed at the World Bank, and described in detail in Loayza et al. (1998)).

F_{it} includes variables that measure stock market and banking development. To measure bank development, the primary measure we use is private credit (PCREDIT) which equals the value of credits by financial intermediaries to the private sector divided by GDP following Levine and Zervos (1998), Rousseau and Wachtel (2000), and Beck and Levine (2004). Unlike many past measures, this indicator excludes credits issued by the central banks. In order to assess the robustness of our results, we use another measure of bank development for instance liquid liabilities (LIQ) which equals the liquid liabilities of the financial system (currency plus demand and interest-bearing liabilities of bank and non-bank financial intermediaries) divided by GDP. LIQ complements PCREDIT variable because it measures the size of financial intermediaries and does not focus on the intermediation of credit to the private sector. However, this indicator reflects the overall size of financial sector and does not distinguish between the allocation of capital to the private sector and to various governmental agencies. In this respect, it may not be informative regarding the ways financial services are provided.

Beck et al. (1999) outline three key stock markets indicators, namely size, activity and efficiency. The stock market capitalization to GDP ratio (MCAP) measures the size of stock markets as it aggregates the value of all listed shares in the stock markets. It is assumed that the size of the stock markets is positively correlated with the ability to mobilize capital and to diversify risk. However, the size of the stock markets does not provide any indication of its liquidity. To measure stock markets liquidity, we use a value traded variable (VTRADE), which equals the value of the trades of domestic stocks divided by GDP. Liquidity in the stock markets reduces the disincentive to investment as it provides more efficient resource allocation and hence economic development. We use also the turnover ratio (TOVER), which equals the value of traded shares on national stock markets divided by market capitalization to capture the efficiency of the domestic stock markets. More efficient stock markets can foster better resource allocation and spur growth (e.g. Levine,1991; Bencivenga et al., 1995).

Z_{it} is a standard set of conditioning variables that includes the logarithm of initial income per capita (IIC) to control for convergence. According to neoclassical theory, the coefficient associated to per-capita income represents the convergence effect and

thus should be negative.5 According to endogenous-growth models, there is no convergence effect, since economies do not depart from their steady states, and therefore the coefficient is expected to be zero. On the other hand, we use the ratio of exports plus imports to GDP (TO) to capture the degree of openness of an economy. Additional conditioning variables include the inflation rate (IR) and the ratio of government consumption to GDP (GC) as indicators of macroeconomic stability. Finally, ηi is an unobserved country specific effect, and εit is the error term for each observation.

The first studies on the nexus of Growth & Financial development suffer from two sources of inconsistency: omitted variable and endogeneity biases. With this in mind, we first describe how these biases affect cross-section and panel data estimators and then present the Generalized Method of Moments (GMM) estimator, which corrects for both of these biases and takes into account the dynamics of economic growth.

Pure cross-section regressions give inconsistent estimations because they suffer from both the omitted variable and endogeneity bias. Cross-section economic growth analyses lead to biased estimates because the country-specific error term ε_i is likely to contain unobserved country effects and is correlated with the lagged dependent variable. Therefore, cross-section regressions give inconsistent estimates as the assumption that the regressors and the error term are not correlated is violated.

Combining cross-section and time-series data is useful for three main reasons. First, it is necessary when analyzing economic growth and total factor productivity because they vary over time, and the time-series dimension of the variables of interest provides a wealth of information ignored in cross-sectional studies. Secondly, the use of panel data increases the sample size and the gain in degrees of freedom which is particularly relevant when a relatively large number of regressors and a small number of countries are used, which is the current case under investigation. Thirdly, panel data estimation can improve upon the issues that cross-section regressions fail to take into consideration, such as potential endogeneity of the regressors, and controlling for country-specific effects.

One issue that may arise from the use of panel data is whether the individual effect is considered to be fixed or random. On the one hand, while random effects estimation addresses the endogeneity issue by instrumenting potentially endogeneous variables, it also assumes that the individual firm effects are uncorrelated with the exogenous variables. On the other hand, the fixed effect estimation deals successfully with the correlated effects problem, yet it fails to account for potential endogeneity of regressors. Further, as shown by Nickell [1981], due to the correlation between the time varying component of the error term and the lagged dependant variable, in a finite dynamic panel model with fixed T, the parameter estimates under fixed effects estimation will be biased and inconsistent. In summary, both fixed and random estimations address only one of the two biases, and thus give inconsistent estimates.

Following Beck et al. (2000) and other relevant literature on the relationship between economic growth and financial development, we will use the GMM system model, as suggested by Blundell and Bond (1998). First, GMM models allow past levels of GDP per capita to affect current levels of economic growth. Second, the lagged dependent variable is most likely to be correlated with the country specific effects and the estimation using OLS gives inconsistent and biased estimates (Hsio,1986). To obtain consistent estimates, the model is first-differenced to estimate the fixed effects (eliminates the need to make any probabilistic assumptions on the country effect) and then, we instrument all the right-hand side variables using their lagged values (which eliminates the inconsistency arising from potential endogeneity of the regressors).

Since our T is large enough (T=30), it is more appropriate to use the system GMM estimator of Arellano and Bower (1995) and Blundell and Bond (1998). The basic idea behind this estimator is: 1) the unobserved fixed effects μ_i are removed by taking first difference in equation, 2) the right hand side variables are instrumented using lagged values of the regressors, and the equation in first differences and in levels are jointly estimated and 3) the validity of the instruments is tested using a Hansen test of over-identifying restrictions and a test of the absence of serial correlation of the residuals.

Although the two-step estimator is asymptotically more efficient in presence of heteroskedasticity of the error term, Arellano and Bond (1991) and Blundell and Bond (1998) show that the two-step estimates are biased in small samples, like in our case. So as STATA provides a correction for this bias, we prefer to display both the one and two- step results.

Over the last decade or so, a booming cointegration literature has focused on the estimation of long-run relationship among I(1) variables but this literature derives two misconceptions (See Loaysa and Ranciere, 2005). The first one is that the long-run relationship exists only in the context of cointegration of integrated variables. The second one is that standard methods of estimation and inference are incorrect. Pesaran and Smith (1995) and Pesaran and Shin (1999) have argued against both misconceptions and proposed methods that are valid whether or not the variables of interest are I(0) or I(1). Under these conditions, other methods that can estimate the long run relationship include the Mean Group (MG) estimator (Pesaran, et al. 1996), the Pooled Mean Group (PMG) estimator (Pesaran et al., 1999) and the Fully Modified OLS (FMLOS) estimator (Pedroni 1995, 1999).

In this project, we also compute PMG estimator as an additional estimator because it has been developed in particular for a panel comprising a comparatively small number of groups and not too small number of periods.

The main benefit of the PMG procedure for our case is that it constrains only the long-run coefficients to be identical across groups. Pesaran et al. (1999) have proved that this weak homogeneity assumption is better than the strong assumption required by fixes effects, IV or GMM.

To describe the PMG estimator, let us assume an autoregressive distributive lag (ADRL) (p, q,...q) dynamic panel specification of the form:

$$Y_{it} = \sum_{j=1}^{P} \lambda_{ij} Y_{i,t-j} + \sum_{j=0}^{q} \delta'_{ij} X_{i,t-j} + \mu_i + \varepsilon_{it}$$

where the number of groups i=1,2,..., N, the number of time periods t=1,2,..., T, x_{it} is a (kx1) vector of explanatory variables, δ_{it} the (kx1) coefficients vectors, λ_{ij} scalars, and μ_i is the group specific effect. Time trends and other fixed regressors may be included.

If the variables in Eq. (1) are, for example I(1) and cointegrated, then the error term is an I(0) process for all i. The model can be rewritten in the following error correction form (ECM) by stacking the time-series observations:

$$\Delta Y_{it} = \phi_i \left(Y_{i,t-1} - \theta'_i X_{it} \right) + \sum_{j=1}^{P-1} \lambda^*_{ij} \Delta Y_{i,t-1} + \sum_{j=0}^{q-1} \delta'^*_{ij} \Delta X_{i,t-j} + \mu_i + \varepsilon_{it}$$

where: $\phi i = -\left(1 - \sum_{j=1}^{p} \lambda_{ij}\right), \theta_i = \sum_{j=0}^{q} \frac{\delta_{ij}}{1 - \sum_{k} \lambda_{ik}}, \lambda^*_{ij} = -\sum_{m=j+1}^{p} \lambda_{im}$ j = 1,2,..., p - 1

$$and \;\; \delta^*_{ij} = -\sum_{m=j+1}^{q} \delta_{im} \;\; j = 1,2,...,q - 1.$$

The parameter ϕ_i is the error-correcting speed of adjustment term. If $\phi_i = 0$, then no long-run relationship is expected to take place. This parameter is expected to be significantly negative under the hypothesis that the variables show a return to long-term equilibrium. Of particular importance is the vector θ'_i, which contains the long-run relationship between variables.

To derive the parameters, a maximum likelihood approach is used to maximize the log-likelihood function by means of the Newton-Raphson algorithm (further details can be found in Pesaran et al. (1999).

Alternatively, the estimation of the long-run parameters can be performed by the Mean Group Estimator (MG), which is an unweighted average of country specific long-run coefficient. Although this estimator yields consistent estimates, it is very sensitive to outliers.

For example, the MG estimator of the error correction coefficient ϕ is:

$$\hat{\phi} = N^{-1} \sum_{i=1}^{N} \hat{\phi}_i \;\; \text{with the variance} \;\; \hat{\Delta}\hat{\phi} = \frac{1}{N(N-1)} \sum_{i=1}^{N} \left(\hat{\phi}_i - \hat{\phi}\right)^2$$

The poolability restriction of the long-run parameters is tested using a Hausman type applied to the difference between the MG and the PMG estimates. Pesaran et al. (1999) argue that pooled mean group estimates are consistent and efficient only if

homogeneity holds. Conversely, if the hypothesis of homogeneity is rejected, the PMG estimates are not efficient. In that case, the MG estimators would normally be preferred. Thus, we can form the test statistic:

$$H = \hat{q}' \left[var(\hat{q}) \right]^{-1} \hat{q} \sim \chi_k^2$$

where $\hat{q}$ is a (kx1) vector of the difference between the MG and PMG estimates, and var($\hat{q}$) is the corresponding covariance matrix. Under the null hypothesis that the two estimators are consistent, but one is efficient (PMG estimator), var($\hat{q}$) is easily calculated as the differences between the covariance matrices for the two underlying parameter vectors. If the poolability assumption is not valid, the PMG estimates are no longer valid and we fail the test.

4.   **Empirical Results**

Table 1 gives some descriptive statistics on the variables and Table 2 presents the correlation matrix for the variables. Table 2 shows that the financial indicators measuring the size of the financial sector (Liquid liabilities) and the activity level of the banking sector (credit provided by banks to private sector) are negatively correlated with economic growth and total factor productivity. These results indicate a priori a negative impact of financial sector development on economic growth. As far as the capital market indicators (Market Capitalization, Value Traded and turnover) are concerned, they are also negatively correlated with economic growth and total factor productivity but not as significant as the measures of bank development are when employed. In addition, the negative correlation between growth and the initial per capital variable is indicative of the presence of a convergence effect. Furthermore, the Government Consumption variable is negatively related to economic growth, which shows the effect of state consumption on economic development.

<center>**< Insert near here Table 1 and 2 >**</center>

Financial Development and Economic Growth

Table 3 presents the dynamic panel results for the determinants of economic growth using annual data with two measures for financial development liquid liabilities (LLY) and credit to private sector by banks (CPS). The GMM system regressions satisfy both the Sargan test of over-identifying restrictions and the serial correlation test, which means that there is no second order serial correlation for the errors and the instruments used are valid. The GMM system regressions show negative and significant coefficients for both financial development variables. The results are in contradiction to the empirical evidence and indicate that financial sector development in the MENA region hampers economic growth, instead of providing favourable space for the economy to prosper. This may be linked to the inability of banks and financial institutions in the region to select profitability projects and to monitor adequately their profitability, which is shown in the high Non-Performing Loans for the region, compared to other regions where banks contribute favourably to

growth. In addition, trade openness is positively and significantly associated to economic growth for both GMM system specifications, calling for more trade openness in the region. On the other hand, inflation and Government Consumption have negative impacts on economic growth, as expected in the literature; the size of the relationship is not significant.

< Insert near here Table 3 >

To test the robustness of the results to other econometric specifications that control for business cycles using annual data, we perform two models: the Pool Mean Group and Mean Group estimators. Both models are able to control for business cycles through different short-term coefficients. To choose between the models, a Joint Hausman test is used that indicates that even MG is less efficient as an estimator it is nonetheless the only unbiased estimator. The results obtained for the impact of financial development on economic growth are in line with those found for the Liquid Liabilities variables. Besides, the impacts of inflation and government consumption on economic growth are now negative and significant, as expected showing that a high inflationary environment and substantial contribution of the government in the economy slow economic growth.

Financial Development and Productivity Growth

To assess differently the impact of financial development on economic growth, we use another variable that measures the quality of growth, namely Total Factor Productivity (TFP). Table 4 provides the results on the impact of financial sector development on TFP using GMM in system, PMG and MG estimators. GMM regressions pass the Sargan test and second order serial correlation test. When comparing PMG and MG with the joint Hausman test, the results are mixed. Indeed, the PMG is the most efficient estimator when Liquid Liabilities are used to measure the size of the financial sector development and MG is the unbiased estimator when Credit to Private Sector is included in the regression.

The results provide clear evidence that financial sector development impact negatively on TFP for both measures of financial size. These results confirm the inability of banks to select profitable and growth enhancing projects in the MENA region. Further, Trade Openness displays a positive and significant impact on TFP but only when PMG estimator is used, whereas inflation shows a negative and significant incidence on TFP on all estimations.

< Insert near here Table 4 >

Robustness check

To further test the robustness of our results, (i) we will use a time span of 5 years to control additionally for business cycle (PMG previously control for it); (ii) we will include stock market variables (Market Capitalization, Turnover and Value Traded) to assess whether capital market and banking sector are complementary or substitutes in contributing to economic growth or Total Factor productivity; and (iii)

we will exclude from our sample MENA oil countries to test the effects using a homogeneous sample.

All the following GMM in system regressions are well specified since Sargan test justifies the relevance of the instruments used and the second order error correlation test is non significant.

The estimations using 5-year data in Table 5 confirm the negative and significant impact of financial sector development on economic growth and Total Factor Productivity with the exception when Liquid Liabilities is used to measure financial sector development. When the capital market variables are included, the results in Table 6 remain the same as in the reduced regressions with only Liquid Liabilities and Credit to the Private Sector. Indeed, banking sector development has a negative impact, whereas all capital market variables show no significant relationship with economic growth and TFP. This could mean that capital market in the MENA region does not have a sufficient size to contribute to economic growth. Finally, excluding oil countries from our regressions, we find using annual data in Tables 7 and 8, that financial sector development still impact negatively and significantly on economic growth and TFP. Trade openness is expected to impact positively and significantly on economic and productivity growth, while inflation has a negative and significant impact. For the 5-year data, the results are somewhat different since the negative impact is only significant when credit to the private sector is used to measure financial development and that the only other variable that has a positive impact on both economic and productivity growth is trade openness.

< Insert near here Table 5, 6 and 7 >

5.   Conclusions and policy implications

This project examined the effect of financial development on economic and productivity growth. We used three econometric approaches. The first, GMM in system dynamic panel estimators, is well designed to correct all the drawbacks of previous studies on finance and growth nexus: simultaneity and omitted variable bias. As a consistency check, we use Pooled Mean Group and Mean Group estimators to control for the presence of business cycles. Further, we controlled for business cycles by using 5-year mean variable, introduced capital market variables to have a complete picture of financial sector development, and excluded MENA oil countries to preserve homogeneity for our estimators.

To sum up the results of all estimations, it seems that financial sector development, and especially credit to the private sector by banks in the MENA region, slow economic and total factor productivity growth. It means that reforms should be implemented in the banking sector in order to invert the impact. Additionally, stock market in the MENA region are not sufficiently developed to positively impact growth and productivity, and therefore reforms are needed to enhance the contribution of the capital market to growth in the MENA region. Finally, reduction of inflation and a reinforcement of trade openness are key elements to spur economic and productivity growth in the region.

Table 1: Summary Statistics

	Obs	Mean	Std. Dev	Min	Max
GDP per capita Growth	357	1,92	5,65	-16,51	21,41
IIC	357	3559,59	4405,34	431,30	19551,13
LLY	357	0,52	0,24	0,05	1,31
CPS	357	0,34	0,21	0,02	0,88
GC	355	0,18	0,05	0,07	0,35
INF	335	0,11	0,16	-0,01	1,06
Trade	355	0,70	0,37	0,14	2,51
MCAP	159	0,35	0,36	0,01	2,40
VTrade	163	0,17	0,40	0,00	3,56
Tover	158	0,35	0,49	0,01	2,41

Table 2: Correlation Matrix

	GDP per capita Growth	Log IIC	Log LLY	Log CPS	Log GC	Log (INF+1)	Log Trade	Log MCAP	Log VTrade	Log Tover
GDP per capita Growth	1,000									
Log IIC	-0,1251	1,000								
Log LLY	-0,1082	-0,2149	1,000							
Log CPS	-0,0781	0,085	0,7577	1,000						
Log GC	-0,1677	0,4643	0,3381	0,5238	1,000					
Log(INF+1)	0,0019	-0,4193	-0,3982	-0,6726	-0,6248	1,000				
Log Trade	-0,0369	0,2014	0,5807	0,7173	0,6664	-0,5347	1,000			
Log MCAP	-0,0562	0,3501	0,5729	0,602	0,5606	-0,4536	0,5918	1,000		
Log VTrade	-0,0378	0,4526	0,2911	0,2891	0,3799	-0,2301	0,3475	0,8558	1,000	
Log Tover	-0,0105	0,4299	-0,0493	-0,0799	0,1115	0,0398	0,0273	0,4967	0,8741	1,000

Table 3 : Determinants of the growth rate of GDP per capita (annual data)

Regressions	GMM-system (one-Step)		PMG		MG	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	-9,05	-29,90	6.31***	-17.94***	49.34***	129.13**
	(-0,36)	(-0,72)	(6.52)	(8.73)	(1.12)	(2.10)
Log (IIC)	-2,88	0,62	-3.78***	-4.73***	-12.7***	-14.21***
	(-1,04)	(0,15)	(-2.59)	(-4.07)	(-2.61)	-2.74
Log (TO)	12,42***	9,20	7.23***	6.01***	7.57	3.82
	(2,80)	(2,06)	(6.76)	(5.58)	(1.45)	(0.50)
Log (IR+1)	-0,93	-0,18	-0.68**	-0.75***	-2.23***	-2.31***
	(-0,50)	(-0,10)	(-2.23)	(-2.46)	-3.85	(-2.59)
Log (GC)	-7,36*	-6,18	-1.70*	-1.79*	6.41*	6.72
	(-1,78)	(-1,04)	(-1.86)	(-1.75)	(1.78)	(0.97)
Log (LLY)	-6,02***	-	-0.81	-	-7.06*	-
	(-2,60)	-	(-0.78)	-	(-1.93)	-
Log (CPS)	-	-5,39	-	-0.31	-	-3.73
	-	(-2,32)	-	(-0.90)	-	(-1.07)
Error correction	-	-	-0.91***	-0.89***	-1.14***	-1.23***
Statistic F	6,31	5,85	-	-	-	-
M2 Test	0,14	0,13	-	-	-	-
Sargan Test	0,49	0,54	-	-	-	-
Joint Hausman test	-	-	91.21***	35.17***	-	-
Nbr. Countries	12	12	12	12	12	12
Nbr. Obs	335	335	309	309	309	309

T-Student are below the estimated coefficient. For Sargan test and Hansen test, the null hypothesis is that the instruments used are not correlated with the residuals. For the test for autocorrelation, the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation.

Table 4: Determinants of Total Factor Productivity (annual data)

Regressions	GMM-system (one-Step)		PMG		MG	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	-3,195***	-0,421	-0.36***	-0.18***	0.15	-1.09
	(-4,1)	(-0,89)	(-9.87)	(-6.44)	(0.07)	(-0.91)
Log (IIC)	0,438***	0,020	-0.016	-0.02	-0.03	0.04
	(3,68)	(0,26)	(-0.61)	(-1.17)	(-0.22)	(0.31)
Log (TO)	0,035	0,102***	0.12***	0.09***	0.09	-0.02
	(0,99)	(3,1)	(5.56)	(4.39)	(1.22)	(-0.11)
Log (IR+1)	-0,020**	-0,012	-0.01	-0.01**	-0.01	-0.02*
	(-2,01)	(-1,41)	(-0.03)	(-2.14)	(-1.19)	(-1.62)
Log (GC)	-0,076***	-0,076***	-0.01	-0.01	-0.05	0.32
	(-3,11)	(-3,41)	(-0.03)	(-0.79)	(-0.40)	(0.98)
Log (LLY)	-0,390***	-	-0.08***	-	-0.08**	-
	(-5,45)	-	(-4.09)	-	(-2.06)	-
Log (CPS)	-	-0,111***	-	-0.04***	-	-0.08***
	-	(-3,69)	-	(-3.61)	-	(-2.94)
Error correction	-	-	-0.97***	-0.02***	-1.18***	-1.09***
Statistic F	8,11	5,71	-	-	-	-
M2 Test	0,399	0,77	-	-	-	-
Sargan Test	0,171	0,171	-	-	-	-
Joint Hausman test	-	-	0.76	32.77***	-	-
Nbr. Countries	7	7	7	7	7	7
Nbr. Obs	208	208	211	211	211	211

T-Student are below the estimated coefficient. For Sargan test and Hansen test, the null hypothesis is that the instruments used are not correlated with the residuals. For the test for autocorrelation, the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation.

Table 5: Determinants of the growth rate of GDP per capita or Total Factor Productivity (five-year period)

Regressions	Real per capita GDP growth GMM system (one-step)		Total Factor Productivity GMM System (one-step)	
	(1)	**(2)**	**(3)**	**(4)**
Constant	6,126	-9,850	-0,511***	-0,431**
	(0,76)	(-0,72)	(-3,74)	(-2,06)
Log (IIC)	-0,190	1,274	0,011	-0,011
	(-0,09)	(0,45)	(1,01)	(-0,52)
Log (TO)	2,018	1,878	0,080***	0,03
	(0,93)	(0,79)	(2,78)	(1,01)
Log (IR+1)	0,168	-0,127	0,011	-0,011
	(0,38)	(-0,3)	(0,62)	(-0,21)
Log (GC)	-4,118**	-3,454*	0,041	0,121**
	(-2,12)	(-1,9)	(1,04)	(2,27)
Log (LLY)	-0,577	-	-0,111***	-
	(-0,32)	-	(-4,32)	-
Log (CPS)	-	-3,371**	-	-0,031**
	-	(-2,03)	-	(-2,39)
Statistic F	2,03	3,32	5,74	2,32
M2 Test	0,414	0,426	0,76	0,38
Sargan Test	0,436	0,456	0,59	0,05
Nbr. Countries	12	12	7	7
Nbr. Obs	73	73	45	45

T-Student are below the estimated coefficient. For Sargan test and Hansen test, the null hypothesis is that the instruments used are not correlated with the residuals. For the test for autocorrelation, the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation.

Table 6: Determinants of the growth rate of GDP per capita including capital markets indicators (annual data)

Regressions	GMM-system (One-step)		GMM-system (One-step)		GMM-system (One-step)	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	49,799	21,498	-42,13	35,01	-40,834	14,609
	(1,16)	(0,69)	(-1,05)	(0,80)	(-1,07)	(-0,39)
Log (IIC)	-6,574	-0,984	3,624	-5,854	3,360	3,3403
	(-1,00)	(-0,27)	(0,79)	(-0,90)	(0,86)	(0,64)
Log (TO)	3,393**	2,600	9,888	3,692*	10,059	3,817
	(2,23)	(0,80)	(1,50)	(1,76)	(1,40)	(1,89)
Log (IR+1)	-2,383*	-2,129*	-1,228	-3,034*	-1,357	-0,469
	(-1,82)	(-1,68)	(-0,81)	(-1,96)	(-0,94)	(-0,41)
Log (GC)	-3,272	-7,758**	-11,3**	-0,910	-11,488**	-10,285***
	(-1,06)	(-2,01)	(-2,54)	(-0,16)	(-2,47)	(-2,72)
Log (LLY)	-12,259*	-	-13,09*	-	-12,860*	-
	(-1,72)	-	(-1,67)	-	(-1,72)	-
Log (CPS)	-	-8,0362*	-	-9,202**	-	-2,752**
	-	(-1,99)	-	(-2,03)	-	(-2,19)
Log (MCAP)	2,831	2,8961	-	-	-	-
	(1,46)	(1,54)	-	-	-	-
Log (VRADE)	-	-	-0,071	0,975	-	-
	-	-	(-0,12)	(1,07)	-	-
Log (TOVER)	-	-	-	-	-0,695	-0,887
	-	-	-	-	(-1,17)	(-0,75)
Statistic F	14,35	15,34	27,41	1,71	37,07	49,44
M2 Test	0,104	0,121	0,157	0,120	0,170	0,129

Sargan Test	0,920	0,074	0,669	0,205	0,621	0,940
Hansen Test	0,925	0,957	0,796	0,934	0,555	0,813
Nbr. Countries	10	10	10	10	10	10
Nbr. Obs	152	152	156	156	151	151

T-Student are below the estimated coefficient. For Sargan test and Hansen test, the null hypothesis is that the instruments used are not correlated with the residuals. For the test for autocorrelation, the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation.

Table 7: Determinants of the growth rate of GDP per capita and TFP in non-oil MENA countries (annual data)

Regressions	Real per capita GDP growth GMM system (one-step)		Real per capita GDP growth PMG		Real per capita GDP growth MG		TFP GMM-system (one-Step)	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Constant	-78.201	-109.978	-20.01**	12.572***	25.658	73.485	-1,417**	-0,906
	(-1.57)	(-1.25)	(-12.28)	(5.31)	(0.76)	(0.92)	(-2,00)	(-1,41)
Log (IIC)	1.068	6.914	0.736	-3.468**	-7.683	-4.695	0,079	0,0544
	(0.16)	(0.56)	(-0.43)	(-2.35)	(-1.45)	(-0.87)	(0,88)	(0,54)
Log (TO)	12.061**	15.771**	7.974***	5.224***	5.171	-5.258	0,107**	0,1313**
	(2.58)	(2.86)	(5.45)	(3.59)	(0.60)	(-0.43)	(2,01)	(2,27)
Log (IR+1)	-0.4076	-2.919	-0.991	-0.859**	-2.953***	-2.905**	0,003	-0,02*
	(-0.29)	(-2.55)	(-3.03)	(-2.30)	(-8.32)	(-2.24)	(0,20)	(-1,91)
Log (GC)	6.424	-6.855***	-1.342	-1.582	4.395	7.912	0,124**	-0,053*
	(1.30)	(-2.76)	(-1.37)	(-1.35)	(1.13)	(0.67)	(2,02)	(-1,95)
Log (LLY)	-10.513**	-	-3.201**	-	-4.533	-	-0,181**	-
	(-2.07)	-	(-2.18)	-	(-0.87)	-	(-2,47)	-
Log (CPS)	-	-17.511	-	-0.629	-	-6.146	-	-0,153***
	-	(-2.43)	-	(-0.74)	-	(-1.21)	-	(-3,13)
Error correction	-	-	-0.96***	-1.00***	-1.05***	-1.21***	-	-
Statistic F	2.33	3.33	-	-	-	-	2,71	3,24
M2 Test	0.049	0.069	-	-	-	-	0,312	0,357
Sargan Test	0.058	0.299	-	-	-	-	0,150	0,506
Joint Hausman test	-	-	70.45***	9.91	-	-	-	-
Nbr. Countries	5	5	7	7	7	7	5	5

| Nbr. Obs | 173 | 173 | 196 | 196 | 196 | 196 | 147 | 147 |

T-Student are below the estimated coefficient. For Sargan test and Hansen test, the null hypothesis is that the instruments used are not correlated with the residuals. For the test for autocorrelation, the null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation.

Table 8

Determinants of the growth rate of GDP per capita or Total Factor Productivity in non-oil MENA countries (five-year period)

Regressions	Real per capita GDP growth GMM system (one-step)		Total Factor Productivity GMM System(one-step)	
	(1)	**(2)**	**(3)**	**(4)**
Constant	35,489*	18,710	-0,0671	0,2873*
	(1,77)	(1,10)	(-0,40)	(1,75)
Log (IIC)	-9,099***	-6,689**	-0,024	-0,103***
	(-2,74)	(-2,23)	(-0,90)	(-3,72)
Log (TO)	8,115***	7,744***	0,054**	0,102***
	(3,64)	(2,79)	(2,35)	(3,92)
Log (IR+1)	-0,1021	-0,2407	0,006	-0,002
	(-0,18)	(-0,40)	(0,93)	(-0,30)
Log (GC)	-0,9689	-0,8503	0,002	0,006
	(-0,53)	(-0,45)	(0,11)	(0,33)
Log (LLY)	0,5962	-	-0,059**	-
	(0,24)	-	(-2,34)	-
Log (CPS)	-	-0,8236	-	-0,0232*
	-	(-0,65)	-	(-1,74)
Statistic F	16,58	9,03	3,14	5,85
M2 Test	0,162	0,168	0,894	0,157
Sargan Test	0,423	0,126	0,289	0,385
Nbr. Countries	5	5	5	5
Nbr. Obs	37	37	32	32

T-Student are below the estimated coefficient. For Sargan test and Hansen test, the null hypothesis is that the
 instruments used are not correlated with the residuals. For the test for autocorrelation, the null hypothesis is
that the errors in the first-difference regression exhibit no second-order serial correlation.

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Part 4

The Impact of Financial Sector Development on Inequality and Poverty: Evidence from MENA Region

1. Introduction

During the last two decades, many studies have focused on the relationship between financial development (FD) and growth. According to the DFID (2004), "The Financial sector is all the wholesale, retail formal and informal institutions in an economy offering financial services to consumers, businesses and other financial institutions. In its broadest definition, it includes everything from banks, stock exchanges, and insurers, to credit unions, microfinance institutions and money lenders", page 6. To further understand the relationship between FD and growth, researchers have employed firm level, industry-level and aggregate level data using panel data of countries. Further, there has been a surge in the use of relatively sophisticated panel data (GMM estimation method) and time series techniques. However, little empirical evidence in the economic development literature has concerned the question of whether financial development contributes to poverty alleviation.

Recent evidence has shown that FD is pro-poor, to the extent that FD widens access to financial services to the poor. As mentioned by Jalilian & Kilkpatrick (2002), a fundamental cause of poverty is market failure, and financial market imperfections, which often prevent the poor from borrowing against future earnings to invest. Stigliz (1998) highlights that addressing the causes of financial market failure, particularly asymmetric information and high fixed cost of small scale lending is the best way to improve the opportunities for the poor to access formal finance. In practice, improving the access of the poor to credit and insurance against risk, strengthen the productive assets of the poor, enhance their productivity, and increase the potential for achieving sustainable livelihoods (World Bank, 2001). However, because of lack of Data, few studies have focused on the issue of access to financial services, by focusing on specific institutions for the poor, such as microfinance institutions, through which there could be a direct impact on poverty. (For a recent survey on the literature see Littlefield, Mordush & Hashemi (2003)). However, for policy implications, it is difficult to derive from these studies aggregate results on the impact of Microfinance institutions.

Theory and evidence show that FD can also have an indirect impact on poverty, through its positive impact on growth (a pro-poor growth-oriented policy). The relationship between FD and Poverty has been the focus of considerable attention in recent years, based on macro data from traditional financial sector institutions (See Beck and al. (2007) for a recent survey on the topic). Thus, some traditional measures of Financial Development indicators are frequently used to capture the indirect impact of FD on poverty and inequality: Private credit, the value of credit by financial intermediaries to the private sector divided by GDP (This measure excludes credit issued by Central Bank and development bank), and stock Market capitalization, the value of listed shares divided by GDP. Two measures of poverty are available for a large sample of developing countries: the mean income of the poorest quintile for the population, and the incidence of poverty, i.e; the Headcount ratio or the share of the population earning less than a $1 a day.

Jalilian & Kilkpatrick (2002) have underlined the indirect channel by which finance reduces poverty. They focus on the link between FSD and poverty reduction using pooled panel data for a sample of 28 countries, including 18 developing countries as well as 8

developed countries. They use Bank Deposit Money assets and Net foreign assets as FD indicators. Using 2SLS estimation procedure, their results suggest that a unit change in FD improves significantly the growth prospects of income of the poor in developing countries by almost 0.4%. Honohan (2004) showed that Finance–intensive growth (measured by private credit to GDP) is empirically associated with lower poverty ratios. Other studies look at the relationship between FD and Poverty and inequality. In cross-country regression, Beck Demirgüç-Kunt and Levine (2004) investigate how FD (measured by private credit to GDP) influences the growth rate of the Gini coefficient of inequality, the growth rate of the poorest quintile of the population, and the share of population living on poverty. Using a broad cross-country sample of 52 developing and developed countries, with data averaged over the period 1960 to 1999, they find that finance reduces income inequality by disproportionately boosting the income of the poor and hence reduces poverty. Jeanneney and Kpodar (2005) study whether FD is pro-poor. They estimate a model of determination of aggregate poverty (Mean income of the poorest 20% of the population and Headcount index) which includes financial development and financial volatility corresponding to financial instability which follows FD. Two indicators of FD were used: the ratio to GDP of the liquid assets in the financial system, or M3, and private credit to GDP. The average absolute value of the residuals, obtained by regressing the variable on its lagged value and a trend, is used as a measure of financial instability. Panel data estimation methods are used on a sample of developing countries over the period 1966-2000. The main finding of the empirical results is that FD is, on average, good for the poor, while financial instability accompanying FD is detrimental to them.

Clarke and al. (2006) study the relationship between financial development and the level of the Gini coefficient. They find that FD reduces income inequality. Claessens et al. (2007) argue for the need to recognize the reverse effect as well, inequality affects financial development, and in particular the distribution of access, because unequal access to resources affects de facto political power (Acemoglu and al., 2005).

Beck and al. (2007) assess the impact of financial development on changes in the distribution of income and changes in both relative and absolute poverty. Their data are based on household surveys with a sample of 68 developing and transition countries over the period 1980 to 2005. Three key interrelated-findings are stressed by this study: First, financial development reduces income inequality, since there is a negative relationship between financial development and the growth rate of the Gini coefficient. Second, FD has a positive impact on the growth rate of the income of the poorest quintile. Third, the negative relationship between financial development and the growth rate of Headcount is robust to various sensitivity checks.

2. Research Methodology

The empirical literature on finance and development highlights that countries with better-developed financial systems experience faster economic growth and helps the poor to catch up with the rest of the economy. These results have been instrumental in persuading developing countries to sharpen their policy focus on the financial development as captured by size, depth, efficiency and reach of financial systems.(Asli Demirug̈ç-Kunt (2006)). Many

developing countries are considered as a Bank-Based economy. Thus, governments that play important roles in building effective financial systems are interested in different policy options to perform the efficiency of the Banking sector, which may contribute for economic growth and poverty alleviation.

Before presenting the estimated model, we summarize the channels through which financial development contributes to poverty reduction. First, as mentioned by Kpodar & al.(2005), FD exerts a positive impact on economic growth which is beneficial to the poor. Simultaneously, according to the Mc Kinon conduit effect, FD has a direct and positive impact on the income of the poor.

We adopt here Dollar and Cray (2002) methodology and use the following specification:

$$(1) \qquad y_{it} = \lambda + \beta FD_{it} + \gamma X_{it} + \varepsilon_{it}$$

Where y_{it} is either the headcount for country i in period t or the Gini index. FD is a financial development indicator, u is a stochastic country-specific effect (to control for heterogeneity across countries), ε is the error term. X_{it} is a vector of other variables that are likely to influence poverty or inequality (GDP per capita, primary education, trade openness, inflation, etc.). In our analysis, we allow for potential dynamics in poverty and Gini coefficient.

As a robustness check, we alternatively test empirically Beck and al. (2007) econometric model and use the following specification:

$$(2) \qquad \ln y_{it} = \lambda + \alpha \ln y_{it-1} + \beta FD_{it} + \gamma X_{it} + \varepsilon_{it}$$

This can be re-written as follows:

$$(3) \qquad \ln y_{it} - \ln y_{it-1} = \lambda + (\alpha - 1)\ln y_{it-1} + \beta FD_{it} + \gamma X_{it} + \varepsilon_{it}$$

Thus, according to model (3) the analysis is more concerned with Finance and changes in inequality (growth of Gini coefficient) and Poverty (Growth of Headcount).

3. Data

The empirical assessment of the relationship between financial Development and poverty alleviation and inequality is based on a pooled panel data approach with both time-series and cross-section dimensions. All data sets are generated using unbalanced panels with gaps, since poverty and inequality indeces are available from country household surveys, which are not annual.[12] Thereby, available information on inequality and poverty is more limiting, and our data set is based on household surveys and our sample comprises 68 developing countries covering the period 1980-2006. They include MENA region as well as other developing countries. (See list of countries in the appendix A).

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[12] See Table 3 in the appendix for the sample of Mena Countries.

3.1. Poverty and inequality indicators

We use two indicators of monetary poverty and inequality as dependent variables. The headcount index, i.e; the share of population earning less than one dollar per day (using 1993 PPP exchange rate) from the Word Bank Global Poverty index Data Base. Data on the Gini coefficient and GDP per capita at PPP are respectively drawn from Dollar and Kraay's (2002) database and from the World Development Indicators (WDI).

3.2. Financial Development indicators

The focus will be on two indicators of financial Development. The first measures the amount of liquid liabilities of the financial system, including liabilities of banks, central banks and other financial intermediaries, LLY. The second measure, CPS, defined as the value of loans made by deposit money banks and other financial institutions to the private sector. The source of this data is the International Financial Statistics of the IMF. Higher levels of private credit can therefore be interpreted as higher levels of financial services, implying greater financial intermediary development.(Levine & al., 2000).

3.3. Control Variables

The set of control variables include proxies for initial conditions, measures of macroeconomic stability and indicators of trade openness. Initial conditions are proxied by the annual growth of real per capita GDP. Indicators of external openness are the ratio of exports plus imports over GDP, (TO), drawn from the Penn World table. Measures of macroeconomic instability are the ratio of government consumption to GDP, (GC) and the level of inflation rate, (IR: Growth of consumer price index, drawn from the world development indicators database). We introduce Workers' remittances and compensation of employees, in percent of GDP as an additional variable.

Table 1 provides a correlation matrix and table 2 shows the summary statistics for the key variables we have used in this study. Most correlation coefficients have the expected sign, while those between the financial development indicator and poverty and inequality are negative. However, the correlation coefficient is weak and less than 10%.

< Insert near here Table 1 and 2 >

4. Empirical results

4.1. Financial Development and Poverty

We examine the relationship between financial development and a measure of absolute poverty. We control for trade openness, government consumption and inflation. We also control for GDP per capita growth since financial development may influence poverty by affecting economic growth. A major shortcoming of the poverty analyses is that the data covers fewer years. Although, we introduce the initial headcount as an attempt to take into account the dynamics of poverty, it is unappealing to use dynamic panel data estimation to

control for endogeneity because of the small number of intermittent observations on poverty in the sample.

Figure 1 suggests that more developed financial system tend to have less poverty. However, we observe a lot of variation around this relationship in the sample used. Furthermore, to measure the impact of financial development on Poverty in Mena Countries, we introduce multiplicative terms LLY*MENA or LCPS*MENA.[13]

< Insert near here Figure 1 >

In table 3a, the regression results show that countries with higher levels of financial development experienced faster reductions in the level of poverty over the period 1980-2006. However, the impact is positive for MENA countries if we use the fixed effects panel procedure.

In contrast to the prvious evidence that financial development contributes to less poverty, our results, based on specification (1), seem to provide conflicting predictions to MENA Countries and sustain the idea that at early stages of development, only the rich can afford to access and directly profit from better financial markets. According to this view, the poor rely on informal family connections for capital, so improvements in the formal financial sector inordinately benefit the rich. (Claessens & al., 2007). While, we control for the log of the initial Headcount, it enters significantly and positively. Therefore, we asses the robusteness of our results by limiting the sample to MENA Countries. The results are presented in Table 3b. We control for the interaction between financial development and year, since the relationship between the financial development and poverty might vary according to the period of the analysis. The interaction term enters significantly. Moreover, we confirm our main finding of a positive relationship between private credit and poverty in MENA countries for the period covered. Our findings are confirmed if we use our alternative indicator of financial intermediary development. In column 3 and 4, when we use panel data procedure, the results indicate that GDP per capita growth is negatively and significantly correlated with the poverty level, indicating that countries with higher GDP per capita growth experienced a faster reduction in the number of people living in poverty. While inflation is positively associated with the level of poverty, the negative relationship between workers' remittances to GDP and Headcount ratio holds for all the specifications retained (See also table 3c. in the appendix).

Further, we estimate the alternative model (3) proposed by Beck & al.(2007) where the dependent variable is the growth of the headcount index, computed as the annual growth rate of the percentage of people living on $ 1 a day or less, over the period 1980-2006. [15] We

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[13] Mena is a dummy variable, =1 for Mena countries, 0 elsewhere.

[15] The growth rates are computed for less than five years and frequently for less than 10 years, as follows: $(\ln y_{it} - \ln y_{it-n})/n$, where n is the lag between the two periods of the household survey.

introduce population and Foreign direct investment inflows as percentage of GDP as additional regressors.

<div align="center">**< Insert near here Tables 3a, b and c >**</div>

Tables 4a and 4b regression results suggest that financial development is associated with faster poverty alleviation. The negative relationship between financial development and the growth rate in poverty is robust to various sensitivity checks. In particular, the results hold, at 5% level of siginificance, when controlling for Governement consumption, inflation, Foreign direct investment and population. However, the interaction term FD*MENA does not enter significantly. Initial Headcount also enters negatively, suggesting that countries starting the estimation period with high poverty rates tend to experience faster reduction in poverty than countries with lower levels of initial poverty.

<div align="center">**< Insert near here Tables 4a and 4b >**</div>

4.2. Financial Development and Inequality.

Figure 2 shows that the relationship between Income inequality and Financial development system is not linear[17]. Besides, there is a little evidence, in the sample used, that financial development is correlated with lower income inequality. Furthermore, in table 5 the regressions results, based on a subsample in the MENA region, do not suggest that countries with higher levels of financial development experienced faster reductions in the Gini coefficient over the period 1980-2006.[18] Therein, panel estimation results indicate in columns 3 & 4, for the period covered, a significantly positive impact of financial development on the level of inequality as measured by the Gini index.[19]

Following the study of Beck and al (2007), we control for the growth of GDP per capita since financial development may influence income inequality by affecting growth. The findings suggest that this factor does not enter the inequality regression significantly. While inflation is positively associated with the level of inequality, the negative relationship between workers' remittance to GDP and the Gini coefficient holds for all the regressions.

<div align="center">**< Insert near here Table 5 >**</div>

<div align="center">**< Insert near here Figures 2&3 >**</div>

5. Conclusion

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[17] The fitted line is from a regression of log (Gini) on the log of Private Credit and its square.

[18] An exception is the estimation result with OLS (with heteroskedasticity consistent standard errors) when we use LLY as a financial development indicator. See Column 1 and Figure 3 in Appendix.

[19] Because of data limitation, it was not possible to use Dynamic panel instrumental variables regressions.

The purpose of the study is to examine the linkage between financial development and poverty alleviation with a special focus on the MENA region. Although many empirical works highlight that financial development boosts the growth rate of per capita GDP, this finding does not necessarily imply that financial development helps the poor and reduces inequality. While subject to more qualifications because of data limitation (problems of endogeneity, reverse-causality and outliers), such conflicting predictions seem to hold in MENA countries where there is little evidence that greater financial development is associated with poverty alleviation. Besides, as Nabli et. Al (2007) stress "other studies highlight the deficiencies of the financial sector as an effective means of boosting the development of the private sector and the growth prospect of the region." Furthermore, Claessens & al (2006) argue that the link between financial development and inequality arise largely from the influence that the political and economic elites exercise over a country institutional environment. Future works need to examine the linkages between particular policies toward better governance, financial development and poverty alleviation in the MENA region.

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Appendix A. List of Developing countries in the sample

1	Albania	18	Ecuador	35	Kyrgyz Rep	52	Paraguay
2	Algeria	19	Egypt, Arab Rep,	36	Lesotho	53	Peru
3	Argentina	20	El Salvador	37	Macedonia, FYR	54	Philippines
4	Bangladesh	21	Ethiopia	38	Madagascar	55	Poland
5	Benin	22	Gambia, The	39	Malaysia	56	Rwanda
6	Bolivia	23	Ghana	40	Mali	57	Rwanda
7	Botswana	24	Guatemala	41	Mauritania	58	Senegal
8	Brazil	25	Guyana	42	Mexico	59	Slovak Republic
9	Burkina Faso	26	Haiti	43	Mongolia	60	South Africa
10	Cambodia	27	Honduras	44	Morocco	61	Sri Lanka
11	Cameroon	28	India	45	Mozambique	62	Tanzania
12	Chile	29	Indonesia	46	Nepal	63	Thailand
13	Colombia	30	Iran, Islamic Rep	47	Nicaragua	64	Trinidad and Tobago
14	Costa Rica	31	Jamaica	48	Niger	65	Tunisia
15	Cote d'Ivoire	32	Jordan	49	Nigeria	66	Turkey
16	Croatia	33	Kazakhstan	50	Pakistan	67	Venezuela, RB
17	Dominican Republic	34	Kenya	51	Panama	68	Zimbabwe

Table 1. Correlation Matrix

	Poverty Headcount growth	Log initial poverty headcount	Log LLY	Log CPS	GDP per capita growth	Log GC	Log (INF+1)	Log Trade	Log Pop	Log Workers	Log INV
Poverty Headcount growth	1,000										
Log initial poverty headcount	-0,2628	1,000									
Log LLY	-0,0787	-0,3057	1,000								
Log CPS	-0,0398	-0,2962	0,7913	1,000							
GDP per capita growth	-0,1071	0,0173	0,1151	-0,0233	1,000						
Log GC	0,0145	-0,1208	0,1804	0,2208	-0,135	1,000					
Log (INF+1)	0,0169	-0,133	-0,379	-0,3406	-0,1192	-0,0579	1,000				
Log Trade	-0,0753	-0,0547	0,2689	0,2077	0,0182	0,0648	-0,1865	1,000			
Log Pop	0,1286	0,3821	-0,32	-0,1752	-0,2829	-0,183	-0,0262	-0,1044	1,000		
Log Workers	-0,0316	0,0919	0,1883	0,1206	0,1203	-0,0337	-0,2056	0,2962	-0,1185	1,000	
Log INV	0,0197	-0,094	0,1147	0,121	0,1304	0,1832	-0,1583	0,3146	-0,2669	0,1789	1,000

Table 2. Summary Statistics

	Obs	Mean	Std.Dev	Min	Max
Poverty Headcount growth	207	-0,01243	0,2153826	-1,193923	0,821712
initial poverty headcount	208	18,07157	18,33986	2	77,88
LLY	286	33,18433	17,69872	7,4197	113,4696
CPS	286	26,60969	23,37087	3,6944	143,3871
GDP per capita growth	208	1,731694	4,830384	-29,22454	14,47857
GC	206	12,96515	4,47402	3,36	27,99641
INF	299	44,87949	250,3605	0,1	2947,733
Trade	208	69,54631	34,59428	14,93285	201,0593
Pop	185	1,964558	0,7580774	0,0787508	6,759624
INV	202	2,661333	2,92232	0,0009242	29,57878
Workers	192	3,471712	6,146703	0,0022054	49,32691

Table 3. Number of Surveys for MENA country sample.

	Country	Year of household survey				Number of household survey
1	Algeria	1988	1995			2
2	Egypt	1991	1995	2000		3
3	Iran	1986	1990	1994	1998	4
4	Jordan	1987	1992	1997	2003	4
5	Mauritania	1987	1993	1996	2000	4
6	Morocco	1985	1991	1999		3
7	Tunisia	1985	1990	1995	2000	4
8	Turkey	1987	1994	2000	2003	4
9	Yemen	1992	1998			2
				Total		**30**

Table 3a. Finance and Poverty alleviation in Developing countries
Poverty headcount ratio as dependant variable

Panel data

Regressions	OLS		2SLS (1)		Fixed effect		IV (1)(2)	
	(1)		(2)		(3)		(4)	
Constant	-26,794	-31,037	-10,102	-9,880	13,629	19,412	2,655	2,074
	(-3,92)	(-4,77)	(-0,67)	(-0,71)	(1,84)	(1,35)	(0,26)	(0,19)
Log Initial Poverty headcount	13,133	13,197	10,996	10,409	2,099	2,010	6,683	7,314
	(17,44)	(17,97)	(2,61)	(2,7)	(2,32)	(2,13)	(2,45)	(2,65)
GDP per capita growth	-0,036	-0,107	-0,185	-0,310	-0,160	-0,109	-0,223	-0,210
	(-0,17)	(-0,51)	(-0,79)	(-1,32)	(-1,06)	(-0,73)	(-1,3)	(-1,2)
Log (TO)						-1,718		
						(-0,6)		
Log (IR+1)	1,303	1,007	0,130	-0,542	-0,102	0,291	-0,029	0,180
	(1,49)	(1,18)	(0,09)	(-0,44)	(-0,15)	(0,45)	(-0,04)	(0,23)
Log (GC)	1,586	2,519	-2,000	-1,612	-2,533	-1,647	-2,782	-2,764
	(0,67)	(1,1)	(-0,76)	(-0,65)	(-1,1)	(-0,67)	(-1,08)	(-0,96)
Log (LLY)	-4,778		-4,261		-5,686		-5,236	
	(-2,65)		(-1,68)		(-2,41)		(-1,99)	
Log (LLY)*Mena	-0,521		-1,865		23,004		21,709	
	(-0,18)		(-0,68)		(2,64)		(2,23)	
Log (CPS)		-5,338		-4,596		-3,778		-3,472
		(-4,53)		(-2,96)		(-2,46)		(-1,91)
Log (CPS)*Mena		-1,929		-2,215		24,366		25,811
		(-0,78)		(-0,86)		(2,6)		(2,42)
Observations	183	183	170	169	183	183	175	169
R^2	0,67	0,70	0,64	0,65	0,13	0,14	0,38	0,33

Table 3b. Finance and Poverty in MENA countries

Poverty Headcount ratio as dependant variable

Regressions	OLS		2SLS (1)		Fixed effect		IV (1)(2)	
	(1)		(2)		(3)		(4)	
Constant	-0,455	-0,593	-0,463	-0,588	0,361	-0,087	0,302	-0,198
	(-1,80)	(-2,49)	(-2,48)	(-2,46)	(1,84)	(-0,33)	(1,38)	(-0,69)
GDP per capita growth	-0,002	-0,002	-0,005	-0,002	-0,004	-0,002	-0,004	-0,002
	(-0,36)	(-0,39)	(-1,34)	(-0,38)	(-2,34)	(-0,66)	(-2,36)	(-0,80)
Log workers	-0,056	-0,068	-0,109	-0,067	-0,033	-0,048	-0,039	-0,064
	(-2,63)	(-5,62)	(-4,64)	(-5,51)	(-1,96)	(-1,67)	(-1,99)	(-2,00)
Log (TO)	0,142	0,170	0,171	0,169	-0,036	0,086	-0,020	0,121
	(2,62)	(3,48)	(4,17)	(3,44)	(-0,78)	(1,24)	(-0,39)	(1,59)
Log (IR+1)	-0,018	-0,034	-0,005	-0,032	0,026	0,042	0,025	0,041
	(-0,82)	(-1,54)	(-0,32)	(-1,47)	(2,17)	(2,04)	(1,98)	(1,90)
Log (LLY)	-19,183		-29,502		-13,449		-15,593	
	(-2,38)		(-3,25)		(-3,72)		(-3,15)	
Log (LLY)*year	0,010		0,015		0,007		0,008	
	(2,37)		(3,25)		(3,77)		(3,19)	
Log (CPS)		-15,304		-13,387		-11,783		-15,811
		(-2,88)		(-2,29)		(-2,34)		(-2,64)
Log (CPS)*year		0,008		0,007		0,006		0,008
		(2,86)		(2,28)		(2,38)		(2,67)
Observations	24	24	24	24	24	24	24	24
Nbr of countries	8	8	8	8	8	8	8	8
R^2	0.72	0.76	0.86	0.76	0.22	0.048	0.13	0.10

(1) Private credit or LLY are assumed endogenous. (2) IV is an instrumental panel data procedure with fixed effects

Table 3c. Finance and Poverty alleviation in MENA countries

Poverty headcount ratio as dependant variable

Panel Data

Regressions	OLS		2SLS (1)		Fixed effect		IV (1)(2)	
	(1)		(2)		(3)		(4)	
Constant	4,59	15,15	19,39	-0,317	6,78	11,04	0,752	0,278
	(0,61)	(1,81)	(2,1)	(-0,99)	(2,02)	(2,02)	(3,11)	(1,11)
Log FDI	-0,0057	-	-0,001	-	-	-	-0,0098	-0,0146
	(-0,74)	-	(-0,12)	-	-	-	(-1,14)	(-1,35)
Log Workers	-	-0,068	-0,0914	-0,038	-0,0031	-0,0234	-0,0058	-0,023
	-	(-3,9)	(-2,45)	(-1,76)	(-0,18)	(-0,93)	(-0,28)	(-0,88)
Year	-0,0025	-0,0077	-0,0098	-	-0,0031	-0,0054	-	-
	(-0,65)	(-1,84)	(-2,11)	-	(-1,96)	(-1,99)	-	-
Log (TO)	0,156	0,185	0,173	0,151	-0,152	0,0256	-0,221	-0,104
	(2,16)	(3,73)	(2,16)	(2,34)	(-2,04)	(0,38)	(-2,96)	(-1,2)
Log (IR+1)	-0,0124	-0,038	-0,024	-0,024	0,0378	0,0486	0,062	0,0812
	(-0,57)	(-2,11)	(-0,91)	(-0,91)	(1,57)	(2,78)	(2,72)	(2,6)
Log (GC)	-0,099	-0,097	-0,075	-0,079	0,069	0,026	0,112	0,096
	(-0,77)	(-1,01)	(-0,92)	(-0,83)	(0,98)	(0,42)	(1,95)	(1,32)
Log (LLY)	-0,172	-	0,003	-	0,216	-	0,202	-
	(-3,91)	-	(0,38)	-	(4,37)	-	(4,09)	-
Log (CPS)	-	-0,0772	-	-0,0736	-	0,221	-	0,169
	-	(-2,98)	-	(-1,96)	-	(3,24)	-	(2,58)
Observations	23	24	23	24	23	24	23	24
R^2	0,59	0,73	0,77	0,64	0,72	0,61	0,7	0,51

Table 4a. Finance and Poverty alleviation in Developing countries
Poverty headcount growth as dependant variable

Panel Data

Regressions	OLS (1)		2SLS (1) (2)		Fixed effect (3)		IV (1)(2) (4)	
Constant	-0,081	-0,084	0,068	0,088	0,382	0,401	0,289	0,311
	(-0,74)	(-0,79)	(1,35)	(1,79)	(3,09)	(3,57)	(1,98)	(2,38)
Log Initial Poverty headcount	-0,063	-0,066	-0,061	-0,057	-0,243	-0,244	-0,244	-0,245
	(-4,69)	(-4,81)	(-4,17)	(-3,96)	(-7,27)	(-7,32)	(-7,24)	(-7,120)
GDP per capita growth	-	-	-0,005	-0,007	-	-	-	-
	-	-	(-1,28)	(-1,73)	-	-	-	-
Log Pop	0,078	0,087	-	-	-	-	-	-
	(2,65)	(3,00)	-	-	-	-	-	-
Log FDI	-	-	-	-	0,027	0,026	0,0-29	0,027
	-	-	-	-	(1,27)	(1,23)	(1,33)	(1,23)
Log (IR+1)	-	-	-0,025	-0,018	-	-	-	-
	-	-	(-1,51)	(-1,13)	-	-	-	-
Log (GC)	0,046	0,051	-	-	-	-	-	-
	(1,16)	(1,32)	-	-	-	-	-	-
Log (LLY)	-0,061	-	-0,123	-	-0,145	-	-0,229	-
	(-2,01)	-	(-2,66)	-	(-1,81)	-	(-2,18)	-
Log (LLY) * Mena	0,044	-	0,036	-	0,346	-	0,430	-
	(0,940)	-	(0,76)	-	(1,11)	-	(1,34)	-
Log (CPS)	-	-0,042	-	-0,067	-	-0,105	-	-0,161
	-	(-2,21)	-	(-2,25)	-	(-2,01)	-	(-2,25)
Log (CPS) * Mena	-	0,042	-	0,022	-	0,265	-	0,319
	-	(1,08)	-	(0,5)	-	(0,77)	-	(0,9)
Observations	164	165	165	165	181	181	180	172
Nbr of countries	54	54	55	55	60	60	60	57
R^2	0,14	0,142	0,102	0,101	0,06	0,056	0,059	0,055

Panel Data

Regressions	OLS (1)		2SLS (1) (2)		Fixed effect (3)		IV (1)(2) (4)	
Constant	0,070	0,059	0,096	0,100	0,409	0,424	-2,649	-1,907
	(0,41)	(0,36)	(0,19)	(0,58)	(3,34)	(3,83)	(-1,44)	(-1,37)
Log Initial Poverty headcount	-0,062	-0,062	-0,072	-0,062	-0,241	-0,244	-0,183	-0,258
	(-4,44)	(-4,51)	(-1,93)	(-4,31)	(-7,22)	-7,3)	(-3,6)	(-4,27)
GDP per capita growth	-0,002	-0,003	-0,003	-0,007	0,003	0,002	0,005	0,000
	(-0,57)	(-0,700)	(-0,05)	(-1,68)	(0,63)	(0,46)	(0,53)	(0,03)
Log Pop	0,067	0,075	0,085	-	-	-	-	-
	(2,17)	(2,46)	(2,49)	-	-	-	-	-
Log (TO)	-0,023	-0,025	-	-0,022	-	-	0,336	-0,042
	(-0,83)	(-0,91)	-	(-0,76)	-	-	(1,24)	(-0,25)
Log (IR+1)	-0,014	-0,012	-0,016	-0,028	-	-	-0,060	-0,007
	(-0,94)	(-0,83)	(-1,01)	(-1,73)	-	-	(-1,17)	(-0,17)
Log (GC)	0,037	0,044	-	0,031	-	-	0,282	2,240
	(0,94)	(1,13)	-	(0,76)	-	-	(1,74)	(0,584)
Log (LLY)	-0,063	-	-0,065	-	-0,118	-	-0,993	-
	(-1,810)	-	(-1,72)	-	(-1,54)	-	(-2,01)	-
Log (CPS)	-	-0,045	-	-0,091	-	-0,088	-	-0,852
	-	(-2,14)	-	(-2,96)	-	(-1,73)	-	(-2,26)
Observations	164	165	152	163	186	167	150	164
Nbr of countries	54	54	50	50	62	55	49	54
R^2	0,1382	0,1422	0,154	0,0871	0,062	0,101	0,04	0,031

Table 5. Finance and Inequality in MENA countries
Gini index as dependant variable

| Regressions	OLS		2SLS (1)		Panel Technics Fixed effect		IV (1)(2)	
	(1)		(2)		(3)		(4)	
Constant	0,294	0,316	0,290	0,352	0,415	0,271	0,373	0,286
	(2,99)	(3,07)	(2,95)	(2,89)	(1,97)	(3,40)	(2,08)	(2,72)
GDP per capita growth	0,002	0,002	-	-	0,000	0,001	0,000	0,001
	(0,86)	(1,14)	-	-	(0,21)	(0,71)	(0,18)	(0,81)
Log workers	-0,023	-0,017	-0,023	-0,022	-0,037	-0,047	-0,041	-0,045
	(-2,76)	(-3,20)	(-3,86)	(-3,03)	(-2,11)	(-5,81)	(-2,65)	(-3,87)
Log (TO)	0,027	0,020	0,029	0,017	0,005	0,057	0,015	0,053
	(1,30)	(0,93)	(1,38)	(0,72)	(0,10)	(2,82)	(0,36)	(1,88)
Log (IR+1)	0,010	0,014	0,011	0,022	0,017	0,029	0,016	0,029
	(1,13)	(1,48)	(1,22)	(2,27)	(1,50)	(3,44)	(1,51)	(3,70)
Log (LLY)	-6,639	-	-6,149	-	-7,450	-	-8,928	-
	(-2,12)	-	(-2,41)	-	(-2,42)	-	(-2,45)	-
Log (LLY)*year	0,003	-	0,003	-	0,004	-	0,004	-
	(2,12)	-	(2,41)	-	(2,43)	-	(2,47)	-
Log (CPS)	-	-2,360	-	-3,345		-7,449	-	-6,929
	-	(-1,02)	-	(-1,70)		(-4,60)	-	(-3,15)
Log (CPS)*year	-	0,001	-	0,002		0,004	-	0,004
	-	(1,03)	-	(1,72)		(4,68)	-	(3,20)
Observations	24	24	24	24	24	24	24	24
Nbr of countries	8	8	8	8	8	8	8	8
R^2	0.52	0.49	0.50	0.43	0.41	0.33	0.40	0.33

(1) Private credit or LLY are assumed endogenous. (2) IV is an instrumental panel data procedure with country fixed effects

Fig.1. Log(Headcount) against Log(Private Credit) in a panel of 68 developing countries. [20]

Fig 2. Log(Gini) against Log of Private Credit in a panel of 68 developing countries
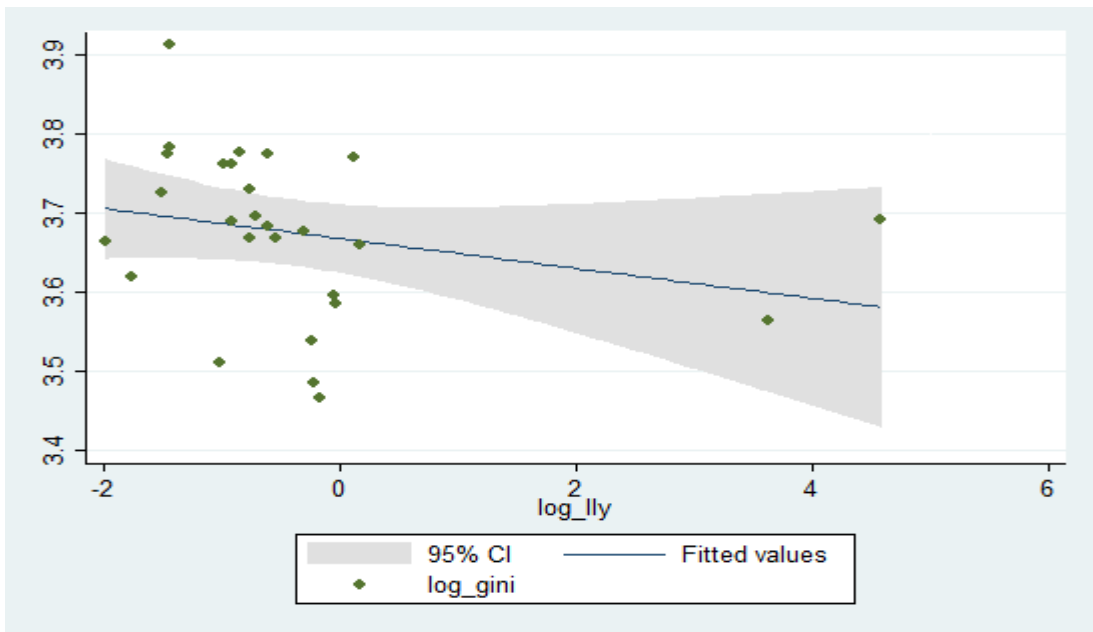
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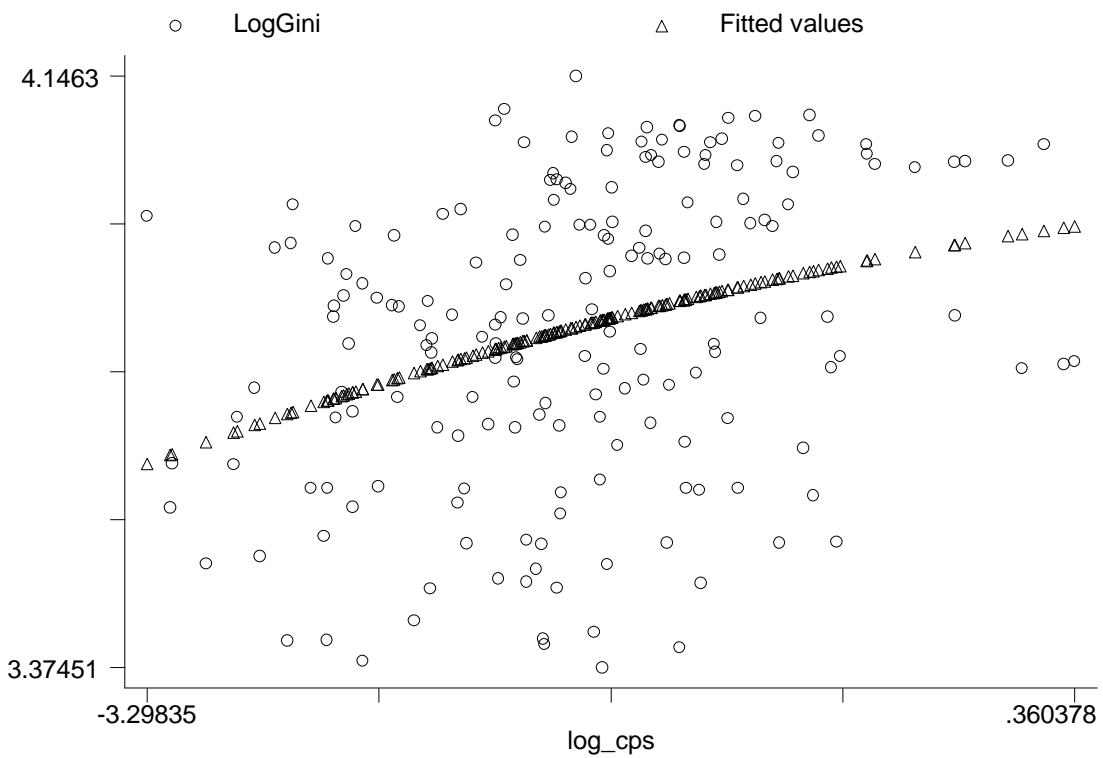
[20] The fitted line is from a regression of log(Headcount) on the log of Private Credit.

Fig 3. Log(Gini) against Log(Liquid Liabilities) in a panel of 8 Mena Countries