Corporate Governance and Executive Compensation in Bulgaria after
Mass Privatization: Evidence from New Panel Data
by

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ABSTRACT

By using new panel data for a sample of Bulgarian firms that comprises both state owned and privatized firms (including new private firms), evidence is presented on the potential impact of ownership and age of the firm on diverse issues concerning corporate governance and executive compensation during 1997-2001. Privatization status and whether firms are de novo or not is found to be associated with differences in many areas including: the size and composition of company boards; the size of CEO pay; internal wage differences; the incidence of performance based compensation; firm objectives; and patterns of decision-making influence.

To investigate the determinants of executive compensation we first estimate standard CEO specifications. These baseline regressions reveal that CEO pay is: (i) positively related to size (ii) positively related to performance; (iii) significantly affected by ownership; (iv) influenced by whether a firm is de novo or not. These findings and the fact that both size and performance elasticities are much larger than those estimated before the start of mass privatization provide more general support than previously for the view that privatization has imposed strong discipline on the level of CEO compensation. In a series of additional regressions we proceed beyond standard specifications and examine the impact on CEO pay on other aspects of corporate governance. We find CEO pay is associated with: decision making influence; whether the contract provides for performance based compensation; whether the firm belongs to an employer's federation; the extent of employee and managerial ownership. However some dimensions of corporate governance are not systematically associated with CEO pay. Chief amongst these is board structure. Many of these findings provide support for the view that managerial influence (rather than agency relationships) plays a key role in corporate governance in Bulgarian firms.

JEL: P31, M12, J31, L21, O52, and P50

Keywords: Corporate governance, executive compensation, transitional economies, Bulgaria and managerial labor markets.

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I. Introduction

The broad topic of "corporate governance" has attracted great attention in the transition economics literature. Particular attention has been paid to selected issues notably econometric assessments of the impact of new forms of ownership on firm behavior and outcomes such as corporate performance.[1] At the same time, in the main much less attention has been paid either to assembling econometric evidence on other related issues, such as the determination of executive pay, or to documenting stylized facts on the nature and evolution of key dimensions of corporate governance, such as board size and board structure and to incorporating such variables into econometric work.[2] In this paper we make use of new panel data to make contributions in these areas.

Our data are for a sample of Bulgarian firms during 1997-2001. This is an interesting period to examine for Bulgaria since it coincides with the introduction of economic reforms such as the adoption of widespread privatization and the introduction of a currency board. Before 1997 economic reforms in Bulgaria tended to be rather limited; after 1997 the reform process accelerated. During the period after 1997 the available evidence indicates that Bulgaria seems to be doing rather better *macro*economically than was the case before 1997.[3] However there is a general paucity of empirically grounded *micro*economic studies during this period. In addition, our data are particularly interesting because they are for firms that survive as functioning economic entities from what was originally a random sample of state-owned firms that was generated in 1989.[4] By following our original sample during this reform period we are able to examine the impact both of privatization as well as firm origins on important dimensions of corporate governance. The structure of the paper is as follows.

In the next section we discuss conceptual matters. Since ours is not a theoretical contribution this review is quite brief. To provide institutional context for our empirical work we then review key aspects of the transition in Bulgaria. This is followed by a discussion of our unusual data and then a section in which we report some basic descriptive statistics emerging from our new data for key aspects of corporate governance in Bulgaria during this period. In the next and main part of the paper we report our findings on the factors that appear to determine CEO pay in Bulgaria. Our strategy is first to use our panel data to estimate some baseline regressions that highlight those factors that previous theoretical and empirical work have highlighted—size, performance, ownership, and firm origins. In more exploratory work we augment these specifications with other variables that are designed to capture other aspects of corporate governance that other work indicates are potentially important in the pay determination process but which do not yet appear to have been widely employed in econometric studies of firms in transition economies.

II Conceptual Framework

Recent years have witnessed an explosion of literature that largely investigates the broad area of corporate governance for western firms. While diverse issues have been investigated, themes which have received particular attention include the nature and role of corporate boards, links between formal structures and decision-making patterns and the nature and determinants of executive pay.[5] While the transition literature has not been immune from these influences, in the main the issues surrounding corporate governance that have attracted most attention in empirical work on transition have been more

restricted. Our discussion concentrates on some of these themes that have been stressed in the transition literature, for example matters surrounding the managerial labor market during transition, especially the roles of different forms of enterprise ownership and the importance of firm origins. In addition, and recognizing that space limits do not permit a comprehensive discussion, we will also briefly highlight the potential importance of other aspects of corporate governance that have tended to be comparatively neglected in empirical wok on transition. When we then turn to examine the specific issue of the determinants of executive compensation we will provide a more integrated discussion of these potentially important but neglected dimensions of corporate governance. In addition, to provide context for our subsequent empirical work, from time to time we also briefly discuss findings from previous empirical work in this area for transition countries including Bulgaria during 1997-2001.

One legacy of arrangements in Soviet-type economies was the existence of managerial reward systems in which pay was mainly a base wage and the pay of top managers was a low multiple of the average wage. Theorists have pointed out how these arrangements would be expected to result in acute incentive and motivational problems for managers (e.g. Bonin, 1976; Weitzman, 1976), produce extensive managerial slack (e.g. Ickes and Samuelson, 1987; Litwack, 1991) and, in turn, lead to several systemic inefficiencies including diverse pathologies of production (e.g. Putterman, 1993). Hence, in order to facilitate successful overall reform during early transition, many have stressed the crucial importance of reforming incentive systems (e.g. Aghion et al., 1994). For instance, when executive compensation is structured so as to provide pecuniary incentives for managers to pursue profitability, then arguably more market-oriented

managerial behavior would be encouraged. In the context of early transition, downsizing of overstaffed state owned firms and productivity increases appear to be key ingredients of successful reform. Arguably such adjustments will be facilitated when executive compensation is structured so as to reward managers for rational downsizing and productivity increases. Hence it is important to examine the nature and structure of CEO compensation contracts. Have pay relativities (CEO pay relative to averages and the low paid) changed during transition? Are these arrangements different according to firm ownership and whether the firm is new or not and are key features dependent on whether the manager is a new appointment or not.

In addition, theorists have noted the existence of several problems in labor markets, especially those of moral hazard and adverse selection. Such problems are especially evident when information is asymmetric--for example when one party to the employment relation (usually the principal) has imperfect information about the other party (the agent) and obtaining reliable information is costly. In fast changing environments facing transition economies--though environments often faced by much institutional inertia (North, 1990) these issues are expected to be particularly important and to lead to diverse hypotheses. In particular, compared to state-owned firms, mainstream theorists hypothesize that potentially there will be acute differences in principal-agent relationships in privatized firms. In turn this will produce variation both in the structure of executive compensation and in the effects of the structure of executive compensation on firm performance. Thus, some forms of private ownership can be expected to lead to stronger discipline on CEO compensation and to reduce the rent associated with state-owned firms.[6]

While the issues of the links between ownership and CEO pay as well as pay relativities have been examined in empirical work for transition economies (for a review of some of this work see Djankov and Murrell, 2002), other aspects of corporate governance that have tended to be stressed in recent work for western firms do not seem to have appeared much on the radar yet in work on transition economies. For example, recent work by Bebchuk and Fried (e.g. 2004) argues that executive compensation is *not* most usefully viewed through an arms-length contracting approach whereby CEO compensation is structured in order to overcome agency issues arising from the relationships among shareholders, directors and executives. Instead they argue that the most fruitful way to approach these issues is through the lens of managerial power that stresses the often considerable influence that executives exert over directors. It would seem that this theme is especially useful to examine in the context of transition economies where many have argued that insiders, notably managers, have accumulated enormous power (e.g. Aghion et al., 1994). Perhaps of most interest in transition economies with often volatile ownership configurations and important legacies on company behavior from previous eras, is whether there is expected to be a close link between ownership, formal board structure and patterns of influence within firms? Thus are different board structures (the extent to which different board members are assumed to represent different stakeholders) expected to be closely related to ownership structures (or rather instead to reflect concerns of different stakeholders?) Or concerning decision-making, it is important, for example, to see whether the state is perceived by key economic agents such as CEOs as exerting influence on certain matters even when the state is not an owner. And since many have argued that many firms in transitional

economies are effectively run by non-managerial insiders, what is the evidence concerning the scope and extent of employee influence on decision making, including in those firms in which they have significant ownership stakes?

Another important issue concerning corporate governance that has attracted a lot of attention recently in the west is that of board size. Some have conjectured that for reasons such as attempting to appease conflicting constituencies, company boards in western companies might sometimes become too large. In the context of transition economies, where often company boards represent an innovation, there is a parallel interest in board size and understanding whether there is an optimal size for the company board. A related issue is whether there are good reasons to expect that the situation might be different in firms that are de novo (compared to privatized forms that were formerly state-owned). For example, for reasons such as smaller average size, both company boards and CEO pay might be expected to be smaller on average in de novo firms than in long established firms.

The transition has also witnessed the emergence of non-state institutions outside of the firm that potentially impact the nature and effects of aspects of corporate governance. One dimension of this is membership in an employers' federation. Does membership in such bodies act to enhance or moderate CEO pay? Is the information that membership in such a body provides expected to lead to different effects on CEO pay depending on whether the firm is state owned or private?

 Another issue is that of the speed at which "market mentality" is being disseminated and whether this is leading to profound changes in the firm's objectives as perceived by key agents. For example, do firms' CEOs perceive that their raison d'etre is

profit maximization or do other potential goals such as employment security and sales growth play prominent roles. Again, there are good reasons to believe that the situation might be different in firms that have started afresh and/or are located in the private sector and thus not as hamstrung from pursuing certain objectives as state owned firms might be.

Turning to empirical work, up to now very little detailed evidence has been furnished on many of these matters as to what is actually happening in managerial labor markets during transition. Several studies have highlighted the role of managerial power during transition. Most studies (e.g as reviewed by Estrin and Wright 1999) find that even where there has been mass privatization, managers are very powerful and exercise greater power than is usually held to be appropriate for the proper functioning of a market economy (Nuti, 1997). However, often these studies are based on small and unrepresentative samples of firms. In addition, there are some empirical studies which point to the potentially important role of differences in management behavior in accounting for at least some of the differences in firm adjustment during early transition (e.g., Pinto et al. 1993 for Poland.) Arguably such differences at least in part reflect differences in management quality that, in turn, are linked with differences in the structure of executive compensation. Moreover, the work by Groves et al. (e.g., 1995) points to the role that corporatization (rather than privatization) plays in producing better motivated management (and, in turn, enhanced enterprise performance.)

For Bulgaria, there has been work on CEO pay determination. While these studies do find a role for firm size and enterprise performance, the relevant elasticities have been found to be are quite low (which is difficult to explain only though an agency view). In

addition, previous empirical work for Bulgaria has found that one of the most important factors both economically as well as statistically of CEO pay is ownership, with managers of state firms earning considerable rents. As yet, however, there do not appear to be any studies that investigate the impact of other dimensions of corporate governance such as membership of an employers federation, board structure, or patterns of influence. [7]In addition, there are no studies that examine the period since the introduction of mass privatization in Bulgaria.

III **Transition in Bulgaria**

Turning to transition in Bulgaria it is clear that the Bulgarian transition continues to be a most difficult one.[8] During the early years of transition, compared to many other transition countries (especially potential EU accession countries), Bulgaria faced unfavorable initial conditions. These included the impact of United Nations sanctions against Yugoslavia and Iraq that hurt Bulgaria more than many counties and high external indebtedness. But there were also substantial policy errors (including limited restructuring and high levels of corruption) which combined to produce high inflation, little foreign direct investment, a collapse of traditional markets, and dampen economic progress. Not until 1994 was there positive economic growth, and even that was short-lived culminating in a massive financial crisis in 1996-1997.[9]

Characterizing the Bulgarian transition strategy from 1990-1997 is not straightforward because, in some ways the Bulgarian approach apparently was quite radical -- including

rapid price liberalization, a new competition policy and extensive and swift small-scale

privatization-- and thus is reminiscent of "big bang" experiences elsewhere.[10]

At the same time, the pace of change in other areas was excruciatingly slow and

there were major policy blunders (e.g., Bristow, 1996.). While formal policy changes

have been heterodox, both the implementation of policy measures and the receptiveness

of economic agents to changes seem to have been quite uneven. Consequently the de

facto pace of institutional change often turns out to be far less than a casual observer

might expect based on de jure changes and arguably (Jones and Miller, 1997) the pace of

change, in fact, has been far less dramatic than the indicators in studies such as E.B.R.D.

(1996) would suggest.

In particular, the fear of accelerating unemployment paralyzed the political

process. The move to privatization of large state-owned firms was quite limited (at least

until the beginning of 1997). Hence during this early period a focus of reform efforts was

on corporatization rather than wholesale privatization. In this respect the situation

confronting Bulgarian managers was apparently more similar to that confronting Chinese

managers than managers of privatized firms in many transition economies in the former

Soviet Union. However, there are important differences. For one thing, evidence from

surveys (Jones et al.,, 1998) points to Bulgarian managers, absent ownership changes,

exercising considerable influence in the typical firm. Furthermore, while privatization is

not necessarily a requirement for restructuring, various special interest groups have

managed to retard attempts to restructure (Pamouktchiev, Parvulov and Petranov,1997)

Rather than look for ways to improve state enterprise efficiency by improving

governance structures, managerial positions have become part of the political spoils

system. Perhaps most important, because of the failure to deal with the problem of bad debts, the context within which Bulgarian managers operated often was characterized by continuing soft budget constraints.

The financial implosion of 1996-1997 was followed by the establishment of a Currency Board and significant structural and changes and institutional reforms. These initiatives have led to visible and sustained improvements in some important dimensions of the macroeconomic context.[11] Thus the last few years have seen positive economic growth and a much lower inflation rate. However, the level of real GDP is still only about 80% of the 1989 level. Moreover, the labor market is beset with many profound problems including an official unemployment rate that currently in close to 20% and which during the last several years has hovered officially in the mid to upper teens.[12]

Since our econometric work hinges on differences in ownership structures, it is important to consider key aspects of the legal institutional changes that have occurred in Bulgaria in recent years. Compared to other cases (including Russia and also those of Poland, Hungary and the Czech Republic), developments in transition economies such as Bulgaria in general received much less attention, and also much less is known about them.

Throughout the first half of the 1990's, and largely reflecting an unstable political environment with large and frequent shifts in government policies, privatization in Bulgaria proceeded very slowly. Indeed during 1992-1997 it is estimated that at most 7% of state assets were privatized (Miller and Petranov, 2000). Thereafter a series of privatization initiatives were introduced. These included a program of mass privatization that closely followed the Czech scheme and included provisions for the establishment of

investment funds and privatization auctions. A quickening of the pace of privatization was also shown by the use of other privatization vehicles including cash and insider privatization. Insider privatization followed a similar pattern as overall privatization, but with a slightly more sustained pattern. The upshot of these initiatives was to dramatically accelerate the pace at which privatization proceeded and the extent to which the economy became privately owned—more than 60% by the end of the millennium. In addition, there was dramatic evidence of the emergence of significant concentration of ownership in individual Bulgarian firms. Furthermore, there is evidence of the emergence of significant diversity in the patterns of ownership in Bulgarian firms. This is exemplified by the emergence of privatized firms in which insiders as well as different types of outsiders (including privatization funds and individuals who did not work in the firm) hold majority ownership, sometimes in the same industry.

IV The data and Basic Findings on Aspects of Corporate Governance

The data were collected from several different sources. Our latest data came from a survey of firms administered in the spring and fall of 2002 and from the National Statistical Institute of Bulgaria. The firms were originally selected back in 1989 to represent a random sample of industrial firms across regions and industry. Out of our original sample of 490 companies, 344 are still operating, 26 are either drafting a restructuring plan or proceeding with one, while another 72 have been or are in the process of being liquidated.[13]

The data we use essentially represent new waves of data collection from several sources as used and described in earlier studies (e.g. Jones and Kato, 1996 on CEO pay

determination). The main sources are the Bulgarian Management Survey (BMS), the Bulgarian Economic Survey (BES) and the Bulgarian Labor Flexibility Survey (BLFS). The BLFS was a project sponsored by the ILO to assess microeconomic changes in labor practices in Bulgarian industry. The BLFS involved 490 establishments, selected to ensure a nationally and sectorally representative sample. Specifically, the population was defined as all state-owned (in 1989) Bulgarian manufacturing organizations (SOE's) that operated on a for profit basis and had more than 80 employees in 1992, the year of the first wave of data collection.[14] Subsequent waves of data collection took place in 1994 and in 1996. For this study we collected data on all surviving firms from that sample for the period 1997-2001.

The original BMS collected survey data from the chief executive officers in the same 490 Bulgarian firms. A wide variety of questions were asked including information about chief executives, including pay and the method and terms of appointment. Data were also gathered concerning some firm characteristics, for example the form of enterprise ownership. For this study a new survey was designed (though there was considerable overlap in questionnaire design from earlier waves) and administered during 2002.

The data that we use in this paper are essentially drawn from the current waves of data collection. The nature of these data inevitably influences the empirical strategy that we are able to undertake at this time. Importantly, our data constitute a panel and are also quite rich in important respects. For example, we are able to construct diverse measures of interesting variables such as the extent of influence of major groups on different decisions All-in-all this enables us to undertake a number of different specifications in

our quest to rigorously analyze the impact of privatization and business performance on the determination of CEO pay. [15]

But first we draw on our new data to report a number of stylized facts on what is happening to important dimensions of corporate governance in Bulgaria.[16] We do this in large part because, as noted earlier, while there has been much conjecturing on diverse issues in the broad area of corporate governance, the underlying empirical evidence is often thin. In this section of the paper we use our new data to provide some new facts and also, so far as possible, we draw comparisons from other work. Our findings are presented in a number of tables.

In Table 1 we present information on board size and board structure.[17] From Part A we see that in all years the median board size category is about 1-3. In addition, this compact modal class is becoming more commonplace—median board size is falling. Perhaps surprisingly from part C we see that there are far more firms with more than 3 directors in de novo firms while both state-owned and privatized firms that were formerly state-owned, on average, tend to have tiny boards.

Table 1B details the formal influence of managers as reflected in managerial presence on company boards. Perhaps the most conspicuous example of managerial power that these data reveal is that in more than one in three firms *all* directors are managers. In more than half of sample firms, managers' representatives held at least 40% of seats on the board.

In Table 2 we present information on executive pay both in absolute terms and relative to the earnings received by the average worker and the lowest paid worker. From part A it is clear that, with the exception of 1997, the year following the crisis , real CEO

pay has tended to grow. Also while pay relativities have tended to widen they still remain quite narrow with the average CEO receiving less than four times the average worker in 2001. The cramped nature of internal wage systems is also revealed in the ratio of executive pay to the earnings of the lowest worker. Reflecting policy makers' raising minimum wage rates the ratio has hovered around 6.6 during the five-year study period.

When similar data are assembled for firms with different ownership and for new private firms, some interesting patterns emerge. Most apparent is the relatively low pay of CEOs in new private firms. In 2001 on average they earned 40 % less than their counterparts in both state and privatized firms.[18] While CEOs in private firms that were formerly state owned firms are the best paid they are only marginally better paid than is the average CEO in a state firm. The observed difference in CEO pay changes over the 1997-2001 period contrast sharply with findings for earlier periods. For example during 1992-95 managers in state firms earned considerably more than their counterparts in corporatized and private firms. The elimination of this difference during the current period tends to point to the absence of rent associated with state-owned firms although the final verdict will need to wait for multiple regression analysis in which firm performance is controlled for. Perhaps refelecting smaller average size, internal wage structures within new private firms are also found to be more compressed than in other firms.

The first part of Table 3 reveals that about 36% of firms have contracts for CEOs that provide for performance based compensation; there is some indication that the incidence of such contracts is falling. More noticeable and surprising are the differences by type of ownership. Performance pay is more than twice as commonplace in state

owned firms as in privatized firms and more than three and one half times more frequent then in new private firms (although the pay in new and mainly smaller firms may not capture potential future equity value owned by the CEOs).

The data reported in Part B of table 3 reflect CEOs being asked to assign a total of 10 points to three possible firm objectives. Perhaps the more interesting finding to emerge from this exercise is that when the data are disaggregated by ownership and firm origins, no strong and clear differences are apparent in the emphasis placed on these different objectives for firms that are either state owned, private or de novo.

In Table 4 we report some illustrative findings on patterns of the distribution of influence within firms. These data represent the views of CEOs who used a four point Likert type scale to gauge the influence on several different issues of six different groups –managers, employees, foreign owners, owners in general, banks and financial institutions and the state. Issues included strategic issues (such as the development of long term plans and employment reduction) as well as matters with more of a workplace focus (such as safety and health).

These data clearly show that on most issues in about 2/3 cases managers believed that they exercised considerable influence. This is in sharp contrast to assessments for the influence exercised by other groups. Indeed the degree of power attained by all other groups tended to attain a "high" level in about only one in ten cases and then for selected issues (and not across the board for all issues.) In other words, on average CEOs believe that they are very much in charge and they are not being hamstrung by "excessive" influence from other quarters whether this arises from owners, the state or other employees. Moreover, in unreported findings, when data on patterns of influence are

assembled by enterprise ownership and according to type of privatization, no pronounced differences are apparent. In other words, on average, Bulgarian managers exert considerable power irrespective of firm ownership.

Finally we look at measures of size and performance (Table 5.) We consider two alternative size measures: (i) Emp (total employment); (ii) Defsales (real sales in 2001 leva). The table shows that there was significant downsizing during the period 1997-2001 as average employment in sample firms fell from 300 to 192. As such this continued a process that was apparent during earlier periods for these firms (see, e.g., Jones, Klinedinst and Rock, 1998). More surprisingly perhaps, real sales fell on average by about a similar amount—just over a third. However, when these indicators of size are examined by ownership and firm origins it is apparent that the downward trends are strongest for firms that remain in the state sector. For example, for the average state owned firm employment fell by about 241 while real sales contracted by almost two thirds. This compares with drops in employment and sales in old privatized firms of less than 30%.[19]

For performance the available data enable us to examine two measures of productivity, namely real sales per worker (Rsalprod) and real value added per worker (Rvaddprod). For all firms while there is not much movement for the average firm in average sales per worker, value added productivity has increased sharply—by more than 54% in 5 years, Moreover, when these measures are examined by type of ownership there are some surprising differences. By far the biggest gains have been made by state owned firms. Real value added per worker in new private firms has barely changed during the five year period. As such these trends contrast with data from earlier periods—before the

onset of mass privatization, the comparable figures for firms in this sample show labor productivity falling during the four years preceding 1996.

V Determinants of executive compensation

In this section we turn to examine one key issue in the broad area of corporate governance and executive compensation in more depth, namely the determinants of executive compensation. We focus on this matter in large part because this is an issue for which previous work exists in Bulgaria (e.g. Jones and Kato, 1996). Also, to date econometric work has been restricted to fairly parsimonious specifications (focusing only on size, performance and ownership) and during periods when there was limited privatization. In view of our previous discussion about the potential importance for executive compensation of other factors such as board structure, patterns of influence and firm origins this is an area that lends itself naturally to more extensive empirical investigation. Moreover, it is an interesting exercise to see if those factors that under previous economic conditions were found to exert varying influence on executive pay, are found to play similar roles in the pay determination process after the spread of private ownership and other reforms.

To study the determinants of the level of CEO pay, we estimate a standard CEO pay log-log model using a panel of data during 1997-2001. Two sets of regressions are estimated—our "baseline" regressions and a series of more "exploratory augmented regressions". In the first set of baseline regressions we augment a standard chief executive compensation equation[20] with dummy variables indicating whether the firm

was state-owned or not and, if privatized, whether the firm was de novo or not as well as controls for region, industry and time. That is,

$\ln Pay_{it} = a_{it} + b * \ln(SIZE_{it}) + c * \ln(PERFORMANCE_{it}) + d * (STATE_{it}) + e * OLDPRIV_{it}$
$+ f * REG_i + g * IND_i + h * TIME_t + u_{it}$

(1)

where Pay_{it} = chief executive pay of firm i in year t; $SIZE_{it}$ = size of firm i in year t; $PERFORMANCE_{it}$ = standard firm perfromance measures such as various productivity measures of firm i in year t; $STATE_{it}$ = 1 when a firm is state-owned, 0 otherwise; $OLDPRIV_{it}$ = 1 if a privatized firm was originally a state firm, with 0 indicating the firm is de novo; IND_i = a series of nine industry dummies; REG_i = a series of 5 regional dummies; and $TIME_t$ = year effects. The disturbance term, u_{it}, is assumed to be distributed NID(0,sigma^2) and we estimate random effects models. [21]

PERFORMANCE and SIZE are standard categories that have been included in prior empirical studies of executive compensation in the U.S., the U.K. and other advanced market economies and in the limited work on transitional economies. In the western literature, the application of principal agent theory to the design of executive contracts in general predicts a positive correlation between managerial pay and some observable measure of firm performance (which eventually translates into improved well-being for shareholders).[22] To adequately measure PERFORMANCE, the debate in the western literature has usually centered on the respective merits of measures of stock market returns compared to various accounting measures such as ROA (the return on assets). However, in a context of embryonic capital markets as in Bulgaria, this debate is

moot since stock market measures are highly suspect. Moreover, many have argued (e.g., Pohl et al, 1997; Earle and Estrin, 1995) that the key performance measure may be labor productivity. Thus, in our empirical work we focus on different measures of labor productivity as an alternative firm performance measure. Both performance measures are entered as logarithms.

The inclusion of a measure of SIZE in empirical work in western literature usually follows from theories which stress the importance of factors such as spans of control in determining CEO pay (e.g., Klinedinst, 1991). For transition economies, another consideration is that under communism being a chief executive of a larger firm with many employees often translated into more political power and thus an improved ability to obtain higher pay. To see if this force persists, our data allow us to use two alternative SIZE measures: (i) lnEmp (the log of the number of workers); (ii) lndefSales (the log of real sales--in 2001 real leva).

Year dummy variables are included to capture technological change and other shocks common to all firms as well as possible measurement errors of inflation. In addition we include controls for industry (IND) and regional (REG) effects.

We estimate Eq. (1) by merging data from the aforementioned three surveys (the BMS, the BLFS, and the BES). We successfully assembled an unbalanced panel of up to 215 firms which provide data necessary for our regression analysis for 1997 through 2001.

We estimated four specifications of equation (1) depending on the selection of the size and performance measures.[23] Importantly, for all specifications reported in Table 6, separate F tests refute the joint exclusion of year, region and industry dummy variables at

the 1% level. The first and third columns of Table 6 show the results when the log of employment is used as a size measure, whereas columns 2 and 4 report findings using the log of real sales as a measure of size. For each size measure, results are reported when the two different performance measures are used (for example, real value added per worker (Rvaddprod in columns 1 and 2). Finally, all models include dummy variables for whether or not the firm was state owned or a privatized firm that was formerly state owned (as opposed to a new private firm).

We begin by examining the impact of ownership and firm origin on CEO pay. From Table 6 we see that the "OldPrivate" coefficients are statistically significant in all four cases (5% or better). This is strong evidence that whether a firm is a new firm (the base case) matters much in the determination of CEO pay. Specifically we see that CEOs in firms that are privatized and are former state owned earn higher pay then their private counterparts that are new firms, even after controlling for size and performance. These positive and significant estimates suggest that, after controlling for firm performance, the average CEO working for a former state-owned privatized firm receives, depending upon specification, 25-34% more pay compared to his/her counterpart in newly privatized firms. There is also some, though much weaker, evidence that managers of state owned firms earn rents. In one of four cases chief executives in state owned firms earn 26% more pay than do their counterparts in new private firms, other things equal. Hence, there is some weak evidence that the rent earned by state firm CEOs seems to be significant not only statistically but economically.

Turning to the relationship between executive pay and size, no matter which measure of size is used, evidence is found of a positive relationship and all four size

coefficients are statistically significant at the 1% level. While results are not sensitive to the choice of the performance measure, the estimated pay elasticities of size are in the range of 0.15-0.18. For example, as sales increase by 10%, CEO pay increases by 1.5 to 1.8%; for employment, the comparable effects are similar. These elasticities are slightly lower than those obtained in other studies. For example, Rosen (1990) in reviewing various western studies on the estimated elasticity of pay with respect to scale finds a typical value of 0.25 while Jones and Kato (1996) report elasticities of size of 0.2-0.4 for Bulgaria.

Finally, there is also strong support for the existence of a relationship between CEO pay and performance. For both measures of productivity, statistically significant relationships are found at the 1% level. Interestingly these elasticities are sometimes larger than those obtained in other studies. Thus, Rosen (1990) finds that the estimated sensitivity of pay to accounting measures are in the 1.0 to 1.2 range, whereas our estimated elasticities for Bulgaria for productivity (measured as real value added or lnvaddprod) range from 0..03 to 2.3% depending on the size measure. Moreover these findings contrast with earlier findings for Bulgaria when only a weak link with productivity was previously found. This finding of a strong link between pay and performance contrasts sharply with earlier findings. It suggests that conditions that better facilitate managers being able to give improved attention to comparative business performance have now been provided, thus representing a major change from earlier periods. Increasingly managers are being forced to devote more attention to performance.

In the remaining part of this section we report findings from a second and more exploratory set of regressions. These findings are reported in tables 7 -9. In these

regressions we draw on some of the findings reported earlier on aspects of corporate governance to extend the basic framework that is indicated by equation 1 and which we have reported in our baseline regressions.

For example, in Table 7 we augment the basic specification to include variables that reflect three important dimensions of corporate governance and executive compensation that are highlighted in our survey data. The three additional variables are: (i) the fraction of the firm's labor force that are managers as well as owners (MANOWN); (ii) whether the firm is a member of an the main employers' association, the Bulgarian Industrial Association (BIA); and (iii) whether the chief executive's contract provides for performance based compensation (PBC). While to date these do not appear to have been used in econometric investigations of executive pay in transition economies, some of these variables have appeared in studies elsewhere.

Our first finding is that, in the main, the addition of these explanatory variables does not alter the basic story that has already been reported. That is, reassuringly, the coefficients for most of the variables in our core model—reflecting size, performance, ownership and whether a firm is new or not—are essentially unchanged from those reported earlier. The only exception is that CEO pay determination is no longer as significantly related to whether or not a firm is de novo.[24]

Consistent with those who hypothesize that managerial ownership can be used to help to resolve agency problems (but also consistent with those who argue that more managerial ownership leads to enhanced managerial power), CEOs in firms in which ownership by managers has a stronger presence earn higher pay, other things equal. Also, there is weak evidence that membership in an employers' federation is seen as a force

that tends to curb CEO pay. Lastly, we observe that CEO pay is lower by about 18% in firms in which CEOs pay is tied to enterprise performance. This result does not provide support for agency theorists but does offer comfort for those who articulate views based on growing managerial power.

In Tables 8-9 we turn to examine the potential impact of the distribution of decision-making influence on executive pay. We are interested in investigating whether it is ownership or influence that matters most in determining CEO pay. Amongst potential decision-makers, reflecting the attention that has been devoted to management, in these exploratory regressions we concentrate on the role of managerial power. In these regressions, managerial power is measured by a series of dummy variables and this procedure is followed for a number of different types of issues. For example, managerial influence on long term plans ranges from "high" influence (DMANLTP1) to zero (DMANLTP4). For the other issues for which we report illustrative results, namely employment reduction (LRED), wage determination (WAG) and safety and health (SH), we use four identical categories. Analogous procedures are used to examine the potential impact on CEO pay of varying degrees of power that other groups might possess. Thus a high degree of influence by the state on long term plans is represented by "DSTALTP1" whereas a low degree of power by employees on employment reduction is captured by DEELRED4.

In all of the reported regressions, a single set of dummy variables that captures the extent of influence by a particular economic agent is used to augment the basic specification that was discussed earlier. While we will first discuss the findings for the role of managerial power, we note that in most reported regressions the findings that

emerge from the core regression model are mainly unaffected by the inclusion of any of the separate vectors of influence variables.[25] That is in most of the findings reported in tables 8-9 (as well as in unreported findings) normally both size and performance continue to be statistically significantly associated with CEO pay and CEOs in new firms typically earn less that their counterparts in the private sector, other things equal. Also, the size of these core coefficients is not affected by the inclusion of sets of influence variables.

In addition, we find weak evidence that managerial power has a strong and positive influence on CEO pay. For some categories of managerial influence this relationship is always found. Thus on all issues when managers perceive that they have "high" influence (D=1), and relative to a managers who perceive that they have no influence, CEO pay is higher by between 14 and 25% . Equally the particular pattern of effects tends to vary depending on the particular issue that is being used to proxy managerial power. Thus for the issue of employment reduction only high and moderate levels of managerial power are seen to impact CEO pay, whereas for wage determination all levels of managerial influence exert upward pressure on managerial pay and for long term planning moderate managerial influence has no statistically significant effects.

In Table 9 we report regressions that include a vector of dummies for state (rather then managerial) influence. When state power is measured for the issue of long term plans we find that state influence does not appear to play a significant role in influencing CEO pay. But the picture is different when we turn to some other issues. This is clearly shown from the findings for state influence on employment reduction. On this matter,

always when state influence is perceived to be high (DSTALRED=1), and sometimes when it is moderate, CEO pay is adversely affected.

All in all these selected regressions that purport to capture the role of influence by different agents on CEO pay point to influence playing a bigger role than formal ownership. Thus in most regressions ownership (as proxied by State) continues, as in our baseline regressions, not to be statistically significant. This contrasts sharply with findings for the role of "influence" particularly managerial influence.

VI Conclusions

The results here show a number of important trends in executive compensation and corporate governance in Bulgaria. The size of corporate boards was falling over the period under investigation, 1997 to 2001, with only new firms having an average board size over three. Managerial influence is considerable, fully one third of boards are all managers. This influence is reflected in the fact that real income for executives grew over this period, as well as the ratio of CEO pay to the average and lowest employee. The pay ratios are still relatively narrow (6.7 highest to lowest) relative to other market economies, especially relative the U.S., where it is not uncommon to find ratios in the hundreds (Klinedinst 1991, Kaplan, 1994).

Moreover, from Table 2, where we report summary statistics when the sample is divided according to ownership, we see that in new private firms, that also have larger boards, fewer employees and sales pay their CEO's 40% less than their counterparts in state and private former state firms. These new firms also, somewhat surprisingly, are much less likely to offer performance based pay for their CEO's than other firms (in

2001, 21% versus the overall average of 36%), even though the firm objectives are stated to be similar in the three different ownership groups. On important strategic issues (long term plans, employment, etc.) 2/3 of managers typically thought they exercised considerable influence relative to the state or employees. For most firms, teamwork and a truly participative environment look to be years away as firms are created or redefine themselves apart from the state's heavy hand. The tough choices firms have had to make during these years, especially within a macro environment that became dominated by the influence of the newly-formed Currency Board, have resulted in real value added per worker going up from 1997-2001, particularly in the state sector.

Size matters for CEO pay, a finding that is consistent with studies from other market economies. This correlation with size may represent the additional administrative duties that come with more employees and sales, but it could also represent the strong control that managers have relative to other stakeholders. Performance measures for the firm are also found to be strongly correlated with executive compensation and show an increased awareness of market discipline. This restriction on CEO pay is also evidenced in the lower compensation found for CEO's in firms that are members of the Bulgarian Employers' Federation and that have performance based compensation schemes, some that included ownership as well. Even though Bulgarian firms are influenced by these professional organizations, market performance indicators and in some cases the state, the strong influence that managers have over many strategic decisions make their pay become more often a reflection of their internal power in the firm, a finding similar to those for other market economies (e.g., Bebchuk and Fried, 2004, Klinedinst, 1991 and Rosen 1990). The reforms have brought great market discipline, but CEO pay, even if it

is limited to the fraction that can be measured, needs greater performance linkage to

ensure that Bulgarians firms remain competitive.

 Definitions of Variables

COBD= Size of the company board

MAN/COBD=fraction of the board that represents managers

EE/COBD=fraction of the board that represents employees

State=1 if the firm is still mainly state-owned, 0 otherwise

Privold1 if a privatized firm is a former state-owned firm, 0 otherwise (de novo)

DefCEOPAY = real monthly salary of CEO (2001 leva) (excluding bonuses and non-monetary compensation.)

CEO/AvwageRATIO= (CEOPAY/ average monthly salary of all employees)

CEO/lowpay=ceopay/lowest monthly salary

PBC=1 if the manager has a contract that provides for performance based compensation, 0 otherwise

MANOWN=fraction of the workforce that are owners and managers

BIA=1 if the firm is a member of the Bulgarian Industrial Association, 0 otherwise

SIZE = A measure of size:

      EMP= employment; lnemp=log of employment

      DefSALES= real sales (thousands 2001 leva); lndefsales = log of real sales

PERFORMANCE = A measure of enterprise performance:

      RSALPROD = real sales per worker ; lnrsalprod=log real sales per worker

      RVADDPROD=real value added per worker; lnrvaddprod = log real value added per worker

STATE = 1 if majority owner is state, 0 is otherwise

PRIVATE =1 where private owners own a majority of the voting equity and firm is
      formerly state owned

NEWFIRM = 1 where private owners own a majority of the voting equity and firm is de
      novo

DMANLTP1= managers have high degree of influence on long term plans (using a 4
      point Likert scale), 0 otherwise

DMANLTP2= managers have moderate degree of influence on long term plans (using a
      4 point Likert scale), 0 otherwise

DMANLTP3= managers have low degree of influence on long term plans (using a 4
      point Likert scale), 0 otherwise

DMANLTP4= managers have no degree of influence on long term plans (using a 4 point
      Likert scale), 0 otherwise

DMANLRED1= managers have high degree of influence on decision to reduce
      employment (using a 4 point Likert scale), 0 otherwise

DMANLRED2= managers have moderate degree of influence on decision to reduce
      employment (using a 4 point Likert scale), 0 otherwise

DMANLRED3= managers have low degree of influence on decision to reduce
      employment (using a 4 point Likert scale), 0 otherwise

DMANLRED4= managers have no degree of influence on decision to reduce
      employment (using a 4 point Likert scale), 0 otherwise

DMANWAG1=managers have high degree of influence on wage setting (using a 4 point
      Likert scale), 0 otherwise

DMANWAG2=managers have moderate degree of influence on wage setting (using a 4
      point Likert scale), 0 otherwise

DMANWAG3=managers have low degree of influence on wage setting (using a 4 point Likert scale), 0 otherwise

DMANWAG4=managers have no degree of influence on wage setting (using a 4 point Likert scale), 0 otherwise

DMANSHi =4 dummy variables for the extent of managerial influence on decisions concerning safety and health

DSTALTP1=State has high degree of influence on long term plans (using a 4 point Likert scale), 0 otherwise

DSTALTP2=State has moderate degree of influence on long term plans (using a 4 point Likert scale), 0 otherwise

DSTALTP3=State has low degree of influence on long term plans (using a 4 point Likert scale), 0 otherwise

DSTALTP4=State has no degree of influence on long term plans (using a 4 point Likert scale), 0 otherwise

DSTALREDi =4 dummy variables for the extent of state influence on the decision to reduce employment

DEESHi=4 dummy variables for the extent of employee influence on decisions concerning safety and health

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[1] For recent reviews for transition economies see Djankov and Murrell, 2002,.Bevan et al.
(1998) .and Jones (2004). These reviews reveal that there is far less agreement than
seems to be the case at first blush. On the impact of ownership and other aspects of
corporate governance on firm performance for the case of Bulgaria see Jones et al.1999
and, more recently, Jones and Klinedinst, 2003.

[2] Of course there are some exceptions. For example for an earlier study of executive
compensation in Bulgaria see Jones and Kato (1995). For a recent study of wage
determination in Bulgaria see Jones and Simon (2005.)

[3] For accounts and evaluation see EBRD, 2003. Note however that there are important exceptions to an overall favorable assessment of macro performance—for example unemployment remains stubbornly high at close to 20%.

[4] Studies of earlier waves of data for this sample include Jones, Klinedinst and Rock (1999),Jones, Kato and Avramov (1995)5 and several essays in Jones and Miller, eds. (1997.)

[5] See for example the papers in the Journal of Economic Perspectives (vol 17, 2003) on executive compensation.

[6] For a discussion of the implications of differences in the principal-agency relationship in state-owned versus privately-owned firms and the implications for CEO pay see Jones and Mygind (2003).

[7] While "Employers Federations" existed during the command era, as with other institutions that span the command and transition eras (such as trade unions), the nature and functions of such organizations in a market environment are substantially different than in the past. An important role of employers federations today is to collect information on CEO pay.

[8] For general accounts of early transition see Bristow (1996) and the essays in Jones and Miller (eds., 1997)

[9] During this early transition era, the Bulgarian performance arguably lay somewhere in the middle range for transforming economies -- poorer than the Visegrad group and the Baltic Republics but better than many other former communist countries, including Ukraine and Belarus and arguably Russia. Most noticeably, in Bulgaria declines in output and average real income are much greater and unemployment and inflation much higher than in the former group, though often better than in the latter (e.g. Blanchard, 1996; Murrell, 1996). In addition, Bulgaria has been exceptional is its growth pattern. Most transition economies did not begin to grow until inflation was under 50%. Fischer et al. (1996) report that only Bulgaria and Romania began to grow before inflation dropped below 50%.

[10] For accounts of reform in Bulgaria see Bristow (1996), Dobrinsky (1996), and Jones and Miller (eds., 1997)

[11] For a review see Stoev (2002).

[12] For a review see Rutkowski (2002).

[13] In part because of the extensive changes in record keeping in a fast changing environment, we are unable to determine what has happened to 48 of the original firms.

[14] The sampling design for enterprises operated at two levels. First, five groupings of the 320 municipal districts in Bulgaria were selected on the bases of geographic and urban variability, reproducing aggregate country-wide industry distributions, and minimizing data collection costs (Sofia, Pernik, Pleven, Burgas and Plovdiv). Second, within each of the five regions, population enumeration lists of SOE's were compiled by the Central Statistical Bureau. The number of sampled firms per region was set to reproduce the population proportions of firms per region in 1989 (the first year for which data were gathered). The five regions contained a population of 727 SOE's. Within each region, within major industry categories, firms were ordered by size and the approximate two-thirds largest were selected up to the desired sample size of about 500. Thus the sample contains 69% of the population of firms, but selected to reproduce population distributions by region and industry. In terms of employment, the sample SOE's contain about 95% of all SOE employees in the five regions in 1989.

[15] Some sample firms are labelled "de novo". These are firms that are new legal entities but which have arisen from the remnants of firms in the original sample that were liquidated.

[16] While the data we present in this paper are for unbalanced panels, preliminary investigations using a balance panel indicate trends that are broadly similar.

[17] According to our data, the typical Bulgarian firm has a unitary board structure. Only one in six firms had a two tier board, with a supervisory board accompanying the main company board.

[18] These differences in compensation are not all accounted for by differences in size but do relate to differences in performance. (See on for more discussion of this point.)

[19] Employment and real sales in de novo firms has also fallen considerably—by more than 33% (Table 5.) Presumably this contraction reflects many de nove firms being required to assume initial obligations as part of privatization deals that involved substantial excess capacity.

[20] See, for instance, Murphy (1998) for a discussion of standard CEO compensation equations.

[21] Therefore this treats the a_i as a random variable. The choice of random effects over fixed effects specification is always supported by Hausman tests using a critical level of 0.10.

[22] In the main the executive compensation literature (which is overwhelmingly undertaken for studies of developed economies)does not measure performance relative to an industry mean, even though such measures often are publically available in the west. In the case of transition economies such as Estonia, the use of performance measures relative to industry means is difficult to implement since such data are not publically available and, the relatively few firms in most Estonia industries would mean that even if such a procedure were feasible it would be especially sensitive to outliers.

[23] As indicated earlier, our estimates are for unbalanced panels. If the identical specifications are estimated using a balanced panel for 169 firms, the findings are essentially unaltered from those reported in the text.

[24] However, in one case, lnsales is no longer statistically significant.

[25] However, we again note that in some regressions sales per worker is no longer statisitically significant.

TABLE 1: Size and Composition of the Company Board

A. Size of Company Board			
	1997	**1999**	**2001**
1-3	47	52	60%
4-6	39	35	30
7-9	12	10	8
>9	2	2	2
B. Fraction of the Board that represents managers			
0%	14	15	14
>0%<20%	13	12	11
>20%<40%	22	19	22
<40%<60%	8	9	6
<60%<80%	7	9	9
<80%<99%	1	0	0
100%	35	36	38
C. By Ownership and Origin			
State			
1-3	54	53	54
4-6	46	47	46
Old Private			
1-3	53	56	53
4-6	41	38	41
7-9	6	6	6
New Private			
1-3	25	23	25
4-6	30	29	30
7-9	33	29	33
>9	12	9	12

Notes: 1. All entries are percentages of total respondents.
   2. Entries may not sum to 100% because of rounding

Table 2: Chief Executive Pay: Mean (Standard Deviations)

A. All Firms	1997	1998	1999	2000	2001	All Years
Defceopay	758.9 560.3	677.8 (464.8)	753.4 (593.5)	792 (5844)	810 (601.14)	759.5 565.1
Ceo/avpay	3.31 (2.36)	3.30 (1.98)	3.47 (2.32)	3.62 (2.17)	3.77 (2.58)	3.5 (2.30)
Ceo/lowpay	6.63 (7.80)	6.33 (4.46)	6.66 (6.02)	6.73 (4.88)	6.66 (4.67)	6.61 (5.68)
B. By Ownership and Origin						
State Owned	1997	1998	1999	2000	2001	All Years
Defceopay	741 (428)	710 (319)	774 (354)	860 (400)	878 (422)	746 (421)
Ceo/avpay	2.74 (1.06)	3.05 (1.18)	3.16 (1.11)	3.51 (1.44)	3.54 (1,48)	3.50 (2.31)
Ceo/lowpay	5.20 (2.83)	5.85 (3.38)	5.58 (2.68)	6.28 (3.49)	6.15 (2.88)	5.91 (4.91)
Old Private	1997	1998	1999	2000	2001	All Years
Defceopay	863 (597)	765 (510)	871 (679)	910 (650)	919 (645)	865 (616)
Ceo/avpay	3.64 (2.49)	3.54 (2.04)	3.85 (2.65)	3.98 (2.29)	4.07 (2.33)	3.82 (2.38)
Ceo/lowpay	7.59 (9.27)	6.78 (4.29)	7.46 (6.64)	7.51 (5.21)	7.45 (4.94)	7.33 (6.32)
New Private	1997	1998	1999	2000	2001	All Years
Defceopay	482 (440)	418 (307)	439 (309)	466 (362)	516 (486)	467 (397)
Ceo/avpay	2.79 (2.54)	2.76 (2.14)	2.67 (1.73)	2.82 (2.05)	3.19 (3.47)	2.88 (2.55)
Ceo/lowpay	4.91 (4.65)	5.36 (5.55)	5.26 (5.77)	5.03 (4.42)	5.07 (4.57)	5.18 (5.11)

Notes: 1. All value entries are in real 2001 leva.

Table 3: Form of the Contract and firm Objectives

A. Performance based pay							
	1997	1999	2001				
All Firms	41%	40%	36%				
State	61	67	76				
Old Private	40	37	32				
New Private	24	22	21				
B. Firm Objectives							
(1) All Firms							
	0%	0%<20%	>20<40%	>40<60%	>60<80%	>80<100%	100%
Profit Maximization	8	29	51	9	1	0	1
Employment Security	7	34	45	10	2	0	2
Sales Growth	3	7	54	29	5	0	2
(2) By Ownership and Firm Origin							
Profit Maximization							
State	9	31	46	14	0	0	0
Old private	9	26	54	9	1	0	1
New private	8	35	49	8	1	0	0
Employment Security							
State	12	28	46	10	4	0	0
Old Private	7	40	40	10	1	0	2
New Private	4	26	53	12	3	0	1
Sales Growth							
State	0	9	53	31	4	0	3
Old Private	5	4	53	30	6	0	2
New private	1	12	57	26	4	0	0

Notes:
 1. Entries in part A represent the percentages of firms where CEOs has contracts with PBC.
 2. Entries in Part B represent the percentage of respondents who gave that objective the indicated weight (Respondents were forced to choose answers that summed to 100.).
 3. Entries may not sum to 100% because of rounding.

Table 4: The Distribution of Influence on Selected issues

	Long Term Plans (LTP)	Employment Reduction (LRED)	Wage Setting (WAG)	Safety, Health (SH)
A. Management				
High	67%	65	60	66
Moderate	18	13	15	11
Low	12	3	4	5
None	3	20	20	18
B. State				
High	12	9	10	14
Moderate	6	5	5	5
Low	11	8	8	10
None	71	78	78	70
C. Employees				
High	3	6	6	13
Moderate	12	14	20	30
Low	18	18	23	18
None	67	62	50	38

Notes:
1. All entries are percentages of total respondents.
2. Entries may not sum to 100% because of rounding
3. Respondents were asked to assess the influence of different groups on various issues using a 4 point Likert scale.

Table 5: Sample firms: Size and performance, 1997-2001: Means (Standard Deviations)

	1997	1998	1999	2000	2001	All years
All Firms						
Emp	300	300	233	200	192	243
	(472)	(539)	(387)	(293)	(295)	(409)
Defsales	9933	7308	6203	5833	6133	7082
	(33251)	(21620)	(16911)	(16963)	(18259)	(22290)
Rvaddprod	9.3	8.7	10.3	12.2	14.3	11.1
	(27.1)	(10.8)	(17.7)	(20.4)	(35.6)	(24.0)
Rsalprod	22.75	17.8	18.7	21.1	23.6	20.8
	(61.3)	(21.5)	(28.6)	(30.2)	(42.9)	(35.6)
State						
Emp	447	569	326	262	206	370
	(871)	(1147)	(668)	(343)	(240)	(749)
Defsales	24549	15133	10843	8193	8996	13953
	(68757)	(43069)	(25172)	(16637)	(21119)	(40719)
Rsalprod	21.1	20.1	19.7	21.0	36.9	24.4
	(30.6)	(27.9)	(30.0)	(30.4)	(88.3)	(49.4)
Rvaddprod	8.8	8.5	11.0	11.1	26.5	13.7
	(11.4)	(12.2)	(12.7)	(10.9)	(81.7)	(40.2)
Oldpriv						
Emp	298	281	232	217	212	250
	(369)	(356)	(319)	(316)	(327)	(346)
Defsales	9473	7384	6731	6890	6959	7446
	(26213)	(17924)	(18058)	(20716)	(21321)	(21462)
Rsalprod	27.2	19.6	20.4	22.8	23.8	22.7
	(75.6)	(21.5)	(30.3)	(27.8)	(30.5)	(42.0)
Rvaddprod	10.5	9.3	11.1	12.2	12.8	11.2
	(33.8)	(10.8)	(20.1)	(17.4)	(18.1)	(21.4)
Newfirm						
Emp	168	150	122	102	105	124
	(179)	(150)	(125)	(100)	(118)	(131)
Defsales	2872	2605	1827	1543	1377	1816
	(7633)	(7020)	(4876)	(3961)	(3606)	(5075)
Rsalprod	10.8	11.24	9.28	10.1	8.2	9.5
	(20.0)	(17.9)	(16.9)	(15.8)	(9.0)	(14.8)
Rvaddprod	5.6	7.1	5.01	6.0	5.4	5.7
	(8.6)	(10.3)	(6.7)	(6.8)	(5.3)	(7.0)

Table 6: Determination of CEO Pay 1997-2001 Baseline Regressions
(Standard errors in parentheses.)

	(1)	(2)	(3)	(4)
Lnemp	.1705*		.159*	
	(.0218)		(.0271)	
Lndefsales		.1838*		.1593*
		(.0226)		(.0271)
1nrvaddprod	.158*	.0297		
	(.0221)	(.0236)		
Lnrsalprod			.2264*	.06698**
			(.025)	(.033)
State	.2606**	.2065	.2072	.2072
	(.140)	(.1388)	(.135)	(.1393)
Oldprivate	.342*	.2572**	.2510**	.2510**
	(.121)	(.120)	(.121)	(.1210)

Notes:
1. Significance levels are as follows: * =1%; ** = 5 %; ***= 10% level.
2. All estimates include controls for time, region (5) and Industry (9).
3. The number of observations was always 842.
4. All variables are defined in the appendix.

Table 7: CEO Pay Determination: baseline regressions augmented by the incidence of Performance based compensation (PBC), the extent of managerial ownership (Manown) and membership of an employers' association (BIA)

	(1)	(2)	(3)	(4)
lnemp	0.182* (0.037)			0.214** (0.037)
lnrsal	0.147* (0.034)	-0.035 (0.05)		
lnrvaddprod			0.003 (0.043)	0.148* (0.034)
lnrsalprod		0.182* (0.037)	0.162* (0.029)	
State	0.258*** (0.160)	0.258*** (0.160)	0.245 (0.161)	0.255 (0.160)
Oldpriv	0.206*** (0.118)	0.206*** (0.118)	0.197*** (0.117)	0.232** (0.115)
BIA	-0.127 (0.104)	-0.127 (0.104)	-0.131 (0.106)	-0.135 (0.105)
PBC	-0.180** (0.074)	-0.180** (0.074)	-0.183** (0.075)	-0.163** (0.074)
MANOWN	0.574* (0.208)	0.574* (0.208)	0.501** (0.204)	0.576* (0.208)

Notes:
1. Standard errors are in parentheses.
2. * significant at 1%; ** significant at 5% ; *** significant at 10%
3. All estimates include controls for time, region (5) and Industry (9).
4. All variables are defined in the appendix

Table 8A: The Determination of CEO Pay: Models including Management Influence

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lnemp	.1777*		.1702*		.175*		.169*	
	(.0309)		(.0298)		(.031)		(.030)	
Lndefsale		.187*		.170*		.183*		.169*
		(.024)		(.0298)		(.024)		(.030)
lnvaddprod	.1214*	-.134			.113*	-.012		
	(.024)	(.265)			(.023)	(.025)		
lnsalprod			.1884*	.0182			.183*	.013
			(.026)	(.3661)			(.206)	(.036)
State	.2364	.1919	.192	.192	.3042***	.254	.255	.255
	(.168)	(.1631)	(.163)	(.164)	(.167)	(.165)	(.165)	(.165)
OldPriv	.3336**	.2586***	.2571***	.257***	.3615**	.2881**	.280***	.280**
	(.144)	(.143)	(.122)	(.143)	(.146)	(.144)	(.145)	(.145)
Dmanltp1	.1418***	.1437***	.1435***	.144***				
	(.0799)	(.0181)	(.078)	(.0787)				
Dmanltp2	-.01188	-.0337	-.0345	-.0346				
	(.093)	(.000)	(.091)	(.091)				
Dmanltp3	.2476**	.2349***	.235***	.235***				
	(.1256)	(.1234)	(.123)	(.1234)				
Dmanlred1					.193**	.194**	.195**	.195**
					(.186)	(.085)	(.085)	(.085)
Dmanlred2					.233**	.249*	.2481*	.248**
					(.101)	(.010)	(.099)	(.010)
Dmanlred3					.191	.193	.194	.194
					(.156)	(.153)	(.153)	(.153)
N	708		708	708	714	714	714	714

Notes:
1. Standard deviations in parentheses. Significance levels are as follows: * =1%; ** = 5 %; ***= 10% level.
2. All estimates include controls for time, region (5) and Industry (9).
3. The number of observations was always 842.
4. All variables are defined in the appendix.

Table 8B: The Determination of CEO Pay: The role of managerial influence (continued)

	(1)	(2)	(3)	(4)
Lnemp	.180*	.176*		
	(.031)	(.030)		
Lndefsale			.190*	.174*
			(.024)	(.030)
Lnvaddprod	.120*		-.010	
	(.023)		(.025)	
Lnrsalprod		.194*		.020
		(.026)		(.039)
State	.286***	.231	.230	.231
	(.164)	(.162)	(.162)	(0.163)
Oldpriv	.348**	.259***	.261***	.259***
	(.144)	(.144)	(.144)	(.144)
Dmwage1	.250*	.253*	.252*	.253*
	(.082)	(.082)	(.081)	(.082)
Dmwage2	.215**	.227**	.226**	.227**
	(.097)	(.096)	(.096)	(.096)
Dmwage3	.329**	.328**	.330**	.328**
	(.167)	(.164)	(.164)	(.164)
N	718	718	718	718

Notes
1. Significance levels are as follows: * =1%; ** = 5 %; ***= 10% level.
2. All estimates include controls for time, region (5) and Industry (9).
3. The number of observations was always 842.
4. All variables are defined in the appendix.

Table 9: The Determination of CEO pay: the role of State influence

	(5)	(6)	(7)	(8)
Lnemp	.171*			.161
	(.0329)			(.032)
Lndefsale		.186*	.161*	
		(.026)	(.032)	
Lnvaddprod	.131*	-.002		
	(.025)	(.028)		
Lnsalprod			-.057	.198
			(.058)	(.028)
State	.306***	.252	.254	.254
	(.182)	(.182)	(0.182)	(0.182)
Oldpriv	.362**	.276***	.273***	.273***
	(.162)	(.162)	(.163)	(.163)
Dstalred1	-.202**	-.190**	-.196**	-.197**
	(.086)	(.085)	(.085)	(.085)
Dstalred2	-.218***	-.203	-.197	-.196
	(.129)	(.127)	(.126)	(.127)
Dstalred3	.041	.058	.059	-.059
	(.106)	(.105)	(.105)	(.104)
N	644	644	644	644

Notes:
1. Significance levels are as follows: * =1%; ** = 5 %; ***= 10% level.
2. All estimates include controls for time, region (5) and Industry (9).
3. The number of observations was always 842.
4. All variables are defined in the appendix.