

***Liberalization, Corporate Governance, and the Performance
of Newly Privatized Firms***

By: Narjess Boubakri, Jean-Claude Cosset, and Omrane Guedhami

William Davidson Working Paper Number 419
December 2001

LIBERALIZATION, CORPORATE GOVERNANCE AND THE PERFORMANCE OF NEWLY PRIVATIZED FIRMS *

NARJESS BOUBAKRI

Faculte des sciences de l'administration
Universite Laval
Quebec, P.Q. , Canada G1K 7P4
Narjess.Boubakri@fsa.ulaval.ca

JEAN-CLAUDE COSSET

Faculte des sciences de l'administration
Universite Laval
Quebec, P.Q. , Canada G1K 7P4
Jean-Claude.Cosset@fas.ulaval.ca

OMRANE GUEDHAMI

Faculte des sciences de l'administration
Universite Laval
Quebec, P.Q. , Canada G1K 7P4
Omrane.Guedhami@fsa.ulaval.ca

Key words : Liberalization, Corporate Governance, Privatization, Performance.

* We appreciate the helpful comments made by Terry Campbell, Sylvain Dessy, Klaus Fischer, Merlyn Foo, Lynda Khalaf, Anna Meyendorff, Bruce Shearer, Oumar Sy, Désiré Vencatachellum on previous versions of this paper. We also received much valuable input from seminar participants at Universite Laval, the 2001 Administrative Sciences Association of Canada's Annual Conference in London (Ontario), the 2001 PACAP/Financial Management Association Conference in Seoul, the Third Annual Conference on "Financial Market Development in Emerging and Transition Economies" in Hong Kong, the 2001 Northern Finance Association Meeting in Halifax (Nova Scotia) and the 2001 Financial Management Association Meeting in Toronto (Canada). We are grateful to Afeikhena Jerome from the University of Ibadan (Nigeria), Udeaja Elais Anachioke (Nigeria), Mohamed Daouas from the Tunisian Central Bank, Smith Dustin from the International Monetary Fund and the Casablanca Stock Exchange (Morocco) for providing us with data. Finally, we are indebted to Martin Desrochers, Frederic Gamache, Souheil Hassine and Meissa N'Dir for excellent research assistance. All errors remain our responsibility.

LIBERALIZATION, CORPORATE GOVERNANCE AND THE PERFORMANCE OF NEWLY PRIVATIZED FIRMS

ABSTRACT

This paper seeks to provide an answer to the following question, namely when and how does privatization work? Using a unique sample of 201 firms headquartered in 32 developing countries, we document a significant increase in profitability, efficiency, investment and output. Next, using univariate tests, we show that corporate governance mechanisms and economic reforms and environment have an effect on the changes in operating performance. For example, we find that privatization yields better results when stock market and trade liberalizations precede it. The results of a regression analysis, across a number of specifications, indicate that economic reforms and environment as well as corporate governance variables explain the post-privatization performance changes. In particular, economic growth, control relinquishment by the government and foreign ownership are key determinants of profitability changes. We also find higher improvements in efficiency and output for firms in countries in which stock markets are more developed and where property rights are better protected and enforced. Finally, our results suggest that trade openness is an important determinant of the post-privatization increase in investment.

LIBERALIZATION, CORPORATE GOVERNANCE AND THE PERFORMANCE OF NEWLY PRIVATIZED FIRMS

Several studies have recently documented a performance improvement of newly privatized firms in developed and developing countries (e.g., Megginson, Nash and van Randenborgh, 1994; Boubakri and Cosset, 1998; D'Souza and Megginson, 1999; Dewenter and Malatesta, 2001).¹ Although these studies have shown that the outcomes of privatization tend to vary with the level of country development, none has examined the determinants of performance changes of newly privatized firms in developing countries. In this paper, we seek to provide an answer to the following question, namely when and how does privatization work? This question is timely because many developing countries only began to undertake large scale privatizations in the 1990s (Ramamurti, 1999). The results of this study should, therefore, be of interest to investors, government policy makers as well as officials of international agencies, such as the World Bank and the International Monetary Fund, by providing insights on the way privatization works.

This paper makes two main contributions. The first contribution is to assess the performance outcomes of privatization for a unique sample of newly privatized firms from a wide set of developing countries. Our analysis covers a large sample of 201 firms from 32 developing countries over the period 1980 to 1997. In doing so, we go beyond Boubakri and Cosset (1998) who consider a sample of 79 firms from 21 countries over the period (1980 to 1992). The data set we use represents the shift of privatization towards new industries (e.g., utilities and telecommunication) and new participating countries (such as African countries). Furthermore, this multi-national sample includes a large number of countries with different levels of economic and institutional development, at different stages of economic reforms and

¹ See Megginson and Netter (2001) and Djankov and Murrell (2001) for thorough reviews of the empirical literature on privatization.

with a great variety of legal systems, providing us with a unique opportunity to assess the role of these country-wide factors in the performance of newly privatized firms.

The second contribution of the paper is to examine the determinants of performance changes of newly privatized firms by focusing on the specific environment of developing countries. We conjecture that, in order to explain how privatization works in such an environment, we need to account for (i) the ongoing economic reforms in developing countries, such as stock market and trade liberalization policies, as well as (ii) corporate governance, all of which could affect the outcome of privatization. The first set of factors is particularly important as it fundamentally distinguishes privatization in developing countries from that in developed countries since privatization in developing countries is generally implemented as part of a broader program of structural adjustment involving other concomitant economic reforms. For example, stock market and trade liberalizations could create stronger competition and higher growth rates likely to spur performance improvements. The second set of factors relates to the recent literature on the importance of a country's level of corporate governance and institutional development. Moreover, this constitutes a major difference between developed and developing countries, since the governance mechanisms are relatively weaker in the latter. Indeed, several authors recently emphasized the importance of a country's level of institutional development as a determinant of the failure or success of privatization programs (e.g., Ramamurti, 2000; Dyck, 2001; Shirley, 2001). Anecdotal evidence suggests that the modest gains of privatization in some developing countries are partly due to their lack of an institutional framework for efficient corporate governance. In this paper, we shall provide empirical support for these contentions and contribute to the existing literature by accounting for the features of developing countries in our assessment of the performance of newly privatized firms. In fact, this study unites in a single framework two streams of literature in development and financial economics: the first deals with the impact of economic reforms on

the country- and firm-level performance (e.g., Dornbusch, 1992; Sachs and Warner, 1995; Bekaert and Harvey, 2000; Henry, 2000; Tybout, 2000; Bekaert, Harvey and Lundblad, 2001a,b); the second, the impact of corporate governance mechanisms, including the ownership structure and property rights, on the country- and firm-level performance (e.g., La Porta, López-de-Silanes, Shleifer and Vishny, 1997, 1998, 1999, 2000; Demirgüç-Kunt and Maksimovic, 1998; Johnson, Boone, Breach and Friedman, 2000; Mitton, 2001).²

Using a unique sample of 201 newly privatized firms, we first document a significant increase in both unadjusted and market-adjusted profitability, efficiency, investment and output. Next, partitioning our data into various subsamples, we show that the changes in operating performance vary with the extent of economic reforms and environment, and the effectiveness of corporate governance. For example, we demonstrate that privatization yields better results if it is preceded by trade and stock market liberalizations. Finally, performing a multivariate regression analysis, we find that economic reforms and environment as well as corporate governance variables explain post-privatization performance changes. In particular, we document that economic growth and stock market liberalization are associated with stronger profitability and efficiency gains and greater output increases. Moreover, our results suggest that trade openness and economic freedom are important determinants of the post-privatization increase in efficiency and output. Trade openness also appears to be associated with higher levels of post-privatization investment. In relation with corporate governance variables, we provide evidence that control relinquishment by the government is a key determinant of profitability and efficiency improvements as well as output increases following privatization. Furthermore, we find that foreign ownership is associated with stronger profitability gains. We likewise find that higher gains in efficiency and output occur for firms in countries with more developed stock markets and where property rights are better protected

² A recent study by D'Souza, Megginson and Nash (2001) examines the determinants of performance changes for 119 firms from 29 countries including 18 firms from developing countries. However, the

and enforced. These results are robust across various specifications. Taken together, our findings highlight the importance of corporate governance and economic reforms and environment in explaining the post-privatization changes in performance. Correspondingly, our findings have several policy implications for the different stakeholders involved in the privatization process.

The paper is organized as follows: the first section discusses the links between economic reforms, corporate governance and privatization. Section II describes the sample and data and outlines the methodology. Section III presents the results, while Section IV concludes and provides some policy implications.

I. Economic Reforms, Corporate Governance and Privatization

A. Privatization and Economic Reforms

Privatization in developing countries (DCs hereafter) is often accompanied by economic reforms such as stock market and trade liberalization that could influence the outcomes of a privatization program. Several authors have studied the effect of economic and financial reforms on the economies of DCs. For example, Henry (2000) examines the impact of stock market liberalization on the returns of twelve emerging stock markets. Controlling for macroeconomic fundamentals, co-movements with foreign stock markets and concurrent economic reforms (such as macroeconomic stabilization programs, trade liberalization, privatization and the easing of exchange controls), Henry finds a monthly mean abnormal return of 3.3 percent over an eight-month period leading up to the implementation of the stock market liberalization. The author also documents that privatization has a positive effect on stock returns. However, once he controls for the specific economic conditions of the country, the impact of privatization is no longer significant. Henry argues that one possible explanation

authors do not control for the specific environment of these countries in their study.

for this result is that governments tend to privatize when the economic conditions are favorable. In related studies, Bekaert and Harvey (2000) and Bekaert, Harvey and Lundblad (2001a,b) analyze the impact of stock market liberalization in emerging markets on, among other things, the cost of equity capital (expected equity returns) and economic growth. Controlling for a number of other factors (such as the level of stock market development, the size of the trade sector and the macroeconomic environment) to isolate the sole impact of liberalization, they find that stock market liberalization is associated with lower costs of equity capital and higher economic growth rates. In light of these findings, we expect a positive association between privatization outcomes and stock market liberalization.

Similarly, Dornbusch (1992) focuses on trade liberalization. He identifies several channels through which trade reforms could bring benefits. Examples include an improved allocation of resources, greater competition and an access to better technologies, inputs and intermediate goods. Thus, irrespective of privatization, trade liberalization could bring changes in the performance of newly privatized firms (NPFs hereafter).³ Empirically, Henry (2000) shows that trade liberalization is associated with equity price revaluation, a result consistent with Sachs and Warner's (1995) evidence that this policy is closely tied to future growth.

The above evidence suggests that stock market and trade liberalization creates favorable economic conditions (e.g., stronger competition and higher growth rates) likely to spur performance improvements. Consequently, we need to account for the possible confounding effects of such economic reforms on the performance of newly privatized firms.

B. Privatization and Corporate Governance

Shleifer and Vishny (1997) and Dyck (2000), among others, argue that corporate governance can explain the performance of privatized firms. In developed countries, the governance system is

relatively efficient in that investors are confident to obtain returns on their investments and firms can raise the necessary funds to finance their investment projects. In contrast, the governance mechanisms in DCs are generally weak and the risk of expropriation of shareholders by managers or by blockholders is considerable. This limits the financing opportunities for firms that need to invest or restructure, especially NPFs, since a direct consequence of privatization is usually a reduction (if not an elimination) of government subsidies. This, in turn, could affect post-privatization performance.

The literature generally distinguishes two types of corporate governance mechanisms, that is internal and external. Internal mechanisms include the ownership structure and the organizational structure of the firm, while external mechanisms include the monitoring of capital markets and the legal and institutional system.

Boycko, Shleifer and Vishny (1996) develop a model of privatization that explains the relative inefficiency of public firms and the improvements of post-privatization efficiency. Specifically, they present a model in which privatization transfers both control and cash flow rights to the managers who then place greater emphasis on profits and efficiency. Consequently, we expect the gains in performance to be higher when the government gives up control. In the same vein, the growing involvement of foreign investors could affect the post-privatization performance of NPFs. Foreign investors generally require high information disclosure standards, provide new funds to NPFs and, for reputation concerns, maintain a strict control of managers' actions (Dyck, 2000, Shirley, 2001). Therefore, we expect a positive association between post-privatization performance improvements and foreign ownership.

The other internal monitoring mechanisms that relate to the organizational structure of the firm are the Board of Directors (BOD hereafter) and Chief Executive Officer (CEO hereafter).

³ See Tybout (2000) for a comprehensive review of the evidence of the impact of trade liberalization on the performance of firms in developing countries.

In the privatization literature, one reason often put forward to explain the poor performance of state-owned enterprises is the low qualification of government-appointed-BOD members and managers (López-de-Silanes, 1997). Furthermore, incentives to monitor managerial behavior are poor, leaving managers considerable discretion to pursue their personal agendas (Vickers and Yarrow, 1991; Shleifer and Vishny, 1997). Indeed, as noted by Özkaya and Askari (1999), old fashioned compensation schemes, based on tenure and not performance, prevail in the majority of DCs. Changes in the membership of the BOD as well as changes of the CEO can be put in place to ascertain more effective monitoring and management, respectively. The under-qualified managers could be replaced by others whose objectives are more aligned with profit maximization, and new monitoring mechanisms could be put in place by the new shareholders.⁴ Therefore, we expect that restructuring the BOD and changing the CEO can affect the post-privatization performance.

As mentioned earlier, there also exist external mechanisms of corporate governance which include capital market monitoring and the legal system. The monitoring role of the market depends on the size and the sophistication of the local capital market (Subrahmanyam and Titman, 1999; Levine, 1997; Levine and Zervos, 1998). A large and sophisticated market implies (i) a “friendlier” market-and-regulatory environment, (ii) better access to the funds necessary to restructure the NPFs, and (iii) better monitoring and performance linked-compensation for managers. Therefore, we expect the NPFs in relatively more sophisticated and larger stock markets to perform better.

Law and the quality of its enforcement are likely to influence the monitoring role played by the market. La Porta, López-de-Silanes, Shleifer and Vishny (1998) show that the legal protection of shareholder rights varies around the world. Specifically, countries with an

⁴ See, for example, Barberis, Boycko, Shleifer and Tsukanova (1996) who stress the importance of changing the human capital (directors and managers) as an incentive to maximize the privatized firm’s value.

English common law system offer stronger rights to shareholders and higher quality of law enforcement than do countries with a French civil law system do. In the same vein, Pagano and Roell (1998) argue that a market with a stronger protection of shareholder rights decreases the costs of agency and increases the efficiency of monitoring managers. Consequently, we expect post-privatization performance to be higher for countries where laws protect shareholder rights and which have a legal system that efficiently enforces these laws.

II. Data and Methodology

This section describes the sample of NPFs and outlines the methodology we use in our analysis.

A. The Sample of Privatized Firms

The initial sample of NPFs comes from Boubakri and Cosset (1998). It was updated with the World Bank list of firms privatized between 1990 and 1998.⁵ Our sample does not include privatized companies in the ex-communist countries since the process of privatization in this context is an intrinsic part of the transformation to a market-based system (Galal, Jones, Tandon and Vogelsang, 1994; Özkaya and Askari, 1999). Furthermore, the traditional law system in these countries is based on the Soviet law which underwent many changes during their transition period (La Porta, López-de-Silanes, Shleifer and Vishny, 2000).

To assess the post-privatization performance changes, we draw the financial information from the NPFs' financial statements, their web site, and from databases such as *Worldscope*

⁵ Other lists were provided by the local government agencies in charge of the privatization programs, such as the BNDES-Brazilian Development Bank for Brazil, the Ministry of Privatization for Morocco, the Tunisian Central Bank for Tunisia and the Privatization Administration for Turkey. By diversifying our data sources, we minimize the risk that only well-performing firms are included in the sample.

Disclosure, *Compustat (Global Vantage)*, *Moody's International* and *Economica*. Using these different sources, we gather data for a sample of 201 firms headquartered in 32 countries. Table 1 provides some descriptive statistics on the 201 firms used in the study. The 201 firms are located in the following four geographical regions. Latin America and the Caribbean account for 33.33 percent of the firms, 24.38 percent come from Africa and the Middle East, 24.88 percent from East and South Asia and the Pacific and 17.41 percent from Europe and Central Asia. Interestingly, this diversification involves countries with different levels of development and different legal and institutional environments. Table 1 also shows that the sample is diversified across industries with 32.84 percent in the financial sector, 26.87 percent in the energy sector and 10.95 percent in utilities. Furthermore, 78 percent of the privatizations have occurred in the nineties, which reflects the recent trend towards large scale privatizations by DCs. Finally, the sample of NPFs covers three legal systems: 32.34 percent of the firms come from common law countries, 65.17 percent from French civil law countries and 2.49 percent from German civil law countries.

B. Methodology

In order to examine the impact of privatization on the operating performance of NPFs and to investigate the determinants of the changes in performance, we proceed with univariate and multivariate analyses. We first present the different partitions we analyze. Then, we describe the variables we include in the multivariate regression.

B.1 Univariate Analysis

We rely on four aspects of firm performance:

Profitability. We measure profitability by the return on sales (net income to sales), return on assets (net income to total assets) and return on equity (net income to equity) ratios.

Efficiency: We measure operating efficiency by the sales efficiency (real sales per employee) and net income efficiency (net income per employee) ratios.

Investment: We measure investment by capital expenditures to sales and capital expenditures to total assets.

Output: We measure output by real sales (nominal sales divided by the consumer price index).

The use of different performance measures allows us to draw up a more comprehensive assessment of the impact of privatization on the performance of the former state-owned enterprises. In particular, examining the first two groups of ratios reveals whether privatization helps to improve the profitability and the efficiency of the firm which are two of the main goals advanced by governments to advocate privatization.

We determine the performance measures presented above for a period of seven years (three years prior to privatization and three years post privatization, including the year of privatization itself). We then compute the means before and after privatization for each performance measure. We consider as the privatization date to be the date on which the government sold, for the first time, a certain amount of shares. We pay particular attention to the exact date of privatization by checking different sources of information, namely, the *World Bank Privatization Database*, *Privatization International*, the prospectuses and the answers to the questionnaires we sent to the candidate firms. To assess the significance of performance changes, we use the two-tailed Wilcoxon signed-rank test. We also use a proportion test that determines whether the proportion of firms with the anticipated changes is greater than 50 percent.

In order to investigate whether the changes in performance vary with the extent of economic reforms and environment and the effectiveness of corporate governance, we analyze the differences in performance between two groups of partitions. The first group includes partitions with respect to the extent of economic reforms and environment:

(i) Firms privatized before trade (stock market) liberalization versus those privatized after trade (stock market) liberalization. We gather trade liberalization dates from Sachs and Warner (1995) and stock market liberalization dates from Bekaert, Harvey and Lundblad (2000a), and Henry (2000).

(ii) Firms privatized in countries with a high index of economic freedom (i.e., friendlier environment) and those privatized in countries with a lower index of economic freedom (more restrictive environment).⁶ The rationale underlying the use of this comprehensive index, constructed by Gwartney, Lawson and Samida (2000), is that countries with less economic freedom are characterized by a greater government intervention and a higher policy uncertainty, which may lead to economic inefficiency.

The second group of partitions analyzes the role of corporate governance in explaining the differences in the performance of NPFs:

(i) Revenue versus control privatization, that is, firms privatized by less than or equal to 50 percent versus firms privatized by more than 50 percent (Megginson, Nash and van Randenborgh, 1994).

(ii) Firms with foreign ownership versus firms with no foreign ownership.

(iii) Firms that change their CEO versus firms that do not change their CEO over the privatization window.⁷

⁶ This index, described below in Table 3a, is a range of objective components designed to identify how policies in key economic areas are consistent with economic freedom. This index ranges from 0 to 10, with higher scores indicating higher levels of economic freedom.

⁷ We also contrast firms with a high-BOD-turnover versus firms with a low-BOD-turnover. Variables related to ownership structure, BOD and CEO are compiled from the prospectuses, the financial statements, and such publications as *Worldscope Disclosure*, *Moody's International*, *Asian*, *Brazil and Mexico Company Handbooks*, and *The Guide to Asian Companies*.

(iv) Firms in stronger legal and institutional environments versus firms privatized in weaker legal and institutional environments. We use a governance index by Gwartney, Lawson and Samida (2000) as a measure of the legal structure and security of property rights and the enforcement of contracts. Higher values of the index indicate more effective governance.

B.2 Multivariate Analysis

While the results of the univariate approach can offer some insight, they only document bivariate relationships and they do not control for the effect of other variables. Hence, we perform a multivariate analysis in which we regress the changes in performance indicators (i.e., profitability, efficiency, investment and output) on several potential explanatory variables, namely, economic reforms and environment and corporate governance variables. We also control for firm size and industry effects. Table 2 describes all the variables used in the regression analysis.

For each performance measure, we estimate different specifications of the following cross-sectional regression:

$$\begin{aligned} \text{Performance Changes} = & \alpha_0 + \beta_1(\text{Economic Reforms and Environment Variables}) \\ & + \beta_2(\text{Corporate Governance Variables}) + \beta_3(\text{Firm Size}) + \beta_4(\text{Industry Dummies}) + \varepsilon \end{aligned}$$

In addition to the variables described in sub-section B.1, we include such variables as the changes in the real GDP growth and the size of the trade sector (imports plus exports) divided by GDP. The use of real GDP growth allows us to control for the impact of economic growth on the post-privatization performance of NPFs. The size of the trade sector, motivated by Bekaert and Harvey (2000), is a proxy for an economy's openness to trade. As an alternative to the governance index, we use an indicator variable for NPFs operating in common law

countries since these countries generally exhibit a higher protection of investors than do civil law countries (La Porta, López-de-Silanes, Shleifer and Vishny, 1998).

C. Descriptive Statistics

In Table 3a, we classify our sample of 32 countries according to the country's legal origin and present summary statistics on the macroeconomic variables (Panel A) and corporate governance variables (Panel B). With few exceptions, most of the stock market liberalizations occurred at the end of the eighties and during the nineties. Except for Argentina, India and Pakistan, trade liberalization precedes stock market liberalization. Consistent with the observations of La Porta, López-de-Silanes, Shleifer, and Vishny (1997, 1998) for a smaller subsample of DCs, Panel B shows that countries with an English or German legal origin exhibit higher levels of stock market development and legal protections as well as a more favorable institutional environment than countries with a French civil law origin.

Figure 1 describes the mean level of the economic freedom index over the period 1980-1997 for the 32 countries classified into four geographical regions. The East and South Asian and the Pacific region exhibits the highest level of economic freedom (6.30), followed by Europe and Central Asia (6.03), Latin America and the Caribbean (5.77) and Africa and the Middle East (5.04). The relatively higher mean levels of economic freedom shown by the first two groups of countries reflect the fact that these countries implemented substantial economic reforms (trade and stock market liberalization) relatively earlier than the other groups. With the exception of Bangladesh, all countries from the East and South Asian and Pacific region and the European and Central Asian region implemented trade and/or stock market liberalization by the end of the 1980s to early 1990s. Except for Trinidad and Tobago, Latin American and the Caribbean economies were liberalized by the early 1990s either through trade or stock market liberalization. The case of the African and Middle Eastern region is different since economic reforms started mainly in the early 1990s with the adoption of IMF-supported structural

adjustment programs. Although considerable progress has been made in this region, many countries had not yet implemented trade liberalization (Côte D'Ivoire, Egypt, Senegal and Togo) and stock market liberalization (Côte D'Ivoire, Togo and Tunisia) by 1997. Thus, a recent IMF study developed an index of trade restrictiveness to facilitate cross-country comparisons and track the evolution of trade policy over time. Figure 2 reports the 1997 value of the index for the four regions. Countries from the African and the Middle Eastern region exhibit the highest scores suggesting that their trade regimes are the most restrictive ones. Tariffs – the most commonly used form of trade restrictiveness – were 20 percent higher in Africa than elsewhere in 1997.⁸ Figure 3 reports the average scores of the governance index, described in Panel B of Table 3, for the four geographical regions. The average scores over the period 1980-97 differ widely across regions. The European and Central Asian region exhibits the highest average score (7.02), followed by East and South Asia and the Pacific (6.34) and Latin America and the Caribbean (5.87). As in Figure 1, countries from Africa and the Middle East show the lowest average score (4.69). Figure 4 depicts the level of stock market development measured by the average turnover ratio over the period 1980-97. The average turnover ratio differs substantially across the four regions with countries from Africa and the Middle East displaying the lowest ratio. This observation is consistent with the basic prediction of the legal approach of corporate governance suggesting that the quality of laws and the effectiveness of their enforcement are key determinants of stock market development (see La Porta, López-de-Silanes, Shleifer, and Vishny, 2000, and references therein).

Table 3b presents some descriptive statistics on the post-privatization ownership structure and size (proxied by the natural logarithm of total dollar sales at the time of privatization) for the sample of NPFs. The mean (median) post-privatization government ownership is 32.49 (30) percent in English common law countries and 24.52 (5) percent in countries of other legal origins. Moreover, post-privatization government retained ownership

⁸ See “Trade : An Engine of Growth for Africa”, *Finance & Development*, December 1999.

is higher in Asian countries than in African, Latin American and European countries. This is consistent with Ramamurti's (1999) observation that the overwhelming pattern in Latin America has been to privatize control, not just ownership, while the more common pattern observed in East Asia was to privatize partially. Interestingly, the distribution of post-privatization government ownership by industry shows higher remaining stakes for strategic industries (utilities and telecommunication). As for the post-privatization foreign ownership, its mean (median) is 14.09 (6) percent for English common law countries and 18.29 (4.4) percent in other legal origin countries.

The descriptive statistics on the size of NPFs reveal some interesting patterns. Privatized firms from Africa and the Middle East are substantially smaller than those from the three other regions. The average (median) size of firms from this region is 10 (10.12), whereas it is 12.83 (12.99) for firms from the East and South Asian and Pacific region, 12.74 (12.95) for firms from Latin America and the Caribbean and 11.57 (12.28) for those from Europe and Central Asia. This observation is consistent with the fact that privatization programs in Africa and the Middle East mainly emphasized small and medium-sized firms. Additionally, privatization programs in this region did not involve strategic, large firms from utilities and telecommunication until very recently. As shown in Table 3, utilities and telecommunication firms are larger than firms from other industries. In industrialized countries, infrastructure was the leading sector in privatization, largely due to the divestiture of telecommunication in the United Kingdom, Japan and Germany. In DCs, most infrastructure privatizations took place in Latin America and the Caribbean.

III. Results

In section A, we discuss the performance changes for our sample of 201 NPFs. We then discuss the univariate results for different partitions in section B, and the regression results in section C.

A. Univariate Analysis for the Full Sample of NPFs

A.1 Raw Performance Measures

Table 4 reports raw changes in the performance measures of our sample. All three profitability ratios, that is return on sales (ROS), return on assets (ROA) and return on equity (ROE) increase significantly after privatization. In discussing the results, we choose to focus on the first proxy (ROS) because it is less sensitive to inflation and accounting conventions than the two other profitability ratios. The mean (median) ROS increases significantly (at the 1 percent level) from 0.073 (0.049) before privatization to 0.149 (0.090) after privatization. An improvement in profitability is achieved by 61 percent of the sample firms. ROA and ROE also improve significantly at the 1 percent level. These results clearly show that NPFs in DCs significantly increase their profitability.

The two proxies for efficiency, namely sales efficiency (real sales per employee (SALEFF)) and net income efficiency (net income per employee (NIEFF)), show a significant improvement (at the 1 percent level) in both measures for 74 percent and 65 percent of the firms, respectively. For example, SALEFF increases from 0.967 (0.932) of year 0 before privatization to 1.319 (1.115) of year 0 after privatization. These results suggest that NPFs significantly improve their efficiency, an objective which governments launching privatization programs often invoke.

Both measures of investment, specifically, capital expenditures to sales (CESA) and capital expenditures to total assets (CETA), show a significant increase at the 1 percent level, for 72 percent and 68 percent of the firms, respectively. This result, combined with the above

evidence on efficiency, suggests that NPFs increase their investment expenses and improve their efficiency in order to compete with their private counterparts (Megginson, Nash and van Randenborgh, 1994).

Table 4 also shows a significant increase (at the 1 percent level) in real sales (SAL). Output is increased by 72 percent of the firms, from 1.147 (0.939) before privatization to 1.294 (1.128) after privatization. This result goes against the often advanced argument that SOEs tend to overproduce to satisfy political objectives (Boycko, Shleifer and Vishny, 1996). One possible explanation for the increase in output lies in the availability of better incentives and more flexible financing opportunities following privatization (Megginson, Nash and van Randenborgh, 1994). Furthermore, Table 3 shows an insignificant decrease of 116 employees on average after privatization. This result is consistent with that of D'Souza and Megginson (1999) who find an insignificant decline in employment for a sample of firms privatized during the 1990s. This is in contrast to the results of La Porta and López-de-Silanes (1999) who find a significant decline in the number of employees for their sample of Mexican NPFs.

Overall, the experience of our sample shows that privatization led to a significant increase in the operating performance of NPFs, as measured by profitability, efficiency, output and investment.

A.2 Market-Adjusted Performance Measures: Does Privatization Work?

A difficulty in isolating the impact of privatization on the performance of firms, particularly in DCs, lies in the fact that the observed changes may be due to contemporaneous economy-wide factors such as ongoing economic reforms. Consequently, to check the robustness of our previous unadjusted results, we perform tests with market-adjusted performance measures.

Using a large control sample of non-privatized firms, we compute market-adjusted performance measures as the difference between the median market performance and the firm's

performance, for a given performance indicator. However, as firms from the financial and real sectors exhibit different operating and financial profiles, we use a financial-market index to compute market-adjusted performance measures for banks and insurance companies. For other firms, the market index consists of non-financial corporations. Table 5 presents, for the sample of firms for which we could compute market-adjusted performance measures, both unadjusted and adjusted results. In the years preceding privatization, the SOEs underperform the market since the average market-adjusted profitability and efficiency ratios are negative. This result suggests that privatized firms are profitable (according to their raw performance before privatization) but that these firms still underperform compared to their private counterparts. Additionally, the results reveal that privatization yields significant improvements in the adjusted performance measures. The unadjusted and adjusted profitability, efficiency and output ratios show a significant improvement (at the 1 percent level). As for investment, the unadjusted and adjusted ratios show a significant increase at the 5 percent and 10 percent, respectively. Nevertheless, according to the proportion tests, the percentage of firms that behaved as predicted is larger when we use unadjusted performance measures for the efficiency, investment and output suggesting that some of the performance changes for NPFs could be due to changes in economic conditions. To summarize, even after controlling for contemporaneous economy-wide factors, privatization still yields performance improvements. The next section examines whether privatization yields the same results in all regions.

A.3 Cross-Regional Analysis of Performance Changes

The descriptive statistics presented in sub-section II-C suggest that variables related to economic reforms and conditions and to corporate governance differ widely across the four geographic regions in our sample. If the changes in performance of NPFs vary with the extent of economic reforms and corporate governance mechanisms, then one would expect the privatization outcome to differ across regions with different stages of economic and institutional development.

Table 6 reports the changes in performance for the sample of 201 privatized firms classified within four geographical regions. The multi-sample nonparametric Savage test rejects (at the 5 percent level) the null hypothesis that there is no difference in the profitability (ROS), efficiency (SALEFF) and output (SAL) changes across the four regions. Post-privatization improvements in profitability are significant for East and South Asia and the Pacific and for Latin America and the Caribbean. Except for Africa and the Middle East, the regions exhibit significant increases in efficiency and output. As discussed above (sub-section II-C), the limited level of economic freedom, the lack of developed stock markets and the low quality of laws and their enforcement in the countries of this region could explain why profitability, efficiency and output do not improve much for Africa and the Middle East. Finally, post-privatization changes in investment are significant at the 1 percent level for the African and Middle Eastern region, at the 5 percent level for the Latin American and Caribbean region and at the 10 percent level for the East and South Asian and Pacific region. The importance of foreign investors involved in the privatization process in Africa and Latin America (an average of 19.86 and 26.12 percent, respectively), as compared to other regions (an average of 9.95 and 7.20 percent), could explain these results. Indeed, foreign investors are generally perceived as a source of capital and managerial know-how. Similarly, government ownership after privatization is much lower in Africa and Latin America (an average of 21.14 and 13.27 percent, respectively) where control privatizations dominate, thus providing new owners with the necessary incentives to restructure and invest.

Overall, the results from Table 6 show that performance gains from privatization vary widely across regions. This further motivates the need to explore the determinants of post-privatization performance changes, particularly those related to economic reforms and conditions and corporate governance variables.

B. Univariate Analysis of Different Subsamples

In this sub-section, we discuss the results obtained for the partitions discussed in sub-section II-B. Panel A of Table 7 compares the changes in performance for firms privatized before and after trade liberalization. The gains in profitability, efficiency and output are significantly more important for firms privatized after trade liberalization. For example, the mean (median) improvement in profitability is 9.2 (3.9) percent for firms privatized after trade liberalization versus 3.5 (0.9) percent for firms privatized before trade liberalization. The differences are significant at the 5 percent level for profitability, efficiency and output. Consequently, our results suggest that the implementation of trade liberalization prior to privatization is associated with higher improvements in the performance of NPFs. This result is consistent with Dornbusch's (1992) argument that trade liberalization allows a better resource allocation in the firm and the economy, an easier access to up-to-date technology and inputs, and increased competition.⁹

Panel B of Table 7 presents the results for stock market liberalization and shows that there are significant differences (at the one percent level) between the performance changes of firms privatized before and those privatized after such a liberalization, particularly for efficiency and output. Therefore, these results confirm those in Panel A, relative to trade liberalization.¹⁰ We also consider a partition based on the degree of economic freedom that

⁹ To further check the robustness of the trade effect on performance changes, we use the trade restrictiveness index developed by the International Monetary Fund. Given that the index is available only from 1997 and that our sample period extends from 1980 to 1997, we need to conduct several experiments using this index. First, we limit the analysis to firms (17) privatized in 1997 and we contrast the changes in performance of those firms from countries with a relatively high level of trade restrictiveness versus those from countries with relatively low level of trade restrictiveness. The results, not reported here but available from the authors upon request, tend to corroborate those presented in Table 7. Second, since it is unlikely that the index varies significantly over a period of five years, we include firms privatized in 1995 and 1996 in the sample (40). The results remain qualitatively similar.

¹⁰ We also examine the combined effects of trade and stock market liberalizations on the performance of NPFs. Accordingly, we contrast the performance changes for firms privatized before trade and stock

proxies for the extent of government intervention and policy uncertainty in a country. Panel C shows that the gains in efficiency and output are significantly higher (at the 5 and 1 percent levels, respectively) for firms privatized in a country with a higher degree of economic freedom. This result supports the claim that government intervention reduces privately owned firms' incentives to restructure and to improve performance.

Table 8 examines the impact of corporate governance mechanisms on the performance changes of NPFs. In Panel A of Table 8, we contrast the performance changes for firms where the government relinquishes control (control privatizations) versus those where it remains a majority shareholder (revenue privatizations). The results show that control privatizations realize higher gains in profitability, efficiency and output than revenue privatizations. This evidence is consistent with Boycko, Shleifer and Vishny 's (1996) prediction that the lower the government's shareholdings, the more likely it is that restructuring will occur and performance will improve.

As discussed earlier, the involvement of foreign investors in NPFs brings monitoring and expertise to the firms, which can have an impact on their operating performance. Hence, we compare firms with foreign ownership after privatization and firms with no foreign ownership after privatization.¹¹ The results reported in Panel B show that the gains in profitability, efficiency and output are more important for the first sub-sample. For example, firms with foreign investors achieve an average (median) improvement of 13.1 (8.2) percent in profitability, 54 (27.7) percent in efficiency and 14.9 (2.7) percent in investment, as well as 44.1 (23.8) percent in output. For those firms with no foreign ownership, the gains in efficiency and

market liberalization versus those privatized after these two reforms. The results, though not reported here, tend to support the previous findings and show significant differences (at the 1 percent level) between the two sub-samples for efficiency and output.

output are less significant. Their profitability increases insignificantly. The difference between both sub-samples is significant at the 1 percent level only for ROS. Taken together, these results confirm that the role of the ownership structure (private and foreign) is non negligible in providing corporate governance functions, especially when legal protections are weak (Dyck, 2000).

As previously discussed in section II-C, we consider a partition based on CEO turnover. Panel C shows that the performance changes for NPFs with a change in CEO are higher than those of firms with no CEO turnover. The CEO turnover sub-sample achieves an improvement of 8.4 (6.3) percent in profitability compared to 4.2 (1.7) percent for the no-CEO turnover sub-sample. The difference between both sub-samples is significant at the 5 percent level. The results also indicate a higher increase in efficiency for NPFs with a new appointed CEO after privatization.¹² The Kruskal-Wallis test shows that the difference between sub-samples is marginally significant (at the 10 percent level). Hence, our evidence provides some support for the argument that the CEO turnover, with a new team of managers, increases the probability that a restructuring occurs in the firm that leads to a better performance (Barberis, Boycko, Shleifer and Tsukanova, 1996).¹³

In Panel D, we contrast the performance of NPFs in countries with less effective governance and those with more effective governance. We find higher changes in efficiency and output for NPFs in countries with stronger legal protections and better institutional

¹¹ To assess the impact of foreign ownership on post-privatization performance, we exclude firms with foreign ownership prior to privatization.

¹² A survey conducted by La Porta and López-de-Silanes (1999) also provides evidence that the introduction of new production processes and the firing of the old management are the two most important success factors contributing to the postprivatization improvements in the operating efficiency of NPFs in Mexico.

environment. The Kruskal-Wallis test indicates that the difference between both sub-samples is significant at the 1 percent level. These results suggest that the legal and institutional environment affects the performance of NPFs in DCs.¹⁴ This evidence confirms Ramamurti's (2000) and Dyck's (2001) claim that the level of a country's institutional development should contribute to the success of its privatization programs.

The results presented in the univariate analysis provide some insight on the role of economic reforms and conditions as well as corporate governance variables. However, multivariate regressions can be more insightful because they take into consideration the role of these variables jointly.

C. Multivariate Regression Analysis

In Table 9, we report the results of a multivariate regression analysis in which the changes in profitability, efficiency, investment and output are regressed on three groups of independent variables, namely the economic reforms and environment variables, the corporate governance variables, and the firm and industry characteristics. All four models are estimated independently with three different specifications each. These specifications allow us to

¹³ We also examine performance changes for NPFs with high-BOD-turnover versus those with low-BOD-turnover. The results (not reported here but available upon request) from the Wilcoxon test indicate a significant increase in profitability, sales efficiency and output for both subsamples.

¹⁴ Since the degree of stock market development is directly related to the legal and institutional environments (La Porta, López-de-Silanes, Shleifer, and Vishny, 1998, 2000), we contrast, as an alternative partition, firms privatized in low-turnover stock markets versus firms privatized in high-turnover stock markets. We employ the ratio of total value of shares traded divided by the average market capitalization (turnover ratio) as measures of the liquidity of the local stock market. The results suggest important gains in performance for high-turnover markets. The difference in performance between both groups is highly significant (at the 1 percent level) for efficiency and output. This evidence is consistent with the argument that the levels of market development and sophistication play a crucial role in the success of privatization programs in DCs. The results, based on an alternative measure of stock market development, namely the ratio of market capitalization (total market capitalization/GDP), are qualitatively similar.

separately include variables that are highly correlated (for example, legal protection and stock market development). Furthermore, since privatization programs could affect some institutional and stock market development indicators (Boutchkova and Megginson, 2000), thus creating a certain endogeneity, we introduce the lagged (pre-privatization) values of these indicators in our regressions.

C.1 Profitability

Panel A of Table 9 reports the results for the profitability model. In all three specifications, we observe a significant (at the 1 percent level) positive relationship between the change in profitability and the change in GDP growth over the privatization window. Consistent with Bekaert and Harvey (2000) and Henry (2000), specification (i) indicates a positive and statistically significant relationship between the change in profitability and stock market liberalization. In relation to corporate governance variables, we document a significant positive relationship between profitability changes and control relinquishment by the government. This result is consistent with Boycko, Shleifer and Vishny (1996) and Shleifer and Vishny (1997) who conclude that privatization typically transfers the control from politicians to private owners who then show greater interest in profits and efficiency. Furthermore, specifications (ii) and (iii) indicate that firms with foreign investors achieve higher profitability gains by 6.3 percent. This result supports Dyck's (2000) and Shirley's (1999) arguments that foreign ownership can improve privatization outcomes in DCs where legal protections are weak. Moreover, small NPFs show higher profitability changes following privatization, suggesting that relatively smaller SOEs adapt more easily to a change in the environment. Finally, we find that profitability improvement is significantly higher for noncompetitive firms (utilities and telecommunication). In sum, the results indicate that variables related to the economic reforms and environment, the ownership structure, and the legal protection explain at least 23 percent of the variation in profitability changes.

C.2 Sales Efficiency

Panel B reports the results for the efficiency model. Consistent with the results reported in Table 7, specifications (i) and (iii) indicate a significant positive relationship (at the 1 percent level) between changes in sales efficiency and stock market and trade liberalization, respectively. The positive effect of trade openness is consistent with Dornbusch's (1992) argument that trade liberalization leads to a higher competition and a better allocation of resources. Interestingly, specification (ii) reports a positive and statistically significant relation between changes in sales efficiency and the level of economic freedom before privatization. This evidence suggests that the extent of government intervention in the economy affects the NPFs' efficiency. We also observe a significant (at the 10 percent level) positive relationship between the change in sales efficiency and the change in GDP growth during the privatization window (specification (ii)). The positive effect of GDP growth is no longer significant when we control for the stock market liberalization and the changes in trade openness (specifications (i) and (iii)). This result is consistent with those of Bekaert and Harvey (2000) and Bekaert, Harvey and Lundblad (2001a,b) who find evidence that stock market liberalization and trade openness are associated with higher economic growth.

Regarding the corporate governance variables, all three specifications show a significant positive relationship between changes in efficiency and control relinquishment by the government. This result is consistent with the often-invoked argument that government's control is the source of inefficiency at the firm-level (Kikeri, Nellis and Shirley, 1992; Boycko, Shleifer and Vishny, 1996). Interestingly, consistent with D'Souza, Megginson and Nash (2001), our results show a significant positive relationship between sales efficiency changes and capital market development (i.e, the turnover ratio). This result confirms the claim that active capital markets influence the firms' performance through its monitoring role. Several authors argue that legal protections and institutional development have a positive impact on stock market development (La Porta, López-de-Silanes, Shleifer and Vishny, 1997, 2000). Therefore, we rerun

the tests using a governance index as a proxy for the legal protections and their enforcement by institutions (specification (iii)). Not surprisingly, the results indicate a significant positive relationship at the 1 percent level between sales efficiency changes and this proxy. This could explain why privatization failed to improve NPFs' performance in our sample of African and Middle East countries where weak legal protections and inefficient institutions prevail (see Table 3a and Figure 3). An implication of this evidence is that legal and institutional reforms should be encouraged in these countries before launching a privatization program.

Our specifications explain between 15 and 28 percent of the changes in sales efficiency after privatization. Overall, our data indicate that economic reforms and the extent of economic freedom, government control relinquishment and the level of institutional/stock market development are key determinants of post-privatization efficiency improvements.

C.3 Investment

In Panel C, we present the estimated regression coefficients for the investment model. Unlike the profitability and efficiency models, the results for the investment model are surprising, as few variables help to explain the changes in capital expenditures. Across the three specifications, only specification (iii) shows a significant positive relationship between changes in capital investment expenditures and changes in trade openness, suggesting that trade liberalization can foster the investment at the firm level. This result is consistent with Dornbusch's (1992) argument that trade liberalization increases domestic competition and thus the incentives for firms to improve their productivity to survive in a highly competitive environment. Undoubtedly, this should be achieved through investment. The regression results are also consistent with the univariate findings reported in Tables 7 and 8 where economic reforms and environment and corporate governance variables did not provide any insights into the determinants of post-privatization investment changes. These results are not surprising since NPFs from the African and Middle Eastern region, where economic reforms had not been fully implemented and where weak legal and institutional environments prevail,

actually achieved significant improvements in investment (see Table 6). D'Souza, Megginson and Nash (2001) also find no significant variables in their investment model, except for employment.

C.4 Output

Panel D reports the results for the output model. Consistent with the univariate analysis, the results of the regression analysis show that economic reforms and environment as well as corporate governance variables are important determinants of output changes. Specifications (i) and (iii) indicate a positive association between output changes and stock market liberalization and trade openness, respectively. This evidence suggests that firms become more productive in the presence of economic reforms. Specification (ii) shows that the index of economic freedom before privatization is a positive and significant determinant of output changes. This result is consistent with the prediction that, the lower the intervention of the government in the economy and thus the friendlier the environment, the higher the willingness to increase production. In specification (ii), the change in economic growth appears to be positively and significantly related to output changes after privatization. However, as discussed for the efficiency model, once we control for stock market liberalization and trade openness the variable is no longer significant.

Regarding the corporate governance variables, the regression analysis shows a significant positive relationship between output changes after privatization and control relinquishment by the government. Whatever the specification, this result is robust and the magnitude of the coefficient associated with the control dummy variable remains stable. These results, combined with those discussed with the independent variable index of economic freedom, suggest that post-privatization output increases are larger with lower government intervention at the firm-level and the country-level. Interestingly, stock market development, as measured by the turnover ratio, has a significant positive impact on output changes suggesting that firms divested in countries with more developed stock markets become more productive.

This result supports the claim that more developed stock markets are more efficient monitors. Finally, specification (iii) indicates a positive and statistically significant relation between output changes and the level of legal and institutional development. This evidence suggests that NPFs in environments where property rights are better protected and enforced become more productive.

In short, the results indicate that economic reforms and environment and corporate governance variables are key determinants of output changes following privatization. These variables explain between 7 and 17 percent of the variation in output after divestiture.

D. Robustness Checks and Econometric Issues

In this section, we assess the robustness of our results by running a series of experiments.

Cross-sectional correlation

In order to examine the sources of post-privatization performance changes, we estimated the equations for the respective change in profitability, efficiency, investment and output independently. However, we cannot rule out the possibility that there might be a contemporaneous correlation between the error terms. For example, a contemporaneous correlation might arise because (1) we are estimating the change in each performance measure over the same time period and (2) the firms in the sample might exhibit certain common characteristics. One way to tackle this problem is to estimate the performance equations in a *joint* regression, i.e., in a seemingly unrelated regressions (*SUR*) system. Although the number of observations decreases markedly for this joint estimation, the unreported results remain qualitatively similar to those obtained from an OLS on the same subsample and the full sample (see Table 9).

Selection Bias

One concern in our analysis is related to a potential selection bias stemming from the possibility that governments (1) sell firms to insiders, or (2) privatize those firms that are more likely to achieve performance improvements. The first situation occurs when insider owners who are about to acquire the firm have an incentive to depress the pre-privatization performance, which could affect the extent of improvements after divestiture. In contrast to post-communist countries, insider privatizations are very rare in DCs. However, we identify the three insider privatizations in our sample and exclude them from the analyses. Unsurprisingly, the results do not change.

The second situation stems from the possibility that governments do not randomly select the firms to be privatized, but rather begin by putting up “better” firms (i.e., those that are more likely to achieve performance improvements) for sale first. In such a case, the inferences from our multivariate analysis might change because certain determinants could be related to the timing of privatization. To tackle this problem, we construct an *early* variable that takes the value of one if the firm is privatized before the median privatization date in the country, and zero otherwise. We then re-estimate the specifications reported in Table 9 but the magnitude and significance of the coefficients remain unchanged. Moreover, the variable *early* is insignificant in 11 out of 12 specifications. Overall, our findings on the performance effects of privatization and their determinants do not seem to be driven by a selection bias.

Outliers

The presence of outliers could affect our univariate and multivariate results. To address this concern, we conduct the same tests using a censored (reduced) sample of NPFs that eliminates the impact of outliers.¹⁵ Although not reported here, the univariate and multivariate results are

¹⁵ For each performance measure, the reduced sample is obtained by eliminating observations that are more than three standard deviations away from the performance mean value. This procedure yields 178 observations for ROS, 181 for ROA, 180 for ROE, 116 for SALEFF, 112 for NIEFF, 134 for CESA, 135 for

qualitatively similar to those reported in Tables 4 through 8 and in Table 9, respectively. This would suggest that our inferences are not driven by outliers. We also use regression techniques that are robust to outliers and we find that our results remain the same, suggesting that outliers do not drive our regression results.¹⁶

IV. Summary and Policy Implications

This is the first multi-national study to investigate the determinants of performance changes for newly privatized firms in the specific context of developing countries. First, using a large and diversified sample of 201 firms, we document a significant increase in both unadjusted and market-adjusted profitability, efficiency, investment and output. These results highlight the superiority of private ownership compared to state ownership and are consistent with the agency theory which suggests that privatization helps to mitigate agency problems that arise from the separation of ownership and control in the formerly state-owned enterprises. Next, using univariate comparisons and nonparametric tests, we show that changes in performance vary with the extent of economic liberalization and corporate governance mechanisms. More specifically, we show that privatization yields better results when trade and stock market liberalizations precede it. This result provides a tentative explanation for the failure of privatization programs to improve the performance of privatized firms in some developing countries, particularly those that privatized in a protected environment.

Our multivariate analysis allows us to shed further light on the most important determinants of performance changes after privatization. Consistent with our predictions,

CETA and 180 for SAL. Summary descriptive statistics for the censored sample are available from the authors upon request.

¹⁶ We use the Least Median of Squares (LMS) and Least Trimmed Squares (LTS) subroutines developed by Rousseeuw and Leroy (1987).

economic reforms and conditions as well as corporate governance variables appear to drive the performance improvements of newly-privatized firms in developing countries. In brief, our results show that control relinquishment by the government and the extent of foreign ownership are important determinants of performance changes. Legal protection and the extent of government intervention in the economy (as proxied by the Economic Freedom Index), are also positively related to performance improvements. Finally, trade and stock market liberalization as well as the level of economic freedom have a positive impact on investment improvements suggesting that economic reforms create favorable conditions and the necessary incentives for NPFs to make the investments they need to improve their efficiency and profitability. The success of privatization is further enhanced by an adequate institutional environment that insures the protection of property rights and law enforcement. In countries where legal protection is weak, performance gains can only be modest as illustrated by the privatization experience of African countries.

As academicians and policy makers have recently suggested, there is a need to reform the legal systems in developing countries and make them stronger and more efficient in order to reduce the contractual uncertainty in transactions between firms and improve incentives for both domestic and foreign firms to invest. Foreign investors, in particular, appear to be instrumental in stimulating the positive change in the performance of newly privatized firms.

Hence, attempts to privatize in the absence of an effective institutional framework are likely to fail as witnessed by the experience of African countries. The experience of our sample shows that, in order to ensure positive privatization outcomes, stock market and trade liberalizations should take place before privatization is implemented. Indeed, trade liberalization will lead to greater competition and a better allocation of resources while stock market liberalization will bring technological innovation and progress as well as new physical and human capital through the involvement of foreign investors. All these economic changes will create an environment that provides firms with the necessary incentives to invest and

restructure in order to face the competition of their private peers. What is more, when privatization follows liberalization (and other significant changes in the economic setting), it reduces the risk of reversibility of the privatization policy.

In summary, the main policy implications of our results are as follows. First, governments should implement economic reforms (trade and stock market liberalization) before privatization. Liberalization creates a favorable environment for business and helps to attract foreign investors who are major providers of new funds and technology to the privatized firms. Second, although external corporate governance mechanisms are still weak in developing countries (namely, markets for corporate control and for managers), stock market development contributes by addressing agency problems and improves resource allocation. For the market to play an active role in better resource allocation, governments in developing countries should ensure a better legal protection for minority shareholders and improve the institutional setting to attract foreign investors. Our results add to the growing empirical evidence that supports the role of the legal protection of investors and enforcement by institutions in explaining cross-country and cross-firm differences in performance.

References

- Barberis, Nicholas, Maxim Boycko, Andrei Shleifer and Natalia Tsukanova, 1996, "How Does Privatization Work? Evidence from Russian Shops", *Journal of Political Economy* 104, 764-790.
- Bekaert, Geert and Campbell Harvey, 2000, "Foreign Speculators and Emerging Equity Markets", *Journal of Finance* 55, 565-613.
- Bekaert, Geert, Campbell Harvey and Christian Lundblad, 2001a, "Emerging Equity Markets and Economic Development", *Journal of Development Economics* 66, 465-504.
- Bekaert, Geert, Campbell Harvey and Christian Lundblad, 2001b, "Does Financial Liberalization Spur Growth?", *Working Paper* 8245, National Bureau of Economic Research.
- Boubakri, Narjess and Jean-Claude Cosset, 1998, "The Financial and Operating Performance of Newly Privatized Firms: Evidence from Developing Countries", *Journal of Finance* 53, 1081-1110.
- Boutchkova, Maria K. and William L. Megginson, 2000, "Privatization and the Rise of Global Capital Markets", *Financial Management* 29, 31-76.
- Boycko, Maxim, Andrei Shleifer, and Robert Vishny, 1996, "A Theory of Privatization", *The Economic Journal* 106, 309-319.
- Demirgüç-Kunt Asli and Vojislav Maksimovic, 1998, "Law, Finance, and Firm Growth", *Journal of Finance* 53, 2107-2139.
- Dewenter, Kathryn and Paul H. Malatesta, 2001, "State-Owned and Privately-Owned Firms: An Empirical Analysis of Profitability, Leverage, and Labour Intensity", *American Economic Review* 91, 320-334.
- Djankov, Simeon and Bernard Hoekman, 2000, "Market Discipline and Corporate Efficiency: Evidence from Bulgaria", *Canadian Journal of Economics* 33, 190-212.
- Dornbusch, Rudiger, 1992, "The Case of Trade Liberalization in Developing Countries", *Journal of Economic Perspectives* 6, 69-85.
- Dow, James and Gary Gorton, 1997, "Stock Market Efficiency and Economic Efficiency: Is There a Connection?", *Journal of Finance* 52, 1087-1129.
- D'Souza, Juliet and William Megginson, 1999, "The Financial and Operating Performance of Privatized Firms during the 1990s", *Journal of Finance* 54, 1397-1438.
- D'Souza, Juliet and William Megginson and Robert Nash, 2001, "Determinants of Performance Improvements in Privatized Firms: The Role of Restructuring and Corporate Governance", *Working Paper*, University of Oklahoma.
- Dyck, Alexander I. J., 2000, "Ownership Structure, Legal Protections and Corporate Governance", *Working Paper*, Harvard Business School.

Dyck, Alexander I. J., 2001, "Privatization and Corporate Governance: Principles, Evidence and Future Challenges", *The World Bank Research Observer* 16 (Spring), 59-84.

Galal, Ahmed, Leroy Jones, Pankaj Tandon and Ingo Vogelsang, 1994, "Welfare Consequences of Selling Public Enterprises", *World Bank*, Washington, DC.

Gwartney, James, Robert Lawson and Dexter Samida, 2000, "Economic Freedom of the World: Annual Report," The Fraser Institute.

Henry, Peter Blair, 2000, "Stock Market Liberalization, Economic Reform, and Emerging Market Equity Prices" *Journal of Finance* 55, 529-564.

Johnson, Simon, Peter Boone, Alasdair Breach and Eric Freedman, 2000, "Corporate Governance in the Asian Financial Crisis", *Journal of Financial Economics* 58, 141-186.

La Porta, Rafael and Florencio López-de-Silanes, 1999, "The Benefits of Privation: Evidence from Mexico", *The Quarterly Journal of Economics* 114, 1193-1242.

La Porta, Rafael, Florencio López-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 1997, "Legal Determinants of External Finance", *Journal of Finance* 52, 1131-1150.

La Porta, Rafael, Florencio López-de-Silanes, Andrei Shleifer and Robert W. Vishny, 1998, "Law and Finance", *Journal of Political Economy* 106, 1113-1150.

La Porta, Rafael, Florencio López-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 1999, "Investor Protection and Corporate Valuation", *NBER Working Paper* 7403, National Bureau of Economic Research, Cambridge, MA.

La Porta, Rafael, Florencio López-de-Silanes and Andrei Shleifer, 2000, "Investor Protection and Corporate Governance", *Journal of Financial Economics* 58, 3-27.

Levine, Ross, 1997, "Financial Development and Economic Growth: Views and Agenda", *Journal of Economic Literature* 35, 688-726.

Levine, Ross and Sara Zervos, 1998, "Capital Control Liberalization and Stock Market Development", *World Development* 26, 1169-1183.

López-de-Silanes, Florencio, 1997, "Determinants of Privatization Prices", *The Quarterly Journal of Economics* 112, 965-1025.

Meggison, William and Jeffrey M. Netter, 2001, "From State to Market: A Survey of Empirical Studies on Privatization", *Journal of Economic Literature* 34, 321-389.

Meggison, William, Robert Nash, and Matthias Van Randenborgh, 1994, "The Financial and Operating Performance of Newly Privatized Firms: An International Empirical Analysis", *Journal of Finance* 49, 403-452.

Mitton, Todd V., 2001, "A Cross-Firm Analysis of the Impact of Corporate Governance on the East Asian Financial Crisis", *Journal of Financial Economics*, forthcoming.

Özkaya Mehmet and Hossein Askari, 1999, "Management of Newly Privatized Companies: Its Importance and How Little We Know", *World Development* 27, 1097-1114.

Pagano, Marco and Ailsa Roell, 1998, "The Choice of Stock Ownership Structure: Agency Costs, Monitoring, and the Decision to Go Public", *The Quarterly Journal of Economics* 113, 187-225.

Rajan, Raghuram and Luigi Zingales, 1998, "Financial Dependence and Growth", *American Economic Review* 88, 559-586.

Ramamurti, Ravi, 1991, "The Search for Remedies", In *Privatization and Control of State-Owned Enterprises*, R. Ramamurti and R. Vernon, EDI Development Studies, The World Bank, Washington, D.C.

Ramamurti, Ravi, 1999, "Why Haven't Developing Countries Privatized Deeper and Faster?", *World Development* 27, 137-155.

Ramamurti, Ravi, 2000, "A Multivariate Model of Privatization in Emerging Economies", *Academy of Management Review* 25, 525-550.

Rousseeuw, Peter and A. M. Leroy, 1987, *Robust Regression and Outlier Detection*, Wiley Series In Probability and Mathematical Statistics, John Wiley, New York.

Sachs, Jeffrey D. and Andrew M. Warner, 1995, "Economic Reform and the Process of Global Integration", *Brookings Papers on Economic Activity*, 1-113.

Shirley, Mary, 1999, "Bureaucrats in Business: The Roles of Privatizations versus Corporatization in State-Owned Enterprise Reform", *World Development* 27, 115-136.

Shirley, Mary, 2001, "Experience with Privatization: A New Institutional Economics Perspective", *Journal of African Economies*, forthcoming.

Shleifer, Andrei and Robert W. Vishny, 1997, "A Survey of Corporate Governance", *Journal of Finance* 52, 737-777.

Stulz, René, 2000, "Globalization of Equity Markets and the Cost of Capital," *Journal of Applied Corporate Finance*, forthcoming.

Subrahmanyam, Avanidhar and Sheridan Titman, 1999, "The Going Public Decision and The Development of Financial Markets", *Journal of Finance* 54, 1045-1082.

Tybout, James R., "Manufacturing Firms in Developing Countries: How Well Do They Do and Why?", *Journal of Economic Literature* 38, 11-44.

Vickers, John and George Yarrow, 1991, "Economic Perspectives on Privatization", *Journal of Economic Perspectives* 5, 111-132.

White, Halbert, 1980, "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity", *Econometrica* 48, 111-132.

Table 1
Description of the Sample of Newly Privatized Firms in Developing Countries

This table provides some descriptive statistics for the sample of the 201 privatized firms used in this study. We report the distribution of privatizations in the countries included in the sample by year, industry, legal origin and region.

Distribution of Privatizations					
By Year			By Industry		
Year	Number	Percentage	Industry	Number	Percentage
1980	1	0.50	Financial	66	32.84
1981	1	0.50	Utilities	22	10.95
1983	1	0.50	Telecommunication	14	6.97
1985	4	1.99	Energy	54	26.87
1986	5	2.49	Other	45	22.39
1987	3	1.49	Total	201	100
1988	4	1.99	By Legal Origin		
1989	25	12.44	Category (countries)	Number	Percentage
1990	21	10.45	Common law countries (10)	65	32.34
1991	34	16.92	French civil law countries (20)	131	65.17
1992	30	14.93	German civil law countries (2)	5	2.49
1993	11	5.47	Total (32)	201	100
1994	17	8.46	By Region *		
1995	9	4.48	Region (countries)	Number	Percentage
1996	15	7.46	Africa and the Middle East (10)	49	24.38
1997	20	9.95	East and South Asia and the Pacific (10)	50	24.88
			Latin America and the Caribbean (9)	67	33.33
			Europe and Central Asia (3)	35	17.41
Total	201	100	Total (32)	201	100

* World Bank country group classifications.

Table 2**Summary of the Variables**

This table describes the variables used in the regression analysis to investigate the determinants of post-privatization performance changes.

Variables	Definition
<u>Operating Performance</u>	
DROS	Change in return on sales during the privatization window (-3,-1 versus +1, +3).
DSALEFF	Change in sales efficiency during the privatization window (-3,-1 versus +1, +3).
DCESA	Change in capital expenditures during the privatization window (-3,-1 versus +1, +3).
DSAL	Change in real sales during the privatization window (-3,-1 versus +1, +3).
<u>Economic Reforms and Environment</u>	
Δ GDP	Change of GDP growth rate over the privatization window (-3,-1 versus +1, +3).
Liber	Indicator variable that takes the value of 1 if the privatization occurs after the stock market liberalization and 0 otherwise.
Δ Trade	Change of the sum of exports and imports over GDP during the privatization window (-3,-1 versus +1, +3).
Free	The value of the economic freedom index before privatization.
<u>Corporate Governance</u>	
Control	Indicator variable that takes the value of 1 if the government relinquishes control of the privatized firm and 0 otherwise.
Foreign	Indicator variable that takes the value of 1 if foreign investors are involved for the first time in the ownership structure of the privatized firm and 0 otherwise.
Law	Indicator variable that takes the value of 1 for firms from common law countries and 0 otherwise.
Turn	Measure of stock market liquidity before privatization.
Governance	Measure of the extent of legal protections and enforcement before privatization that comprises 3 components: rule of law, risk of confiscation and risk of contract repudiation by the government.
<u>Control Variables</u>	
Size	The natural logarithm of total sales at the time of privatization.
Industry Indicators	Indicator variables included for 4 of the 5 industries defined in Table 1.

Table 3a
Descriptive Data on the Sample Countries

This table provides some descriptive statistics on the macroeconomic and corporate governance variables for the sample of 32 countries. Details on the variables are presented below the table.

Country	Panel A: Country-Level Macroeconomic Variables						Panel B: Country-Level Corporate Governance Variables	
	Index of Economic Freedom Mean 1980-97	Stock Market Liberalization Date	Foreign Direct Investment/GDP Mean 1980-99	Trade Liberalization Date	Trade/GDP Mean 1980-99	GDP Growth (annual %) Mean 1980-99	Stock Market Turnover Mean 1980-97	Governance Index Mean 1980-97
Bangladesh	3.86	NL	0.07	NL**	23.11	4.56	33.76	3.60
Ghana	4.40	1994	0.74	1985	43.58	3.13	2.98	4.98
India	4.66	1992	0.22	1994	18.88	5.79	49.06	5.98
Malaysia	7.44	1988	4.36	Always open	145.06	6.54	30.56	7.28
Nigeria	3.68	1995	2.88	NL*	60.80	1.99	0.99	3.44
Pakistan	4.60	1991	0.61	NL *	36.53	5.44	24.77	4.36
Singapore	8.86	Before 1969	9.67	Always open	370.44	7.54	40.27	9.18
Africa (South)	6.28	1992	0.31	1991	48.06	1.79	12.48	6.18
Thailand	6.90	1987	1.78	Always open	70.69	6.26	61.57	7.30
Trinidad	5.98	NL	4.75	NL *	80.78	1.64	1.76	5.80
English Origin Average	5.67	N.A.	2.54	N.A.	89.79	4.47	25.82	5.81
Argentina	5.96	1989	1.58	1991	16.96	1.91	28.84	5.88
Brazil	4.60	1991	1.08	1991	17.89	2.40	45.47	6.78
Chile	7.14	1992	3.23	1976	55.95	5.41	7.41	7.08
Colombia	5.38	1991	1.70	1991	31.91	3.12	9.15	4.40
Cote D'Ivoire	5.22	NL	1.04	NL**	71.39	1.30	2.17	4.95
Egypt	5.12	1997	1.96	NL	54.22	5.20	28.78	5.28
Greece	6.24	1987	1.08	1959	44.24	1.94	17.61	6.78
Indonesia	6.48	1989	0.71	1970	52.40	5.59	30.59	5.60
Jamaica	5.92	NL	2.08	1988	107.76	1.09	7.13	5.64
Jordan	5.76	1995	1.07	1965	121.18	4.43	14.96	4.52
Mexico	6.18	1989	1.58	1986	39.20	2.82	51.48	6.84
Morocco	5.06	1997	0.56	1984	55.76	3.25	20.65	5.20
Peru	4.96	N.A.	1.53	1991	32.32	1.82	29.95	4.72
Philippines	6.24	1991	1.14	1988	66.58	2.38	27.16	4.22

Table 3a -- *Continued*

	Panel A: Country-Level Macroeconomic Variables						Panel B: Country-Level Corporate Governance Variables	
Country	Index of Economic Freedom Mean 1980-97	Stock Market Liberalization Date	Foreign Direct Investment/GDP Mean 1980-99	Trade Liberalization Date	Trade/GDP Mean 1980-98	GDP Growth (annual %) Mean 1980-99	Stock Market Turnover Mean 1980-97	Legal and Institutional Index Mean 1980-97
Portugal	6.70	1986	1.54	1960	66.61	2.99	40.70	8.78
Senegal	4.76	N.A.	0.65	NL**	67.72	2.88	N.A.	3.06
Togo	4.90	N.L.	1.01	NL*	84.60	2.14	N.A.	4.12
Tunisia	5.18	NL	1.96	1989	84.54	4.33	1.45	5.16
Turkey	5.16	1989	0.33	1989	35.78	4.04	67.08	5.50
Venezuela	5.80	1990	1.38	1990	48.20	1.07	15.76	5.68
French Origin Average	5.64	N.A.	1.36	N.A.	57.76	3.01	24.80	5.51
Korea (S)	6.66	1992	0.47	1968	67.10	7.06	96.17	7.22
Taiwan	7.28	1991	N.A.	1963	N.A.	N.A.	N.A.	8.64
German Origin Average	6.97	N.A.	0.47	N.A.	66.51	7.06	96.17	7.93
Developed Countries								
Japan	7.98	1980	0.04	1962	21.25	2.72	39.75	9.28
United Kingdom	8.26	Before 1969	2.13	1959	52.74	2.19	47.925	9.14
United States	8.76	Before 1969	0.95	1950	20.44	2.99	83.775	9.62
	Source: Gwartney, Lawson and Samida (2000)	Source: Bekaert, Harvey and Lundblad (2001a) and Henry (2000)	Source: World Development Indicators (2001)	Source: Sachs and Warner (1995) and IMF Country Reports	Source: World Development Indicators (2001)	Source: World Development Indicators (2001)	Source: World Development Indicators (2001)	Source: Gwartney, Lawson and Samida (2000)

* Not liberalized by 1992.

** Not liberalized by 1997.

Index of economic freedom. Data are from Gwartney, Lawson and Samida (2000). The index is a range of objective components that reflect the presence (or absence) of economic freedom and comprises 23 components designed to identify how consistent institutional arrangements and policies in seven major areas are with economic freedom. These areas are: (1) size of the government, (2) economic structure and use of markets, (3) monetary policy and price stability, (4) freedom to use alternative currencies, (5) legal structure and security of private ownership, (6) freedom to trade with foreigners, and (7) freedom to exchange in capital markets. Scale from 0 to 10, with higher scores indicating higher levels of economic freedom.

Table 3a -- Continued

Stock market liberalization date. Data are from Bekaert, Harvey and Lundblad (2001a). The liberalization date for Taiwan is from Bekaert and Harvey (2000). NL indicates that the stock market is not liberalized. Missing countries are : Peru and Senegal.

Trade liberalization date. Data are from Sachs and Warner (1995) and IMF Country Reports.

Trade/GDP. The ratio is the sum of exports and imports of goods and services divided by gross domestic product (GDP hereafter). Data are from the World Development Indicators (2001) CD-ROM and are available from 1980 to 1999.

GDP growth. Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 1995 U.S. dollars. Data are from the World Development Indicators (2001) CD-ROM and are available from 1980 to 1999.

Stock market turnover. Total value of shares traded during the period divided by the average market capitalization for the period. Data are from the World Development Indicators (2001) CD-ROM and are available from 1980 to 1999.

Governance index. The index focuses on the legal structure and the security of property rights and the enforcement of contracts. It comprises the following three components: (1) rule of law (countries with legal institutions that were more supportive of rule of law received higher ratings), (2) risk of expropriation (countries with less risk of confiscation received higher ratings), and (3) risk of contract repudiation (countries where there is less risk that government will unilaterally cancel contracts received higher ratings). Data are from Gwartney, Lawson and Samida (2000) and are available from 1980 to 1997. All components of the index are from the International Country Risk Guide.

Table 3b
Firm Characteristics

This table presents summary statistics on the government and foreign ownership after privatization for a subsample of 192 firms privatized between 1980 and 1997. It also reports the post-privatization size of the firms as measured by the natural logarithm of sales. The post-privatization data come mainly from annual reports and offering prospectus. All statistics are presented as a percentage.

	Post-Privatization Government Ownership (%)			Post-Privatization Foreign Ownership (%)			Size (natural logarithm of sales)		
	N	Mean	Median	N	Mean	Median	N	Mean	Median
Legal Origin									
Common Law	63	32.49	30	61	14.09	6.00	63	11.23	11.39
Civil Law	119	24.52	5	90	18.29	4.40	129	12.25	12.61
Region									
Africa and the Middle East	45	21.14	13.14	44	19.86	7.04	44	10	10.12
Latin America and the Caribbean	61	13.27	0	39	26.12	9	64	12.74	12.95
East and South Asia and the Pacific	47	52.32	65	45	9.95	6.83	49	12.83	12.99
Europe and Central Asia	29	24.79	13.20	23	7.20	0	35	11.57	12.28
Industry									
Financial	63	14.26	0	50	22.13	9.17	66	11.30	12.11
Utilities	22	37.14	40.27	17	19.81	7.90	22	12.23	13.35
Telecommunication	14	37.13	41.35	11	30.63	33	12	13.61	13.59
Energy	46	36.99	30.50	39	11.82	2	52	12.23	12.16
Other	36	28.99	24.53	32	8.29	0.15	40	11.84	12.26

Table 4
Summary of Results for the Sample of All Privatized Firms: 1980-1997

This table presents the univariate results for the complete sample of privatized firms in developing countries for the period 1980-1997. The measures of operating performance are return on sales (ROS), return on assets (ROA), return on equity (ROE), sales efficiency (SALEFF), net income efficiency (NIEFF), capital expenditures divided by sales (CESA), capital expenditures divided by total assets (CETA) and real sales (SAL). For each performance measure, it provides the mean and the median values for the three-year period before and after privatization. Column 5 presents the change in the mean and median values of the performance indicators after versus before privatization. Column 6 provides the Wilcoxon Z statistic for the difference in medians. The two remaining columns provide the proportion of firms whose performance changed as predicted and the significance test of this change. *, **, *** denote significance levels of 1, 5 and 10 percent, respectively.

Variables	N	Mean (Median) Before	Mean (Median) After	Mean (Median) Change	Z-Statistic for Difference in Medians (After-Before)	Proportion of Firms that Behaved as Predicted	Z-Statistic for Significance of Proportion Change
Profitability							
Return on Sales (ROS)	196	0.073 (0.049)	0.149 (0.090)	0.077 (0.023)	4.08*	0.61	3.22*
Return on Assets (ROA)	199	0.044 (0.024)	0.057 (0.039)	0.012 (0.010)	2.98*	0.62	3.57*
Return on Equity (ROE)	198	0.166 (0.102)	0.204 (0.140)	0.038 (0.023)	2.56*	0.59	2.45**
Efficiency							
Sales Efficiency (SALEFF)	127	0.967 (0.932)	1.319 (1.115)	0.352 (0.197)	7.04*	0.74	6.15*
Net Income Efficiency (NIEFF)	123	0.879 (0.791)	1.406 (1.216)	0.527 (0.357)	4.39*	0.65	3.48*
Investment							
Capital Expenditures to Sales (CESA)	149	0.122 (0.042)	0.213 (0.095)	0.091 (0.022)	4.00*	0.72	5.90*
Capital Expenditures to Total Assets (CETA)	149	0.056 (0.013)	0.083 (0.048)	0.027 (0.011)	3.62*	0.68	4.83*
Output							
Real Sales (SAL)	198	1.147 (0.939)	1.294 (1.128)	0.147 (0.159)	6.64*	0.72	6.77*
Employment							
Total Number of Employees (EMPL)	128	11396 (3545)	11280 (3765)	-116 (9)	-0.09	0.53	0.71

Table 5
Summary of Market-Adjusted and Unadjusted Results for the Sample of Market-Adjusted Firms

This table presents both unadjusted and adjusted results for the sample of firms for which we could compute market-adjusted accounting performance measures. Market-adjusted performance measures are obtained by subtracting the market median performance measure from the firm's performance measure. The measures of operating performance are return on sales (ROS), sales efficiency (SALEFF), capital expenditures divided by sales (CESA) and real sales (SAL). For each performance measure, the mean and the median values are computed over a window of -3,-1 and +1,+3 years around the privatization year. Column 5 presents the change in the mean and median values of performance indicators after versus before privatization. Column 6 provides the Wilcoxon Z statistic for the difference in medians. The two remaining columns provide the proportion of firms whose performance changed as predicted and the significance test of this change. *, **, *** denote significance levels of 1, 5 and 10 percent, respectively.

Variables	N	Mean (Median) Before	Mean (Median) After	Mean (Median) Change	Z-Statistic for Difference in Medians (After-Before)	Proportion of Firms that Behaved as Predicted	Z-Statistic for Significance of Proportion Change
Return on Sales							
Unadjusted	110	0.045 (0.042)	0.147 (0.085)	0.102 (0.025)	3.60*	0.64	2.96*
Adjusted	110	-0.066 (-0.018)	0.083 (0.040)	0.149 (0.047)	4.08*	0.65	3.39*
Sales Efficiency							
Unadjusted	66	0.944 (0.908)	1.402 (1.157)	0.457 (0.263)	5.83*	0.79	5.68*
Adjusted	66	-0.092 (-0.083)	0.398 (0.175)	0.490 (0.208)	4.34*	0.70	3.46*
Capital Expenditures to Sales							
Unadjusted	69	0.188 (0.079)	0.232 (0.116)	0.044 (0.017)	1.92**	0.67	2.92*
Adjusted	69	0.149 (0.039)	0.192 (0.068)	0.043 (0.013)	1.83***	0.61	1.84***
Real Sales							
Unadjusted	100	1.272 (0.921)	1.314 (1.128)	0.042 (0.185)	5.67*	0.74	5.44*
Adjusted	100	0.256 (-0.012)	0.342 (0.107)	0.087 (0.122)	3.93*	0.59	1.82***

Table 6
Performance Changes of Newly Privatized Firms by Geographical Region

This table reports the changes in performance for the sample of 201 privatized firms classified in four geographical regions according to the four World Bank country group classifications: (1) Africa and the Middle East, (2) East and South Asia and the Pacific, (3) Latin America and the Caribbean and (4) Europe and Central Asia. The measures of operating performance are return on sales (ROS), return on assets (ROA), return on equity (ROE), sales efficiency (SALEFF), net income efficiency (NIEFF), capital expenditures divided by sales (CESA), capital expenditures divided by total assets (CETA) and real sales (SAL). For each performance measure, the table provides the change in the mean and median values, the Wilcoxon Z statistic for the difference in medians and the number of observations. It also presents the *p*-value of the multi-sample non parametric Savage test for the difference between the four regions. *, **, *** denote significance levels of 1, 5 and 10 percent, respectively.

Performance Region	Profitability			Efficiency		Investment		Output
	ROS	ROA	ROE	SALEFF	NIEFF	CESA	CETA	SAL
<i>Africa and the Middle East</i>								
Mean change	0.033	0.013	0.032	-0.003	-1.176	0.117	0.053	0.013
Median change	0.009	0.010	0.017	-0.024	-0.088	0.033	0.017	0.020
Z-stat Wilcoxon test	1.15	1.04	1.02	0.07	0.20	2.91*	3.05*	0.33
N	46	48	47	11	11	42	44	48
<i>East and South Asia and the Pacific</i>								
Mean change	0.064	0.019	0.018	0.367	0.797	0.169	0.041	0.528
Median change	0.024	0.011	0.025	0.176	0.521	0.022	0.019	0.179
Z-stat Wilcoxon test	2.41**	2.05**	1.44	3.86*	4.00*	1.84***	1.66***	6.07*
N	50	49	50	41	41	40	38	50
<i>Latin America and the Caribbean</i>								
Mean change	0.108	0.034	0.093	0.485	0.760	0.009	0.003	0.324
Median change	0.077	0.013	0.077	0.362	0.478	0.027	0.011	0.294
Z-stat Wilcoxon test	3.55*	3.44*	3.12*	5.27*	3.28*	2.25**	2.13**	4.59
N	66	67	67	48	46	53	53	65
<i>Europe and Central Asia</i>								
Mean change	0.090	-0.044	-0.037	0.137	-0.257	0.075	-0.004	-0.002
Median change	0.001	-0.003	-0.032	0.229	-0.136	-0.005	-0.002	0.138
Z-stat Wilcoxon test	0.09	-0.76	-0.69	2.41**	-0.81	0.15	-0.67	2.93*
N	34	35	34	21	21	13	13	34
<i>P</i> -value Savage test (difference between regions)	0.00*	0.09***	0.05**	0.01*	0.09***	0.74	0.11	0.00*

Table 7**Comparison of Performance Changes: The Role of Economic Reforms and Environment**

This table presents comparisons between the operating performance changes of several partitions of privatized firms based on economic reforms and environment variables. The measures of operating performance are return on sales (ROS), sales efficiency (SALEFF), capital expenditures divided by sales (CESA), and real sales (SAL). Panel A compares the performance changes of firms privatized before trade liberalization (BTL) versus those privatized after trade liberalization (ATL). The effective trade liberalization dates are from Sachs and Warner (1995). Panel B compares the performance changes of firms privatized before stock market liberalization (BSL) versus those privatized after stock market liberalization (ASL). Panel C compares the performance changes of privatized firms in countries with low economic freedom (LEF) versus those from countries with high economic freedom (HEF). The index is from Gwartney, Lawson and Samida (2000) and covers the period 1980-1997. For each performance measure, the table provides the change in the mean and median values, the Wilcoxon Z statistic for the difference in medians and the number of observations. It also presents the p -value of the Kruskal-Wallis test for the difference between the two subsamples. *, **, *** denote significance levels of 1, 5 and 10 percent, respectively.

Measures of Operating Performance	ROS	SALEFF	CESA	SAL
Panel A. Performance Changes for Privatized Firms before versus after Trade Liberalization				
BTL				
Mean change	0.035	0.120	0.092	0.092
Median change	0.009	0.128	0.019	0.059
Z-stat Wilcoxon test	1.51	2.33**	3.07*	1.88***
N	51	29	43	53
ATL				
Mean change	0.092	0.443	0.093	0.315
Median change	0.039	0.271	0.031	0.215
Z-stat Wilcoxon test	3.61*	6.71*	2.86*	6.95*
N	138	93	102	137
P -value Kruskal-Wallis test for difference between subsamples	0.03**	0.01*	0.59	0.02**
Panel B. Performance Changes for Privatized Firms before versus after Stock Market Liberalization				
BSL				
Mean change	0.046	0.094	0.088	0.082
Median change	0.021	0.104	0.028	0.079
Z-stat Wilcoxon test	2.05**	1.85***	3.51*	1.95**
N	76	37	66	78
ASL				
Mean change	0.096	0.461	0.090	0.353
Median change	0.021	0.271	0.017	0.229
Z-stat Wilcoxon test	2.97	6.70	1.84	6.79
N	110	84	74	109
P -value Kruskal-Wallis test for difference between Subsamples	0.44	0.00*	0.64	0.00*

Table 7 -- Continued

Measures of Operating Performance	ROS	SALEFF	CESA	SAL
Panel C. Performance Changes for Privatized Firms in Countries with Low versus High Economic Freedom				
LEF				
Mean change	0.081	0.244	0.052	0.030
Median change	0.033	0.162	0.018	0.092
Z-stat Wilcoxon test	2.91*	3.58*	3.00*	2.71*
N	116	63	86	117
HEF				
Mean change	0.071	0.458	0.144	0.555
Median change	0.019	0.270	0.029	0.294
Z-stat Wilcoxon test	2.77*	6.33*	2.61*	7.72*
N	80	64	63	80
<i>P</i> -value Kruskal-Wallis test for difference between subsamples	0.71	0.03**	0.53	0.00*

Table 8**Comparison of Performance Changes: The Role of Corporate Governance**

This table presents comparisons between the operating performance changes of several partitions of privatized firms based on corporate governance variables. The measures of operating performance are return on sales (ROS), sales efficiency (SALEFF), capital expenditures divided by sales (CESA), and real sales (SAL). Panel A compares the performance changes of control privatization (more than 50 % of the company is privatized) and revenue privatization (less than 50% of the company is privatized). Panel B compares the performance changes of privatized firms without foreign ownership (NFO) or with foreign ownership after privatization (FO). Panel C compares the performance changes for privatized firms with a new CEO during the privatization process versus privatized firms with the same CEO. Panel D compares the performance changes for privatized firms in countries with low governance index (LGI) versus high governance index (HGI). The index is from Gwartney, Lawson and Samida (2000) and covers the period 1980-1997. For each performance measure, it provides the change in mean and median values, the Wilcoxon Z statistic for the difference in medians and the number of observations. It also presents the *p*-value of the Kruskal-Wallis test for the difference between the two subsamples. *, **, *** denote significance levels of 1, 5 and 10 percent, respectively.

Measures of Operating Performance	ROS	SALEFF	CESA	SAL
Panel A. Performance Changes for Revenue versus Control Privatization				
Control				
Mean change	0.128	0.596	0.115	0.464
Median change	0.069	0.363	0.020	0.277
Z-stat Wilcoxon test	4.04*	5.94*	3.13*	5.62*
N	85	59	70	85
Revenue				
Mean change	0.030	0.142	0.046	0.200
Median change	0.011	0.088	0.063	0.113
Z-stat Wilcoxon test	1.80***	3.35*	1.82***	4.76*
N	69	52	49	69
<i>P</i> -value Kruskal-Wallis Test for Difference between Subsamples	0.00*	0.00*	0.44	0.04**
Panel B. Performance Changes for Privatized Firms with or without Foreign Ownership				
NFO				
Mean change	0.056	0.277	0.078	0.189
Median change	0.004	0.191	0.029	0.183
Z-stat Wilcoxon test	0.88	3.74*	3.13*	3.93*
N	80	47	61	80
FO				
Mean change	0.131	0.540	0.149	0.441
Median change	0.082	0.277	0.027	0.238
Z-stat Wilcoxon test	4.44*	5.79*	2.52*	6.30*
N	71	54	55	71
<i>P</i> -value Kruskal-Wallis test for difference between subsamples	0.00*	0.13	0.68	0.16

Table 8 -- Continued

Measures of Operating Performance	ROS	SALEFF	CESA	SAL
Panel C. Performance Changes for Privatized Firms with or without CEO Change				
Same CEO				
Mean change	0.042	0.183	0.148	0.092
Median change	0.017	0.162	0.042	0.065
Z-stat Wilcoxon test	1.28	2.90*	3.16*	2.54*
N	47	33	43	48
New CEO				
Mean change	0.084	0.365	0.170	0.168
Median change	0.063	0.231	0.013	0.136
Z-stat Wilcoxon test	3.07*	3.98*	1.65***	2.50*
N	34	26	25	34
<i>P</i> -value Kruskal-Wallis test for difference between subsamples	0.05**	0.10***	0.16	0.62
Panel D. Performance Changes for Privatized Firms in Countries with Less versus High Governance Index				
LGI				
Mean change	0.081	0.213	0.122	0.036
Median change	0.036	0.129	0.039	0.075
Z-stat Wilcoxon test	2.34**	2.40**	3.82*	2.52*
N	88	43	67	90
HGI				
Mean change	0.069	0.436	0.110	0.447
Median change	0.019	0.271	0.019	0.229
Z-stat Wilcoxon test	3.47*	7.19*	2.51*	7.75*
N	105	83	79	105
<i>P</i> -value Kruskal-Wallis test for difference between subsamples	0.83	0.01*	0.15	0.00*

Table 9**Coefficient Estimates from Regressions of Performance Changes of Privatized Firms on Economic Reforms and Environment and Corporate Governance Variables**

This table presents the results from regressions conducted to determine the sources of performance changes of privatized firms in developing countries over the period 1980-1997. The dependent variables in the four Panels are change in return on sales (DROS), change in sales efficiency (DSALEFF), change in capital expenditures (DCESA) and change in real sales (DSAL), respectively. The change in each of the dependent variables is computed by subtracting the three-year-pre-privatization average from the three-year-post-privatization average. The independent variables are related to economic reforms and environment and to corporate governance. They are described as follows: Δ GDP is the change of GDP growth during the privatization window (-3,-1 and +1,+3); Liber takes the value of 1 if the privatization occurs after the stock market liberalization; Δ Trade is the change of the sum of exports and imports over GDP during the privatization window (-3,-1 and +1,+3); Free is the value of the index of economic freedom before privatization; Control takes the value of 1 if the government relinquishes control of the privatized firm; Foreign equals 1 if foreign investors are involved in the ownership structure of the privatized firm; Law equals 1 for firms from common law countries; Governance is a measure of the extent of legal protections and law enforcement; Turn is the three-year-pre-privatization average turnover and measures the liquidity of the stock market. Size is the natural logarithm of total sales at the time of privatization. We include industry indicators in all specifications. Heteroskedasticity-consistent *t*-statistics using White's (1980) procedure are reported in parentheses. *, **, *** denote significance levels of 1, 5 and 10 percent, respectively.

	Const	Economic Reforms and Environment			Corporate Governance				Control		Adj-R ²	N	F-test		
		Δ GDP	Liber	Δ Trade	Free	Control	Foreign	Law	100*Turn	Governance				Size	Industry
Panel A. DROS															
(i)	0.097 (0.64)	0.006* (4.13)	0.050** (2.23)	-0.039 (0.45)		0.110* (4.44)		0.066 (1.31)	0.024 (0.24)		-0.013 (1.26)	Included	0.24	140	5.03*
(ii)	0.075 (0.67)	0.005* (3.33)			0.002 (0.14)	0.115* (4.16)	0.063** (2.01)		0.031 (0.26)		-0.012 (1.06)	Included	0.23	121	4.65*
(iii)	-0.006 (0.10)	0.005* (3.17)		0.047 (0.48)		0.115* (4.16)	0.063*** (1.90)			0.006 (0.69)	-0.011 (1.15)	Included	0.23	121	4.67*
Panel B. DSALEFF															
(i)	-0.781 (0.75)	0.017 (1.42)	0.447* (3.17)	0.766 (1.28)		0.458* (3.55)		0.089 (0.30)	1.296** (2.01)		-0.074 (1.14)	Included	0.28	102	4.65*
(ii)	-0.510 (0.99)	0.021*** (1.72)			0.156* (2.58)	0.396* (2.71)	0.115 (0.81)		1.513** (2.07)		-0.078 (1.29)	Included	0.27	91	4.29*
(iii)	-1.799** (2.10)	0.011 (0.84)		1.152* (2.79)		0.478* (3.16)	0.102 (0.62)			0.146* (3.74)	-0.044 (0.78)	Included	0.15	91	2.60*

Table 9 – Continued

	Const	Economic Reforms and Environment			Corporate Governance					Control		Adj-R ²	N	F-test	
		ΔGDP	Liber	ΔTrade	Free	Control	Foreign	Law	100*Turn	Governance	Size				Industry
Panel C. DCESA															
(i)	-0.112 (0.26)	-0.001 (0.48)	0.082 (0.64)	0.195 (1.15)		0.108 (1.31)		0.105 (1.00)	-0.067 (0.48)		-0.005 (0.22)	Included	0.00	109	1.00
(ii)	-0.207 (1.05)	-0.001 (0.82)			0.093 (1.49)	0.155 (1.30)	0.054 (0.65)		-0.120 (0.88)		-0.015 (0.58)	Included	0.05	96	1.55
(iii)	-0.519 (1.57)	-0.004 (1.13)		0.394*** (1.85)		0.152 (1.29)	0.091 (0.82)			0.053 (1.44)	-0.012 (0.55)	Included	0.02	96	1.16
Panel D. DSAL															
(i)	-0.109 (0.10)	0.004 (0.91)	0.315* (2.51)	0.358 (0.73)		0.338* (2.81)		0.258 (0.74)	1.245*** (1.80)		-0.075 (1.05)	Included	0.17	140	3.58*
(ii)	-0.162 (0.28)	0.007 (1.66)			0.157* (3.17)	0.358* (2.99)	-0.008 (0.10)		1.266*** (1.65)		-0.084 (1.15)	Included	0.17	122	3.40*
(iii)	-1.431 (0.20)	-0.003 (0.47)		1.053* (3.84)		0.348* (3.11)	0.074 (0.45)			0.139* (4.17)	-0.047 (0.72)	Included	0.08	122	1.98**

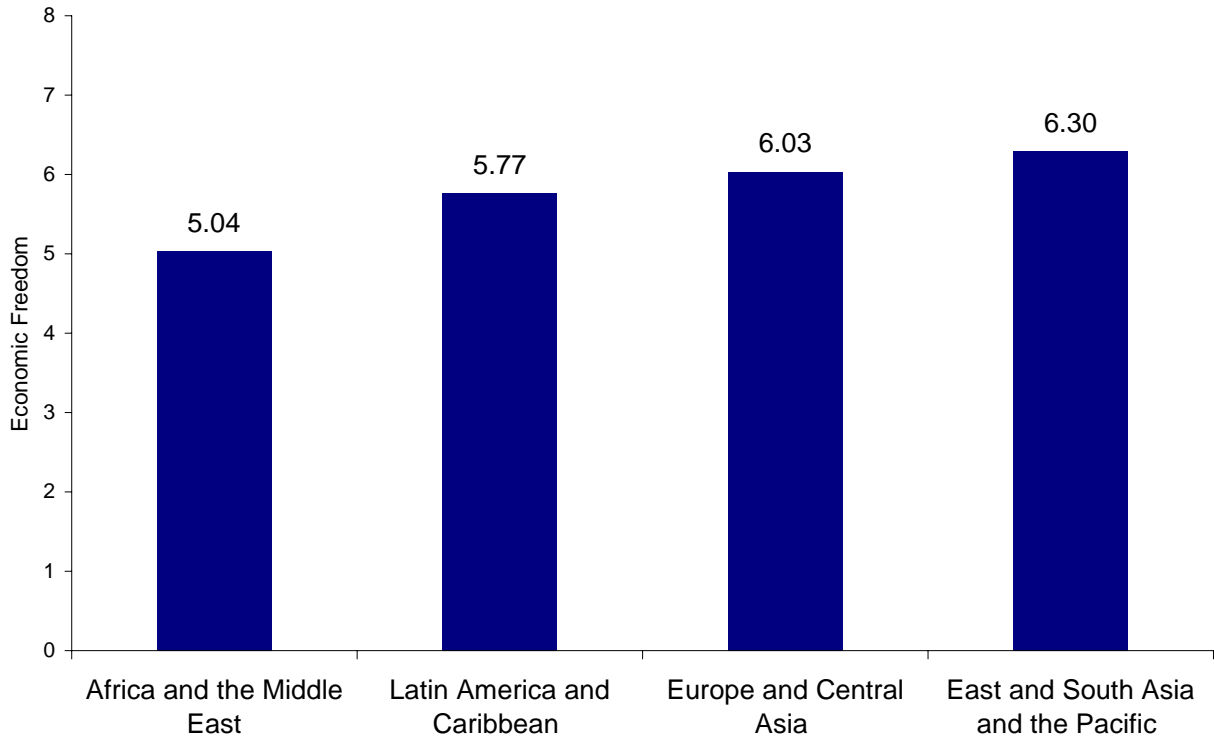


Figure 1. Economic Freedom by Geographical Region (1980-97)

The figure presents the mean level of the economic freedom index over the period 1980-1997 for the four geographical regions included in our sample. The classification of geographical regions follows the World Bank country group classification. Data are from Gwartney, Lawson and Samida (2000). The index is a range of objective components that reflect the presence (or absence) of economic freedom. The scale is from 0 to 10, with higher scores indicating higher levels of economic freedom.

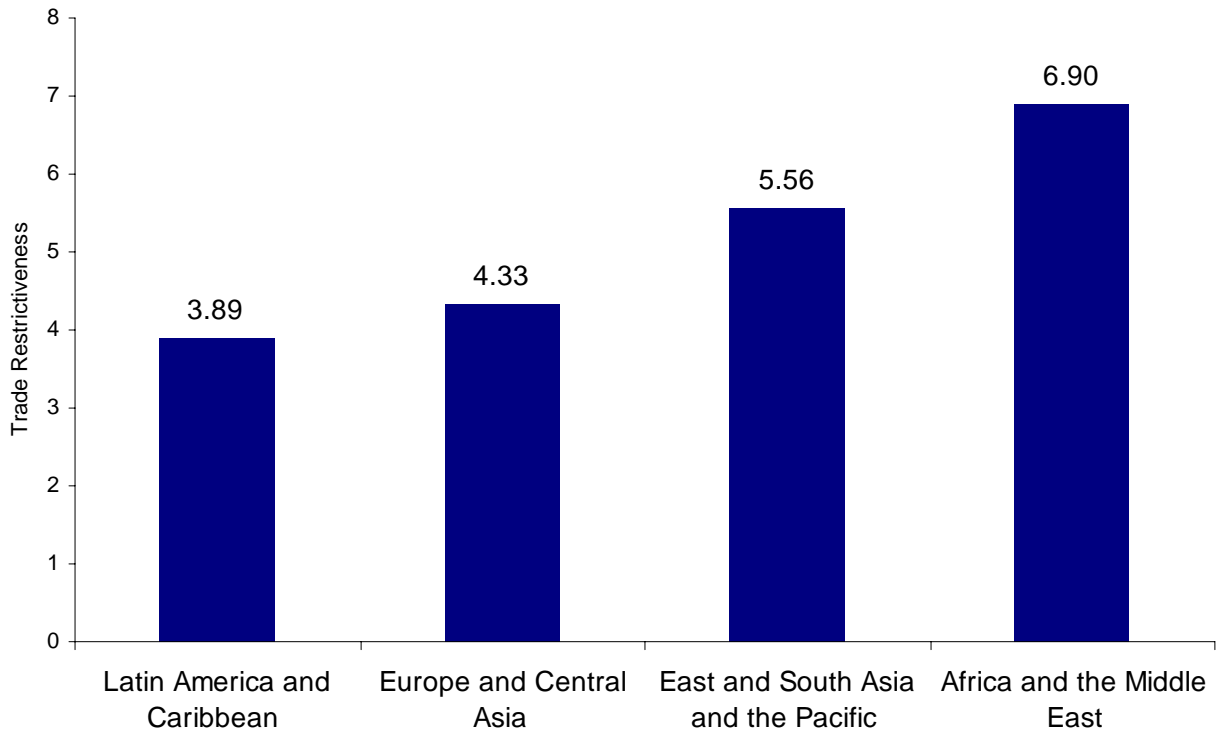


Figure 2. Trade Restrictiveness Index by Geographical Region (1997)

The figure reports the 1997 value of the trade restrictiveness developed by the International Monetary Fund for the four geographical regions included in our sample. The classification of geographical regions follows the World Bank country group classification. Higher index scores imply more trade restrictiveness.

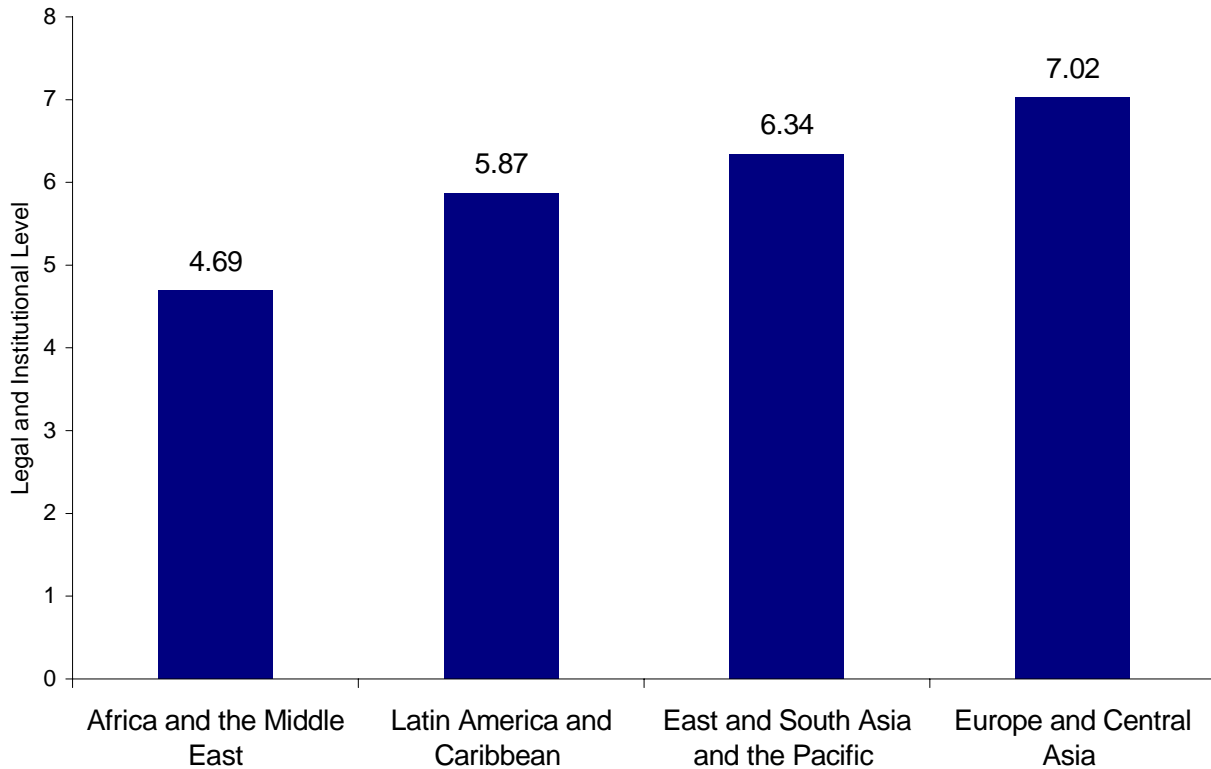


Figure 3. Governance Index by Geographical Region (1980-97)

The figure reports the average scores of the governance index over the period 1980-1997 for the four geographical regions included in our sample. The classification of geographical regions follows the World Bank country group classification. Data are from Gwartney, Lawson and Samida (2000). The index focuses on the legal structure and the security of property rights and the enforcement of contracts. The scale is from 0 to 10, with higher scores indicating higher levels of legal protection and law enforcement.

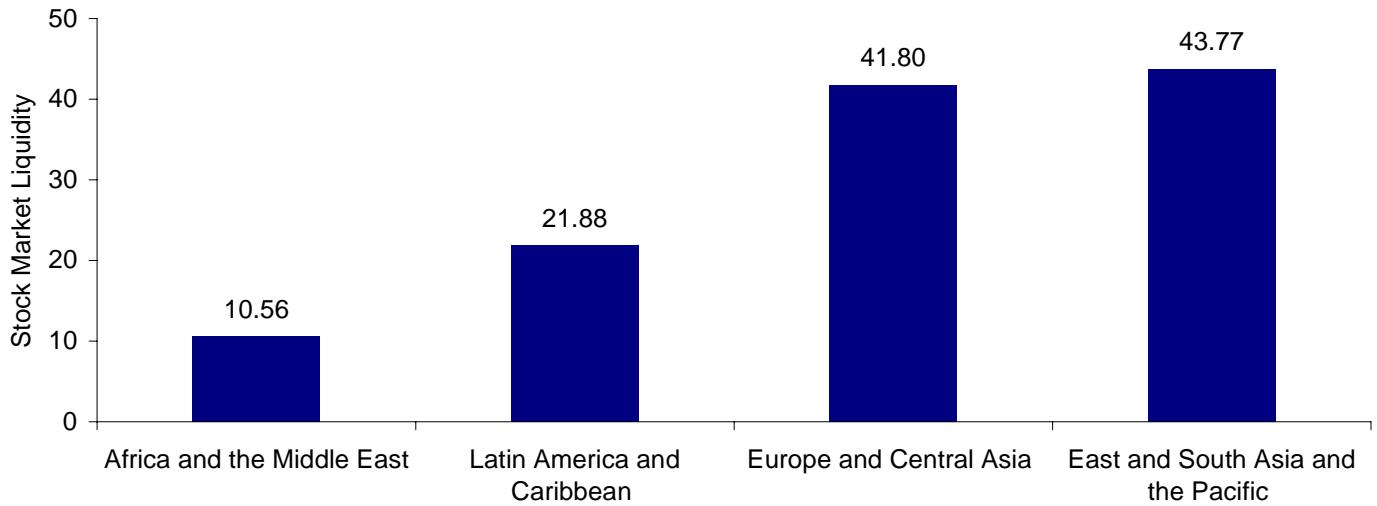


Figure 4. Stock Market Liquidity by Geographical Region (1980-97)

The figure depicts the level of stock market liquidity measured by the average turnover ratio over the period 1980-97 for the four geographical regions included in our sample. The classification of geographical regions follows the World Bank country group classification. Data are from the World Development Indicators (2001) CD-ROM.

DAVIDSON INSTITUTE WORKING PAPER SERIES - Most Recent Papers

The entire Working Paper Series may be downloaded free of charge at: www.wdi.bus.umich.edu

CURRENT AS OF 12/17/01

Publication	Authors	Date
No. 419: Liberalization, Corporate Governance, and the Performance of Newly Privatized Firms	Narjess Boubakri, Jean-Claude Cosset, and Omrane Guedhami	Dec. 2001
No. 418: The European Data Privacy Directive and International Relations	Steven R. Salbu	Dec. 2001
No. 417: Capital Markets and Capital Allocation: Implications for Economies in Transition	Artyom Durnev, Randall Morck, and Bernard Yeung	Dec. 2001
No. 416 Forthcoming in: <i>The Journal of Economic Perspectives</i> , "Data Watch. Research Data from Transition Economies."	Randall K. Filer and Jan Hanousek	Dec. 2001
No. 415 Forthcoming in: <i>The Journal of Economic Perspectives</i> , "Transition Economies: Performance and Challenges."	Jan Svejnar	Dec. 2001
No. 414 Forthcoming in: <i>The Journal of Economic Perspectives</i> , "The Great Divide and Beyond: Financial Architecture in Transition."	Erik Berglof and Patrick Bolton	Dec. 2001
No. 413 Forthcoming in: <i>The Journal of Economic Perspectives</i> , "The Political Economy of Transition."	G�rard Roland	Dec. 2001
No. 412: The Response of Consumption in Russian Households to Economic Shocks	Steven Stillman	Oct. 2001
No. 411: Mark-ups in Hungarian Corporate Sector	L�szl� Halpern and G�bor K�r�si	Aug. 2001
No. 410: Economic Development, Legality, and the Transplant Effect	Daniel Berkowitz, Katarina Pistor, Jean-Francois Richard	Sept. 2001
No. 409: Development Strategy, Viability, and Economic Convergence	Justin Yifu Lin	Oct. 2001
No. 408: Labor Supply, Informal Economy and Russian Transition	Maxim Bouev	May 2001
No. 407: Corporate Governance in China: Then and Now	Cindy Schipani and Liu Junhai	Nov. 2001
No. 406: Entrepreneurship and Post-Socialist Growth	Daniel Berkowitz and David N. DeJong	Oct. 2001
No. 405 Forthcoming in: <i>European Economic Review</i> , "Policy Reform and Growth in Post-Soviet Russia."	Daniel Berkowitz and David N. DeJong	Oct. 2001
No. 404: Social Policies and Structures: Institutional Frictions and Traps in the Czech Republic after 1989	Jiří Večerník	Nov. 2001
No. 403: Investment, Efficiency, and Credit Rationing: Evidence from Hungarian Panel Data	Mathilde Maurel	Nov. 2001
No. 402: Subduing High Inflation in Romania. How to Better Monetary and Exchange Rate Mechanisms?	Daniel Daianu and Radu Vranceanu	Aug. 2001
No. 401: The Gender Wage Gap in Bulgaria: A Semiparametric Estimation of Discrimination	Dean Jolliffe	July 2001
No. 400: Do External Auditors Perform a Corporate Governance Role in Emerging Markets? Evidence from East Asia	Joseph P. H. Fan and T.J. Wong	Oct. 2001
No. 399: Financial Conditions and Investment during the Transition: Evidence from Czech Firms	Lubom�r L�zal and Jan Svejnar	Oct. 2001
No. 398: Accessible Pareto-Improvements: Using Market Information to Reform Inefficiencies	Michael Mandler	May 2001
No. 397: The Making of an Integrated National Grain Market in China	Wubiao Zhou	Oct. 2001
No. 396: Corruption and Resource Allocation: Evidence from China	Wei Li	June 2001
No. 395: Government Shareholding and the Value of China's Modern Firms	Lihui Tian	Apr. 2001
No. 394: Labor Hoarding in Russia: Where Does it Come from?	Rouslan Koumakhov and Boris Najman	June 2000
No. 393: Ownership Structure, Corporate Governance, And Firm Value: Evidence from the East Asian Financial Crisis	Michael Lemmon and Karl Lins	Apr. 2001