Financial Liberalization, Saving, Investment and Growth In MENA Countries

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Abstract

Over the last two decades MENA countries as much of the developing countries have experienced a wave of liberalization of financial sector. There have been expectations that financial liberalization would enhance economic growth by stimulating saving and investment. The purpose of this paper is three folds. First, to review the literature on the rationale for financial repression. Second, to examine the theoretical and empirical literature on the links between financial liberalization, savings and investment. Third, to assess empirically the effect of financial reforms on economic performance in the specific case of MENA countries. For data availability reasons, our investigation focuses on a sample of five MENA countries (Egypt, Jordan, Morocco, Tunisia and Turkey) over the period 1970-1998.

1.   Introduction

Over the last two decades MENA countries as much of the developing countries have experienced a wave of liberalization of financial sector. For a long time, the primary task of financial system has been to finance the government needs, public enterprises, and priority sectors through mandatory holding of treasury bills and bonds issued by development banks.

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Since mid 1980s, a gradual liberalization of financial system has taken place. Interest rates subsidies to priority sectors have been reduced or eliminated. The monetary authorities started to manage liquidity through a more active use of reserve requirements and a more market-based allocation of refinancing. Stock markets legislation has been updated, and their management was transferred to the association of brokerage houses. New banking law increased autonomy of the central bank and introduced prudential regulation in line with international standards. Finally, measures to increase competition by opening banks' capital to foreign participation have been designed.

There have been expectations that financial liberalization would enhance economic growth by stimulating saving and investment.

The purpose of this paper is three folds. First, to review the literature on the rationale for financial repression. Second, to examine the theoretical and empirical literature on the links between financial liberalization, savings and investment. Third, to assess empirically the effect of financial reforms on economic performance in the specific case of MENA countries.

The empirical assessment attempts to capture the effects of both banking sector and stock market developments. For data availability reasons, our investigation focuses on a sample of five MENA countries (Egypt, Jordan, Morocco, Tunisia and Turkey) over the period 1970-1998.

The rest of the paper is organized as follows. The second section examines why governments adopt financial repression policies. The third section reviews the theoretical and empirical findings on how financial liberalization could affect savings, investment and growth. The fourth section addresses the impact of financial liberalization on economic performance in the specific context of MENA countries, and finally section five concludes.

2.   Why do governments adopt financial repression policies?

Whether the degree of financial development is crucial or not for economic growth is a very debatable issue among economists. Lucas (1988) asserts that economists tend to over-stress the role of financial factors in economic growth. In contrast, a large literature on development states that the extent of financial intermediation in an economy is crucial for its growth (MacKinnon (1973), Goldsmith (1969), Bencivenga and Smith (1991), Levine (1997)). For the latter view, the argument is that by reallocating capital to the highest return projects and dealing with moral hazard, adverse selection and transaction costs problems, financial intermediaries represent an essential catalyst for economic growth. So, Why do governments adopt financial repression policies?

Financial repression is the result of nominal interest rate ceiling that is below the prevailing rate of inflation and currency depreciation. Under financial repression regime, the monetary authorities impose high reserve requirements, bank-specific credit ceilings and selective credit allocation, mandatory holding of treasury bills and bonds issued by the government, and finally a non-competitive and segmented financial system.

Theoretically, there are several arguments in favor of financial repression. First, it allows the authorities to have a better control over the money supply. Second, the government is assumed to know better than the markets what investments are more desirable from a social perspective. Third, the government should protect lenders against usury practices by moderating the free determination of interest rates. Finally, financial repression is usually accompanied by interest rates below market rates, which reduces the costs of servicing government debts (Giovannini and De Melo (1993), Roubini and Sala-i-Martin (1995)).

Giovannini and De Melo (1993) emphasize the fact that financial repression is a taxation device used to finance the government needs at artificially low interest rates. They provide empirical evidence on the interactions between financial controls and tax policies (budgetary impact of financial repression) by estimating the amount of revenue that governments in developing countries have obtained from financial repression. Their empirical evidence covered 24 countries over the 1972-1987 period.

The government revenue directly arising from financial repression can be measured as the difference between foreign and domestic interest rates, times the stock of domestic government liabilities.

The results show that revenue from financial repression as a share of GDP has ranged from 0 in Indonesia, where domestic government debt is held exclusively by the central bank, to 6 percent in Mexico and Zimbabwe. In Algeria it represents 4.3 percent, 2.31 percent in Morocco, 2.2 percent in Turkey, 1.5 percent in Tunisia and 0.6 percent in Jordan. Giovannini and De Melo (1993) report the two components through which financial repression was implemented: the interest rate differentials and the changes in exchange rates. The sum of these two components is equivalent to a tax rate of financial repression. These components are respectively (8.49 and 1.59 for Algeria), (5.74 and 10.33 for Morocco), (5.98 and 7.22 for Tunisia), (0.85 and 54.64 for Turkey) and finally (6.71 and 0.47 for Jordan). These results suggest that financial liberalization would generate a substantial budgetary problem unless it is accompanied by appropriate fiscal measures to substitute for the revenue loss.

However, there are theoretical as well as empirical arguments that suggest that financial repression may exert adverse effects on economic growth. In such circumstances, it has been relevant to investigate the government's motivations to adopt such policy. According to Roubini and Sala-i-Martin (1995) the main reason is that financial sector represents a potential source of "easy" resources for the public budget through the inflation tax. Financial development, which also means a reduction in the transaction costs of transforming non-liquid to liquid assets, reduces the need to hold money. Therefore, financial development decreases the inflation tax-base and the possibilities to collect seigniorage. Therefore, tax system reforms aiming at reducing the need for seigniorage revenues have been stressed as a priority in structural adjustment programs before implementing financial liberalization reforms.

To the extent that financial liberalization increases the efficiency of allocating savings to productive investment, financial repression will also have negative real effects.

3. Financial liberalization, savings, investment and growth

The financial system affects capital accumulation either by increasing saving rate (level effect) or by improving the allocation of savings among potential investors (reallocation effect). The availability of funds may also affect economic growth by financing technological innovation.

3.1. Theoretical review

In an extensive survey, Levine (1997) breaks the primary function of financial sector into five basic functions: mobilization of saving, allocation of resources, hedging and pooling risks, easing exchange of goods and services, monitoring managers and exerting corporate control. Informational asymmetries and transaction costs create incentives for the emergence of financial markets that supply financial instruments. Banks can offer liquid deposits to savers and undertake a mixture of liquid low-return investments to satisfy demands on deposits and illiquid high-return investments. In doing so, banks provide complete insurance to savers against liquidity risk while facilitating long-run investments. The ability of banks and security markets to pool risk across individual projects, industries and regions is also crucial for economic growth. By facilitating risk diversification, financial markets induce a portfolio risk toward projects with high-expected returns.

In their paper, Dornbusch and Reynoso (1989) argue that the strong assertions for the positive effects of financial liberalization on economic growth tend not to be supported by the evidence. To support their claim, they reconsider the conventional theoretical propositions and empirical facts against financial repression.

First, the relationship between real deposit rates and saving rate: Although there is a strong belief that higher interest rates would stimulate saving, the offsetting income and substitution effects of increased interest rates mean an ambiguous total effect on saving. In developing countries, the lack of appropriate data and their poor quality make it harder to provide any evidence. Second, the relationship between financial depth and growth is not strong and varies substantially across countries.

Levine (1991) derives a model where more liquid stock markets- markets where it is less expensive to trade equities- stimulate long-run investment projects because investors can easily sell their stake if they need liquidity before the project matures. He concludes that high liquid stock market attracts investment in long-run high-return projects that boost productivity growth.

Mauro (1995) starts from the documented fact that Japan and continental Europe have experienced high saving rates and fast growth even though their stock markets have been relatively underdeveloped, while US and UK have been characterized by low saving and slower growth even though their stock markets have been well developed. To accommodate these facts, he incorporates some results from precautionary saving literature into an endogenous growth model in which the young and the old share the output produced by their "family business". This model suggests that the existence of a stock market where investors can pool their risks is expected to reduce precautionary saving and- in a closed economy- investment and growth. The paper shows that if uncertainty is of a multiplicative nature and utility across states is CRRA (constant relative risk aversion), then the mechanism will decrease savings and tend to lower growth if and only if the elasticity of inter-temporal substitution is below one.

However, there is a theoretical debate on whether high stock market liquidity improves saving rates. In fact, higher returns and better risk sharing may reduce saving. Furthermore, since more liquidity makes it easier to sell shares, it may reduces the incentives of shareholders to monitor managers (Shleifer and Vishny 1986) and weaker corporate governance limit the effective resource allocation and affects economic growth.

Regarding the reallocation and productivity effects of financial deepening, Greenwood and Jovanovic (1990) develop a model where the extent of financial intermediation and economic growth are endogenously determined. In their model, financial intermediaries can invest more productively than individuals because of their better ability to identify investment opportunities. They conclude that financial intermediation promotes growth because it allows a higher rate of returns to be earned on capital, and growth in turn provides the means to implement costly financial structures.

Concerning the role that the stock market plays in allowing investors to diversify their portfolios to hedge against idiosyncratic risk, Levine (1991) constructs an endogenous

growth model in which stock market emerges to help agents to cope with liquidity risk and investigate how the stock market affects investment incentives in ways that change steady-state growth rates. He shows that the existence of a stock market affects positively economic growth and may stimulate high return, and more productive projects rather than safe storage of wealth. This paper also shows that taxing financial market activities lowers per capita growth rates.

3.2. Empirical review

To date the empirical relationship between financial system development and saving, investment and economic growth has been difficult to test. Two streams of research may be distinguished. The first investigates more generally the relationships between financial development indicators and economic performance (King and Levine (1993), Atje and Jovanovic (1993), Levine and Zervos (1998 a), Rajan and Zingales (1998), Harris (1997). The second focuses more specifically on the impact of financial liberalization on economic performance (Bayoumi (1993), Henry (2000), Kim and Singal (2000), Bekaert and Harvey (2000)).

King and Levine (1993), examine whether higher level of financial development are positively associated with economic development using data over 80 countries from 1969 through 1989. Four indicators have been constructed in order to measure financial development. First, the ratio of liquid liabilities to GDP. Second, the importance of deposit banks relative to the central bank in allocating credit. Third, the share of credit issued to non-financial institutions (in total credit and in GDP). Using this array of indicators provide much better picture of financial depth than using a single indicator. Using cross-country regressions and after controlling for a set of country and policy characteristics, they find that higher levels of financial development are positively associated with faster rates of economic growth and physical capital accumulation. They also point out that financial development is a good predictor for long-run economic growth over the next 10 to 30 years. These finding confirm that finance does not only follow economic activity and that the strong correlation between the level of financial depth and economic growth does not simply reflect a positive association between contemporaneous shocks to both financial and economic development.

Atje and Jovanovic (1993) present a cross-country study of stock markets and economic growth over the period 1980-88. They find a significant correlation between average economic growth and stock market capitalization for 40 countries.

Levine and Zervos (1998 a.) study whether stock markets and banks promote economic growth. This paper extends that of Atje and Jovanovic (1993) in different dimensions; by enlarging the sample size and the time coverage, by using different measures of stock market development, and by controlling for other economic and political factors that may affect economic growth). Using data on 47 countries from 1976 through 1993, they find that measures of stock market liquidity are strongly related to growth, capital accumulation, and productivity. Surprisingly, stock market size does not seem to be robustly correlated to economic growth. Conversely, bank lending to the private sector has a strong effect on economic growth.

However, as indicated by Rajan and Zingales (1998), one may be still skeptical about the causality direction between financial development and economic growth. Specifically, financial institutions may tend to lend more if they expect future economic growth and the stock market capitalizes the present value of growth opportunities. In this case, financial development can be viewed as a leading indicator rather than a causal factor. To overcome these issues, they suggest to investigate microeconomic data on firms' external finance. Using data at the industry level over the period 1980-90, their findings indicate that ex-ante development of financial markets facilitates the ex post growth of sectors dependent on external finance.

Harris (1997) re-examines the empirical relationship between stock markets and economic growth using more appropriate instruments for investment and applying more advanced econometric techniques. In contrast to Atje and Jovanovic (1993), he finds no hard evidence that the level of stock market activity helps to explain growth in par capita output. Splitting the sample leads to the similar results for the sub-sample of less developed countries. In the sub-sample of developed countries, however, the level of stock market activity helps to explain per capita growth but by less than half the value predicted by Atje and Jovanovic for their whole sample.

Bayoumi (1993) investigates the interaction between financial deregulation and household saving's behavior using regional data for UK in the 1980s. He concluded that

financial deregulation was responsible for lowering the equilibrium level of saving by roughly 2.25 percent per year and making saving more dependent on changes in wealth, income and interest rates.

Henry (2000) examines the relationship between stock market liberalization (the decision to allow foreigners to purchase shares in the country's stock market) and the growth of real private investment using an event study approach on sample of developing countries. Henry's paper covers 11 countries (Argentina, Brazil, Chile, Colombia, India, Korea, Malaysia, The Philippines, Thailand, and Venezuela). Standard models of international asset pricing predict that stock market liberalization may reduce the liberalizing country's cost of equity capital. This fall in the cost of equity will transform some investment project that had a negative (NPV) before liberalization into positive NPV after liberalization. Data indicate than on average countries experience large, temporary increase in the growth rate of real private investment on the heels of stock market liberalization in the eleven countries. The relationship between private investment growth and stock market liberalization persist after controlling for world business cycle effects, contemporaneous economic reforms and domestic fundamentals. However, Henry cannot conclude that stock market liberalization cause investment booms, because the possibility of reverse causality cannot be ruled out.

The evidence finds by Kim and Singal (2000), and Bekaert and Harvey (2000) support the fact that stock market liberalization causes a one-time revaluation of emerging market stock prices and a fall in the cost of capital.

Why a country's cost of equity falls after financial liberalization? There are two components in the cost of capital: the equity premium and the risk free rate. Stock market liberalization is expected to increase net capital inflows and this "supply effect" could reduce risk free rate. Second, more risk sharing between foreign and domestic residents should reduce equity premium. Increased capital inflows may also increase stock market liquidity, and increased liquidity reduces the equity premium. (Levine and Zervos 1998 b.). But, financial liberalization does not always lead to a fall in the cost of equity capital. It could increase risk-free rate. This depends on whether the liberalization of restrictions on inflows is accompanied by a liberalization of restrictions on outflows. It also depends on whether the autarky risk-free rate (before liberalization) was above or below the world

rate. Ultimately, whether a country's cost of capital rises or falls following stock market liberalization is an empirical question that must be considered case by case.

4. Empirical investigation

In this section we investigate the relationship between financial intermediation and growth. As our literature review pointed out, economic agents rely on financial intermediaries to reduce information and transactions costs, to manage liquidity risk and allocate optimally investment. By doing so, financial intermediaries influence saving and investment decisions and hence may affect overall economic growth. Our purpose is to assess the existence of this effect and test the theoretical predictions regarding the relationship between financial development and economic growth in the specific case of selected MENA countries.

4.1 Data sources and indicators

a. How to capture financial liberalization

Financial liberalization reforms involve usually several key phases that are implemented in several years. These reforms cover interest rates, reserves requirements, credit allocation, bank ownership, pro-competition measures, security markets, prudential regulation, and openness of capital account (Bandiera et al. 2000).

This process of financial liberalization has generally proceeded in many stages and the relaxation of different controls has been rarely simultaneous. From this point of view, it is difficult to define a single date in which liberalization has taken place. Moreover, official and practical timing of any particular relaxation often don't coincide. There have also been partial reversals of prior liberalization in some countries.

One can try to infer the timing of liberalization from the statistical properties of interest rate data themselves or other financial indicators (liquid liabilities as a share of GDP, deposit money bank assets to total financial assets, credit by deposit money banks to private sector as a share of total credit or GDP).

Following Bandiera et al. (2000), this paper construct a financial liberalization index that captures the exogenous changes in eight items (interest rate regulation, reserves requirements, credit allocation, bank ownership, pro-competition measures, security markets, prudential regulation, and capital account liberalization). For each item a dummy variable that takes 1 for a more liberalized regime and 0 otherwise is created. Using the principal component analysis, a weighted average of the more important principal components is computed. This indicator represents the financial liberalization index that will be used in the regression analysis. To this end, IMF country reports have been explored in order to construct database records of such policy changes.

b. Financial depth measures

Assuming that the size of the formal financial intermediary sector relative to economic activity reveals the extent and the quality of financial services, many researchers use liquid liabilities over GDP (LL/GDP) as a proxy for financial development. However, this indicator reflects the overall size of financial sector and does not distinguish between the allocation of capital to private sector and to various governmental and quasi-governmental agencies. In this respect, it may not inform reliably on the extent to which financial services such as risk management and information processing are provided. Data on this indicator are presented in table 1.

Table 1 (About here)

In order to assess more accurately the contribution of commercial banks in financial intermediation, the ratio of deposit money bank domestic assets to total financial assets (deposit money bank domestic assets and central bank domestic assets) Denoted by BANK. The rationale for this measure is that banks are more likely to identify profitable investment, monitor managers, mobilize savings than central banks (Levine 1997). The weakness of this indicator is that in some countries, the government influence the structure of bank assets and liabilities through mandatory holdings, and controls on credit allocation. Table 2 presents data on this indicator.

Table 2 About Here

A more accurate indicator of financial development is provided by the value of credits by financial intermediaries to the private sector (excluding credit to money banks) divided by total domestic credit. The last indicator is computed as the ratio of claims on the financial private sector to GDP. Table 3 and 4 present, respectively data on these two last indicators.

Table 3 and Table 4

4.2   Econometric analysis

The econometric analysis is based on three main specifications involving three dependent variables (private saving, private investment and real GDP growth rate). In the first two specifications, the variables are entered in the logarithmic terms, except for real interest rate (RR) due to the presence of negative values. One advantage of the logarithmic transformation is that the regressions directly yield elasticity coefficients of private saving rate and private investment rate respectively with respect to explanatory variables, making it readily possible to assess the economic relevance of the relationship. The logarithm transformation also accounts for potential non-linearities in the relationship between the dependent and the explanatory variables. It is very likely, for example, that the effects of financial depth private investment are minimal at low levels of financial depth and increase as the country's financial system develops.

The equations are estimated using panel data approach and more specifically by allowing for each of the five countries to have its own intercept (fixed-effects estimation). An F-test rejects significantly the hypothesis of a common intercept and supports the alternative of individual country intercepts.

To test the effects of financial liberalization on private saving, private investment and growth, various indicators of the extent of financial reforms are used alternatively. First, the four classical indicators of financial depth (total liquid liabilities of financial intermediaries as a percentage of GDP (LLY), deposit money banks assets as a share of total assets (BANK), private credit by deposit money banks to GDP (PRIVY), and private credit by deposit money banks to total domestic credit (PRIV)) are used to proxy indirectly for the scope of financial liberalization. In a second step, financial liberalization index (FINX) constructed on the basis of available information on the eight main

dimensions of financial reforms is used. The results are presented in table 5 for private saving, table 6 for private investment, and table 7 for real GDP growth rate. To avoid omitting variables bias, different policy-related variables such as trade openness, exchange rate overvaluation, inflation rate and real interest rate are included into the regressions.

Different tests are conducted to examine the ways in which financial depth affects private saving, private investment, and economic growth and also to check the robustness of the estimated results.

a. Financial liberalization and private saving

Estimation results on the impact of financial liberalization on private saving using each of the five measures of the extent of financial development are shown in table 5. While there are theoretical reasons that suggest that each of the included variables contribute in explaining private saving, the predicted sign for some variables is ambiguous a priori.

Table 5

The coefficients on all five financial indicators are negative although only two of them are statistically significant at 95 percent level of confidence (LLY and FINX). The results support the hypothesis that an increase in financial depth leads to a lower level of private saving. The coefficients indicate elasticities of private saving with respect to those financial depth indicators since the regression variables are in logarithm. The first column of the table suggests that a 1% increase in liquid liabilities as a share of GDP leads roughly to 0.37% decline in private saving. The elasticities of private saving with respect to credit issued to the private sector (as a share of GDP or as a share of total domestic credit) are invariably equal to (-0.13). A similar result is obtained when using deposit money bank assets to total financial assets as measure of financial development. Finally, the elasticity of private saving with respect to the composite index of financial liberalization is in the middle range (-0.20). The negative impact of financial development in general and financial liberalization more specifically on saving suggests that liberalization may have relaxed credit constraints on households. Japelli and Pagano (1994) found the same result in a cross-country study. They argue that easing liquidity

constraints on households by liberalizing consumer and mortgage credits, financial deregulation leads to a decline in saving rate and economic growth.

As noted in our literature review, the real interest rate can have a positive or negative effect on savings, depending on the relative magnitudes of substitution and income effects. The evidence is also less clear as shown by the coefficients reported in table 5. The estimates are positive, which suggests that higher real interest rates stimulate saving behavior of private agents, but they are not statistically significant.

Theoretically, in a closed economy the effect of economic growth on private saving is positive, but in a small open economy it becomes ambiguous; faster growth may reduce the saving rate by stimulating the consumption of the young (Jappelli and Pagano 1994). According to our estimation, the coefficient of economic growth is positive, statistically significant and quite robust across the five measures of financial development. It reveals a positive relationship between economic growth and private saving. This result tends to corroborates previous finding in the literature. A potential endogeneity bias may be suspected if growth is itself endogenous and positively correlated with error term of the private saving equation. To account for this potential bias, the contemporaneous growth rate of GDP was replaced by the growth rate in the previous period. This specification yields results similar to those reported in table 5. As expected, a higher dependency ratio[2] increases family needs and puts more burden on workers, thereby reducing saving. This negative coefficient is consistent with the life-cycle hypothesis. That is, if a high proportion of the population are not of working age, then the dissaving patterns of this segment of the population will outweigh the saving patterns of the working cohort. The magnitude of the effect, however, does not seem to be statistically robust and vary depending on the financial depth indicator.

The Budget deficit as a share of GDP may affect private savings if economic agents are Ricardian and use private savings to offset changes in government savings. The negative and significant coefficient of the government budget surplus, in four out of five regressions, is consistent with Ricardian-like behavior. Finally, the results indicate a positive but insignificant coefficient on external debt as a ratio of GDP.

b. Financial liberalization and private investment

Theoretically, financial liberalization is associated with a better allocation of capital and more efficient transformation of saving into investment. By mitigating the liquidity constraints faced by entrepreneurs and reducing transactions costs of converting illiquid to liquid assets, a more liberalized financial system should stimulates capital accumulation and have positive effect on economic growth.

To test the effects of financial development on private investment, the same methodology applied previously for private saving is adopted. The results are reported in table 6. The results seem to be surprising with regard the theoretical expectations. The coefficients on financial development indicators as well as on financial liberalization index indicate a negative impact of financial depth on private investment in the five MENA countries investigated. This finding is inconsistent with the previous literature using cross-country regressions. Levine (1993), for example, using a cross-section of 77 countries over the period 60-89 found a positive effect of financial development indicator on real per capita capital growth.

One potential explanation of our result can be found in the link between financial development and the development of mortgage and consumer credit markets. By distorting private credit allocation in favor of households at the extent of lending to firms, financial liberalization not only have reduced private savings but tended also to reduce available loans for business sector. To assess the validity of this explanation one needs detailed data on the allocation of private credit between households and firms. A complete characterization of the allocation of private credit (by sector, by maturity) is extremely useful to investigate the extent to which financial liberalization resulted in an effective increase in the flow of funds attributed to private investment. For data availability reasons, this exercise is left for future research.

Table 6

The coefficient of real interest rate is positive in three cases out of five, although only significant when liquid liabilities as a share of GDP is used a measure of financial development. In the two other cases, real interest rate has a negative but insignificant coefficient. The positive sign on real interest rate contradicts the theoretical prediction

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[2] The ratio of (the population under fifteen + the population over 60) to the total population.

according to which a higher cost of capital would discourage private investment. This result may reflect the uncertainty with regard the future inflation since investment decisions are taken on ex-ante basis while real interest rate used here is the ex-post measure of the borrowing cost.

The coefficient of economic growth is positive, statistically significant and quite robust across the five measures of financial development. This result implies a positive relationship between economic growth and private investment. To ensure that this result is not biased by the potential positive correlation of economic growth with error term of the private investment equation, the contemporaneous real GDP growth rate is replaced with real GDP growth rate in the previous year.

To account for the effect of government policies on private investment, four variables were included into the private investment equation: the extent of trade openness, the rate of inflation, the degree of overvaluation of real exchange rate, and the extent of the government budget surplus as a share of GDP. The first variable has the expected positive sign, highly significant and statistically robust, implying that trade openness exerts a positive effect on private investment. The second and the third variables have the predicted negative sign, although only marginally significant. This negative sign is consistent with the damaging effect of uncertainty of macroeconomic environment on private investors' decisions. The fourth variable exhibit insignificant coefficients, although one may expect government borrowing in order to finance budget deficit to be harmful for private investment.

c. Financial liberalization and economic growth

The theoretical underpinning of the relationship between financial development and economic growth has recently received considerable attention in both theoretical and empirical research. The channels through which financial development could affect economic growth have already been presented in our literature review. The purpose here is to assess the relative contribution of financial factors using the framework provided by the recent empirical growth literature.

The estimated growth equation relates real GDP growth to a set of measures of financial depth, real interest rate and a set of control variables consisting of private investment rate, human capital indicator, trade openness, inflation rate, external debt as a share of GDP, annual change of terms of trade and real exchange rate overvaluation. The estimation strategy is the same as before. The results are presented in table 7.

Table 7

The first striking feature of our results is the negative and insignificant coefficients on financial depth indicators (except for private credit as a share of GDP). This results contradict those of King and Levine (1993) who found positive association between financial system development and economic growth in a cross-country context. Our results provide evidence that once fundamental variables such as private investment and human capital (proxied by the secondary enrollment rate), and policy related variables such trade openness, inflation rate and the burden of external debt are controlled for, financial depth indicators fail to explain growth experience in the five MENA countries under investigation. These finding indicates the existence of interactions among variables that cause some of them to lose significance when they are include simultaneously. One channel of interaction presented earlier is through the effect of financial depth on private investment. The second striking feature is the positive, significant and robust coefficient of real interest rate. The ex-post determination of real interest rate and the uncertainty surrounding the prediction of inflation rate ex-ante may be an explanation of this finding.

The remaining results presented in table 7 show that the coefficient estimate on lagged GDP, which stands for the catch-up term, is negative and significant. The coefficients on

private investment and on human capital are positive and significant which is consistent with our expectations and corroborate the previous literature. The coefficient estimate of external debt as share of GDP is negative and statistically robust which indicates that the burden of external debt has contributed negatively to the observed slow growth in MENA countries. Debt obligations absorb an important fraction of resources that could be mobilized for investment purposes. The results on the other variables need to be interpreted with extreme cautious due to the potential heterogeneity in growth patterns among the five countries.

5.   Conclusion

Since mid 1980s, a gradual liberalization of financial system has taken place in MENA countries. Interest rates subsidies to priority sectors have been reduced or eliminated. The monetary authorities started to manage lquidity through a more active use of reserve requirements and a more market-based allocation of refinancing. New banking law increased autonomy of the central bank and introduced prudential regulation in line with international standards. Finally, measures to increase competition by opening banks' capital to foreign participation have been designed. There have been expectations that higher financial development would enhance economic growth through better mobilization of saving and more efficient allocation of capital.

The aim of this paper is to assess the impact of financial development on private saving, on private investment and on economic growth. While our results on the effects of financial development on private saving are overall expected and seem to be consistent with the previous studies. Our results on the relationship between financial development and private investment on one hand and financial development and economic growth on the other are rather disappointing with regard our initial expectations.

The coefficients on financial development indicators as well as on financial liberalization index indicate a negative impact of financial depth on private investment in the five MENA countries investigated. This finding is inconsistent with the previous literature using cross-country regressions. One potential explanation of our result can be found in the link between financial development and the development of mortgage and consumer credit markets. By distorting private credit allocation in favor of households at the extent of lending to firms, financial liberalization may not only have reduced private savings but

tended also to reduce available loans for business sector. To assess the validity of this explanation one needs detailed data on the allocation of private credit between households and firms. Regarding the relationship between financial depth and economic growth, our results provide evidence that once fundamental variables such as private investment and human capital (proxied by the secondary enrollment rate), and policy related variables such trade openness, inflation rate and the burden of external debt are control for, financial depth indicators fail to explain growth experience in the five MENA countries under investigation. This is particularly plausible if financial liberalization have led to further distortion of credit allocation in favor of consumption and at the extent of productive activities.

In order to investigate these issues in more depth, it would be worthwhile to undertake detailed analysis at the country level. Such analysis can take into account the effect of institutional differences and other country-specific developments. It can also capture the effect of private credit distribution between households and firms, among sectors, and between small and large firms.

Appendices

Appendix 1. The Effects of Financial Liberalization Components on Savings

Financial liberalization Component	Direct effect	Effect on savings
Interest rate liberalization	Higher deposit interest rates (price-effect)	Substitution and income effects, total effect on saving ambiguous
Reduction of reserve requirements	More resources available for lending (quantity-effect) may also lead to a price-effect.	Net effect depends on other policy instruments (monetary policy: open market operations).
Reduction of directed credit to priority sectors	Reallocation within the business sector (high return projects) and more lending to households.	Ambiguous effect on corporate saving and reduction of household saving.
Bank ownership (more privatization)	May be associated with an increase in lending to households.	Reduction of household saving.
Pro-competition policies	More risk taking in lending and reduction of bank spreads. Wider range of saving opportunities	Ambiguous effect on saving.
Prudential regulation	Offset or moderate risk taking promoted through competition. May also reduce upward pressure on deposit rates.	Ambiguous effect on saving.
Development of securities markets	Wider and more flexible range of saving instruments.	Can increase saving, the effect may take time to be effective.
International financial liberalization	Flows of foreign funds and increase in rates of returns as barriers to capital outflow are removed.	Ambiguous effect on saving because banks can also borrow from abroad to sustain lending to local firms and households.

This table is constructed from Bandiera et al. (2000) **Does Financial reform raise or reduce saving?** (The Review of Economics and Statistics, May 2000, 82(2): 239-263.

Appendix 2. Financial Liberalization Components and Financial Liberalization Index (1)

Financial liberalization Component	Egypt	Jordan	Morocco	Tunisia	Turkey
Interest rate liberalization	1991: liberalization of interest rates (deposits and lending).		Interest rates on deposits liberalized in 90 and 91. 1996: Controls on lending and deposit rates completely eliminated except a ban on remuneration of sight deposits and interest rates for small saving deposits.	Most interest rates were liberalized in 1987, 1994 and 1996. But some deposit rates remain regulated. (interest on sight deposits must not exceed a ceiling of 2 percentage points).	1981: interest-rate ceiling abolished. 1983: Ceilings reintroduced. 1988: Ceiling eliminated.
Reduction of reserve requirements	Proxy by total reserves as a share of total deposit money bank assets.				
Reduction of directed credit to priority sectors	1994: credit ceiling for private sector abolished. 1995: credit ceiling for public sector abolished		From 1991 to 1993, mandatory holding were reduced. Obligatory holding of treasury papers reduced from 35% in 1986 to 10% by-end 1996.	1991: mandatory holding of treasury debt instruments was relaxed. 1994: abolition of the obligation for banks to subscribe and hold treasury bills. 1996: Obligatory sectoral lending ratios abolished.	
Bank ownership (more privatization)	1996: Privatization of public banks ownership in joint venture and private banks.		1989: Barriers to entry reduced by abolishing "Moroccanization" decree. 1993:	1986: measures to enlarge the scope of activities for foreign banks and off-shore banks.	
Pro-competition policies			Since mid 80s: further competition by breaking down the compartmenta-lization of activities between development and commercial banks. 1993: the new banking law: full integration of development banks.		1981: Barriers to entry lowered.

Appendix 3. Financial Liberalization Components and Financial Liberalization Index (2)

Financial liberalization Component	Egypt	Jordan	Morocco	Tunisia	Turkey
Prudential regulation	Prudential regulation applied progressively since 1991. (liquidity ratios, the capital adequacy ratio, the solvency criterion (Basle Accord). 1997: banks have to publish their audited financial statements in accordance with international standards.	Prudential regulation applied since 1993.	Prudential regulation introduced (to be met by 1996).	1991: adoption of prudential regulations. 1993: external audits and off-site reporting requirements. 1994: amendments to the banking law. These requirements to be met in 1999.	1986: new banking law becomes effective. It provides supervisory and prudential measures.
Development of securities markets	1992: measures to ensure stock market revival.		1993: stock market capitalization and turnover increased dramatically. 1997: electronic quotation	1994: stock market capitalization and turnover increased dramatically. 1996: electronic quotations.	1983: The capital market board is established to promote and monitor the securities markets. 1986: Istanbul Stock Exchange becomes operative.
International financial liberalization	1991: Liberalization of the exchange rate. All transactions in the balance of payments including the capital account, were fully liberalized (except investment in real estate).		1993: current account convertibility. Liberalization of inward foreign direct and portfolio investment, and external borrowing by residents. 1996: Inter-bank FX market created. 1996: A Moroccan bank issued equities in international capital markets and a private Moroccan enterprise issued corporate bonds in the European markets.	1994: Inter-bank FX market created. 1997: Forward FX market established. 1993: current account convertibility. Liberalization of inward foreign direct and portfolio investment, and external borrowing by residents. 1994: Tunisian government issued long-term bonds on the Japanese capital market.	1984: Foreign exchange (FX) deregulation. Banks are allowed to keep foreign currency abroad. 1985: New restrictions introduced. 1988: FX liberalized. 1989: capital movements liberalized. 1990: Exchange rate liberalized.

Appendix4. Data Sources and Indicators[3]

Variable	Time span	Description
Liquid Liabilities to GDP (**LLY**)	1970-1997	LL use IFS line 551 or if not available line 351 which is equal to M2. LL is a typical measure for financial depth but does distinguish between the financial sectors or between the use of liabilities.
Deposit money bank assets to total financial assets (**BANK**)	1970-1997	Deposit money bank domestic assets are from IFS lines (24+25). Total financial assets = IFS lines (12+22+42)
Private credit by deposit money Banks to GDP (**PRIVY**)	1970-1997	Credit issued to the private sector as opposed to credit issued to governments and public enterprises. IFS (32d+42d).
Private credit by deposit money banks to total domestic credit (**PRIV**)	1970-1997	Total domestic credit is from IFS (32+42)
Reserves to total deposits money banks (**RES**)	1970-1997	Total reserves are from IFS lines (20+40).
Real interest rates (**RR**)	1970-1997	RR is the deposit interest rate (IFS line 60l) less the rate of inflation measured by GDP deflator (line 99bi p) or if not available CPI (line 64). When 60l is not available RR is computed from the lending rate (60p) less the spread (from World saving database) less inflation.
Stock market capitalization to GDP (**CAPY**)	1986-1997	The value of listed shares divided by GDP.
Stock market total value traded to GDP (**TRADY**)	1986-1997	The total shares traded on the stock market divided by GDP.
Stock market turnover (total shares traded/market capitalization) (**TURNV**)	1986-1997	The value of total shares traded to market capitalization. It measures the activity or liquidity of a stock market relative to its size.
Net Interest rate Margin (**NMG**)	1990-97	The accounting value of a bank's net interest revenue as a share of its total assets. (from Beck et al. 1999).
Overhead costs as a share of total assets (**OVRCO**)	1990-97	The accounting value of a bank's overhead costs as a share of its total assets (from Beck et al. 1999).
Market structure (**CONC**)	1990-97	The ratio of the three largest banks' assets to total banking assets. (from Beck et al. 1999).
Private saving rate (**PSAVY**)	1970-97	Private saving as a share of gross national disposable income (from World saving database: Loayza et al. 1998).
Private investment rate (**PINVY**)	1970-97	Global Development Finance & World Development Indicators (for gross domestic investment); Pfeffermann et al. "Trends in Private Investment in Developing Countries: (for public investment and private investment)
Growth (**Grow**)	1970-1997	Annual percentage growth rate of GDP at market prices based on constant local currency.
Exchange rate overvaluation (**EXOV**)	1970-1997	Computed from Real effective exchange rate index given by Global Development Finance & World Development Indicators.
Trade openness (**OPEN**)	1970-1997	Total trade (imports+exports) as a share of GDP). Global Development Finance & World Development Indicators
Inflation rate (**P**)	1970-1997	Computed from CPI (IFS line 64)
Secondary enrollment (**SECENR**)	1970-1997	
Budget surplus as a share of GDP (**BUDY**)	1970-1997	
Terms of trade (**TOT**)	1970-1997	
Share of population over 60 (**OLD**)	1970-1997	
Share of population under 15 (**YOUNG**)	1970-1997	

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[3] This appendix 4. describes the list of variables used in the paper to investigate the relationship between financial liberalization saving, investment and growth. It also presents data sources and the time span covered by available data for each variable.

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Table 1. Liquid Liabilities to GDP

	1970-79	**1980-85**	**1986-91**	**1992-97**
Egypt	40.0	74.6	80.5	77.4
Jordan	58.6	80.3	115.5	106.1
Morocco	34.5	41.0	45.7	61.7
Tunisia	34.7	40.1	47.5	44.7
Turkey	19.4	19.3	22.0	24.0

Table 2. Deposit Money Banks Assets to Total Financial Assets

	1970-79	1980-85	1986-91	1992-97
Egypt	56.2	50.3	52.9	68.0
Jordan	70.1	78.4	71.8	73.0
Morocco	50.2	48.8	42.8	61.6
Tunisia	80.3	78.5	75.3	79.6
Turkey	60.2	51.4	61.4	74.6

Table 3. Private credit to Total Domestic credit

	1970-79	1980-85	1986-91	1992-97
Egypt	24.8	24.0	26.4	39.2
Jordan	72.4	74.2	61.7	75.2
Morocco	47.1	39.4	44.7	55.1
Tunisia	84.6	87.4	87.2	93.8
Turkey	56.3	45.4	52.8	62.5

Table 4. Private Credit by Deposit Banks to GDP

	1970-79	1980-85	1986-91	1992-97
Egypt	14.3	22.3	25.6	27.5
Jordan	33.9	47.6	61.2	62.0
Morocco	13.2	16.3	17.2	25.7
Tunisia	…	…	51.6	50.5
Turkey	…	…	13.4	13.5

Table 5. The impact of financial liberalization on private saving

Explanatory variables	LLY	BANK	PRIVY	PRIV	FINX
Financial depth	-0.37**	-0.13	-0.12	-0.13	-0.20**
	(-2.12)	(-1.20)	(-1.55)	(-0.91)	(-3.23)
Real interest rate	0.02	0.02	0.02	0.02	0.003
	(1.41)	(1.35)	(1.34)	(1.37)	(1.18)
Real GDP Growth	0.005*	0.01**	0.008**	0.01**	0.01**
	(1.75)	(3.50)	(2.31)	(3.58)	(2.03)
Budget surplus/GDP	-0.03	-0.04**	-0.03**	-0.04**	-0.02*
	(-1.44)	(-2.23)	(-2.13)	-2.34	(-1.92)
Dependency ratio	-0.81*	-1.26*	-1.18**	-1.26**	-1.89**
	(-1.72)	(-1.86)	(-2.06)	(-2.14)	(-4.63)
External debt/GDP	-0.20	-0.35**	-0.31*	-0.37*	-0.18**
	(-0.84)	(-1.94)	(-1.74)	(-1.90)	(-2.13)
Adjusted R²	0.31	0.28	0.29	0.29	0.35
F-statistic	5.72	5.19	5.31	5.29	7.26
Prob(F-statistic)	0.00	0.00	0.00	0.00	0.00
Observations	114	114	114	114	114

Note: These estimations are obtained using country-fixed effect estimation over the period 1970-1997. The dependent variable is the private saving rate taking in logarithm. All regression variables are in logarithm, except for real GDP growth, real interest rate and budget surplus/GDP. The estimates are corrected for auto-correlation and heteroskedasticity (GLS estimation). The t-statistic are given in parentheses. LLY is the ratio of liquid liabilities over GDP. BANK is the deposit money banks assets as a share of total assets. PRIVY are private credit by deposit money banks to GDP. PRIV is private credit by deposit money banks to total domestic credit. FINX is a financial liberalization index constructed on the basis of available information on the eight main dimensions of financial reforms implemented in the countries under study.

Table 6. The impact of financial liberalization on private investment

Explanatory variables	LLY	BANK	PRIVY	PRIV	FINX
Financial depth	-0.58**	0.03	-0.16*	-0.19	-0.18*
	(-2.62)	(0.14)	(-1.94)	(-1.24)	(-1.27)
Real interest rate	0.02**	0.01	-0.008	-0.006	0.008
	(3.20)	(1.44)	(-1.32)	(-0.89)	(1.21)
Real GDP growth (t-1)	0.01*	0.01**	0.01**	0.02**	0.02**
	(1.86)	(2.36)	(2.21)	(2.46)	(2.41)
Trade openness	0.79**	0.54**	0.57**	0.77**	0.50**
	(5.97)	(4.16)	(6.18)	(3.50)	(6.06)
Inflation rate	-0.13*	-0.11	-0.13*	-0.10	-0.06
	(-1.82)	(-1.31)	(-1.68)	(-1.19)	(-1.43)
Exchange rate overvaluation	-0.006**	-0.003	-0.002	-0.001	-0.002
	(-2.56)	(-1.53)	(-1.61)	(-0.92)	(-1.10)
Budget surplus/GDP	0.01	0.00	0.005	-0.001	-0.004
	(1.35)	(0.02)	(0.62)	(-0.09)	(-0.50)
Adjusted R²	0.59	0.52	0.54	0.53	0.53
F-statistic	16.59	13.72	14.63	13.95	14.27
Prob(F-statistic)	0.00	0.00	0.00	0.00	0.00
Observations	109	109	109	109	109

Note: These estimations are obtained using country-fixed effect estimation over the period 1970-1997. The dependent variable is the private investment rate taking in logarithm. All regression variables are in logarithm, except for real GDP growth, real interest rate and budget surplus/GDP. The estimates are corrected for auto-correlation and heteroskedasticity (GLS estimation). The t-statistic are given in parentheses. LLY is the ratio of liquid liabilities over GDP. BANK is the deposit money banks assets as a share of total assets. PRIVY are private credit by deposit money banks to GDP. PRIV is private credit by deposit money banks to total domestic credit. FINX is a financial liberalization index constructed on the basis of available information on the eight main dimensions of financial reforms implemented in the countries under study.

Table 7. The impact of financial liberalization on real GDP growth

Explanatory variables	LLY	BANK	PRIVY	PRIV	FINX
Financial development	-2.03	-1.96	-2.05*	-0.91	0.35
	(-0.93)	(-0.97)	(-1.78)	(-0.68)	(0.17)
Real interest rate	0.16**	0.15**	0.16**	0.15**	0.15**
	(2.79)	(2.69)	(2.80)	(2.64)	(2.67)
GDP (-1)	-2.65**	-2.60**	-2.79**	-2.57**	-2.65**
	(-3.77)	(-3.73)	(-3.97)	(-3.70)	(-3.27)
Private investment (t+1)	3.48**	3.88**	3.57**	3.86**	3.65**
	(2.75)	(3.08)	(2.86)	(3.07)	(2.94)
Human capital	4.31**	3.60**	3.86**	3.11**	3.16**
	(2.48)	(2.54)	(2.78)	(2.24)	(2.19)
Trade openness	1.62	1.87	1.69	1.93	2.19
	(0.95)	(1.13)	(1.04)	(1.16)	(1.34)
Inflation rate	0.88	1.24*	0.93	1.21*	1.31*
	(1.16)	(1.89)	(1.41)	(1.84)	(1.95)
External debt/GDP	-1.80	-2.75**	-2.11**	2.46**	-2.18**
	(-1.47)	(-2.35)	(-1.98)	(-2.30)	(-2.07)
Term of trade changes	0.62	0.22	1.1	0.72	0.35
	(0.38)	(0.14)	(0.65)	(0.42)	(0.22)
Exchange rate overvaluation	0.01	0.007	0.006	0.005	0.01
	(1.23)	(0.71)	(0.62)	(0.49)	(0.82)
Adjusted R²	0.34	0.35	0.36	0.34	0.33
F-statistic	4.95	5.19	5.26	4.83	4.76
Prob(F-statistic)	0.00	0.00	0.00	0.00	0.00
Observations	127	127	127	127	127

Note: These estimations are obtained using country-fixed effect estimation over the period 1970-1997. The dependent variable is real GDP growth rate. All explanatory variables are in logarithm, except for real interest rate. The estimates are corrected for auto-correlation and heteroskedasticity (GLS estimation). The t-statistic are given in parentheses. LLY is the ratio of liquid liabilities over GDP. BANK is the deposit money banks assets as a share of total assets. PRIVY are private credit by deposit money banks to GDP. PRIV is private credit by deposit money banks to total domestic credit. FINX is a financial liberalization index constructed on the basis of available information on the eight main dimensions of financial reforms implemented in the countries under study.