POST-PRIVATIZATION CORPORATE
GOVERNANCE AND FIRM PERFORMANCE:
THE ROLE OF PRIVATE OWNERSHIP
CONCENTRATION, IDENTITY
AND BOARD COMPOSITION

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Abstract

We examine and analyze the post-privatization corporate governance of a sample of 52 newly privatized Egyptian firms over a period of 10 years, from 1995 to 2005. We look at the ownership structure that results from privatization and its evolution; the determinants of private ownership concentration; and the impact of private ownership concentration, identity and board composition on firm performance. We find that the state gives up control over time to the private sector, but still controls, on average, more than 35 percent of these firms. We also document a trend in private ownership concentration over time, mostly to the benefit of foreign investors. Firm size, sales growth, industry affiliation, and timing and method of privatization seem to play a key role in determining private ownership concentration. Ownership concentration and ownership identity, in particular foreign investors, prove to have a positive impact on firm performance, while employee ownership concentration has a negative one. The higher proportion of outside directors and the change in the board composition following privatization have a positive effect on firm performance. These results could have some important policy implications where private ownership by foreign investors seems to add more value to firms, while selling state-owned enterprises (SOEs) to employees is not recommended. Also, the state is highly advised to relinquish control and allow for changes in the board of directors following privatization as changing ownership, per se, might not have a positive impact on firm performance unless it is coupled with a new management style.

ملخص

نقوم بدراسة و تحليل ما طرأ على حوكمة الشركات عقب عملية الخصخصة, و ذلك من خلال عينة من 52 شركة تمت خصخصتها فى الاونة الاخيرة خلال فترة 1995-2005. فننظر الى بنية الملكية الناجمة عن عملية الخصخصة و تطورها. كما ننظر الى محددات تركيز الملكية الخاصة، واثر ذلك التركيز على تلك الشركات, وكذلك هوية الملكية و مجلس الادارة على اداء تلك الشركات. ونجد ان الدولة تتخلى بمضى الوقت عن السيطرة للقطاع الخاص, ولكنها لاتزال تسيطر فى المتوسط على اكثر من 35% من تلك الشركات. كما نوثق اتجاها فى تركيز الملكية الخاصة بمرور الوقت يحابى فى معظمه المستثمرين الاجانب. وتشترك العومل الخاصة بحجم الشركة و نمو مبيعاتها وملحقات الصناعة و توقيت الخصخصة و طريقتها, تشترك فى لعب دور مهم فى تحديد تركيز الملكية الخاصة. و قد ثبت ان لتركيز الملكية و هويتها, لا سيما من جانب المستثمرين الاجانب, اثر ايجابى على اداء الشركات, بينما ثبت العكس بالنسبة لتركيز ملكية العاملين. فزيادة نسبة المديرين القادمين من خارج المؤسسات و كذلك التغييرات فى تكوين مجالس الادارة عقب الخصخصة، تؤثر تأثيرا ايجابيا على اداء الشركات. و من الممكن ان يكون لهذه النتائج بعض الدلائل المهمة في جانب السياسات, حيث تضفي الملكية الخاصة للمستثمرين الاجانب, علي ما يبدو، قيمة اكبر علي الشركات, بينما من غير المحبذ بيع المشروعات التي تمتلكها الدولة للعاملين بالشركات. كما تُنصح الدولة بدرجة كبيرة بأن تتخلى عن السيطرة على الشركات وأن تفتح المجال امام التغييرات في مجالس الادارة عقب عملية الخصخصة. اذ ان تغيير الملكية في ذاته قد لا يؤثر علي اداء الشركة مالم يصاحب ذلك التغيير اتباع اسلوب جديد في الإدارة.

I. Introduction

Corporate governance issues are not only important in developed economies, but they are equally or even more important in emerging economies, since the latter do not have long-established financial institutions infrastructure to deal with these issues, which are presently handled by the state.

In this paper, we contribute to the literature on privatization by providing additional evidence on the impact of post-privatization corporate governance on firm performance in emerging economies, concentrating on the Egyptian experience, a part of the world that has been neglected in the literature. Equally important, narrowing the focus and testing the performance of privatized firms in a single country adds insight into this topic, as accounting measures of financial performance tend to be homogeneous, and there is no place for weakness of cross-country data[1].

Moreover, the early studies use small and unrepresentative samples of firms, and they rely on a short period of time with observations concentrated immediately before and/or after privatization. They may hence, produce biased estimates and capture only the short–term effects of privatization. However, the early ownership patterns were often unstable, frequent ownership changes were hard to detect, and temporary owners did not necessarily engage in restructuring. The estimates of the immediate post-privatization effects may hence not reflect the true medium and long-term effects of changes in ownership structure. Consequently, in this study, we cover several years in the post-privatization period (at least four years). We also advance the literature by estimating the performance effects of key ownership and board composition patterns that arise from privatization. Further, the study is constructed from detailed information on the extent of firm ownership by various owners that allow us to examine the impact of the identity of private ownership concentration— which we claim is not investigated previously in the literature—and its board composition on firm performance. Hence, we are able to estimate the effects of different degrees of ownership concentration, board composition, ownership forms that are deemed important by theorists, policy makers, investors, and analysts, but the effects of which have not been examined fully in existing studies.

Last, the study provides further explanation on when and how privatization works by delving deeper into internal corporate governance issues. This is a very important and timely issue because many developing countries only started undertaking large-scale privatizations in the 1990s. The results of this study should, therefore, be of interest to investors, government policy makers as well as officials of international agencies, by providing insights on the way privatization works.

Using a sample of 52 newly privatized Egyptian firms over a period of 10 years, from 1995 to 2005, we find that over time the state gives up control to the private sector, but still controls, on average, more than 35 percent of these firms. We also document a trend in private ownership concentration during this time, mostly to the benefit of foreign investors. Firm size, sales growth, industry affiliation, timing and method of privatization seem to play a key role in determining private ownership concentration. Ownership concentration and ownership identity, in particular foreign investors, prove to have a positive impact on firm performance, while employee ownership concentration has a negative one. The higher proportion of outside directors and the change in the board composition following privatization have a positive effect on firm performance. These results could have some important policy

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[1] The sources of weaknesses of cross-country data could be due to several reasons: for example, the use of different currencies in the analysis, and the variation of financial reporting standards among countries. However, the obstacle here is that it will be difficult to generalize the findings of the results reported in this paper (Megginson and Netter, 2001).

implications where private ownership by foreign investors seems to add more value to firms, while selling state-owned enterprises (SOEs) to employees is not recommended. Also, the state is highly advised to relinquish control and allow for changes in the board of directors following privatization as changing ownership, *per se*, might not have a positive impact on firm performance unless it is coupled with a new management style.

The reminder of the paper is organized as follows: Section II presents the conceptual framework of corporate governance and links it to the Egyptian experience. We provide a summary of selected empirical studies on privatization and corporate governance with findings in Section III. Data, sample construction and empirical models are discussed in Section IV and we then report the empirical findings and analysis in Section V. Section VI concludes the paper and spells out some policy recommendations.

II. Conceptual Framework

Corporate governance can best be interpreted as the set of mechanisms—both institutional and market-based—that induce self-interested managers (controllers of the firm) to make decisions that maximize the value of the firm to its shareholders (owners of the firm)[2]. The aim of these mechanisms, of course, is to reduce the agency costs that arise from the principle-agent problem, which could be internal and/or external in nature[3]. Internal mechanisms deal with the ownership structure or the degree at which ownership by managers obviates the trade-off between alignment and entrenchment effects[4]. Another important internal mechanism is the composition of the board of directors, such as the distinction between the chief executive officer (CEO) and the chairperson, and the proportion of independent outsiders in its membership. External mechanisms, on the other hand, rely on the takeover market in addition to the legal/regulatory system, whereby the takeover market acts as a threat to existing controllers in that it enables outsiders to seek control of the firm if bad corporate governance results in a significant gap between the potential and the actual value of the firm. So, given these mechanisms, we can see that the legal system is only one way to ensure good corporate governance. Not only that, but the balance of the available evidence also shows that the effective presence of other mechanisms is positively associated with firm valuation[5]. Taken together, the corporate governance system of a firm attempts to align incentives of managers with those of shareholders, and hence motivates managers to work harder toward maximizing firm value.

However, the fact remains that the widely-held firm is not a generally observed phenomenon in most countries. This could be attributed to several reasons. It is argued that countries that follow civil law—in particular French civil law—provide investors with weaker legal rights and protection than common law does (La Porta et al., 1998). Due to the lack of legal protection for investors, internal corporate governance mechanisms can provide a substitute to such weak external mechanisms. More precisely, in the absence of strong laws that protect minority shareholders, investors seek to own a significant proportion of the firm equity to protect their interests and to exercise control (Shleifer and Vishny, 1997). In other words, when the legal framework does not offer sufficient protection for outside investors, entrepreneurs and original owners are forced to maintain large positions in their companies which results in a concentrated form of ownership

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2 One could also add: to promote society's interests and economic growth in the process. See Denis and McConnell (2003).

3 For more on these mechanisms and the evidence relating to them, see ibid.

4 Equity ownership by insiders can align insiders' interests with those of other shareholders, thereby leading to greater firm value. However, higher ownership by insiders may result in a greater degree of managerial control, potentially entrenching managers. Wan (1999) finds that management ownership does in fact exhibit an inverted U-shaped relation with Tobin's Q-ratio.

5 However, the takeover mechanism seems to be confined to the US market only.

In developed countries, it could be a rational response to a legal system that does not protect minority investors, but it could also be the result of entrenched financial structures and practices that determine and shape the enactment of corporate law[6]. For developing countries, in addition to the aforementioned reasons, it could also be due to the underdeveloped nature of their financial markets—that would allow limited access to external financing—and the preponderance of family firms[7]. But perhaps what is more important as far as this phenomenon is concerned, especially in developing countries, is that sound governance should go beyond the textbook example of the widely-held firm and concentrate on redesigning corporate practices that are more peculiar to their case, such as: lack of agency between concentrated and minority owners, reduced liquidity of shares, cross ownership and pyramiding of shareholdings, dual-class shares, and the like[8].

In this context, Egypt is no exception. Its corporate legal system largely follows the civil-law system, but one can reasonably argue that the relation between legal origin and financial arrangements in Egypt merely reflects the influence of a third exogenous variable, which is the role of the state or the nature of the political system and its national governance. Perotti (1995), in his seminal work on privatization mentions that, under state ownership, the government cannot resist the pressure to reallocate the firm value in favor of insiders. However, once a firm is privatized, the capacity of the government to interfere in the decisions of the firm is significantly reduced but does not completely eliminate political interference in the allocation of the firms' resources as long as the state retains any stake. Also, Bortolotti and Faccio (*forthcoming*) mention that most governments typically transfer ownership rights without relinquishing proportional control by retaining a stake in privatized firms. In the same direction, Fan and Wong (2007) indicate that almost 28 percent of the CEOs in a sample of 625 newly partially privatized firms in China are ex- or current government bureaucrats. Both issues of residual state ownership and CEOs government bureaucrats are proven to have a negative impact on firm performance and we empirically discuss that in this paper. Here, and to nobody's surprise, Egypt does not fare well, having a relatively closed and highly concentrated political system with a poor mode of national governance. This naturally spills over to its system of corporate governance, as the majority of Egyptian firms are either government- or family- owned with stock markets still in a rudimentary stage. But firms are changing, prompted by increased competition from trade openness, by privatization, and by the need for more external financing. And, to better understand their future trajectory, we need to understand their current corporate make-up and performance.

It is what we intend to do in this paper, in the aim also of providing a preliminary step towards filling the gap in the research area on the relationships between corporate structure and firm performance. Precisely, we examine the corporate governance within the context of privatization since it provides us with an interesting setting; in which one can understand the impact of corporate governance on firm performance. The reason behind this choice is that privatization is a discrete event that leads to a significant shift in ownership structure and the composition of the board of directors (internal corporate governance mechanisms).

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6 For example, countries with a tradition of strong bank involvement in corporate control and ownership have often found ways of accommodating this tradition in legal practice (as in Japan and Sweden).

7 The evidence on family firms—especially in East Asia—is that they are robust over time, dispelling the notion that their ownership becomes dispersed over time. See Claessens et al. (2000).

8 See Berglof and Von Thadden (2000). For instance, Lins (2003) finds for a sample of 1,433 firms from 18 emerging countries that when a management group's control rights exceed its cash-flow rights, then firm values are markedly lower.

III. Selected Empirical Studies

Most previous research has focused on the examination of the impact of privatization on firm performance[9]. Interestingly, while privatization is based on the premise that it will improve corporate performance and help countries to grow, the ultimate outcome is hard to identify. At the macro level, a cross-country aggregate study by Zinnes et al. (2001) finds that privatization does not by itself increase GDP growth, but it suggests that a positive effect exists when privatization is accompanied by in-depth institutional reforms.

On the firm level, recent surveys of privatization studies show a large variation of outcomes, ranging from no significant effect of privatization on performance (Bevan et al., 1999), to cautiously concluding that privatization around the world improves firm performance (Megginson and Netter, 2001), to being fairly confident that privatization tends to improve performance (Shirley and Walsh, 2001; and Djankov and Murrell, 2002). One possible explanation behind the inconsistency of the impact of privatization on firm performance is that each study dealt with a different dataset with limited access to corporate governance issues (ownership structure and/or board of director composition).

On the other hand, few empirical studies look at the impact of different post-privatization ownership structures on firm performance. In this context, Barberis et al. (1996) find that changes in ownership and management styles are likely to lead to a value-maximizing restructuring in Russian privatized firms. For 706 Czech Republic privatized firms, Claessens et al. (1997) find that concentrated ownership structure, ownership by local investors, and ownership by bank-sponsored investment privatization funds increase profitability and Tobin's q. In a more recent study, Kocenda and Svejnar (2002) indicate that in the post-privatization period, private ownership, relative to state ownership, tends to be associated with superior performance in terms of certain profitability and efficiency indicators.

In addition, not only might ownership structure matter in explaining firm performance, but also the composition of the board of directors. In this context, Hermalin and Weisbach (2003) find for the US firms that a higher proportion of outside directors is not significantly associated with superior performance; yet, board size is negatively related to firm performance and the quality of decision-making. However, in Japan, Kaplan and Minton (1994) provide evidence that outside directors are an effective corporate governance mechanism and, on average, they improve corporate performance. In addition, one element of Codes of Best Practice that was issued in a number of European countries in 1992 stated that the positions of chairperson and CEO should be held by different individuals. Nevertheless, the limited evidence, to date, indicates that separating the two positions has no significant impact on firm performance (see, among others, Brickley et al., 1997; and Vafeas and Theodorou, 1998). Also, several empirical studies find that top management replacements increase future post-privatization firm performance (Barberis et al., 1996, and Claessens and Djankov, 1999).

The aforementioned studies and other related studies on privatization and corporate governance issues have been, mainly, limited to developed economies or large emerging economies. It seems that small economies such as those in the Middle East and North Africa (MENA) are very much understudied in the literature. However, Omran (2004a,b, 2005 and 2007) provides some evidence on the impact of privatization on firm performance, using both accounting and market performance measures. What is even more interesting is his (2004a) paper in which he examines whether the performance of privatized firms differs according to the type of ownership structure during the post-privatization period. The paper concludes that firms with concentrated ownership or those that have a homogeneous group— namely firms

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9 For a complete list of recent works on privatization, see Megginson and Natter (2001), Djankov and Murrell (2002), Megginson (2005), and for Egypt see Omran (2004a,b, 2005 and 2007).

sold to anchor investors—seem to outperform dispersed ownership firms (majority IPOs). The problem here is that the author relies on the privatization method of sales to determine who controls the firm[10], without considering the degree of concentration or the evolving ownership structure over time. Concentrating on post-privatization internal corporate governance issues, we try to fill this gap by tracking the changes in firm ownership structure and also in the composition of the board of directors while testing their impact on firm performance.

IV. Data, Sample Construction and Empirical Models

A.Data and Sample Construction

In this paper, we consider all SOEs that went public through share issues or direct sale. Although Egypt took steps toward privatization in 1991, the program did not fully function until 1994. To allow time for the program to stabilize, and given that Egyptian privatization began initial steps in 1991 but did not actually fully start until 1994, in turn, the study deals with those firms that privatized between 1994 and 2000.

As seen in Table 1, the total number of privatized firms reached 197 in 2003. However, excluding some types of privatization—namely, liquidations, asset sales, and leases—this left a population of only 116 firms. However, we were not able to find financial data for most firms who sold to employee shareholder associations or anchor investors. The reason is that many of these firms went through merger and/or acquisition activities, or liquidation, or they even changed their main activities, so we limited our sample to those firms that were listed in the stock market because we were able to collect comparable and continuous financial data. This limitation and data availability left us with a final sample size of 52 firms. We relied on several sources to build the database for this study; one was the Ministry of Investment, which provided complete information on the privatized firms—methods of privatization, percentages of equity sold, and date of privatization. The other sources were the Capital Market Authority and the Egyptian Exchange, as they had complete data on both accounting and market performance measures. Finally, the General Authority for Investment, and Misr for Clearing, Settlement and Central Depository were consulted to build the database on the board of director compositions, and ownership structure and identity.

B.Empirical Models

To examine the determinants of ownership concentration (CONC)—we first define it and measure it as the percentage of shares owned by the largest three blockholders in a firm (L13 and L23)[11] (e.g., Demsetz and Lehn, 1985; La Porta et al., 1998; and Demsetz and Villalonga, 2001), and an approximation of the Herfindahl index (the sum of squared ownership shares by the three largest private investors), (H13 and H23). We also apply a logistic transformation to L13 and L23, using the formula log [L13/(1–L13), and L23/(1–L23)] to convert a bounded variable into an unbounded one, and a logarithmic transformation to H13 and H23.[12] Following Boubakri et al., (2005), we focus on the logistic transformation measure of ownership concentration (LL13). The equation below is then used as follows:

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10 Three methods of sale were executed and yielded four marked types of control. Share issue privatization resulted in two types: (1) majority initial public offerings (IPOs)—at least 51 percent of a firm's shares were sold to the public via the stock market, and the state did not have absolute control over the firm (control privatization) and (2) minority IPOs—less than 50 percent of a firm's shares were sold to the public via the stock market, and the state kept the absolute control over the firm (revenue privatization). (3) The second method was to sell the entire firm to employee shareholder associations (ESAs), so that employees controlled the firm, and (4) the third method was to sell the firm to anchor investors, who then controlled the firm.

11 A blockholder is any entity owning equal to or more than 5% of the firm (L13). We also define a blockholder as any entity owning equal to or more than 10% of the firm for the robustness of our results (L23).

12 This results in new variables LL13, LL23, LH13 and LH23.

$$CONC_{it} = \alpha + \beta_1 SIZE_{it} + \beta_2 IND_{it} + \beta_3 RISK_{it} + \beta_4 GROWTH_{it} + TIME_i + MTHD_{i,t} + \gamma_t + \varepsilon_{it} \qquad (1)$$

where $CONC_{it}$ is the ownership concentration of firm i at time t; $SIZE_{it}$ is the log of the market capitalization of firm i at time t; and it is expected to find an inverse relationship between $SIZE$ and $CONC$ due to the risk-neutral and risk-aversion effects (Demsetz and Lehn, 1985)[13]. More specifically, because the market value of a given stake of ownership is greater in larger firms, this higher price should, in itself, reduce the degree of ownership concentration. At the same time, risk-aversion should discourage any attempt to preserve concentrated ownership in the face of larger capital, because this would require owners to allocate more of their wealth to a single venture. As for sectoral affiliation IND_{it}, firms in our sample are divided according to whether they belong to the industrial sector—manufacturing (*MAN*), and non-manufacturing firms (*NONMAN*)—,food and agricultural firms (*FDAG*), and construction firms (*CONST*). The IND_{it} is a dummy variable that takes one if the firm i at time t belongs to the given sector, and zero otherwise. $RISK_{it}$ is the standard deviation of annual return on equity of firm i at time t during the three years preceding the privatization year, and it is expected to find a negative relationship between instability in return on equity and ownership concentration because investors prefer to invest more in firms with a low risk—that means firms with sustainable and less volatile return on equity. $GROWTH_{it}$ is the average annual growth rate of sales of firm i at time t during the three years preceding the privatization year, and it is expected that firms with higher than average growth rates are more attractive to investors, and hence, sales growth is positively related to ownership concentration. We also control for the timing of privatization and the divestment method. To do so, we include a dummy variable for privatization timing (*TIME_i*) that takes the value of one if the sample-firm is privatized after the median privatization date, and zero otherwise. This variable shows the government's preferences as to whether it is reluctant to sell higher stakes and relinquish state control at early exploratory stages of the privatization program, or whether it is leaning more towards attracting private investors and is willing to relinquish control in the early stages. We also control for the method of privatization by including a dummy variable (*MTHD_{i,t}*) that is equal to one if the firm i is privatized through a private sales (*PS*) at time t and zero otherwise, on the grounds that more concentrated ownership should result from such sales compared to share issued privatizations (SIPs). In another specification, this is equal to one if the government sells the majority (*MAJ*) of the firm i at time t (control privatization), so that more ownership concentration will result, and zero if the government sells minority of the firm i at time t (revenue privatization). γ_t are fixed-year effects to control for year specific effects, and ε_{it} is the error term.

As for the impact of ownership concentration and board composition on firm performance, we investigate this issue using the below given system of equations. It is not, however, a task that should produce clear results because there is no consensus in the corporate governance literature as to whether or not concentrated ownership structures enhance firm performance. On the one hand, firm performance improves when ownership and managerial interests are merged through concentration of ownership (see, for example, Agrawal and Mandelker, 1987; Castianas and Helfat, 1991; and Baker and Weiner, 1992). When major shareholdings are acquired, control cannot easily be disputed and the resulting concentration of ownership might lower, or even completely eliminate, agency costs (Anderson et. al, 1997). On the other

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13 More specifically, because the market value of a given stake of ownership is greater in larger firms, this higher price should, in itself, reduce the degree of ownership concentration. At the same time, risk-aversion should discourage any attempt to preserve concentrated ownership in the face of larger capital because this would require owners to allocate more of their wealth to a single venture.

hand, blockholder ownership might provide an opportunity to extract corporate resources for private benefit in a way that would have a negative impact on firm performance[14].

As for the board variables, it is a widely accepted principle of good governance that the CEO should not be the chairperson. In fact the separation allows a balance of power and authority, so that no individual person has unlimited power, consequently, we expect to find a positive impact of separation on firm performance[15]. On the other hand, we think that a higher proportion of outside directors brings better monitoring, and unlike inside directors, they are better able to challenge the CEOs. Therefore, we conjecture that outside directors are an effective corporate governance mechanism and, on average, they improve corporate performance. Last, we believe that changing management, not only the ownership, is important to improve firm performance, as transferring management control to private owners is likely to address inefficiency in SOEs (Gupta, 2005).

Before proceeding, it is, however, important to mention that applying the standard regression approach can be misspecified if some of the unobserved determinants of firm performance also explain the ownership concentration itself.[16] Himmelberg et al. (1999); Palia (2001); and Boubakri et al. (2005) document the endogeneity nature of the ownership structure, and hence the need to control for it by using instrumental variables for ownership. Following Boubakri, et al's (2005) lead, the two-stage least squares (2SLS) regression defined by the following equations is applied:

$$PERF_{it} = \alpha + \beta_1 CONC_{it} + \beta_2 SIZE_{it} + \beta_3 IND_{it} + \beta_5 CEO_{it} + \beta_6 OUTS_{it} + \beta_7 CHNG_{it} + \gamma_t + \varepsilon_{it} \quad (2a)$$

$$CONC_{it} = \alpha + \beta_1 RISK_{it} + \beta_2 GROWTH_{it} + TIME_i + MTHD_{i,t} + \gamma_t + \varepsilon_{it} \quad (2b)^{[17]}$$

where $PERF_{it}$ stands for the performance for firm i at time t, return on sales (ROS), return on assets (ROA), return on equity (ROE), and the firm relative market value (Q-ratio). We use Q-ratio, in addition to the usual measures of performance of privatized firms that are considered in the literature (ROS, ROA and ROE) on the ground that while ROS, ROA and ROE measure the past and current performance of the firm, Q-ratio, in addition to that, captures the expected future performance of the firm. CEO_{it} is a dummy variable that takes one if the chief executive officer and the chairman of the board are the same person of firm i at time t and zero otherwise, and we expect to find a positive impact on firm performance if both positions are separated. $OUTS_{it}$ is the proportion of outside directors for firm i at time t, and one might expect a positive relationship between this variable and firm performance. $CHNG_{it}$ is a dummy variable that takes one if the firm i changes its board of directors at time t in the post-privatization period and zero otherwise, and we expect to find a positive relationship between changing the management and firm performance[18].

We, however, have to bear in mind that the choice of the instrumental variables in equation (2b) is a crucial task as, on the one hand, they should be highly correlated with ownership concentration; and on the other hand, they should have no impact on the dependent variable, $PERF$. We use the same variables that are mentioned in equation (1) but have to drop $SIZE$ and IND because they determine both ownership concentration and firm performance.

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14 For more details, see Denis and McConnell (2003).

15 However, such separation would carry costs such as agency and information costs.

16 This, in fact, will lead to a spurious relation between ownership concentration and firm performance.

17 We included the variable $GROWTH$ on the ground that we think it does not affect the performance. However, following the referee comments, we excluded this variable and re-estimated the models but we obtained similar results.

18 We mean by that not only new board members but also changes in the top management including the CEO.

Within a 2SLS framework, the process is conducted by first estimating equation (2b) to obtain the fitted (estimated) values of *CONC*, and then replacing these values in equation (2a) as an instrument for *CONC* to examine the relationship between ownership concentration and firm performance.

Moving to the third objective, it seems that the types of ownership concentration might vary across firms according to the identity of larger shareholders. Consequently, we postulate that the relationship between large shareholders and firm performance depends on who the shareholders are (see, among others, Boycko et al., 1996; Claessens et al., 1998; and Denis and McConnell, 2003). To delve deeper into this issue and provide further evidence to the existing literature, we split the concentrated ownership structure into four separate groups of owners: individual investors, domestic institutional investors, foreign investors, and employees. As a result, we estimate the following system of equations to determine the relationship between ownership identity and firm performance, after controlling for some firm-level variables:

$$PERF_{it} = \delta + \sum_j \theta_j OWNER_{ijt} + \beta_1 SIZE_{it} + \beta_2 IND_{it} + \beta_3 CEO_{it} + \beta_4 OUTS_{it} + \beta_7 CHGE_{it} + \gamma_t + \varepsilon_{it} \quad \text{(3a)}$$

$$CONC_{it} = \alpha + \beta_1 RISK_{it} + \beta_2 GROWTH_{it} + TIME_i + MTHD_{i,t} + \gamma_t + \varepsilon_{it} \quad \text{(3b)}$$

where $OWNER_{ijt}$ is the private ownership concentration measured as percentage of shares owned by the largest three owners of type *j* (*INDV*: individual investors; *INST*: domestic institutional investors; *FORG*: foreign investors; and *EMPL*: employees) of firm *i* at time *t*. We employ the same technique applied to equations (2a and 2b), with the notable difference that we instrument for *each* type of the four large shareholders in equation (3b) using the same variables as in equation (2b). The fitted values of each type of owners are then placed in equation (3a).

V. Empirical Results and Analysis

In this section, we first attempt to track the ownership evolution of privatized firms in the post-privatization period (Tables 2), and examine the impact of the privatization method of sale on the evolution of ownership structure (Table 3). We then explore the determinants of private ownership concentration (Table 4) followed by investigating the relationship between private ownership concentration and firm performance (Table 5). Last, we delve deeper into the issue of the identity of private ownership concentration by postulating that the relationship between large shareholders and firm performance depends on who the large shareholders are (Table 6).

A. Ownership Evolution of Privatized Firms

Our first round of empirical findings and analysis tackles the evolution of ownership structure of privatized firms and then examines the impact of the privatization method of sale on private ownership concentration. We portray the ownership structure of our privatized sample firms in Table 2.

Panel A of Table 2 shows the ownership evolution over time according to different owners (state, local institutions, foreign investors, employees and individuals). We find that the mean (median) state ownership declines to 44.7 (46.1) percent in the year of privatization and continues to decline slowly over time to reach 36.3 (39) percent in the sixth year following privatization. This means that although the state gives up control over time to the private sector, it still controls, on average, more than 35 percent of privatized firms. A close look at these firms indicates that they operate in strategic sectors and/or have monopoly positions

(such as pharmaceutical and aluminum industries)[19]. Local institutions and individual investors dominate the private ownership of privatized firms (40 percent, on average), which is consistent with Boutchkova and Megginson (2000) and Boubakri, Cosset, and Guedhami's (2005) evidence that local institutions are key players in the ownership structure of privatized firms. Foreign investors, however, tend to move aggressively over time as they double their mean (median) ownership from only 5.8 (2.1) percent in the year of privatization to 11.7 (4.2) percent in the sixth year following privatization. It seems—from the data we have that is not presented here—that most of foreign investors are institutions, which reflects the consolidation waves and the inflow of foreign consortiums following the financial liberalization and the aggressive financial sector reform agenda in Egypt that accompanied the privatization process itself. As in many other countries, to gain employees' support for the privatization policy, the state allocates a fraction of SIPs (between 5 and 20 percent) to the firm employees through Employee Shareholder Associations (ESAs). The results show that the average employees' stake is relatively stable over time because of the fact that employees in most cases do not pay the full price for shares, so that they are not allowed to sell them until the full price is paid.

Moving to Panel B, we report descriptive statistics on the private ownership concentration measured by the cumulative shares of the three largest investors and then the Herfindahl index. We find that the percentage of shares held by the three largest investors who own at least 5 (10) percent increases from 23.8 (21.7) percent in the year of privatization to 31.4 (27.5) percent in the sixth year. These figures are lower than those reported in Boubakri, Cosset, and Guedhami (2005) paper where the average is 33.2 and 40.9 percent in the year of privatization and three years after, respectively.

We also report the evolution of the Herfindahl index of private ownership concentration and we document a higher level of private ownership concentration following privatization. The mean Herfindahl index continues to increase from 10 percent in the year of privatization to reach 16.1 percent by the end of the sixth year. The conclusion of these results is that the private ownership of privatized firms tends to be more concentrated over time.

The results reported in Panel A of Table 3 show the impact of the privatization method of sale on the ownership evolution by the type of owners. As mentioned previously, the government adopts several privatization methods by selling firms through private sales or through SIPs as majority (control privatization) or minority (revenue privatization) stakes in the stock market. So, it is expected to see further decline in the state ownership of firms that are sold as private sales or as majority stakes. The mean (median) state ownership of private sales or control privatization in year 0 is 31.3 (30) percent compared with 68 (67.5) of revenue privatization and the difference is highly significant at the one percent level. We find similar results when we move over time up to the sixth year following privatization. We also document the same significant differences between control and revenue privatization for all private ownership except employees. As pointed out in Bortolotti et al. (2000) and Megginson et al. (2004), and documented in Boubakri, Cosset, and Guedhami (2005), privatization via private sales generally results in more private ownership compared with SIPs. We conjecture that privatization via private sales reduces the state ownership in firms. The results, not reported here, show that the residual state stakes in SIPs is much higher compared with private sales and the difference is statistically significant at the one percent level.

Panel B shows the impact of the privatization method on the level of post-privatization private ownership concentration. For instance, we document that the mean (median) private ownership concentration in the year of privatization is 31 (17.2) percent in control

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19 However, we find that size is not a determinant factor of the state ownership in privatized firms.

privatization compared with 11.4 (10) percent only in the case of revenue privatization and the difference is highly significant at the one (five) percent level. The same results apply over time until the sixth year of privatization. Also, we document similar findings using the Herfindahl index and the 10 percent cutoff point, respectively to calculate the private ownership concentration.

B. The Determinants of Private Ownership Concentration

We start our exploration of the relationship between ownership concentration, measured by the logistic transformation of the percentage of shares held by the three largest private investors who own at least five percent (LL13) and firm performance by first investigating the determinants of ownership concentration. Using alternative measures of ownership concentration such as the percentage of shares owned by the largest three blockholders in a firm who own at least five percent or ten percent (L13 or L23), an approximation of the Herfindahl index, and the logistic transformation of the percentage of shares held by the three largest private investors who own at least ten percent (LL23), our empirical findings are robust.[20]

The results obtained from equation (1) are reported in Table 4 and they largely confirm our expectations. More precisely, we find that the impact of SIZE on CONC is negative and significant at the one percent level for both models. These findings are consistent with a number of previous studies that document a negative association between firm size and private ownership concentration (Boubakri, Cosset and Guedhami, 2005). Furthermore, we find significant higher levels of ownership concentration in the manufacturing firms while we observe significant lower levels of private ownership concentration in the non-manufacturing and construction firms. One possible explanation here is that the government considers pharmaceutical firms as a strategic sector (non-manufacturing), so it sells minority stakes of these firms. On the other hand, several manufacturing firms are sold to strategic investors because the nature of these firms requires know-how and specialized investors. This explanation is in line with the argument that the government might be reluctant to relinquish control in sectors that it believes are economically and/or politically or socially strategic (Boubakri et.al, 2005; Megginson, 2005; and Bortolotti and Faccio, 2006).

Of particular interest, the privatization method of sale (*PS* in model 1 and *MAJ* in model 2) is positive and highly significant at the one percent level related to the private ownership concentration. These findings confirm our argument that privatization through private sales and control privatization are more likely—compared with SIPs and revenue privatization, respectively—to result in a more private ownership concentration. The results also corroborate our previous findings that are reported in Table 3, Panel B, as private ownership concentration remains significantly higher when privatization occurs through private sales or control privatization, even after controlling for firm characteristics and timing of privatization.

Additionally, we find that the growth rate in sales (*GROWTH*) is positive and significant related to private ownership concentration. However, we fail to find any significant relationship between the operating risk of the firm (*RISK*) and the private ownership concentration. On the other hand, the coefficients of the timing variable (*TIME*) are consistently positive and highly significant at the five percent level for both models, suggesting that the private ownership concentration is higher in late privatization. These results support the argument that the government is reluctant to sell higher stakes and

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20 For each of these measures, we find similar results as those reported for the first measure. Qualitatively, the results are identical, and the differences are quantitative. We do not, however, report the results here for the sake of space, but they are available from the authors upon request.

relinquish state control at early exploratory stages of the privatization program (Bortolotti and Faccio, 2006).

C. Private Ownership Concentration and Firm Performance

In this section, we examine the theoretical argument of Shleifer and Vishny (1997), in which ownership concentration, by establishing strong relations between ownership and control, helps mitigate the risk of agency problems in a firm and hence should lead to superior performance. To examine this relationship, we estimate a regression equation (2) linking the two variables, after controlling for some firm and privatization characteristics.

The results obtained from equation (2a) are reported in Tables 5 using three accounting measures (*ROS*, *ROA* and *ROE*) and a market measure (*Q*-ratio) for firm performance. We find that all accounting performance measures are significantly correlated with private ownership concentration. These findings tend to support Shleifer and Vishny's (1997) contention that post-privatization diffused ownership structure (and thus an increase in the agency costs of managerial control) may lead to disappointing performance. Also, our findings are consistent with those reported in Boubakri et al.'s (2005) study that documents a positive and significant relationship between ownership concentration and firm performance.

Also, it seems that firm-level variables exhibit significant relationships with firm performance. We find that large-size firms are more likely to achieve better performance (in terms of accounting measures) as indicated by the positive and significant coefficient of *SIZE*. This might be due to competition (or lack thereof) effects, whereby the market power of large-size firms enables them to outperform small-size firms in Egypt. The positive and significant coefficients of *FDAG*, and *NONMAN* imply that food and non-manufacturing firms achieve superior performance compared with other firms; whereas construction and manufacturing firms underperform other firms as indicated by their negative and significant coefficients.

Surprisingly, *CEO* dummy coefficients are not significant at any level, suggesting that firm performance is not affected by a separation between CEO and chairperson positions. Our results, however, provide evidence that outside directors are an effective corporate governance mechanism and, on average, they improve corporate performance, reflected by the positive and significant coefficients. Also, our results are found to be consistent with several empirical studies that document top management replacements increase future post-privatization firm performance. This is clear from the positive and significant coefficients of the *CHNG* variable[21].

When we move to the market performance measure (*Q*-ratio), however, a different conclusion is reached. *CONC* coefficient is not significantly related to firm performance at any conventional level, implying that private ownership concentration does not matter in determining the firm value. Also, we fail to find any relationship between firm size and firm performance. Additionally, we find that construction firms are significantly highly associated with higher Q-ratio compared with other firms. Still, we document that a higher proportion of outside directors and a change in the board composition following privatization results in a higher firm value.

It is interesting to ask why different proxies for firm performance (accounting and market measures) produce different relationships with ownership concentration. One explanation, as mentioned previously, is that while *ROS, ROA* and *ROE* measure the past and current performance of the firm, *Q*-ratio, in addition to that, captures the expected future performance of the firm (it measures growth opportunities of firms). Consequently, rapidly growing firms

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21 These findings support out univariate tests given in Appendix A.

might have larger *Q*-ratios with relatively smaller accounting performance measures, resulting in substantial differences between the impact of ownership concentration on *ROS, ROA* or *ROE*, and *Q*-ratio. A second explanation is that the relevance of accounting earnings in determining firm value is very miniscule in the Egyptian stock market, in the sense that there is no contemporaneous association between accounting performance measures and the market value of firms.[22]

So what can we conclude from the analysis of Table 5? Collectively, the results reveal that private ownership concentration really does matter in determining firms' accounting performance measures, whereas its impact on firm value is unanimously irrelevant and highly insignificant. If we would like to rank firms according to their accounting performance measures, the conclusion to draw here is that larger firms, food and non-manufacturing firms, and firms with a higher proportion of outside directors and a change in the board composition following privatization appear to achieve superior performance.

D. Identity of Private Ownership Concentration and Firm Performance

Since the types of ownership concentration might vary across firms according to the identity of larger shareholders, we postulate that the relationship between large shareholders and firm performance depends on who the large shareholders are. Unlike other previous studies that examine the impact of different types of owners on firm performance in terms of ownership, we rather examine different types of owners in terms of ownership concentration, which we claim has not been previously investigated in the literature. To do so, we split the private concentrated ownership structure into four separate groups of owners, as was argued previously: individual investors, domestic institutional investors, foreign investors, and employees. As a result, after controlling for some firm characteristics, we estimate the system of equations (3a and 3b) to determine the relationship between private ownership identity and firm performance.

The results of equation (3a) are reported in Table 6. As for the accounting performance measures, we find that — after controlling for firm size, industry, *CEO* and C*HNG* dummies, and the proportion of outside directors — individual ownership concentration has no impact on *ROS*, *ROA* and *ROE*. At the same time, concentrated domestic institutional investors have a positive impact on firm performance, although only significant with *ROA* at the ten percent level. As expected, we find significant impact of concentrated foreign investors ownership on firm performance with all accounting measures at the five and ten percent levels, which tend to be consistent with the theoretical contentions of Boycko et al. (1996) and Dyck (2001) that foreign investors are the source of better governance and higher firm performance. We also show some support to Boycko et al.'s (1996) argument that employees make poor stockholders/monitors. This is clear from our results as employee ownership concentration variable is negative with all measures but only significant at the ten percent level with *ROS* and *ROA*. The results, however, still support our previous findings, in which larger firms, non-manufacturing and food firms, firms with a higher proportion of outside directors, and a change in management, all have positive and significant relationships with firm performance. In addition, the performance of manufacturing and construction firms is significantly less compared with other firms.

As for the outcomes of the market measure we corroborate similar results to those reported for the accounting performance measures. Of particular importance here is that the foreign ownership concentration coefficient is positive and highly significant with the firm value. This implies that foreign ownership concentration results in better firm value relative to other

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22 It is not really surprising to find a separation between accounting and market performance measures, given the fact that the stock market in Egypt is in need of more transparency through the promotion of timely disclosure and dissemination of information to the public so that investors can rely on this information in determining firm value.

types of owners, as indicated by the higher coefficients and significance levels. These findings again are consistent with theoretical arguments claiming that foreign investors bring better governance and monitoring practices, in addition to valuable technology transfer and skill, and in the process, increase firm value.

VI. Concluding Remarks and some Policy Implications

The paper works with a sample of 52 firms from Egypt that were privatized between 1995 and 2000. We, first, track the ownership evolution of privatized firms in the post-privatization period and examine the impact of the privatization method of sale on the evolution of ownership structure. We find that the state gives up control over time to the private sector but still controls, on average, more than 35 percent of these firms. We also document a trend in private ownership concentration over time, mostly for the benefit of foreign investors who doubled their stakes relative to the privatization year. Additionally, we show that the privatization method has an impact on private ownership concentration as private sales and control privatization result in a higher private ownership concentration compared with revenue privatization.

Next we examine the determinants of private ownership concentration and we find that firm size, sales growth, industry affiliation, and timing and method of privatization seem to play key roles in determining private ownership concentration.

After controlling for the ownership endogeneity, we document that ownership concentration has a positive impact on firm performance. Also, the results show that ownership identity matters as we find that private ownership concentration by foreign investors proves to have a positive impact on firm performance, while employee ownership concentration has a negative one. As for the board of directors, we document that the higher proportion of outside directors and the change in the board composition following privatization have a positive effect on firm performance.

Summing up, these results could have some important policy implications where private ownership by foreign investors seems to add more value to firms, while selling state-owned enterprises (SOEs) to employees is not recommended. Also, the state is highly advised to relinquish control and allow for changes in the board of directors following privatization as changing ownership, per se, might not have a positive impact on firm performance unless it is coupled with a new management style.

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Table 1: Number of Privatized Firms in Egypt

Panel A. Total Number of Privatized Firms Classified by Method of Sale

Year	Full and control privatization				Revenue privatization			Yearly total	
Method	Anchor investor	IPO*	ESA**	Liquidation	IPO*	Asset sales	Leases	Number	Value***
1993	–	–	–	6	–	–	–	6	n.a.
1994	3	-	7	2	1	–	–	13	664
1995	0	1	3	2	6	–	–	12	1216
1996	3	14	–	1	6	1	-	25	2792
1997	3	14	3	3	2	1	1	27	3148
1998	2	8	12	6	1	3	-	32	2358
1999	9	-	5	7	–	4	6	31	2785
2000	5	1	-	3	–	6	10	25	2476
2001	4	-	1	2	–	3	1	11	1075
2002			2	1		3		6	51
2003						6	3	9	114
Total	**29**	**38**	**33**	**33**	**16**	**27**	**21**	**197**	**16679**
Usable Data	**5**	**31**	**0**	**0**	**16**	**0**	**0**	**52**	**11150**

Panel B. Classification of Privatized Firms (52 Firms) by Industry

Industry	No. of firms
Pharmaceutical and Chemical Industries Sector	12
Mining and Metallurgical Industries Sector	6
Construction and Real Estate Sector	13
Food Sector	11
Industrial Engineering Sector	10
Total	**52**

Source: - Egyptian Ministry of Public Enterprise, (2003).
* Initial Public Offering.
** Employees shareholders association.
*** Millions of Egyptian pounds (rate 1 L.E. =0.174 US$ as of July 2006).
The table shows the number of privatized firms classified by the method of sale, year-by-year, and according to the type of industry in which each firm operates. It also shows the value of privatized firms for each year and the total until December 2003.

Table 2: The Evolution of Ownership Structure in Newly Privatized Firms

Panel A. Ownership Evolution

Ownership categories		Ownership structure following privatization (year relative to privatization)							
		0	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	Pool
State	Mean	44.7	43.7	43.3	40.7	38.8	37.6	36.3	40.9
	(Median)	(46.1)	(45.7)	(43.6)	(40.9)	(39.0)	(39.0)	(39.0) 44	(42.3)
	N.	52	52	52	52	51	49		352
Local institutions	Mean	23.5	23.6	23.5	23.8	23.4	23.1	23.4	23.5
	(Median)	(17)	(17.4)	(17.3)	(16.9)	(16.4)	(16.5)	(16.1)	(17.0)
	N.	52	52	52	52	51	49	44	352
Foreign investors	Mean	5.8	6.7	6.6	8.1	10.0	10.6	11.7	8.4
	(Median)	(2.1)	(3.0)	(3.5)	(2.5)	(3.1)	(2.8)	(4.6) 44	(2.7)
	N.	52	52	52	52	51	49		352
Employees	Mean	8.9	9.0	10.4	10.2	9.6	9.4	9.3	9.5
	(Median)	(10)	(10.0)	(10.0)	(10.0)	(10.0)	(10.0)	(10.0) 44	(10.0)
	N.	52	52	52	52	51	49		352
Individuals	Mean	16.2	16.1	15.5	16.3	17.2	18.4	18.5	16.8
	(Median)	(12.7)	(12.2)	(11.8)	(12.2)	(12.9)	(13.9)	(13.1) 44	(12.3)
	N.	52	52	52	52	51	49		352

Panel B. Private Ownership Concentration

Cumulative shares of the three largest investors who own at least 5% (L13)	Mean	23.8	24.3	25.6	27.4	29.3	30.6	31.4	27.4
	(Median)	(10.0)	(10.0)	(10.0)	(13.1)	(16.0)	(16.1)	(15.7) 44	(14.9)
	N.	52	52	52	52	51	49		352
Herfindahl index of the three largest investors who own at least 5% (H13)	Mean	10.0	10.0	10.7	11.9	13.8	14.6	16.1	12.1
	(Median)	(1.0)	(1.0)	(1.0)	(1.3)	(1.5)	(1.5)	(1.4) 44	(1.3)
	N.	52	52	52	52	51	49		352
Cumulative shares of the three largest investors who own at least 10% (L23)	Mean	21.7	21.8	22.7	24.3	25.3	26.7	27.5	24.2
	(Median)	(10.0)	(10.0)	(10.0)	(10.0)	(10.0)	(10.0)	(10.0) 44	(10.0)
	N.	52	52	52	52	51	49		352
Herfindahl index of the three largest investors who own at least 10% (H23)	Mean	8.6	8.6	10.3	11.6	13.5	14.3	15.8	11.7
	(Median)	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)	(1.0) 44	(1.0)
	N.	52	52	52	52	51	49		352

The table presents summary statistics on the evolution of the ownership structure for a sample of 52 firms privatized between 1994 and 2001. Panel A describes the evolution of ownership by type of investor. We consider five types of investors: the state, local institutions, foreign investors, employees, and individuals. The post-privatization data (year 0 to year 6) come from Misr Settlement, Clearing and Central Depository Company. Panel B describes the ownership concentration measured by the percentage of shares held by the three largest private investors who own at least 5% (L13) and 10% (L23) and the Herfindahl index (the sum of squared ownership shares by the three largest private investors who own at least 5% (H13) and 10% (H23)). All statistics are presented in percent and N refers to the number of observations.

Table 3: The Impact of the Privatization Method on the Evolution of Ownership Structure in Newly Privatized Firms

Panel A. Ownership Type

Ownership categories	Privatization method		Ownership structure following privatization (year relative to privatization)							
			0	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	Pool
State	Full and control privatization	Mean (Median)	31.3 (30.0)	30.0 (3.0)	29.1 (30.5)	26.8 (27.35)	25.1 (26.43)	24.1 (23.27)	21.5 (16.17)	26.9 (27.2)
	Revenue privatization	Mean (Median)	68.0 (67.5)	68.0 (67.5)	67.8 (67.5)	67.01 (67.24)	68.8 (67.24)	68.3 (66.43)	67.8 (66.47)	67.9 (67.1)
t-statistics for difference in means			-7.9***	-8.2***	-8.3***	-8.3***	-8.3***	-7.95***	-8.3***	-21.9***
Mann-Whitney test for difference in medians (average rank)			(17.8-41.7)***	(17.5-42.1)***	(17.5-42.1)***	(18.3-42.5)***	(18.4-42.5)***	(17.9-41.0)***	(15.9-36.5)***	(120.2-285.4)***
Local institutions	Full and control privatization	Mean (Median)	31.3 (29.4)	31.6 (28.1)	31.2 (25.4)	31.0 (28.6)	29.8 (26.2)	28.9 (25.3)	30.4 (22.15)	30.5 (26.0)
	Revenue privatization	Mean (Median)	9.8 (6.4)	9.8 (6.4)	10.1 (7.6)	10.3 (6.65)	9.6 (6.2)	9.8 (8.4)	9.25 (7.0)	9.1 (7.0)
t-statistics for difference in means			3.86***	3.9***	3.6***	3.3***	3.0***	2.7***	2.8***	8.81***
Mann-Whitney test for difference in medians (average rank)			(32.8-15.5)***	(32.7-15.8)***	(32.1-16.7)***	(131.5-17.0)***	(30.6-16.7)***	(28.4-17.3)**	(25.8-15.4)**	(209.5-112.8)***
Foreign investors	Full and control privatization	Mean (Median)	8.2 (2.9)	8.9 (4.8)	8.6 (4.1)	10.2 (4.9)	12.6 (5.2)	13.13 (5.8)	14.8 (2.61)	11.0 (2.9)
	Revenue privatization	Mean (Median)	1.5 (0.10)	1.5 (0.1)	3.0 (1.4)	3.9 (2.1)	4.3 (2.6)	4.8 (2.9)	5.2 (4.95)	3.5 (2.4)
t-statistics for difference in means			2.12**	2.2**	1.56*	1.92**	2.06**	2.25**	2.51***	3.9***
Mann-Whitney test for difference in medians (average rank)			(30.5-19.5)***	(30.9-18.9)***	(29.7-22.1)*	(31..3-24.1)**	(31.6-25.1)**	(32.4-25.9)**	(22.2-23.1)	(183.3-153.3)**
Employees	Full and control privatization	Mean (Median)	8.6 (10.0)	8.9 (10.0)	11.0 (10.0)	11.0 (10.0)	10.6 (10.0)	10.3 (10.0)	10.1 (10.0)	10.0 (10.0)
	Revenue privatization	Mean (Median)	9.5 (10.0)	9.5 (10.0)	9.3 (10.0)	10.0 (10.0)	7.4 (10.0)	7.2 (10.0)	7.4 (10.0)	8.5 (10.0)
t-statistics for difference in means			-0.72	0.45	0.46	0.45	0.82	0.76	0.62	1.2
Mann-Whitney test for difference in medians (average rank)			(24.7-29.6)	(25-29.1)	(25.3-28.6)	(25.8-28.8)	(26.5-24.8)	(25.3-24.3)	(22.5-22.53)	(171.8-185.5)
Individuals	Full and control privatization	Mean (Median)	19.9 (16.4)	20.0 (17.3)	19.3 (14.8)	20.3 (15.1)	21.0 (16.4)	22.51 (18.9)	22.6 (19.8)	20.8 (17.3)
	Revenue privatization	Mean (Median)	9.8 (9.3)	10.0 (9.3)	8.8 (6.7)	8.7 (6.1)	9.0 (8.13)	9.1 (10.4)	9.6 (11.0)	9.2 (7.7)
t-statistics for difference in means			2.89***	2.9***	2.7***	2.85***	2.63**	2.8***	2.5**	7.45***
Mann-Whitney test for difference in medians (average rank)			(30.5-19.6)**	(30.3-19.9)**	(30.1-20.4)**	(29.9-20.1)**	(29.2-19.1)**	(28.3-17.5)**	(25.1-6.9)**	(200.4-130.3)***

Table 3: (Continued)

Panel B. Private Ownership Concentration

Cumulative shares of the three largest investors who own at least 5% (L13)	Full and control privatization	Mean (Median)	31.0 (17.2)	31.7 (16.8)	33.8 (20.4)	35.5 (22.65)	37.7 (23.3)	39.0 (22.63)	40.0 (18.7)	35.5 (21.2)
	Revenue privatization	Mean (Median)	11.4 (10.0)	11.4 (10.0)	11.3 (10.0)	12.1 (10.0)	11.1 (10.0)	11.6 (10.0)	13.3 (10.0)	11.7 (10.0)
t-statistics for difference in means			2.99***	3.1***	3.2***	3.2***	3.3***	3.25***	2.8***	8.38***
Mann-Whitney test for difference in medians (average rank)			(31.3-18.1)**	(31.3-8.1)***	(31.9-7.1)***	(31.5-17.1)***	(30.8-15.5)**	(29.7-4.4)***	(25.7-5.6)**	(209.5-112.7)***
Herfindahl index of the three largest investors who own at least 5% (H13)	Full and control privatization	Mean (Median)	13.4 (1.08)	13.3 (2.7)	16.2 (2.8)	17.5 (3.1)	19.6 (3.32)	20.6 (3.4)	23.0 (1.9)	17.6 (2.08)
	Revenue privatization	Mean (Median)	1.3 (1.0)	1.3 (1.0)	1.3 (1.0)	1.3 (1.0)	1.2 (1.0)	1.14 (1.0)	1.4 (1.0)	1.03 (1.0)
t-statistics for difference in means			2.19***	2.2**	2.35**	2.4**	2.4**	2.7**	2.3**	6.24***
Mann-Whitney test for difference in medians (average rank)			(31.8-17.2)***	(31.8-7.3)***	(31.9-7.0)***	(31.6-6.9)***	(30.8-15.5)**	(30.3-3.0)***	(25.8-5.4)**	(211.2-109.4)***
Cumulative shares of the three largest investors who own at least 10% (L23)	Full and control privatization	Mean (Median)	27.9 (10.0)	28.5 (10.0)	30.0 (10.0)	31.2 (10.0)	33.2 (10.0)	35.0 (14.55)	36.3 (10.6)	32.0 (10.0)
	Revenue privatization	Mean (Median)	10.9 (10.0)	10.8 (10.0)	10.4 (10.0)	11.2 (10.0)	8.2 (10.0)	8.0 (10.0)	8.5 (10.0)	10.0 (10.0)
t-statistics for difference in means			2.56**	2.5**	2.6**	2.5**	2.9***	3.1***	2.9***	7.36***
Mann-Whitney test for difference in medians (average rank)			(29.6-21.1)***	(29.6-21.1)**	(29.4-21.4)**	(29.1-21.5)*	(29.2-19.1)**	(28.7-16.5)***	(25.7-5.6)**	(198.9-133.2)***
Herfindahl index of the three largest investors who own at least 10% (H23)	Full and control privatization	Mean (Median)	13.0 (1.0)	12.8 (1.0)	15.6 (1.0)	17.1 (1.52)	19.2 (2.1)	20.3 (2.8)	22.7 (11.2)	17.2 (1.02)
	Revenue privatization	Mean (Median)	1.1 (1.0)	1.1 (1.0)	1.1 (1.0)	1.22 (1.0)	0.94 (1.0)	0.91 (1.0)	0.95 (10.0)	1.01 (1.0)
t-statistics for difference in means			2.14**	2.1**	2.28**	2.3**	2.4**	2.3**	2.3**	6.13***
Mann-Whitney test for difference in medians (average rank)			(30.1-20.1)***	(30.1-20.1)**	(30.0-20.5)**	(29.7-20.5)**	(29.6-8.2)***	(29.1-5.7)***	(25.7-5.6)**	(201.8-127.7)***

The table presents summary statistics on the evolution of the ownership structure for a sample of 52 firms privatized between 1994 and 2001 according to privatization method. Panel A describes the evolution of ownership by type of investor. We consider five types of investors: the state, local institutions, foreign investors, employees, and individuals. The post-privatization data (year 0 to year 6) come from Misr Settlement, Clearing and Central Depository Company. Panel B describes the ownership concentration measured by the percentage of shares held by the three largest private investors who own at least 5% (L13) and 10% (L23) and the Herfindahl index (the sum of squared ownership shares by the three largest private investors who own at least 5% (H13) and 10% (H23)). All statistics are presented in percent and N refers to the number of observations. We split the sample in two groups of firms, those privatized as private sales and majority sold in the stock market (control privatization) and those privatized as minority sold in the stock market (revenue privatization). Data on the privatization method come from the Ministry of Investment. The table also reports the t-statistic for differences in means with its significant level and the average rank of the Mann-Whitney test for the difference in medians and its significant level between each pair of firms. All statistics are presented in percent.

***,**, * refer to 1%, 5% and 10% levels of significance, respectively.

Table 4: The Determinants of Private Ownership Concentration in Newly Privatized Firms

Dependent Variable: CONC

Independent Variables	Model (1)	Model (2)
SIZE	-0.041	-0.045
	(-4.63)***	(-5.15)***
RISK	-0.31	-0.036
	(-1.06)	(-1.22)
GROWTH	0.098	0.12
	(1.86)*	(2.31)**
MAN	0. 082	0.09
	(2.96)***	(3.07)***
NONMAN	-0.13	-0.16
	(-1.76)*	(-2.02)**
FDAG	-0.046	-0.052
	(-0.52)	(-0.67)
CONST	-0.62	-0.068
	(-1.53)	(-1.66)*
TIME	0.41	0.043
	(2.06)**	(2.3)**
PS	0.63	
	(24.4)***	
MAJ		0.26
		(7.52)***
N	352	352
Adjusted R^2%	56.3	61.8
F-Ratio	51.2***	56.1***

The table shows the regression results of private ownership concentration on the set of explanatory variables. The following model is employed:

$CONC_{it} = \alpha + \beta_1 SIZE_{it} + \beta_2 IND_{it} + \beta_3 RISK_{it} + \beta_4 GROWTH_{it} + TIME_i + MTHD_{i,t} + \gamma_t + \varepsilon_{it}$ where

$CONC_{it}$ is the ownership concentration of firm i at time t measured by the logistic transformation of the percentage of shares held by the three largest private investors who own at least 5% (LL13); $SIZE_{it}$ is the log of the total assets of firm i at time t; IND_{it}, are divided according to whether firms belong to the industrial sector manufacturing (*MAN*), and non-manufacturing firms (*NONMAN*)–, food and agricultural firms (*FDAG*), and construction firms (*CONST*). The IND_{it} is a dummy variable that takes on if the firm i at time t belongs to the given sector, and 0 otherwise. $RISK_{it}$ is the standard deviation of annual return on equity of firm i at time t during the three years preceding the privatization. $GROWTH_{it}$ is the average annual growth rate of sales of firm i at time t during the three years preceding the privatization year, ($TIME_i$) is a dummy variable for privatization timing that takes the value of one if the sample-firm i is privatized after the median privatization date, and zero otherwise, and ($MTHD_{i,t}$) is a dummy variable that captures the privatization method of sale that is equal to one if the firm i is privatized through a private sales (*PS*) at time t and zero otherwise. In another specification, this is equal to one if the government sales majority (*MAJ*) of the firm i at time t, and zero if the government sells minority of the firm i at time t. γ_t are fixed-year effects to control for year specific effects, and ε_i is the error term. All regressions include year fixed-effect (coefficients estimates not reported). N refers to the number of observations.

***,**, * refer to 1%, 5% and 10% levels of significance, respectively.

Figures between parentheses are *t*-statistics.

Table 5. 2SLS Estimation of the Ownership Concentration and the Performance of Newly Privatized Firms (second stage results)

Independent variables	Dependent variable: ROS	Dependent Variable: ROA	Dependent variable: ROE	Dependent variable: Q-Ratio
CONC	0.31 (1.96)**	0.077 (3.72)***	0.44 (1.69)***	0.012 (0.097)
SIZE	0.18 (3.75)***	0.032 (5.31)***	0.21 (4.67)***	-0.036 (-1.08)
MAN	-0.16 (-1.84)*	-0.027 (-2.32)**	-0.10 (-1.01)	-0.13 (-1.81)*
NONMAN	0.14 (0.96)	0.043 (2.24)**	0.051 (0.32)	-0.06 (-0.51)
FDAG	0.093 (1.03)	0.034 (2.75)***	0.24 (2.33)**	0.20 (0.26)
CONST	0.053 (0.44)	-0.036 (-2.23)**	-0.24 (-1.86)*	0.25 (2.61)***
CEO	-0.13 (-1.25)	-0.082 (-1.36)	-0.11 (-0.92)	-0.32 (-0.84)
OUTS	1.17 (2.58)***	0.11 (1.66)*	0.74 (1.73)*	0.08 (1.87)**
CHNG	0.15 (1.63)*	0.07 (2.16)**	0.13 (1.76)*	0.04 (1.58)*
N	352	352	352	352
Adjusted R^2%	11.6	22.8	17.4	6.08
F-Ratio	4.65***	17.8***	12.6***	2.46***

The table shows the regression results of the 2SLS of the relationship between private ownership concentration and firm performance. The following model is employed:

$$PERF_{it} = \alpha + \beta_1 CONC_{it} + \beta_2 SIZE_{it} + \beta_3 IND_{it} + \beta_5 CEO_{it} + \beta_6 OUTS_{it} + \beta_7 CHGE_{it} + \gamma_t + \varepsilon_{it}$$

where $PERF_{it}$ stands for the performance for firm i at time t: return on sales (ROS), return on assets (ROA), return on equity (ROE), and the firm relative market value (Q-ratio);, $CONC_{it}$ is the ownership concentration of firm i at time t measured by the logistic transformation of the percentage of shares held by the three largest private investors who own at least 5% (LL13); $SIZE_{it}$ is the log of the total assets of firm i at time t; IND_{it}, are divided according to whether firms belong to the industrial sector-manufacturing (MAN), and non-manufacturing firms (NONMAN)–, food and agricultural firms (FDAG), and construction firms (CONST). The IND_{it} is a dummy variable that takes on if the firm i at time t belongs to the given sector, and 0 otherwise, CEO_{it} is a dummy variable that takes one if the chief executive officer and the chairman of the board are the same person of firm i at time t and zero otherwise, $OUTS_{it}$ is the proportion of outside directors for firm i at time t, and $CHNG_{it}$ is a dummy variable that takes one if the firm i changes its board of directors at time t in the post-privatization period and zero otherwise. γ_t are fixed-year effects to control for year specific effects, and ε_i is the error term. All regressions include year fixed-effect (coefficients estimates not reported). N refers to the number of observations.

***,**, * refer to 1%, 5% and 10% levels of significance, respectively.
Figures between parentheses are t-statistics.

Table 6: 2SLS Estimation of the Identity of Private Ownership Concentration and the Performance of Newly Privatized Firms (second stage results)

Independent variables	Dependent variable: ROS	Dependent Variable: ROA	Dependent variable: ROE	Dependent variable: Q-Ratio
INDV	-0.057 (0.36)	-0.17 (-1.56)	-0.19 (-1.16)	-0.27 (-0.95)
INST	0.17 (0.92)	0.069 (1.78)*	0.021 (0.62)	0.18 (1.71)*
FORG	0.48 (1.93)**	0.066 (2.07)**	0.54 (1.64)*	0.43 (2.21)**
EMPL	-0.76 (-1.73)*	-0.084 (-1.63)*	-0.47 (-1.08)	-0.47 (-1.59)*
SIZE	0.21 (3.84)***	0.037 (5.32)***	0.15 (2.46)**	-0.035 (-1.02)
MAN	-0.17 (-1.92)**	-0.041 (-2.61)**	-0.11 (-1.06)	-0.14 (-1.82)*
NONMAN	0.13 (0.92)	0.046 (2.32)**	0.048 (0.28)	-0.06 (-0.53)
FDAG	0.10 (1.21)	0.032 (2.58)**	0.25 (2.36)**	0.21 (0.29)
CONST	0.056 (0.52)	-0.035 (-2.18)**	-0.24 (-1.87)*	0.28 (2.74)***
CEO	-0.20 (-1.22)	-0.033 (-1.42)	-0.12 (-1.08)	-0.30 (-0.81)
OUTS	1.19 (2.61)***	0.11 (1.81)*	0.99 (1.98)**	0.54 (1.67)*
CHNG	0.18 (1.79)**	0.10 (2.56)***	0.16 (1.95)**	0.05 (1.72)*
N	352	352	352	352
Adjusted R²%	18.3	33.8	26.2	10.4
F-Ratio	9.6***	29.7***	18.4***	4.52***

The table shows the regression results of the 2SLS of the relationship between the identity of private ownership concentration and firm

performance. The following model is employed:

$$PERF_{it} = \delta + \sum_{j} \theta_j OWNER_{ijt} + \beta_1 SIZE_{it} + \beta_2 IND_{it} + \beta_3 CEO_{it} + \beta_4 OUTS_{it} + \beta_7 CHNG_{it} + \gamma_t + \varepsilon_{it}$$

where $PERF_{it}$ stands for the performance for firm i at time t: return on sales (*ROS*), return on assets (*ROA*),

return on equity (*ROE*), and the firm relative market value (*Q*-ratio); $OWNER_{ijt}$ is the private ownership concentration measured as percentage of shares owned by the largest three owners of type j (*INDV*: individual investors; *INST*: domestic institutional investors; *FORG*: foreign investors; and *EMPL*: employees) of firm i at time t. is the ownership concentration of firm i at time t measured by the logistic transformation of the percentage of shares held by the three largest private investors who own at least 5% (LL13); $SIZE_{it}$ is the log of

the total assets of firm i at time t; IND_{it}, are divided according to whether firms belong to the industrial sector

manufacturing (*MAN*), and non-manufacturing firms (*NONMAN*)–, food and agricultural firms (*FDAG*), and construction firms (*CONST*). The IND_{it} is a dummy variable that takes on if the firm i at time t belongs to the

given sector, and 0 otherwise, CEO_{it} is a dummy variable that takes one if the chief executive officer and the

chairman of the board are the same person of firm i at time t and zero otherwise, $OUTS_{it}$ is the proportion of

outside directors for firm i at time t, and $CHNG_{it}$ is a dummy variable that takes one if the firm i changes its

board of directors at time t in the post-privatization period and zero otherwise. γ_t are fixed-year effects to control for year specific effects, and ε_i is the error term. All regressions include year fixed-effect (coefficients estimates not reported). N refers to the number of observations.
***,**, * refer to 1%, 5% and 10% levels of significance, respectively.
Figures between parentheses are *t*-statistics.

Appendix A.: The Determinants of Private Ownership Concentration in Newly Privatized Firms

Panel A. Proportion of Outside Directors

		ROS	ROA	ROE	Q-Ratio
Firms above the median proportion of outside directors	**Mean**	**12.8**	**7.2**	**24.2**	**136.2**
	(Median)	(11.7)	(7.6)	(26.3)	**(119.6)**
Firms below the median proportion of outside directors	**Mean**	**9.1**	**5.4**	**17.6**	**126.1**
	(Median)	(8.2)	(5.6)	(19.8)	**(106.7)**
t-statistics for difference in means		**1.96****	**1.59**	**1.76***	**1.92****
Mann-Whitney test for difference in medians (average rank)		**(186.4- 161.2)****	**(172.3-158.4)***	**(182.3-162.5)***	**(183.6-161.7)****

Panel B. Changes in the Board of Directors

		ROS	ROA	ROE	Q-Ratio
Firms with changes	**Mean**	**12.6**	**8.4**	**21.8**	**131.6**
	(Median)	(10.6)	(7.8)	(25.7)	**(118.5)**
Firms without changes	**Mean**	**8.9**	**6.1**	**18.3**	**127.8**
	(Median)	(8.1)	(6.2)	(21.1)	**(107.1)**
t-statistics for difference in means		**1.71***	**1.91****	**1.66***	**1.45**
Mann-Whitney test for difference in medians (average rank)		**(190.2- 163.6)***	**(189.2-169.1)***	**(177.3-155.5)***	**(188.2-168.4)***

The table presents summary statistics on board of director variables for a sample of 52 firms privatized between 1994 and 2001. We consider both board of directors composition in terms of the proportion of outside directors ($OUTS$) and changes in the board of directors ($CHNG$). We split the sample into two groups of firms; those who are above/below the median proportion of outside directors and also those who experienced changes in their board composition or CEO change against those with no changes. The variables of the board of directors are collected from the General Authority for Investment .The table also reports the t-statistic for differences in means with its significant level and the average rank of the Mann-Whitney test for the difference in medians and its significant level between each pair of firms. All statistics are presented in percent.
**, * refer to 5% and 10% levels of significance, respectively.