

ECONOMIC
RESEARCH
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منتدى
البحوث
الاقتصادية

2008

working paper series

PRIVATIZATION AND FINANCIAL
MARKET DEVELOPMENT: A COMPARISON
BETWEEN MENA COUNTRIES
AND OTHER REGIONS

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Working Paper No. 390

Privatization and Financial Market Development: A Comparison between MENA Countries and Other Regions

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Working Paper 390

April 2008

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Abstract

This paper examines the impact of privatization on stock market size and liquidity in a multinational sample of 31 emerging markets. We find that the intensity of privatization and the use of privatization offerings on the stock market contribute to enhance stock market development. To enable result comparisons across geographical regions, we re-run our GMM on our dynamic panel and find that results vary across-regions. Privatization was the most beneficial in the Asian sub sample where most favorable conditions were put in place before privatization actually started. In the MENA region however, similar positive outcomes are yet to materialize. We derive several policy implications from our results.

ملخص

تدرس هذه الورقة تأثير الخصخصة علي حجم سوق الأوراق المالية وسيولتها في عينةٍ متعددة الجنسيات من 31 سوقاً ناشئة. ونحن نجد أن ازدياد حدة الخصخصة واستخدام عروضها في سوق الأوراق المالية يعزز التطور في سوق الأوراق المالية. ولكي نتمكن من مقارنة النتائج في المناطق الجغرافية المختلفة، فقد أعدنا العمل بنظام طريقة العزوم المعممة (GMM) علي لوحتنا الحركية وانتهينا إلي القول بأن النتائج تختلف حتماً باختلاف المناطق.

وكانت الخصخصة هي الأكثر نفعاً في قائمة تشمل عينة فرعية لدول أسيوية حيث وفرت جميع الظروف المواتية قبل الشروع في عملية الخصخصة. أما في منطقة الشرق الأوسط وشمال أفريقيا (MENA) فإن نتائج إيجابية مشابهة سوف تتحقق علي الأرض. وقد أدت بنا نتائج الدراسة إلي الخلوص إلي عدة معان متضمنة تتعلق بتلك السياسية.

1. Introduction

Over the past few decades, privatization, a worldwide phenomenon, has become an important area for both theoretical and empirical research. An extensive amount of literature has focused on the impact of privatization reform, defined as the sale of public assets and state-owned firms to the private sector, at the micro-level. More specifically, the first-generation of literature focused on the effect of privatization policies on the performance of former state-owned firms (SOEs), their corporate governance structure, their productivity, their pricing, etc., Recent studies on privatization took it to the next level, and tried to examine other issues related to macroeconomic indicators, by investigating whether privatization triggered changes in budget deficits, institutional indicators, stock market development, government bond spreads and yields, and economic growth. Yet until the present, only scarce evidence on these important issues is available. This paper positions itself within the second generation, and focuses on the impact of privatization on stock market development, which is quite often one of the governments' primary objectives from the privatization process.

Although we use a cross country sample of 31 emerging markets, we are particularly interested in drawing some implications for the MENA region from the privatization experience elsewhere in the world. The following reasons dictate our interest: (1) These countries have only recently embraced large-scale privatization programs involving share issues on domestic (and sometimes foreign) stock markets. Thus, investigating whether and how privatization has had an impact on local stock markets is timely and called for. (2) Stock markets in the MENA region are embryonic and generally lag behind other emerging markets with regard to level of development indicators. It is therefore important to assess whether privatization has indeed delivered its objective and contributed to the recent growth of some markets in the region. (3) Governments in the MENA region have implemented privatization with a varying speed and commitment. This provides us with a perfect laboratory to draw some policy implications regarding the best privatization strategy to adopt in order to realize the positive outcomes that one would theoretically expect. (4) The MENA region, which is starting to actively privatize, remains an under researched area. Few existing studies focus on the-effects of privatization in a single-country study (mostly on Egyptian firms), and only one previous attempt has been made to analyze the micro-impact of privatization in a MENA cross-country setting (Ben Naceur et al., 2007). No available evidence however exists on the link between privatization and stock market development in the region. The primary objective of this paper is to investigate this particular issue.

To do so, we implement a dynamic panel data model to be estimated through the Generalized Method of Moments (GMM) approach. This econometric approach is particularly suited for the issue at hand. Indeed, it offers several advantages and allows tackling some econometric problems such as autocorrelation due to the presence of a lagged dependent variable among the regressors, and individual effects characterizing the heterogeneity among individuals.

Using a sample of 31 emerging markets (out of which 7 belong to the MENA region), we find the following results: although theoretically, we should expect a positive impact of privatization progress (for example, in the total number of privatization transactions) on stock market development, we do not find such a systematic effect across regions. Indeed, how this privatization progress is perceived by potential investors depends on the geographical region. For instance, it has been perceived as a positive sign in Asia which led to an improvement in market size and liquidity (such as value traded). In Africa, it had a positive impact on market size, but not on liquidity, while in Latin America, it only positively affected liquidity. By comparison, in MENA countries, government commitment has had a positive impact on market size, but not on liquidity. In the MENA region, privatization at a large scale is a relatively recent phenomenon: therefore, the privatization progress to date is not yet

considered by investors as a credible sign of commitment, hence the lack of impact on stock market liquidity.

The privatization method, defined as the number of SIPs in the percentage of total transactions, is shown to be a positive and significant determinant of market size for the Asian countries. As for the MENA region, since governments have more often used private sales, the transactions that were implemented on the stock market were not enough to boost market size or liquidity in a significant manner. These results suggest that the way privatization was implemented, its progress and its method, condition the observed effects on domestic stock markets.

These results should be of interest to policy makers, and regulators who seek to energize local stock markets. At the same time, they allow us to identify under which conditions (and through what channels) is privatization successful in spurring capital markets' development in the region.

The progress in privatization to date did not signal unmistakable government commitment towards market oriented policies. Thus investors are still reluctant to heavily invest in the stock market. Admittedly, if most privatization transactions are implemented outside the stock market, there can be no positive externalities for the stock market, and that is indeed what happened in most MENA countries (the largest bulk of state-owned firms were sold in private sales). In addition, building investors' confidence must involve a sound institutional environment, where they can fear no expropriation. If the sequence of reforms is not optimal, even if governments embark on privatization, change regulations, lift barriers to foreign investors and liberalize the market, the expected positive outcomes can be delayed. On the other hand, one cannot implement successful privatization offerings if the stock market is initially underdeveloped, and institutionally unsound. A successful privatization experience as what is documented in Asian countries requires a set of pre-conditions, which need to be put in place to ensure positive outcomes, and minimum costs.

The paper is organized as follows. Section 2 presents the theoretical arguments underlying our main hypotheses and discusses the related literature. Section 3 describes the dataset and the variables used in the analysis. The econometric approach is discussed in Section 4. We present our main results and draw policy implications in Section 5. Finally, Section 6 concludes.

2. Related Literature and Hypotheses Development

Most studies on the privatization experiences of developing countries show that the process is generally followed by an increase in the efficiency, profitability and capital investment spending of newly privatized firms, and a decrease in their leverage. However, as discussed earlier, very few actually focus on the MENA region and Turkey. Omran (2004) studied the performance changes for 69 Egyptian companies privatized between 1994 and 1998, and found that profitability, operating efficiency, capital spending, dividends and liquidity increased significantly after privatization, while employment and financial risk significantly decreased. In a related study, Omran (2002) compared the performance of privatized companies to a matched set of 54 firms that remained state-owned, and found that they exhibited a performance improvement in the post-privatization period, although they did not outperform those firms that remained state-owned. Using a different methodology, Omran (2005) investigated the under pricing and long-run performance of 53 Egyptian SIPs and finds positive initial abnormal returns and over-performance in the first post-privatization three- and five years horizons. Okten and Arin (2002) tested the impact of privatization on Turkish firms' efficiency and technology choice using a sample of 23 firms in the cement

industry. They documented an increase in productivity, output and investment after privatization, and a decline in employment, cost and price. In a multi-country study on the MENA region, Ben Naceur et al. (2007) examined the financial and operating performance of 95 Share Issue Privatization (SIPs) in Egypt, Morocco, Tunisia and Turkey during the period 1990-2001. The results showed significant improvements in profitability and operating efficiency and significant declines in employment and leverage after privatization.

The empirical literature on the impact of privatization on stock market development is relatively new, and focuses on different regions of the world. For instance, Bouchkova and Megginson (2000) studied the impact of SIPs on the development of world stock markets for a sample of 43 countries over the period 1990-1999. They found that SIPs contributed significantly to the nearly eleven-fold increase in the total capitalization of the world's stock markets, and played a significant role in the explosion of global stock market liquidity (each additional SIP increased stock market turnover by 2.3 percent in the first year and 1.7 percent in the following year). They derived these results by running a regression of the number of privatization transactions per year on stock market liquidity.

Perotti and Van Oijen (2001) argued that privatization contributes *indirectly* to the development of local stock markets through the resolution of political risk. They tested this hypothesis in a set of 31 privatizing countries over the period 1988-1995. They presented evidence that the resolution of political risk through privatization had significantly contributed to explaining the surge of emerging stock markets. More recently, Bortolotti et al. (2007) provided new evidence on the contribution of SIPs to the increase in domestic stock market liquidity from a sample of 19 developed economies. SIPs had a spillover effect on the price impact of new privatized stocks. This finding is consistent with the liquidity thesis that stresses the role of risk sharing and diversification provided by listing. Along the same lines, but for a larger sample of 61 developed and emerging countries, Boubakri and Hamza (2007) investigated the link between stock market development (reflected by size, liquidity and concentration) and privatization (the method of divestiture and the reform intensity). They tackled the endogeneity problem related to the immediate impact of privatization on stock market development by using a panel 2SLS with an instrumental variables approach. The results indicated no contemporaneous impact on equity market development in both developed and emerging markets. However, the one-year and two-year lagged effect of privatization on stock market size and liquidity were significant in emerging markets for both measures of privatization while a significant effect was recorded only for the one-year lagged variable in developed countries and only for the intensity of privatization measure. Finally, De la Torre et al. (2007), analyzed the impact of capital markets specific and related reforms on stock market development and internationalization. The evidence suggested that reforms including privatization are positively related to local stock market development. Additionally, reforms increased internationalization and made local firms more attractive, enabling them to tap international stock markets.

In a theoretical model, Chiesa and Nicodano (2003) showed that SIPs contributed to stock market development provided that some of the specific features of privatization are correlated to stock market development. Among such features, they identified the improved diversification opportunities for SIPs from the telecommunications and the public utilities' sectors, and the use of marketing techniques aimed at increasing the number of local and foreign investors for the purpose of risk-sharing opportunities. Using a dynamic model, Perotti and Laeven (2001) showed that privatization gradually strengthened the institutional framework by reducing the legal and policy uncertainty that hampers stock market development. They used a panel of 22 emerging markets over the period 1988-1995 to test their theoretical model, and found that the progress of privatization gradually led to an increase in investors' confidence and a reduction of policy risk, which in turn had a strong

effect on the local market development, even after controlling for the onset of financial liberalization.

Overall, the empirical and (limited) theoretical literature on the potential impact of privatization on domestic stock market development suggests two potential channels through which such an effect occurs. A direct effect comes from the choice of privatization method: namely, using SIPs will lead to additional firms being listed on the stock markets, increasing the size and market liquidity. As shown by Megginson et al. (2004), SIPs are typically larger than traditional IPOs. Liquidity should increase as a result of local investors' participation in the offering, as well as foreign investors, to whom a limited percentage is often offered. An indirect effect stems from the privatization sustained efforts observed over time. Sustained privatization efforts will signal to investors the government's commitment to bear residual risk, in the sense of Perotti (1995). This positive signal reduces the uncertainty regarding future government actions and policy reversals, and contributes to solve the policy uncertainty embedded in privatization. This in turn will encourage investors to increase their demand for privatization offerings, increasing, by doing so, market liquidity.

Based on this discussion, we posit the following general hypotheses:

H1: Privatization should have a positive impact on the size of domestic stock markets.

H2: Privatization should have a positive impact on the liquidity of domestic stock markets.

Although the studies discussed above have considered emerging markets, they usually treated them as a homogeneous group of countries. This does not begin to reflect the different dynamics of the reform observed across countries. In fact, some emerging markets started to privatize much earlier than others. For instance, privatization in Asia started towards the end of the eighties-beginning of the nineties, compared to the MENA region where privatization began a decade or more later. The privatization efforts have thus been unequally distributed across regions, depending on the willingness of the governments to go ahead with the reform, often perceived as being highly controversial. Additionally, the use of share issues on the stock markets were often conditioned by the level of initial market development, the equity culture of potential investors, and the prevailing framework for investor protection. In this regard, the MENA region lies behind South East Asian countries, or Latin American countries. Finally, the nature of the firms being privatized is particularly different across regions. While Latin American countries started by privatizing firms in the financial and banking sector, countries in the Asian region started by privatizing large infrastructure and utility firms. In comparison, countries in the MENA region, until recently, mostly sold off manufacturing firms, in competitive sectors. All these features suggest that the dynamics of the privatization process are quite different from one region to the other. Owing to these particularities, we expect privatization have a different effect on the development of individual stock markets.

3. Dataset

In this section, we describe our dataset as well as the main variables used in our analysis. We first start by presenting a primer on privatization in the MENA countries in comparison to other emerging markets.

3.1 A Primer on Privatization in the MENA Countries

According to Nellis (2005), government control of state-owned firms is the highest compared to other geographical regions. This is due to the fact that the MENA region has lagged behind

other areas in implementing the privatization process. While governments in Asia and Latin America started their divestitures in the eighties, only in the late nineties have governments in the MENA region started undertaking significant privatization efforts. Governments were more reluctant to privatize, because this particular redistributive reform is very unpopular with voters.

The most actively participants of the privatization process in the region were Egypt, Morocco and Tunisia. Since they started privatization, they, respectively sold 117, 80 and 70 firms. Revenues in the region were lower than anywhere else because the firms that were being sold were small in size, and mostly in the manufacturing, cement and tourism sector. Only recently, much larger transactions involving the banking sector, telecommunications, cement and airlines have been undertaken. But infrastructure and public utilities, most banking systems and other monopolies are still in government hands.

3.2. Variables and Data Sources

To proxy for privatization, and capture the effect of the method of privatization and that of privatization efforts, we use (1) the proportion of SIPs in the total number of transactions (PO), and (2) the number of privatizations per country per year (NPRIV), respectively. As discussed in Section 2, we expect privatization indicators to be positively related to stock market development indicators.

The dependent variable, which measures the stock market development, is proxied by two indicators: (1) Market size (MC) which is measured by the total market capitalization over GDP per country, per year, and (2) Market liquidity (ML) which is measured by the volume of transactions on the market over GDP, per country, per year. The data on privatization has been compiled by Boubakri and Hamza (2007) from Security Data Corporation database (SDC), and the World Bank database on privatization transactions. Stock market development indicators come from Emerging Markets Data Base (EMDB).

Our control variables include:

- LIB: it is a measure of liberalization of financial markets. More open markets are more likely to attract foreign investors, who can boost local stock market development. We expect LIB to yield a positive sign when related to stock market size and liquidity. The measure is compiled from IFC and several issues on emerging markets Factbooks.
- LAWOR: it is a measure of investor protection on the book (what book?) (laws on the book) and the extent of its enforcement. It is drawn from ICRG. We expect more protective environments will encourage domestic investors to participate in SIPs. LAWOR should therefore have a positive impact on stock market size and liquidity as it provides an institutionally friendly environment to investors.
- CIVIL: it is a dummy variable on the legal origin of the country. Civil is equal to one if the legal origin is civil law, and zero otherwise. This classification is drawn from La Porta et al. (1998, 1999, 2000, 2002), who document that civil law countries are generally associated with more government intervention in the economy, and less developed stock markets. We therefore expect CIVIL to yield a negative sign in relation to stock market size and liquidity.
- PCREDIT: it is a measure of financial intermediation introduced in order to evaluate whether stock market development is significantly correlated with bank development. Following Levine and Zervos (1998), Rousseau and Wachtel (2000), Beck and Levine (2004), and Ben Naceur and Ghazouani (2007), we include credit to the private sector divided by GDP which is drawn from World Bank Development Indicators (WDI). This variable is expected to have a positive effect on stock market development.

- INTEG(1) and INTEG(2): they are measures of stock markets' integrity. They represent the existence of laws against insider trading (INTEG(1)), and the extent to which these laws are actually enforced (INTEG(2)) by looking at the effective number of prosecutions against insiders who violated these laws on the book. The data comes from Bhattacharya and Daouk (2002). We expect market integrity, especially enforcement, to signal better and less risky investment opportunities, which should reflect in a larger market size and more liquidity.
- IR: it is the inflation rate. IR captures the state of the economy, as we expect investors to be relatively more optimistic in periods of expansion, and stock markets to become larger and more liquid in favorable macroeconomic environments. IR comes from WDI.
- SCH: it is a measure of human development. More schooling reflects the availability of more analysts, and an increased knowledge about capital markets functioning. We expect SCH to be positively related to stock market size and liquidity. SCH is also drawn from WDI.

3.3. Descriptive Statistics

Table 1 provides the average levels of the considered stock market development indicators for the different geographical regions: MENA, Africa, Latin America and Asia. Such subdivision permits us to distinguish between these four regional blocks of emerging markets. Table 1 also gives means and median of market capitalization and value traded for the full sample of these 31 countries which will be considered as a benchmark. In terms of size, and in comparison with the whole sample (about 40 percent), we observe that MENA stock markets are small (36 percent) as well as Latin American stock markets (31 percent) while African and Asian stock markets are large (50.2 percent and 44.3 percent, respectively). Inversely, MENA stock markets are more liquid than African and Latin American stock markets, but less liquid than Asian stock markets. These last markets are approximately two-fold more liquid than the whole sample.

Table 2 presents the annual average levels for the main explanatory variables in the model for the full sample, and according to the subdivision into four regions. According to this table, we observe firstly that privatizations proceeds were more sustained in the MENA region since we record an annual number of privatizations of about 3.5 which is slightly higher than the whole sample (3.4 privatizations per year), but significantly higher in comparison with Africa (1.4) and Asia (2.66). According to this indicator, Latin American countries in the sample led with about 4.9 privatizations per year. When we look at the method of privatization, MENA countries remain also slightly over the average value recorded for the whole sample. A higher portion of the transactions was conducted through share issues in MENA stock markets (0.15) compared to the whole sample (0.12). On the other hand, Asian countries took the lead with (0.16) while African countries recorded a lower number than the mean value for the whole sample (0.1) while Latin American stock markets record an even weaker proportion (0.071).

Average values for the variable LAWOR are favorable for MENA countries. Not only does the region lead with an average score of about 4.55 but it is significantly over the mean value recorded for the whole sample (3.35). So we may conclude that law is more strongly enforced in MENA countries than in the other three regions (2.66, 3.14 and 3.21 for Africa, Latin America and Asia respectively). In terms of openness to foreign investors, MENA countries seem to be reluctant since the average degree of openness (LIB) is the weakest (0.55) among the four regions. The other regions either exceed the mean value (0.72) of the whole sample (Africa and Latin America with 0.74 and 0.82, respectively) or are very close to it (Asia with about 0.7).

The size of the financial intermediaries system is about 50 percent which is above the benchmark value observed for the whole sample (44.7 percent). This proportion is higher than values observed for Latin America (about 33 percent) and Africa (about 41 percent). Asia leads in this domain. The socioeconomic environment in MENA region is relatively in a correct proportion when we look at the schooling indicator (SCH variable) and clearly comfortable regarding the inflation rate. Apart from Africa with a low school enrollment rate of 46 percent, MENA region as well the other regions present values near the average school enrolment rate for the whole sample. For inflation, MENA region is in a good position since we record an average value of 16 percent while the mean value for the whole sample is about 30 percent.

4. Econometric Modeling

For the purpose of the empirical study, the following dynamic panel data model is specified:

$$SMD_{it} = \alpha_i + \delta SMD_{i,t-1} + \gamma PRIV_{it} + \beta' X_{it} + \varepsilon_{it} \quad (1)$$

Countries are denoted i ($i = 1, \dots, N$), and t ($t = 1, \dots, T_i$) indicates the time observation for each variable. T_i is the number of time periods available for each country i . Of course, data was not available for a uniform period for each country. Consequently, it is expected that the number of annual observations will vary across our sample countries. As mentioned in the previous section, the dependent variable SMD is either market capitalization (MC variable) or market liquidity (ML variable). Variable PRIV is either the privatization intensity (NPRIV) or the method of privatization (PO). Vector X includes all the control variables presented in the previous section.

The econometric model that we intend to run relates the observed stock market development indicator to its lags, a privatization indicator and a set of control variables to account for the general economic situation. Obviously, the model should allow for country-specific effects. The parameters of the model have to be estimated by the generalized method of moments (GMM). According to the available data, the treatment of incomplete panels is imperative. Indeed, the available panel dataset for the emerging markets countries is unbalanced since each variable is observed over a varying length of time. The dynamic structure provided in the econometric specification (1) leads to more efficient and consistent estimators given through the GMM methodology. This technique, developed essentially by Arellano and Bond (1991), has become more popular in the context of dynamic panels. It provides convergent estimators and derives from the instrumental variables principles. It also makes up for problems of correlation between the lagged dependent variable included in the vector of control variables and the error term ε_{it} as well as between some explanatory variables and the unobserved country-specific term α_i .

From an econometric point of view, the GMM procedure is based on a set of orthogonality conditions between the error terms and some instrumental variables. Estimation procedure is conducted in order to assure convergence of these orthogonality conditions to zero. The obtained estimator follows from a minimization of an appropriate quadratic form. Improvements are introduced like the two-step estimator developed by Arellano and Bond (1998). In comparison with the earlier procedures, the later reduces the dimensionality of the instruments which permits us to avoid the over-fitting risk but still takes into account the presence of heteroskedastic consistent standard errors. The difference between one-step and two-step estimation consists in the specification of an individual specific weighting matrix. The two-step estimation uses the one-step's residuals, so it is more efficient. But, Arellano and Bond (1991) mention that Monte-Carlo simulations suggest that the asymptotic standard

errors for the two-step estimators can be a ‘poor guide’ and so the inferences should be rather based on the one-step estimators.

Consistency of the GMM estimator depends on the validity of the instruments. To address the issue we consider two specification tests suggested by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998). The first is the Sargan test of over-identifying restrictions, which tests the overall validity of the instruments. Under the null hypothesis of the validity of the instruments, the statistic associated with this test has a chi-squared distribution with (J-K) degrees of freedom where J is the number of instruments and K the number of the independent variables in the regression. The second test examines the assumption of no serial correlation in error terms. We test whether the differenced error term is second-order serially correlated. Under the null hypothesis of no second-order correlation, the statistic associated with this test has a standard-normal distribution. Failure to reject the null hypotheses of both tests confirms the validity of our specifications.

5. Empirical Results

In Tables 3a and 3b, we present the results of our estimations for market size (i.e., capitalization), and liquidity (i.e., value traded) respectively, using the total sample of emerging markets, including the MENA region. In each table we report two regressions for each measure of privatization.

In table 3a, the privatization intensity measured by NPRIV has a positive and significant effect on emerging markets size (market capitalization). The number of privatization offerings instead has no significant impact on market size in all emerging markets in the sample.

Our control variables all exhibit the expected signs. We can see particularly that law and order (LAWOR) is a positive and significant determinant of stock market capitalization (size). As first argued by La Porta et al., (1999), and shown by Boubakri and Hamza (2007), “an adequate legal environment, where rules are written and enforced, protects minority shareholders from expropriation, and increases their willingness to buy stock, which in turn improves markets size and liquidity”. The dummy CIVIL is negatively and significantly related to stock market development measured by market capitalization which is also in line with La Porta et al., (1999), and Boubakri and Hamza (2007). Human capital proxied by SCH also yields the expected positive effect on stock market development.

A puzzling unexpected result relates to the market integrity measures INTEG(1) and INTEG(2). They both show a negative and significant sign (in three of our four models). Note that we could not include both in the same regression as they are highly correlated. Nevertheless, we wanted to control for both aspects of market integrity, INTEG (1) being a measure of insider trading laws on the book, and INTEG (2) being a measure of enforcement as it captures the first prosecution against an insider trader in the country.

By looking at Table 3b, we can see that market liquidity in emerging stock markets is sensitive to the number of privatization public offerings (PO) as well as to the progress of the divestiture program as such (NPRIV). Hence, privatization progress in general creates a positive signal of government commitment towards market oriented reforms, which improves investors’ confidence (first channel of transmission). This, in turn, translates into their willingness to buy and hold shares of newly privatized companies on the stock market. Hence, the positive effect on market liquidity (second channel of transmission).

As for the control variables, market liquidity is shown to be significantly and positively correlated to the credit allocated to the private sector (PCREDIT), negatively and significantly related to inflation (IR), and positively but insignificantly related to SCH (in

three out of four regressions), as expected. Market integrity is insignificantly related to market liquidity.

Overall, Tables 3a and 3b show that privatization progress (government commitment) and the method of privatization (measured by the number of privatization offerings in proportion of all privatization transactions), play a key role in enhancing stock market liquidity, and to a lesser extent its size.

To go beyond these results, we split the emerging markets sample into sub samples classified by geographical regions. The reason behind such a classification is to control for cross regional differences, since not all regions have equally developed stock markets, nor have they privatized in the same way, and with the same commitment.

In Tables 4a and 4b, we re-run the models for market size and market liquidity, respectively, for the MENA region. The results confirm that privatization has an insignificant effect on market size, except in one regression, whereas privatization progress (NPRIV) shows a positive and significant sign. Such results can be explained by the fact that only recently, have MENA countries started privatizing on a large scale. Most sales were direct sales to core investors, so a limited number of privatized firms were actually listed on the stock markets. Surprisingly, market liberalization (LIB) which measures the extent of foreign participation in the stock market shows a negative effect on market size. Given that MENA countries are classified as the least open markets, this may have hindered their local development. Similarly, the institutional environment measured by LAWOR and the INTEG measures all show negative impacts on MENA stock markets. This may reflect the transition of these markets as they are trying to improve regulation, and increase rules and laws, to put in place an institutionally friendlier environment. These changes may be seen as over-regulation, thus decreasing the interest of investors to invest and firms to go public.

Turning to Table 4b, we also confirm results in Table 3b, that privatization progress and the method of privatization have had no impact on market liquidity, as well. Both Tables 4a and 4b basically confirm the evidence found with the interaction terms within the full sample estimation. LIB has a consistent negative sign, and is thus negatively related to market liquidity in MENA, which is contrary to previous studies which show that stock market size and liquidity generally increase after liberalization. In the MENA region, the more the barriers to foreign ownership are lifted, the less liquid the market is. LAWOR and CIVIL are, respectively, positively and negatively related to market liquidity. This confirms the importance of a friendly and protective institutional environment for investors. The puzzling result of market integrity still shows; INTEG (1) is negatively related to market liquidity in the MENA region. Finally, IR is positively related to market liquidity contrary to the expected sign. Indeed, the negative correlation between stock market development and inflation is sometimes not easily confirmed. For example, Wasserfallen (1989) finds little evidence of such a relationship in a study for European countries.

The next two tables report evidence for African countries. The results show that market size in Africa is positively and significantly related to the privatization progress, but using SIPs has a negative effect on market size. This last result is unexpected as privatized firms that list on the stock market usually have a large market capitalization. The drawback is that if the listed portion is too large, then the market becomes concentrated.

The control variables, PCREDIT and SCH show positive and significant results, as expected. Note that we report no coefficients for INTEG(2) for Africa, because there has been no enforcement (no prosecutions) against insider trading in these frontier markets. INTEG(1) has, unsurprisingly, an insignificant coefficient, since rules on insider trading are part of the overall reform of stock markets in Africa and elsewhere in emerging markets.

Privatization has no impact on the liquidity of African countries. Neither the progress of reform, nor the number of SIPs boosted investor confidence, which is a necessary ingredient to more transactions, and more liquidity. Law and order is negatively related to market liquidity, as is INTEG(1). Both, as previously discussed, might be explained by the ongoing changes in the stock market regulations, which may make investors, facing too many changes, more cautious. Both credit to the private sector (PCREDIT) and inflation (IR) have a positive and significant impact on market liquidity in Africa.

In Asian countries, privatization has started since the eighties, relatively earlier than in any other region in the sample. Thus, the privatization effects on stock markets have had the time to materialize. The results in Table 6a indeed show that the number of privatizations and the number of SIPs have a positive and significant impact on market size. The institutional environment does not seem to significantly affect these markets, but economic conditions, such as the level of credit to the private sector, do.

In Table 6b, we also can see that market liquidity is positively affected by the progress of the reform, but not necessarily by the number of SIPs on the market. The inflation rate (IR) is the only other significant determinant of stock market liquidity.

Finally, we turn to the Latin American region, and show that privatization progress had no impact on market capitalization, but had a significant and positive impact on market liquidity. In both measures of stock market development, the method of privatization did not affect size or liquidity. Credit to the private sector (PCREDIT) is also positively and significantly related to market size, confirming evidence in Levine and Zervos (1998), Rousseau and Wachtel (2000), Beck and Levine (2004), and Ben Naceur and Ghazouani (2007). Market liquidity in Latin American countries is positively related to the degree of liberalization of stock markets; these markets rank among the most liberalized, and also rank high in terms of credit to the private sector.

Overall, our results show that although theoretically we should expect a positive impact of privatization progress on stock market development because it signals the governments' commitment towards market oriented policies and less policy risk, we do not find a common systematic effect. In fact, how the privatization signal is perceived depends on the geographical region. For instance, it has been perceived as a positive signal in Asia which led to an improvement in market size and liquidity. In Africa, it had a positive impact on market size, but not on liquidity (may be because markets could not absorb the privatization offerings and because the market became too concentrated). In MENA countries, government commitment has also had a positive impact on market size, but not on liquidity. On the other hand, in Latin America it had a positive impact on value traded.

The second indicator of privatization – the number of SIPs in percentage of total transactions – is shown to be a positive and significant determinant of market size for the Asian sub sample, but has a negative impact on market size in Africa. These results can be rationalized as follows: Latin America and Asia have privatized extensively, but Asian governments relied more on public offerings of privatized companies, while Latin America often used private sales to private investors or a combination of private and public sales for the same firm. In Africa, governments started making efforts to privatize, and implemented some privatization offerings, but the markets were unable to absorb them, due to the lack of savings in the hands of investors, and the low initial market liquidity, which could not help in building investors confidence in these markets.

In the MENA region, privatization at a large scale is a relatively recent phenomenon; therefore, the privatization progress observed to date is not yet considered by investors as a credible signal of government commitment. Hence the lack of impact on stock market

liquidity, and the marginal effect on market capitalization. Also, since governments in the MENA region have more often used private sales, the transactions that were implemented on the stock market were not significant enough to boost market size or liquidity in a significant manner.

Our preliminary evidence led us to the following discussion of policy implications: Compared to all other regions, the retention of control of state-owned firms by the government is still very prevalent in the MENA region. Nellis (2005) provides some meaningful examples. For instance, 65 percent of the total value added in Algeria is produced by state-owned firms. In Algeria, Syria and Iran, up to 80 percent of the industrial sector is owned by the government. Overall, the share of public firms in GDP is the highest in the MENA region. Hence, there is still a lot to be done.

The progress in privatization did not signal unmistakable government commitment towards market oriented policies. Thus investors are still reluctant to heavily invest in the stock market. Admittedly, if most privatization transactions are implemented outside the stock market, there can be no positive externalities for the stock market. In addition, building investors' confidence must involve a sound institutional environment, where they can fear no expropriation. If the sequence of reforms is not optimal, and governments embark on privatization, without change in regulation, lifting barriers to foreign investors and liberalizing the market, all simultaneously, the expected positive outcomes can be delayed. On the other hand, one cannot implement successful privatization offerings if the stock market is underdeveloped and institutionally unsound. We just have to compare the privatization experience of Asian markets to that from the other regions that we examined. Asian governments put in place liberalization reforms, and then embarked on transition of their institutional environment and regulation of stock markets. When the conditions necessary to launch privatization were put in place, they started selling public assets. The economic, institutional and social conditions helped make their privatization a success story.

In Latin America, several countries, such as Chile embarked on intensive privatization programs in the early eighties, but the experience was not viable, because no changes were introduced in regulation, competitiveness laws, investor protection, and market transparency. As a consequence, the newly privatized firms had to be re-nationalized. Once, the institutional environment became more adequate, the country undertook its privatization program, for the second time.

Privatization is a redistributive policy and as such must assure that investors are treated fairly and that transactions are transparent. This requires a sound institutional environment as a pre-condition for success.

6. Conclusion

Developing stock markets has very often been put forward by governments as a primary objective of the privatization process. Indeed, selling state-owned firms through share issues on the stock markets is expected to enhance stock market liquidity and size. Such an impact of share issue privatizations (SIPs) can materialize through two potential channels: (1) through foreign investors' participation in SIPs and an enhanced domestic investors' participation,¹ and (2) through confidence building.

This paper has focused on the impact of privatization on stock market development, with a particular emphasis on markets in the Middle-Eastern and North African (MENA) region,

¹ Domowitz et al. (2000) show that privatization eventually contributes to the development of domestic bond markets by increasing the number of domestic bond issues.

while still comparing their experience to the experience of other regions. To achieve this goal, we implemented a dynamic panel data model that has been estimated through the Generalized Method of Moments (GMM) approach. Our main results show that although theoretically, we should expect a positive impact of privatization progress on stock market development because it signals the government commitment towards market oriented policies and less policy risk, we do not find a systematic effect. Indeed, how this signal is perceived depends on the geographical region. For instance, it has been perceived as a positive signal in Asia which led to an improvement in market size and liquidity. In Africa, it had a positive impact on market size, but not on liquidity (may be because markets could not absorb the privatization offerings and because the market became too concentrated). In Latin America, it had a positive impact on value traded. By comparison, in MENA countries, government commitment just had a positive impact on market size, but not on liquidity.

In the MENA region, privatization on a large scale is a relatively recent phenomenon. Therefore, the privatization progress to date is not yet considered as a credible signal of commitment, hence the lack of impact on stock market liquidity, and the marginal effect on market capitalization.

The second indicator of privatization, the number of SIPs in the percentage of total transactions, is indeed a positive and significant determinant of market size for the Asian sub sample, but has a negative impact on market size in Africa. As for the MENA region, since governments have more often used private sales, the transactions that were implemented on the stock market were not significant enough to boost market size or liquidity in a significant manner.

These results allow us to identify under which conditions (and through what channels) can privatization be successful in spurring capital markets' development in the region. The progress in privatization to date did not signal unmistakable government commitment towards market oriented policies. Thus investors are still reluctant to heavily invest in the stock market. Admittedly, if most privatization transactions are implemented outside the stock market, there can be no positive externalities for the stock market, and that is indeed what happened in most MENA countries (the largest bulk of state-owned firms were sold in private sales). In addition, building investors' confidence must involve a sound institutional environment, where they can fear no expropriation. If the sequence of reforms is not optimal, and governments embark on privatization, without change in regulation, lifting barriers to foreign investors and liberalizing the market, all simultaneously, the expected positive outcomes can be delayed. On the other hand, one cannot implement successful privatization offerings if the stock market is initially underdeveloped, and institutionally unsound. A successful privatization experience as which is documented in Asian countries requires a set of pre-conditions which need to be put in place to ensure positive outcomes, and minimum costs.

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Table 1. Description of Stock Market Development Differences

	MENA	Africa	Latin America	Asia	Full sample
Market capitalization	0.357 (0.312)	0.502 (0.184)	0.311 (0.204)	0.443 (0.251)	0.391 (0.226)
Value traded	0.16 (0.0673)	0.091 (0.008)	0.0465 (0.028)	0.306 (0.104)	0.156 (0.0433)
No. of observations	79	65	143	132	419
Kruskal-Wallis test	4.257				

This table presents the yearly means of stock market development indicators calculated over the period 1987-2003 for the four considered regions in the sample as well as for the full sample. Medians are between brackets. The considered measures of stock market development indicators are: Market capitalization, which is the ratio of total market capitalization to GDP (%) and value traded, which is the ratio of total value traded to GDP (%). Kruskal-Wallis test is conducted in order to test for the differences across regions. The test statistic approximates a Chi-square distribution with 3 degrees of freedom if the null hypothesis of equal regions is true. The tabulated value is 7.81 for 5 percent significance level. Since the estimated value is less than the tabulated value, differences across regions are not accepted.

Table 2. Descriptive Statistics

	MENA	Africa	Latin America	Asia	Full sample
Privatization (NPRIV)	3.531 0.148	1.4 0.101	4.91 0.0716	2.666 0.163	3.4 0.12
Privatization (PO)	0.557	0.742	0.821	0.693	0.72
Liberalization (LIB)	4.544	2.661	3.146	3.212	3.355
LAWOR	0.5	0.409	0.328	0.562	0.447
Credit to private sector (PCREDIT)	0.161	0.248	0.58	0.0719	0.29
Inflation rate (IR)	0.664	0.46	0.692	0.6	0.29
Schooling (SCH)					
No. of observations	79	65	143	132	419

This table presents the yearly means, calculated over the period 1987-2003, of the considered control variables for each region in the sample as well as for the full sample.

Table 3a. GMM-in System Estimates of the Impact of Privatization on Stock Market Development (Full Sample)

Variables	Market Capitalization			
Constant	0.004 (0.064)	-0.111* (0.057)	-0.045 (0.102)	-0.156* (0.090)
MC(-1)	0.490*** (0.067)	0.445*** (0.067)	0.508*** (0.073)	0.454*** (0.071)
Privatization (NPRIV)	0.007* (0.004)		0.007* (0.004)	
Privatization (PO)		0.618 (0.421)		639 (0.424)
Liberalization (LIB)	0.010 (0.028)	0.016 (0.033)	0.029 (0.029)	0.045 (0.037)
LAWOR	0.001 (0.011)	0.004 (0.012)	-0.002 (0.012)	0.001 (0.013)
CIVIL	-0.111** (0.053)	-0.113** (0.052)	-0.122** (0.061)	-0.127** (0.060)
INTEG(1)	-0.102** (0.041)		-0.074** (0.057)	
INTEG(2)		-0.107** (0.046)		-0.133** (0.058)
Credit to private sector (PCREDIT)	0.345*** (0.071)	0.397*** (0.077)	0.304*** (0.075)	0.369*** (0.075)
Inflation rate (IR)	-0.013 (0.010)	-0.006 (0.012)	-0.020* (0.011)	-0.012 (0.012)
Schooling (SCH)	0.277** (0.117)	0.335*** (0.121)	0.264* (0.142)	0.348*** (0.140)
Sargan test	26.27***	24.13***	23.74***	23.69***
Serial correlation test	-0.58*	-0.6*	-0.7*	-0.79*
Nb. of countries	31	31	31	31
Nb. of observations	388	388	388	388

This table presents the results of GMM-in system estimation for the full sample of the 31 emerging markets over the 1987-2003 period. The dependent variable is market capitalization (MC variable). The nature of GMM method leads to the introduction of lagged dependent variable (MC(-1)). Privatization is proxied either by the PO ratio (number of SIPs/total number of privatization) or the number of privatizations per year (NPRIV).

For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.

For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.

Standard errors of estimates are reported in parentheses.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 3b. GMM-in System Estimates of the Impact of Privatization on Stock Market Development (Full Sample)

Variables	Value Traded			
Constant	-0.043 (0.071)	-0.039 (0.066)	-0.069 (0.066)	-0.060 (0.065)
ML(-1)	0.578*** (0.108)	0.574*** (0.105)	0.576*** (0.121)	0.574*** (0.115)
Privatization (NPRIV)	0.005* (0.002)	0.005* (0.002)		
Privatization (PO)			0.275** (0.123)	0.268** (0.119)
Liberalization (LIB)	0.008 (0.026)	-0.006 (0.032)	0.022 (0.030)	0.012 (0.035)
LAWOR	0.017 (0.013)	0.015 (0.014)	0.016 (0.014)	0.015 (0.015)
CIVIL	-0.021 (0.029)	-0.019 (0.029)	-0.021 (0.029)	-0.020 (0.029)
INTEG(1)	-0.029 (0.025)		-0.012 (0.027)	
INTEG(2)		0.045 (0.033)		0.034 (0.033)
Credit to private sector (PCREDIT)	0.148*** (0.047)	0.141*** (0.044)	0.136*** (0.047)	0.131*** (0.043)
Inflation rate (IR)	-0.012* (0.006)	-0.017** (0.007)	-0.015** (0.006)	-0.018** (0.007)
Schooling (SCH)	0.020 (0.071)	-0.015 (0.063)	0.014 (0.061)	-0.009 (0.055)
Sargan test	23.06***	23.69***	25.04***	24.96***
Serial correlation test	-0.82**	-0.82**	-0.85**	-0.84*
Nb. of countries	31	31	31	31
Nb. of observations	388	388	388	388

This table presents the results of GMM-in system estimation for the full sample of the 31 emerging markets over the 1987-2003 periods. The dependent variable is value traded (ML variable). The nature of GMM method leads to the introduction of lagged dependent variable (ML(-1)). Privatization is proxied either by the PO ratio (number of SIPs/total number of privatization) or the number of privatizations per year (NPRIV).

For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.

For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.

Standard errors of estimates are reported in parentheses.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 4a. GMM-in System Estimates of the Impact of Privatization on Stock Market Development (MENA Countries)

Variables	Market Capitalization			
Constant	0.397*** (0.112)	0.382*** (0.0785)	0.148** (0.0667)	0.104 (0.0735)
MC(-1)	0.642*** (0.178)	0.712*** (0.135)	0.939*** (0.144)	0.882*** (0.144)
Privatization (NPRIV)	0.000891 (0.00112)		0.00147** (0.000674)	
Privatization (PO)		0.0821 (0.0966)		0.0966 (0.0908)
Liberalization (LIB)	-0.00762 (0.0157)	-0.00187 (0.0194)	-0.0634** (0.0292)	-0.0575* (0.0312)
LAWOR	-0.011 (0.0111)	-0.0193*** (0.00705)	-0.0292** (0.0123)	- 0.0307**
CIVIL	-0.0865*** (0.028)	-0.0907* (0.0481)	0.0141 (0.0268)	* (0.00994)
INTEG(1)	-0.215*** (0.0615)	-0.183*** (0.0398)		-0.00623 (0.0425)
INTEG(2)			0.0347 (0.0242)	
Credit to private sector (PCREDIT)	0.0951 (0.123)	0.123 (0.134)	0.154 (0.139)	0.0202 (0.0199)
Inflation rate (IR)	0.0363 (0.0656)	0.0394 (0.0692)	0.00838 (0.035)	0.205 (0.179)
Schooling (SCH)	-0.00792 (0.127)	-0.0334 (0.117)	-0.0334 (0.0696)	0.0432 (0.0706)
				0.036 (0.0872)
Sargan test	0.00	0.00	0.00	0.00
Serial correlation test	-1.29	-1.37	-1.3	-1.36
Nb. of countries	7	7	7	7
Nb. of observations	72	72	72	72

This table presents the results of GMM-in system estimation for the full sample of the 31 emerging markets over the 1987-2003 periods. The dependent variable is market capitalization (MC variable). The nature of GMM method leads to the introduction of lagged dependent variable (MC(-1)). Privatization is proxied either by the PO ratio (number of SIPs/total number of privatization) or the number of privatizations per year (NPRIV).

For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.

For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.

Standard errors of estimates are reported in parentheses.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 4b. GMM-in System Estimates of the Impact of Privatization on Stock Market Development (MENA Countries)

Variables	Value Traded			
Constant	0.0498 (0.0637)	0.126 (0.133)	-0.147*** (0.0508)	-0.121*** (0.0433)
ML(-1)	0.663*** (0.0441)	0.692*** (0.0247)	0.675*** (0.0967)	0.679*** (0.0714)
Privatization (NPRIV)	0.000983 (0.000356)		0.000152 (0.000812)	
Privatization (PO)		-0.0127 (0.0737)		-0.00709 (0.0542)
Liberalization (LIB)	-0.0451** (0.0217)	-0.031** (0.0128)	-0.0911 (0.057)	-0.0844* (0.0501)
LAWOR	0.0365*** (0.00564)	0.0354*** (0.00642)	0.0284*** (0.00909)	0.0271*** (0.00815)
CIVIL	-0.0668*** (0.0149)	-0.0686*** (0.0195)	0.0012 (0.0569)	0.000679 (0.0628)
INTEG(1)	-0.131*** (0.0328)	-0.14*** (0.0477)		
INTEG(2)			0.0714 (0.0555)	0.0703 (0.0549)
Credit to private sector (PCREDIT)	-0.15 (0.109)	-0.168** (0.0735)	0.0172 (0.111)	-0.0058 (0.119)
Inflation rate (IR)	0.159* (0.0826)	0.122*** (0.0417)	0.135*** (0.0324)	0.114*** (0.0373)
Schooling (SCH)	0.141 (0.101)	0.0582 (0.185)	0.16** (0.0788)	0.149 (0.122)
Sargan test	0.00	0.00	0.00	0.00
Serial correlation test	-1.39	-1.33	-1.52	-1.2
Nb. of countries	7	7	7	7
Nb. of observations	72	72	72	72

This table presents the results of GMM-in system estimation for the full sample of the 31 emerging markets over the 1987-2003 periods. The dependent variable is value traded (ML variable). The nature of GMM method leads to the introduction of lagged dependent variable (ML(-1)). Privatization is proxied either by the PO ratio (number of SIPs/total number of privatization) or the number of privatizations per year (NPRIV).

For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.

For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.

Standard errors of estimates are reported in parentheses.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 5a. GMM-in System Estimates of the Impact of Privatization on Stock Market Development (African Countries)

Variables	Market Capitalization			
Constant	-0.575** (0.292)	-0.6* (0.31)	-0.478** (0.221)	-0.468** (0.209)
MC(-1)	0.253* (0.147)	0.346*** (0.117)	0.259* (0.145)	0.358*** (0.115)
Privatization (NPRIV)	0.0369* (0.022)		0.0381* (0.0224)	
Privatization (PO)		-0.112*** (0.0321)		-0.12*** (0.0443)
Liberalization (LIB)	-0.063 (0.0996)	-0.0407 (0.0766)	-0.0706 (0.101)	-0.0503 (0.0802)
LAWOR	0.0158 (0.0372)	0.0456 (0.0417)	0.0108 (0.0362)	0.0401 (0.0404)
INTEG(1)	0.063 (0.0896)	0.0862 (0.0943)		
Credit to private sector (PCREDIT)	0.342* (0.189)	0.269 (0.191)	0.347* (0.183)	0.272 (0.185)
Inflation rate (IR)	0.231** (0.117)	0.243** (0.124)	0.18*** (0.0502)	0.173*** (0.0431)
Schooling (SCH)	1.418* (0.78)	1.324* (0.696)	1.383* (0.763)	1.271* (0.664)
Sargan test	0.00	0.00	0.00	0.00
Serial correlation test	-1.48	-1.34	-1.5	-1.35
Nb. of countries	5	5	5	5
Nb. of observations	60	60	60	60

This table presents the results of GMM-in system estimation for the full sample of the 31 emerging markets over the 1987-2003 periods. The dependent variable is market capitalization (MC variable). The nature of GMM method leads to the introduction of lagged dependent variable (MC(-1)). Privatization is proxied either by the PO ratio (number of SIPs/total number of privatization) or the number of privatizations per year (NPRIV).

For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.

For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.

Standard errors of estimates are reported in parentheses.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 5b. GMM-in System Estimates of the Impact of Privatization on Stock Market Development (African Countries)

Variables	Value Traded			
Constant	0.00813 (0.0195)	-0.0018 (0.0171)	-0.0147 (0.0128)	-0.0166 (0.0143)
ML(-1)	0.926*** (0.0167)	0.936*** (0.0168)	0.927*** (0.0133)	0.936*** (0.0152)
Privatization (NPRIV)	0.00447 (0.00294)		0.00412 (0.00297)	
Privatization (PO)		0.00185 (0.00384)		0.00276 (0.0048)
Liberalization (LIB)	0.0103 (0.00987)	0.0127 (0.011)	0.0122 (0.00967)	0.0139 (0.0105)
LAWOR	-0.00717* (0.00398)	-0.00382 (0.00322)	-0.00585** (0.00271)	-0.00316 (0.00223)
INTEG(1)	-0.0152** (0.00688)	-0.00998** (0.0042)		
Credit to private sector (PCREDIT)	0.0605*** (0.0231)	0.0593** (0.0259)	0.0576*** (0.022)	0.0575** (0.0251)
Inflation rate (IR)	0.00889 (0.00824)	0.00893* (0.00533)	0.0208*** (0.00508)	0.0167*** (0.00256)
Schooling (SCH)	0.000842 (0.0444)	0.00215 (0.0479)	0.00796 (0.0455)	0.0068 (0.049)
Sargan test	0.00	0.00	0.00	0.00
Serial correlation test	-1.44	-1.43	-1.43	-1.43
Nb. of countries	5	5	5	5
Nb. of observations	60	60	60	60

This table presents the results of GMM-in system estimation for the full sample of the 31 emerging markets over the 1987-2003 periods. The dependent variable is value traded (ML variable). The nature of GMM method leads to the introduction of lagged dependent variable (ML(-1)). Privatization is proxied either by the PO ratio (number of SIPs/total number of privatization) or the number of privatizations per year (NPRIV).

For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.

For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.

Standard errors of estimates are reported in parentheses.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 6a. GMM-in System Estimates of the Impact of Privatization on Stock Market Development (Asian Countries)

Variables	Market Capitalization			
Constant	-0.234 (0.248)	-0.0434 (0.268)	-0.375 (0.383)	-0.292 (0.407)
MC(-1)	0.552*** (0.032)	0.592*** (0.0336)	0.454*** (0.0622)	0.501*** (0.0479)
Privatization (NPRIV)	0.00939* (0.00563)		0.0112* (0.00611)	
Privatization (PO)		0.262* (0.134)		0.242* (0.123)
Liberalization (LIB)	0.0827 (0.15)	0.0144 (0.117)	0.111 (0.165)	0.089 (0.161)
LAWOR	0.0212 (0.0136)	0.0193 (0.194)	0.0341* (0.0198)	0.0356 (0.0225)
CIVIL	-0.131 (0.145)	-0.0851 (0.149)	-0.183 (0.204)	-0.19 (0.216)
INTEG(1)	-0.0478 (0.0841)	0.0277 (0.0716)		
INTEG(2)			-0.22 (0.169)	-0.222 (0.166)
Credit to private sector (PCREDIT)	0.147** (0.0682)	0.166*** (0.0553)	0.253* (0.141)	0.234** (0.0979)
Inflation rate (IR)	-0.109 (0.334)	-0.207 (0.317)	-0.0874 (0.345)	-0.182 (0.363)
Schooling (SCH)	0.499 (0.441)	0.0716 (0.453)	0.731 (0.634)	0.596 (0.671)
Sargan test	0.00	0.00	0.00	0.00
Serial correlation test	-1.2	-1.17	-1.33	-1.25
Nb. of countries	9	9	9	9
Nb. of observations	123	123	123	123

This table presents the results of GMM-in system estimation for the full sample of the 31 emerging markets over the 1987-2003 periods. The dependent variable is market capitalization (MC variable). The nature of GMM method leads to the introduction of lagged dependent variable (MC(-1)). Privatization is proxied either by the PO ratio (number of SIPs/total number of privatization) or the number of privatizations per year (NPRIV).

For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.

For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.

Standard errors of estimates are reported in parentheses.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 6b. GMM-in System Estimates of the Impact of Privatization on Stock Market Development (Asian Countries)

Variables	Value Traded			
Constant	-0.413 (0.335)	-0.54 (0.488)	-0.418 (0.281)	-0.671 (0.536)
ML(-1)	0.458*** (0.117)	0.459*** (0.133)	0.454*** (0.123)	0.461*** (0.132)
Privatization (NPRIV)	0.0201* (0.0119)		0.0197* (0.011)	
Privatization (PO)		0.0624 (0.0851)		0.0736 (0.0877)
Liberalization (LIB)	0.254 (0.232)	0.276 (0.298)	0.211 (0.205)	0.254 (0.306)
LAWOR	0.0287 (0.0319)	0.0473 (0.0388)	0.0212 (0.0276)	0.0431 (0.0333)
CIVIL	-0.0198 (0.141)	-0.11 (0.165)	-0.0184 (0.128)	-0.169 (0.199)
INTEG(1)	-0.152 (0.131)	-0.15 (0.17)		
INTEG(2)			-0.0242 (0.105)	-0.105 (0.134)
Credit to private sector (PCREDIT)	0.0798 (0.14)	0.00189 (0.108)	0.0957 (0.111)	
Inflation rate (IR)	0.89* (0.543)	-0.88 (0.751)	-0.881* (0.522)	-0.785 (0.713)
Schooling (SCH)	0.702 (0.492)	0.982 (0.714)	0.583* (0.336)	1.122 (0.709)
Sargan test	0.00	0.00	0.00	0.00
Serial correlation test	-2**	-2**	-2**	-2.05**
Nb. of countries	5	5	5	5
Nb. of observations	60	60	60	60

This table presents the results of GMM-in system estimation for the full sample of the 31 emerging markets over the 1987-2003 periods. The dependent variable is value traded (ML variable). The nature of GMM method leads to the introduction of lagged dependent variable (ML(-1)). Privatization is proxied either by the PO ratio (number of SIPs/total number of privatization) or the number of privatizations per year (NPRIV).

For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.

For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.

Standard errors of estimates are reported in parentheses.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 7a. GMM-in System Estimates of the Impact of Privatization on Stock Market Development (Latin American Countries)

Variables	Market Capitalization			
Constant	0.0506*	0.0149	-0.0889	-0.215
	(0.132)	(0.114)	(0.265)	(0.179)
MC(-1)	0.671***	0.714***	0.668***	0.697***
	(0.103)	(0.113)	(0.107)	(0.111)
Privatization (NPRIV)	0.000922		0.00118	
	(0.00146)		(0.00171)	
Privatization (PO)		0.0156		0.019
		(0.0687)		(0.0627)
Liberalization (LIB)	0.0322	0.0526	-0.00491	0.00824
	(0.06)	(0.0689)	(0.054)	(0.0534)
LAWOR	0.0123	0.00498	0.0195	0.0173
	(0.0207)	(0.0233)	(0.0202)	(0.0202)
CIVIL	-0.0689*	-0.0555	-0.0504	-0.0183
	(0.042)	(0.0404)	(0.0862)	(0.0718)
INTEG(1)	-0.135	-0.172		
	(0.12)	(0.135)		
INTEG(2)			-0.0374	-0.0681
			(0.0816)	(0.0541)
Credit to private sector (PCREDIT)	0.221**	0.304**	0.227	0.316**
	(0.0992)	(0.136)	(0.142)	(0.152)
Inflation rate (IR)	-0.022	-0.0222	-0.0176	-0.0148
	(0.0193)	(0.0158)	(0.0155)	(0.0109)
Schooling (SCH)	0.174	0.214	0.197	0.299*
	(0.133)	(0.148)	(0.213)	(0.167)
Sargan test	0.05	0.00	0.00	0.00
Serial correlation test	-1.87*	-1.84*	-1.83*	-1.76*
Nb. of countries	10	10	10	10
Nb. of observations	133	133	133	133

This table presents the results of GMM-in system estimation for the full sample of the 31 emerging markets over the 1987-2003 periods. The dependent variable is market capitalization (MC variable). The nature of GMM method leads to the introduction of lagged dependent variable (MC(-1)). Privatization is proxied either by the PO ratio (number of SIPs/total number of privatization) or the number of privatizations per year (NPRIV).

For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.

For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.

Standard errors of estimates are reported in parentheses.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.

Table 7b. GMM-in System Estimates of the Impact of Privatization on Stock Market Development (Latin American Countries)

Variables	Value traded			
Constant	0.00875 (0.0194)	0.0269 (0.0226)	0.00251 (0.0322)	0.0234 (0.0279)
ML(-1)	0.648*** (0.0627)	0.773*** (0.0482)	0.688*** (0.0579)	0.785*** (0.0461)
Privatization (NPRIV)	0.00148*** (0.000384)		0.00139*** (0.000357)	
Privatization (PO)		0.00995 (0.0145)		0.0104 (0.0166)
Liberalization (LIB)	0.031** (0.0158)	0.0365** (0.0175)	0.0246* (0.0141)	0.0283* (0.0151)
LAWOR	-0.0046 (0.0031)	-0.00452 (0.00352)	-0.00303 (0.00362)	-0.00389 (0.00359)
CIVIL	-0.00158 (0.0042)	-0.00176 (0.00544)	-0.0025 (0.00974)	-0.00426 (0.00996)
INTEG(1)	-0.0257** (0.0124)	-0.0223* (0.0131)		
INTEG(2)			-0.00371 (0.0156)	0.00336 (0.0149)
Credit to private sector (PCREDIT)	0.0738*** (0.0144)	0.077*** (0.0165)	0.0644*** (0.0147)	0.072*** (0.0142)
Inflation rate (IR)	-0.00309 (0.00235)	-0.00605* (0.00315)	-0.0032 (0.0026)	-0.00623* (0.00343)
Schooling (SCH)	-0.0105 (0.0273)	-0.0457 (0.0308)	-0.0297 (0.0309)	-0.06** (0.0298)
Sargan test	0.00	0.00	0.00	0.00
Serial correlation test	-2.19**	-2.22**	-2.18**	-2.25**
Nb. of countries	10	10	10	10
Nb. of observations	133	133	133	133

This table presents the results of GMM-in system estimation for the full sample of the 31 emerging markets over the 1987-2003 periods. The dependent variable is value traded (ML variable). The nature of GMM method leads to the introduction of lagged dependent variable (ML(-1)). Privatization is proxied either by the PO ratio (number of SIPs/total number of privatization) or the number of privatizations per year (NPRIV).

For Sargan test, the null hypothesis indicates that the used instruments are not correlated with the residuals.

For the test of serial correlation, the null hypothesis indicates that the errors in the first-difference regression exhibit no second-order serial correlation.

Standard errors of estimates are reported in parentheses.

***, **, and * indicate significance levels at 1, 5, and 10 percent, respectively.