# Privatisation prices: The role of prior restructuring and emerging private ownership structure.

José Eusébio Santos[1]
*University of Madeira, Portugal*

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## Abstract

We investigate the impact of restructuring policies before sale and resulting private ownership structures on privatisation sales prices. We use a new dataset of companies privatised in Brazil between 1991 and 2004, covering 118 transactions observed in the period. Our results show that, after controlling for endogeneity, replacing the CEO is associated with an increase in privatisation net prices. Efficiency measures aimed at improving operating performance of the firms and voluntary labour downsizing schemes fail to improve premiums. On the other hand, restructuring measures such as debt absorption and compulsory labour downsizing schemes have a significant negative impact on net prices. We also find that prices are very sensitive to the level of competition in the auction and that the longer it takes to put the company on the block the lower the premium obtained. Finally, prices are shown to depend upon the resulting ownership structures. The more concentrated private ownership is, the higher prices are. Identity of owners on concentration is also shown to matter as domestic institutions and local corporations are associated with higher prices, while employee ownership concentration has a negative impact on premiums. This case suggests conflicts of interest.

*JEL classification:* G32, H10, J45, O1

*Keywords:* Privatisation, Prices, Restructuring, Ownership Concentration, Corporate Governance.

# 1. Introduction

The current financial crisis and the pursuit of fiscal consolidation in many developed countries have started to revive the debate about the reform of state-owned enterprises. The main instruments used to reform these enterprises are divestiture and workforce downsizing. Countries such as Poland, Greece, Portugal and Spain, for example, are stepping up their privatisation programmes, in search of greater revenue to help reduce fiscal deficits. Questions related with the optimal buyer or the way the selling process should be conducted so that the government can generate higher revenues are thus returning to the public debate. These questions are also important for many developing countries, which have remained reluctant to privatise (Kikeri 1999; Nellis 2003).

Despite the fact that many privatisation programmes are designed with the aim of pursuing revenue generation, empirical studies on the determinants of privatisation prices are rather limited. This is remarkable, since economists generally endorse the goal of maximizing revenues[2]. Furthermore, prices provide a means of comparing across firms and constitute an outcome measure for assessing the extent to which privatisation goals were met by the government.

The objective of this paper is to extend the investigation of previous studies by analysing empirically the determinants of privatisation prices, using a sample of 118 Brazilian privatised firms, focusing on the relation between prior restructuring policies, resulting private ownership structures, and net privatisation prices. Prior to privatisation, in addition to implementing restructuring measures such as labour cuts or debt absorption, governments may also choose to restructure firms through governance changes, such as establishing relationships with strategic foreign investors, imposing ownership de-concentration clauses and/or implementing employee share ownership plans. The new private ownership structure emerging from the auction may be an important determinant of privatisation prices. Indeed, in a forward-looking market, prices incorporate the effects of better ownership on future firm performance. If more concentrated ownership, for example, reflects better corporate governance, one would expect firm value to be increasing in ownership concentration (Shleifer and Vishny

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[2] Bolton and Roland (1992) show that a policy of maximizing net sales revenues is likely to be consistent with a policy of maximizing social welfare since the proceeds from the sale can be used to subsidize employment, investment, a social safety net, and other public goods. Cornelli and Li (1997) also point out a political reason for maximizing revenue, as public opinion is generally opposed to selling assets abroad, and, therefore, a large amount of revenue may be necessary in order to justify domestically the decision to give part of the ownership to foreign firms.

1997). Thus, on a cross-sectional basis, ownership structure may be a significant factor in explaining prices.

Existing research on privatisation prices have focused on the first type of restructuring policies, mainly labour retrenchment, with very few papers looking at the effects of the new private ownership structures on net privatisation prices. Whether or not a state-owned enterprise should be restructured by government prior to its sale remains a controversial issue. Critics argue that poor restructuring is a key concern before privatisation. For the case of Mexico, Lopez-de-Silanes (1997) shows that restructuring before the sale does not pay off. He finds that prices received by the government would have increased by 71 cents per dollar of assets if the only restructuring step taken by the government had been to fire the CEO and if the assets had been divested an average of one year earlier. Other restructuring measures, such as debt absorption, do not increase net prices, while measures such as the establishment of investment and efficiency programmes actually reduce net prices. A similar study by Chong *et al.* (2011) find that almost all labour retrenchment policies negatively impact the net privatization price received, and several types of programmes lead to significant rehiring by new owners. They argue that the negative impact on net prices may be due to adverse selection in the process of laying off workers before privatisation. Chong and Galdo (2006) analyze a cross-country sample of telecommunications firms executed from 1984 to 2000. After controlling for endogeneity, they find that while most streamlining measures have no bearing on privatisation prices, the presence of a regulatory agency prior to privatisation does impact prices, especially if it was set up well before the sale. Finally, evidence from Turkey also supports the conclusion that restructuring measures are either useless or counterproductive in raising net prices (Arin and Okten 2003).

Restructuring the firm is not however the only policy the government can use to try to maximize the firm value. The initial ownership structure at the time of privatisation is in many ways a choice variable. The governments may choose, for example, the percentage of shares to sell; may decide to establish relationships with strategic foreign investors (or even to restrict their participation in the auction) and/or to implement employee share ownership plans. While privatisation is based on the premise that it will improve corporate performance, the ultimate success of privatisation depends on the effectiveness of post-privatisation corporate governance. Better ownership structure will be translated into better corporate performance and therefore should be

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reflected in higher privatisation prices. Recent research has focused on the examination of the impact of post-privatisation ownership structure on firm performance (Boubakri *et al.* 2005; Omran 2009; Cabeza-Garcia and Gomez-Anson 2011). Studies analysing the impact of the resulting ownership structures on privatisation prices are rather limited. One exception is Classens (1997), who finds that more concentrated ownership is associated with higher voucher prices in the Czech and Slovak Republics' mass privatisation programmes. He also finds that prices are relatively lower when a bank-sponsored investment fund has a relatively large stake in a firm, suggesting conflicts of interest. Voucher mechanisms, however, are less efficient in raising real cash and creating real owners than, for example, trade sales or public offerings (Megginson 2005). It is, therefore, important to analyse the impact of the resulting ownership structures on privatisation prices in different privatisation contexts.

In carrying out the analysis in this paper, we contribute to the literature on privatisation prices in three important areas. First, we study the link between the new private ownership structures and the net privatisation prices in the context of trade sales through auctions. Trade sales are a very common used divestment technique, particularly in developing economies (Megginson and Netter 2001). We focus on the role of two key dimensions of ownership structure, the ownership concentration and the identity of owners on concentration. Concentrated private ownership is more likely to ensure the success of privatisation in countries with lower investor protection (Shleifer and Vishny 1997). Large shareholders, whose wealth depends heavily on firm performance, have more incentives to monitor management and ensure that their resources are not diverted. Further, when privatisation leads to a diffused ownership structure, the agency costs associated with managerial control may increase even when the costs of political control fall (Boycko *et al.* 1996). Thus, we investigate whether firms that ended up with more concentrated private ownership sold for higher prices. Additionally, the identity of owners on concentration is also likely to influence the performance of newly privatised firms. For example, foreign investors require high information disclosure standards and, for reputational concerns, maintain a strict control of managers' actions (Dyck 2001). Institutional investors also exert a high degree of monitoring of management activities to ensure superior returns (Boutchkova and Megginson, 2000). Thus, we also check the association between the identity of owners on concentration and privatisation prices.

Second, we analyse the link between labour restructuring before the sale and privatisation prices. Although labour restructuring is one of the most difficult and sensitive issues in privatisation, there is little empirical evidence (Megginson and Netter 2001). There is also no consensus on the impact of labour cuts prior to the sale on privatisation prices. Lopez-de-Silanes (1997) finds that labour retrenchment had a significant positive impact on prices once he accounts for its endogenous nature whereas Chong *et al.* (2011) find that these programmes are seldom the optimal policy. Furthermore, we look at specific types of labour downsizing, namely voluntary labour downsizing and compulsory labour downsizing. In the first case, workers are offered severance packages to induce them to quit, which may have an unclear impact on future efficiency as some of the workers with incentives to leave may have been among the most productive ones (Rama 1999). While this has been tested in cross-country comparisons (Chong *et al.* 2011; Chong and Galdo 2006), there is no studies on a single country, which adds insight into this topic as there is no place for weakness of cross-country data.

Last but not least, we look at the Brazilian privatisation programme, a part of the world that has been neglected in the international literature, despite being considered one of the most influential programmes in the developing world (for instance, a survey by Megginson and Netter (2001) did not include any specific analysis of the Brazilian programme). Given the size of the country and the scope of the programme, as well as the fact that it lasted for more than one decade with changes in government during the period, the Brazilian experience provides an excellent opportunity to make this kind of analysis. Furthermore, in Brazil, like in many other countries, the price paid was a crucial motivation in selecting winners for almost all privatised state-owned enterprises.

The paper uses as dependent variable the Privatisation Q (PQ), proposed by Lopez-de-Silanes (1997), which is an approximation of Tobin's Q, where the net price, defined as the price received by the government once all the costs of privatisation and restructuring are deducted, is considered as the proxy for market value of stock, and at the same time controlling for debt and assets. Our research benefits from a newly created database of the companies privatised in Brazil between 1991 and 2004, covering 98 contracts from the 118 transactions observed in the period.

Our results show that, after controlling for endogeneity, replacing the CEO is associated with an increase in privatisation net prices. Efficiency measures aimed at improving operating performance of the firms and voluntary labour downsizing

schemes fail to improve premiums. On the other hand, restructuring measures such as debt absorption and compulsory labour downsizing schemes have a significant negative impact on net prices. We also find that prices are very sensitive to the level of competition in the auction and that the longer it takes to put the company on the block the lower the premium obtained. Finally, prices are shown to depend upon the resulting ownership structures. The more concentrated private ownership is, the higher prices are. Identity of owners on concentration is also shown to matter as foreign investors, domestic institutions and local corporations are associated with higher prices, while employee ownership concentration has a negative impact on premiums suggesting conflicts of interest.

The paper is organised as follows. The next section describes the theoretical framework of the analysis. Section 3 describes the institutional background of privatisation in Brazil, with focus on the method of sale, the preparation process and the buyers. Section 4 describes the data collection process and the construction of key variables. In section 5 the ordinary least squares results are presented and discussed. In Section 6, the exogeneity assumption of all variables is relaxed and the results of the instrumental variables approach are presented. Section 7 concludes.

## 2. Theoretical Framework on Privatisation Prices

This section describes the hypotheses about the effect on privatisation prices of a different set of factors. We start by discussing the effects of government-led adjustments on management, debt, labour force and firm activities before privatisation on privatisation prices. We then discuss the hypotheses about the effect of emerging private ownership structures on the sale price. Finally, other factors that might influence privatisation prices, such as the auction process and firm characteristics are also discussed.

### 2.1. Prior restructuring policies

Restructuring prior to the sale is one of the most controversial issues in privatisation. To overcome the scepticism of private investors when unprofitable SOEs are auctioned, or increase their market value, governments proceed with financial and operational restructuring programmes that can turn out to be more costly and time-consuming than expected. Therefore, it is important to know whether this kind of

restructuring should be executed by the government. If the answer is yes, the question is then what types of restructuring actions should be undertaken. In this paper, we analyse four areas of firm restructuring, namely: (1) CEO change; (2) labour; (3) debt and (4) efficiency programmes. We will next describe the predicted effect of these prior restructuring policies on PQ.

Replacing the often politically appointed manager of the state-owned enterprise with a professional businessperson should affect the privatisation prices. The current management may lack the appropriate human capital to effectively guide the newly privatised firm in an environment of more competition and new market conditions. A new chief executive officer is needed in order to implement all necessary restructuring and run the firm efficiently until privatization takes place (Barberis *et al.* 1996). In this case, the replacement will yield higher privatisation prices, as the prospective buyers will value the restructuring done before privatization. Additionally, top management replacement may also have a positive effect on privatisation prices if it sends an unequivocal signal to prospective buyers on the seriousness of the privatisation process, eliminating incentives for financial squandering and corruption of the old management team that, otherwise, would have tried to maximize rents before the firm is privatised (Kikeri 1999). On the other hand, changing the chief executive officer before privatisation can lead to lower privatisation prices if the loss of experienced managers leads to deteriorating performance. Exclusion of experienced management may be unwise as many of them "are likely to be the best informed and the most able managers of the particular SOE they are running" (Bolton and Roland 1992). The old manager may try to run the firm efficiently because they need a reputation to help them find a job.

Reducing a state-owned enterprise's total indebtedness, by forgiving claims owed to the government itself, and/or transferring important financial obligations such as unfunded pension liabilities from the state-owned enterprise to the government, may have an ambiguous effect on privatisation net prices. Classical finance theory holds that government's absorption of SOEs' debt should have a neutral effect on price because potential acquires would simply increase their bids by the same amount as the decrease in debt (Donaldson and Wagle 1995). There are, however, scenarios under which debt absorption could have a positive or negative effect on net prices. Absorbing debt may have a negative effect on price if the borrowing terms for the private buyer are worse than those for the government and the buyer would be able to profit at the expense of

preexisting creditors when debt is left in place. On the other hand, the impact on net prices may be positive if financial restructuring programs reduce the cost of possible financial distress of an excessively leveraged capital structure, providing the private buyer of the SOE with a relatively "clean slate" and thus allowing him to invest optimally in the future (Bolton and Roland, 1992).

Some of the most frequent restructuring policies undertaken include efficiency measures (for example, selling off or closing down unproductive divisions of a state-owned enterprise, reconfiguring the company's manufacturing process or changing suppliers and customers) aimed at improving the operating performance of firms before privatisation. We expect a premium in net prices for the restructured firm if these measures are able to improve the operating performance of firms at a lower cost than the private sector could. However, if restructuring decisions are driven by political motivations or if the government is unable to match the know-how of private firms, the restructuring effort will be a waste of resources. Indeed, these measures may require significant amounts of money and time and governments do not have a good record in successful corporate reorganizations. The buyer might achieve the same result at the same or lower cost, but more in accordance with her preferences. In this case, we expect efficiency measures to lower net prices.

The link between labour cuts and privatisation prices may be either positive or negative. Cutting labour before privatisation may enhance the trustworthiness of the process, leading to higher net privatisation prices. Given the potentially large political costs of labour streamlining, willingness to overcome worker resistance may be interpreted as a signal of commitment to reform (Kikeri *et al.* 1992; Rama 1999). Additionally, social consequences of labour-related streamlining may be addressed more adequately by governments. This is the case for example, if the government has mechanisms to assist displaced workers, such as retraining programmes, job search assistance and severance payments, giving it a comparative advantage over the private sector at bargaining with the unions (Lopez-de-Silanes 1997). If there are significant labour-related liabilities or obligations that prospective investors are unlikely to accept, the government involvement may be particularly valuable to increase the attractiveness and value of the firm, which should be reflected in increased privatisation sale prices. On the other hand, it has been argued that it is not worth spending resources in labour restructuring before privatisation, as governments may not be able to manage the downsizing process correctly. This is the case if we consider the risk of adverse

selection in labour retrenchment. Governments that administer human resources risk retrenching the more productive personnel, as a result of asymmetric information issues. This may result in the loss of know-how that may yield short-run post-privatisation efficiency problems or even be linked with permanent damage to the productive structure of the firm. Dismissal of workers whom the new owners would rather retain therefore may reduce privatisation prices. This is particularly true in developing countries where available information is even more lacking (Rama 1999; Kahn 1985; Jeon and Laffont 1999). Furthermore, if unions can influence the outcome of political elections, labour changes may yield a government with weakened bargaining power (Freeman 1986; Boycko *et al.* 1996). Unions will try to block the privatisation process, which is costly to buyers and therefore will result in a negative link with privatisation prices.

## 2.2. New private ownership structure

The ownership structure emerging from the auction is in many ways a choice variable. The government may decide the percentage of shares to divest, establish accords with foreign investors or restrict the percentage of shares that foreigners can buy and/or implement employee share ownership plans. Privatisation studies show a large variation of outcomes. Corporate governance issues, such as the new ownership structure emerging in privatisation might explain those variations. We focus on the role of two key dimensions of the ownership structure on privatisation prices, the ownership concentration and the identity of owners on concentration.

Concentrated private ownership may work as an internal corporate governance mechanism in countries with low investor protection, such as Brazil. From a theoretical point of view, private ownership concentration can have either a positive or a negative effect on future firm performance and therefore, on privatisation sales prices. Large shareholders, whose wealth depends heavily on firm performance, have more incentives to support the cost of monitoring managers and ensuring that shareholder resources are not diverted (Grossman and Hart 1980). Further, when privatisation leads to a diffused ownership structure, the agency costs associated with managerial control may increase even when the costs of political control fall (Boycko *et al.* 1996). Therefore, ownership concentration should decrease agency costs and foster better firm performance and thus be reflected in higher privatisation prices. On the other hand, other literature stresses the

costs of a concentrated ownership structure. Large shareholdings may increase owner risk and reduce company liquidity. To compensate for the consequent relinquishment of the benefits of diversification, a shareholder who concentrates her wealth on the ownership of a large stake in the firm would probably pursue inefficient extraction of private benefits of control (Shleifer and Vishny 1997). The firm's cost of capital may be higher, which may lead to inefficient levels of investment and capital misallocation If concentration destroys total shareholder value, it means that the loss for the controlling shareholders in security benefits is greater than their gains in private benefits, and therefore ownership concentration will be reflected in lower privatisation prices.

The identity of owners on concentration is also likely to influence the future performance of newly privatised firms and, therefore, privatisation sales prices. Privatisation redefines the firm's objective function. When the state is the owner, firms typically pursue multiple and often conflicting objectives. Conversely, privatised firms are more focused on profit maximization. The degree to which the privatised firms may pursue profit maximization differs because of differences in corporate governance. The identity of a company's stockholders will evidently affect the company's performance, since its strategic positioning depends on the alignment of interests of contracting parties. For example, foreign investors require high information disclosure standards and, for reputational concerns, maintain a strict control of managers' actions (Dyck 2001). Institutional investors also exert a high degree of monitoring of management activities to ensure superior returns (Boutchkova and Megginson 2000). On other hand, Boycko et al. (1996) predict that employees are unlikely to support value-maximizing restructuring efforts. We expect employee ownership on concentration to negatively affect privatisation prices.

## 2.3. Other factors: Auction and firm characteristics

The literature also emphasizes other factors that might influence privatisation prices, such as the auction process and firm characteristics. The effect of *speed* or *swiftness* of each privatisation is not that clear. To the extent that the announcement or the rumour of a firm's privatisation triggers a change in stakeholders behaviour, the effect can be positive or negative. It may have a negative effect on sale price if the announcement of privatisation triggers deterioration of incentives and performance, similar to that of firms in financial distress (Altman 1984; Wruck 1990). If the

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announcement of privatisation increases public's attention on the firm's performance, however, then the firm's managers might increase their efforts to acquire a good reputation (Caves 1990). In oligopolistic industries, delaying or sequencing privatisation may also be desirable if one assumes that politicians are using that time to create more efficient regulatory schemes for privatised oligopolistic industries (Newbery 1991). Bidders may value regulation before the sale.

The *level of competition* in auctions is expected to affect the privatisation price (Bulow and Klemperer 1996). The auction theory states that the sale price should increase as the number of bidders increases since this would increase the level of competition. Therefore, we expect privatisation price to be an increasing function of the number of bidders that participate in the auction.

Auction *requirements* that serve to reduce participation, such as bidder prequalification and restrictions on the form of payment (for example, cash-only sales), can also affect prices. Aghion *et al.* (1992) suggest that cash-only auctions may preclude an interested bidder from acquiring the company at its maximised value because the cost of financing a cash bid may be significant, at least for the large transactions.

The operating and financial performance of the state firm before privatisation is likely to have a significant impact on its auction price. Current profitability of the state firm, for example, will have a positive effect on the privatisation price to the extent that the buyers believe it reflects firm efficiency. It can also be seen as a measure of market power. In a constant cost industry and assuming that all costs are variable in the long run, it is the measure of a firm's ability to charge a price above marginal cost. To the extent that state owned firms maximise an objective function, which puts some weight on the firms' profits, state owned firms' current profitability will reflect future profitability and hence influence the privatisation price.

On the other hand, given the fact that SOEs usually have excess workers, union dealings are likely to be important determinants of prices. Strong and active public unions are recognised as important anti-privatisation forces as they then lose their cosy relationship with politicians. Union militancy against the Brazilian programme grew in intensity when newly privatised companies began to cut their jobs. This is costly to buyers, as unions may stage political rallies or engage in strikes, and therefore we expect a negative relationship between strong unions and prices (Freeman 1986; Lopez-de-Silanes *et al* 1997).

Firm age and firm size may also affect privatization Q. On the one hand, we expect age and size to be positively related to PQ, as older and larger firms have better disclosure, more liquid trading, more attention from analysts, more diversified activities, greater economies of scale and scope, more professionalized management, and less severe financial constraints, leading to lower risk of financial distress. On the other hand, younger and smaller firms may have more growth opportunities.

## 3. Privatisation in Brazil:
## Method, pre-sale process and buyers

Starting timidly in the late 1980s but accelerating markedly after 1994, Brazil engaged in one of the world's largest privatisation programmes. Auctions of shares in the stock exchange have been adopted as the basic model for sale. Two forces have determined the method of privatisation. The first reason was the fiscal necessity of the government. Given the large deficits in the fiscal and current accounts, privatisation was seen as a solution to the problem and revenue maximisation was crucial in the sale process. On the other hand, the concentration on the distribution of income and assets in the country combined with its revenue needs, led the government to divest its ownership of state enterprises via the auctioning of its assets. According to Velasco (1997), the method of maximizing proceeds was also judged important by society, who gave strong support to the question of the public deficit. This was a relevant factor to generate support for the implementation of privatisation.

In the 1990's the programme was carried out by the government's development bank (BNDES). BNDES had acquired substantial expertise in privatisation in the 1980s and could provide the institutional continuity for the National Privatisation Programme (PND). The bureaucracy of BNDES is among the most efficient in the public sector, and in terms of technical and administrative capacity, different authors have agreed that it showed a high degree of expertise and professionalism in carrying out its tasks (Goldstein 1999). The bank was responsible for the daily management of the programme, in informing the interested parties, in the court battles, and also in providing assistance to the state governments in their own privatisation programmes. It was through the bank that the federal government induced the state governments to co-operate in reform programme at the local level. State privatisations were exchanged for special federal loans disbursed by BNDES to help the depleted finances of the most important sates such as São Paulo, Rio de Janeiro and Minas Gerais.

The BNDES was also responsible to select via public tender two consulting firms to handle each of the companies to be sold. The first consulting firm conducted an appraisal of the company and recommended a minimum price. The other, besides conducting a similar appraisal, pointed out obstacles to privatisation, proposing at the same time solutions, identified potential investors and suggested a sale's method. Based on the appraisals of the consulting firms, a minimum auction price for the company was then defined by the Privatisation Committee. An auditing firm was also selected to follow every step in the sale's process for each SOE. The sale could only be closed after this firm published a proper audit report. Critics argued that the PND often seemed unclear as to the rules of setting minimum prices for many SOEs (Passanezi Filho 1993). BNDES responded that the market value of many SOEs was much lower than their net worth since many of them had fallen behind in terms of technology, were over-staffed, had not shown a profit for a long time and, in the process, had accumulated large deficits.

The use of debt-equity conversion schemes were allowed particularly until 1996. These schemes were meant to swap medium- and long-term domestic debt in return for SOEs shares. The different types of public debt securities were accepted at face values, despite being traded in the market at sizeable discounts. Pinheiro and Giambiagi (1994) considered as reasons the need to write-off part of the large public debt that was increasing at an alarming speed, to avoid the temptation to use cash revenues to finance current expenditures, and the fear that given Brazil's macroeconomic instability at the time, requiring cash in exchange for shares could jeopardize the financial viability of the PND since private investors would have been highly reluctant to invest large sums for SOEs that had undergo substantial restructuring. However, because all domestic debt securities were converted at face value, critics complained that the government was giving away good companies in return for paper money, which prompted the Franco administration to create new securities and put greater emphasis on cash receipts. As a result, privatisation currencies progressively lost in importance.

In terms of speed, the PND was recognisably slow up until the large SOEs in public utilities and mining began to be privatised in 1997. The many safeguards in Law 8,031 for preventing wrongdoing in the PND and for insuring its transparency caused each sale to take months. Delays were also caused by the poor financial health of most companies being privatised. To overcome the scepticism of private investors when unprofitable SOEs were auctioned, the government transferred a substantial amount of

the existing company's liabilities to the Treasury. In addition, the largest SOEs had to undergo a thorough restructuring process prior to privatisation to increase their market value (Telebras, Eletrobras). Another cause of delay was the need to renegotiate shareholder agreements with domestic and foreign private investors. At the same time, rulings had to be obtained to overturn lower court decisions blocking several of the most important sales. During the process, union militancy against the PND grew in intensity when newly-privatised companies began to cut jobs. To impede the implementation of the PND, labour groups used various forms of lobbying such as strikes and rallies. It is interesting to note that in relation to public utilities, the programme was carried out reasonably quickly. Because of the circumstances and speed in which the public utilities were privatised, very little planning was done beforehand. As a result the quality of regulation in the different public utility sectors was quite heterogeneous. While a modern regulatory apparatus for promoting competitiveness was put in place for telecommunications before the sale of Telebras, regulation lagged behind privatisation in the electricity sector[3].

In terms of buyers, most of the shares auctioned were acquired by large domestic business investors (financial institutions, pension funds and industrial firms) and foreign groups. However, until 1994, foreign ownership was limited to no more than 40 per cent of the voting shares. According to Manzetti (1999), other factors kept foreigners away. For instances, the lack of transparency in the secondary markets for the domestic debt certificates, used as currencies to sell SOEs, scared foreign investors. Additionally, the lack of an agreement between Brazil and its creditors on the country's debt, coupled with problems created by political and macroeconomic instability, resulted in a poor country investment rating. This induced many investors to adopt a 'wait-and-see' attitude about privatisation. These problems made the privatisation process dependent on few domestic groups that were either in competition with or worked as suppliers of SOEs. The financial sector was also very much interested. Pension funds, including many belonging to publc employees, were also active in the privatisation process.

The participation of foreign investors, however, has increased very rapidly since 1995, from less than 1 per cent of the total at the end of 1994 to 42.2 per cent by the end of 1998 (Pinheiro and Fukasaku, 1999). The acquisition of shares by individuals played an ancillary role in the process. A substantial source of domestic participation in the

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[3] For a discussion of privatisation of public utilities and regulation issues see Pinheiro and Fukasaku (1999)

privatisation auctions was constituted by the public sector using the resources of forced savings schemes (Amann and Baer 2005). It is important to note here the role of public sector pension schemes. For instance, Banco do Brasil pension fund, Previ, was a key player in the steel industry and by the end of 2002, the fund had also acquired major stakes across a range of key privatised companies[4].

In conclusion, although starting slowly in the early 1990s, the Brazilian privatisation became one of the largest divestiture processes not only in Latin America but in the rest of the whole developing world. The main motivation was primarily a fiscal necessity rather than a change in ideology or political fashion. Probably one of the best features of the programme over the years was the transparency of its process. It was mainly carried out by the government's development bank (BNDES), using public auctions. One of the downsides of the process was the heterogeneous quality of regulation in the different public utility sectors. A modern regulatory apparatus for promoting competitiveness was put in place for telecommunications before the sale of Telebras, but regulation lagged behind privatisation in the electricity sector. Finally, with relation to buyers, the main result was the control of former government assets by large domestic and foreign groups.

## 4. The Data

Most of our data set was collected during fieldwork at the National Bank of Economic and Social Development (BNDES). From the archives, we were able to gather mainly pre-privatisation firm-level data from different kinds of documentation, including: (i) sale prospectus, (ii) audited financial statements, (iii) documents describing the auctions and the bids, (iv) the sale contract and (v) reports from BNDES' staff. Since the bank was mainly responsible for firms privatised at the Federal level, data for state firms were obtained mainly from government institutions at the state level[5]. Additionally, several other sources of information were used to complement our data. Particularly, we obtained data from the Ministry of Planning, Budget and Management, the Secretaries of Treasury from each State, the Securities and Exchange Commission of Brazil (CVM), The National Archive in Rio de Janeiro, a consulting

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[4] The following companies featured prominently among Previ's R$13.4 billion in total equity holdings in December 2002: Acesita R$39; Brasil Telecom R$143M; Eletropaulo R$ 22M; Embraer R$852M; CVRD R$307M (Amman and Baer 2005)

[5] However, BNDES also helped many states to conduct their privatisation programmes, and in the archives we were also able to find some documentation related with the privatisation of state firms.

firm Economatica, a non-governmental organisation, Getúlio Vargas Foundation, the National Agency of Telecommunications (ANATEL), the National Agency of Electric Energy, Stock Exchange of Rio de Janeiro (BVRJ) and the Stock Exchange of Sao Paulo (BOVESPA).

Table A.1 in Appendix A, provides a detailed description of each of the variables used in the paper. Table 1 presents descriptive statistics for the variables.


[Insert Table 1 here]


The Table reveals that the average values of Privatisation Q and Tobin's Q are 1.39 and 1.53 respectively. With respect to the restructuring variables, in 61 per cent of the firms there was a change of the CEO before the sale. The mean value of the debt absorbed/total liabilities ratio is 0.12. 47 per cent of the firms in the sample went through some kind of restructuring measures aimed at improving the efficiency of the firms before the sale. The mean value for total labour cuts is 17 per cent, of which 11 per cent represents, on average, compulsory labour downsizing and 6 per cent represents, on average, voluntary labour downsizing. With respect to the new private ownership structure right after privatisation, the private ownership concentration (measured as the percentage of shares owned by the 3 largest private shareholders) reaches the level of 75 per cent, on average, in the privatised firms. In this measure, we identify four groups of investors. The average proportion of stakes held by foreign investors is 20 per cent. Institutions and employees own, on average, 16 and 4 per cent of shares, respectively. The average proportion of stakes held by local corporations is 35 per cent. The total length of the sale from rumours to completion is, on average, 880 days and the average value of bidders in each auction is 2, 29. Finally, the mean value of net income/sales ratio is -0.0827 and for the operating income/sales ratio is -0.0179. We can see also that 52 per cent of the firms in the sample belong to a non-tradable sector.

Our key dependent variable is the 'Privatisation Q' proposed by Lopez-de-Silanes (1997). This measure is defined as the amount that accrues to the government once all privatisation and streamlining costs are taken into account, including government commitments, special clauses and other adjustments that are made to the

sale contract at the time of the sale, while controlling for debt and assets[6]. This variable is defined in Table A.1, along with the description of Tobin's Q. The other variables are organised in the Table according to four categories: (i) prior restructuring measures; (ii) new private ownership structure; (iii) auction process characteristics; and (iv) firm characteristics.

Table 2 shows the size of the sample and the distribution of SOEs sold each year from 1991 until 2004.

[Insert Table 2 here]

Since many firms were sold as a block, the number of privatisation contracts (118) is much smaller than the number of privatised firms (168). In the case of the telecommunications sector, for example, the sales were organised in five blocks that covered the entire local, cellular, long-distance, and international restructured segments. We were able to collect information on pre-privatisation firm-level data on 98 contracts. Twenty contracts were not included due to the difficulties in gathering data on those transactions.

Table 3 presents some characteristics of the dependent variable PQ across sectors. The fourth column presents the mean value of an approximate Tobin's Q, which does not subtract restructuring and adjustment costs from the price in the sale contract.

[Insert Table 3 here]

A comparison of PQ and Tobin's Q shows that restructuring costs in Brazil were much less than in the Mexican case (Lopez-de-Silanes, 1997). On average, the costs represent 9% of the price paid by the buyer. Restructuring costs were particularly high in the steel industry and in the banking sector. They represent mainly financial restructuring costs associated with reducing the firm's total indebtedness (for example, by forgiving claims owed to the government itself, and/or transferring important financial obligations such as unfunded pension liabilities from the firm to the government).

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[6] As a robustness check, an additional standardization was calculated in the same fashion but using total shareholders' equity (defined as the sum of total assets and total liabilities at the time of privatisation) to normalise the privatisation Q. The results obtained from this estimate are very similar and are thus omitted.

## 5. Findings

In this section the empirical evaluation of the theoretical predictions of the determinants of privatisation prices described on section 2 is carried out.

Table 4 presents the results of our basic heteroscedasticity-corrected ordinary least squares regression. As explained above, our dependent variable is the Privatisation Q (PQ), calculated as the net real value of the privatisation price after all privatisation and restructuring costs are taken into account adjusted by the shares sold, plus total liabilities and divided by total assets at the time of privatisation. PQ is regressed against a set of variables that has been classified into three groups. The first group includes restructuring policies taken prior to the sale, in particular, a dummy variable that equals one if the CEO has been changed in the two years prior to the sale, the ratio of debt absorbed to total liabilities, a dummy variable that equals one if efficiency measures were taken prior to the sale and the percentage of labour cuts in the three years before the sale. The second group includes variables related with the private ownership structure that emerges from privatisation. It includes a private ownership concentration variable measured as the percentage of the shares held by the three largest private shareholders. Additionally, four separate variables based on the identity of the larger shareholders are considered, namely, the percentage of shares held by foreign investors on concentration, the percentage of shares held by domestic institutional investors on concentration, the percentage of shares held by employees on concentration and the percentage of shares held by local corporations on concentration. Finally, the third group includes auction and firm characteristics. In particular, we include, as variables related with the auction process, the total length of the process, the number of bidders that participated in the auction and a dummy variable equal to 1 if the form of payment was only cash, and 0 otherwise As firm characteristics, we include a profitability ratio measured as the four-year average net income to sales ratio before privatisation, the number of strikes during the five years leading up to privatisation, the firm size measured as the natural logarithm of total sales and the firm age measured in years..

[Insert Table 4 here]

Model 1 in Table 4 presents our basic results when private ownership concentration is included as an explanatory variable. Model 2 of Table 4 presents the

results when we split the concentrated ownership structure into four separate groups of owners: foreign investors, domestic institutional investors, employees and local corporations. Looking at the results, the first restructuring action we consider is that of top management replacement before the sale. We find a positive and statistically significant coefficient at 1% level of the CEO change dummy for both models, which means that the change of the chief executive officer before the sale is associated with an increase in PQ. This result is consistent with that observed in the Mexican case (Lopez-de-Silanes, 1997). The explanation for the positive effect could be related to the fact that old managers were good in terms of political abilities, but were not good at actually running the firms. A new chief executive officer may therefore, be needed to run the firm efficiently until privatisation takes place. Another explanation could be that a centralized control of the companies during the process, appointing managers who will not oppose the process, sends an unequivocal signal to prospective buyers on the seriousness of the privatisation process.

Debt absorption is usually a common action undertaken by governments when the SOEs faces large financial costs or is on the brink of bankruptcy. The measure is also frequently requested by bidders. The results of the OLS regression in Table 4 for both models show a statistically significant negative impact of this action on PQ. If maximizing revenue is the sole objective of policy-makers, it seems that debt write-offs are a bad policy to adopt in terms of premium generated.

Efficiency measures aiming at improving operating performance may have an effect on prices if they are successful and at a lower cost than the private sector could. This seems to be the case in Brazil, since the coefficient on the dummy is positive and statistically significant (model 2), although only significant at the 10% level.

The most difficult and painful type of restructuring prior to privatisation is probably that of labour force retrenchment. Laying-off redundant workers may seem important since SOEs are in most cases over-staffed and bidders usually emphasize the importance of the characteristics of the labour force in determining their offers. In Brazil, there were labour cuts in almost the complete sample. The results in Table 4 show that the percentage of total labour cuts yield a negative and statistical coefficient on PQ. This result confirms the prediction that the government may not be able to manage the downsizing process correctly

With respect to the private ownership structure that emerges from the auction, we find a positive and statistically significant coefficient in the case of private

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ownership concentration (model 1). This result is in accordance with our expectations, as ownership concentration is desirable from the point of view of potential buyers. The finding tends to support Shleifer and Vishny's (1997) contention that post-privatisation 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 link between 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 net privatisation prices depends on who the large shareholders are. We examine different types of owners in terms of ownership concentration. To do so, we split the private concentrated ownership structure into four groups of owners, as argued previously, to determine the relationship between private ownership identity and PQ. The results are reported in model 2 of Table 4. As expected, we find significant impact of concentrated foreign investors ownership on PQ at the 1% level, 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 monitoring practices, higher firm performance, in addition to valuable technology transfer and skill, and in the process, increase firm value. At the same time, concentrated domestic institutional investors have a positive and significant impact on PQ. This result is consistent with Dyck (2001). We also show some support to Boycko *et al.*'s (1996) argument that employees make poor stockholders/monitors. This is clear from our result as employee ownership concentration variable has a negative impact on PQ, although only significant at the 10% level. Local corporations ownership concentration has a positive and significant impact on PQ, as expected.

With respect to the last group of variables (i.e. auction and firm characteristics), the speed at which each privatization takes place may also have an impact on net prices raised. The theoretical literature is split between the benefits and costs of a short process. In Brazil the whole process leading to the privatization of a SOE from start to finish took quite long. In our sample, using as measure of the length the number of days between the date of the first document within the government that considers privatisation of an SOE and the date of the announcement of the buyer, the average is 880. In Table 4, the coefficient on this variable is statistically significant and large in economic terms. This gives evidence that lengthy privatisation processes come at a

substantial cost to the government. The result is consistent with the one found in Mexico (Lopez-de-Silanes 1997).

The delays in the sale process could be related to different factors. In the Brazilian programme, legal challenges were quite common and failed public auctions plagued the programme from the start. Of the thirty-four SOEs put on the auction block in 1994, six had originally been scheduled in 1993 and three in 1992. In 1995, of the seventeen put on the auction block only nine were actually sold. On the other hand, appeals to federal courts turned out to be the most powerful means to delay many sales. Others factors that can explain delays are related to difficulties in placing the SOE for sale, such as stakeholder opposition and management resistance to providing the evaluators with financial information. To see which factors may explain the premium for speed in Brazil, we follow Lopez-de-Silanes (1997) and break total length into its two components: "internal length" and "public length". The first measure, internal length, is equal to the number of days from the date of the first memo suggesting privatisation of an SOE to the date of the first public announcement of the coming sale. The second measure of speed, public length, is equal to the number of days between the first public announcement and the date of the announcement of the winner. We find that it is "internal length" and not "public length" that explains the discount on the premium paid (results not shown).

The auction theory states that the sale price should increase as the number of bidders increases since this would increase the level of competition. In Brazil, in spite of some noticeable exceptions, many SOEs were sold at minimum price for lack of competition. Controlling for the quality of the SOE, we find that the number of bidders has a positive and significant effect on the sale price at the 1% level, as implied by economic theory (for both models of Table 4).

The mean of payment required may have an effect on PQ independent of the fact that they influence competition in the auction. In Brazil, in the initial phase of the programme, debt-equity swaps were used to a much greater extent than in other Latin American countries. After the Franco administration, the use of debt as a currency progressively lost importance and a greater percentage of cash was required in most auctions. However, cash-only auctions may lower PQ if the cost of financing a cash bid

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is large. Although not statistically significant in both models, the negative sign implies that cash-only requirements are associated with a discount in PQ[7].

Considering now the firm characteristics, we find a positive and statistically significant coefficient at 1% in the case of net income to sales ratio. This result is consistent with that of Lopez-de-Silanes (1997). To the extent that a state owned firm places a positive weight on its profits in its objective function, the current profit margin will be an indicator of the firm's potential market power and hence its ability to have a mark-up over marginal cost once privatisation takes place.

Labour plays a dominant role in public enterprises making union dealings likely to have a significant impact on prices. To take account of the strength of the union we control for the number of strikes in the five years leading up to privatisation. The result is negative and significant, giving evidence that active unions play a central role in explaining privatisation prices (Chong and Galdo, 2006; Chong *et al.* 2011; Lopez-de-Silanes 1997). Firm size and firm age are both shown to have a positive and statistically significant effect on PQ[8].

Table 5 replicates the specifications of the previous table, but places some focus on the composition of labour downsizing by splitting total labour cuts into the percentage of voluntary labour downsizing and the percentage of compulsory labour downsizing. This emphasis reflects the recent clamour to study the labour economics of pre- and post-privatization transactions, since there is almost nothing on labour issues despite their importance from a policy perspective (Megginson and Netter 2001; Chong and Lopez-de-Silanes 2011). Voluntary downsizing schemes, by which workers freely choose to leave their jobs, were frequently used in the labour downsizing process in many of the Brazilian SOEs (this was the case particularly in public utilities and the

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[7] We also included in both models the "within-industry order of sale" variable, which counts the number of privatised firms in the same industry before the case at hand. We used this variable to see if there was a "learning effect". Alternatively, given the fact that many of the industries in the sample are oligopolies or monopolies, we might test if the advantage of being an incumbent made the last bidders push harder and pay larger premiums in order to get one of the remaining firms in the industry. The result on the coefficient is positive as expected, however not significant. We also substituted that variable for the "Number of SOEs sold before", which counts the number of privatised firms in the country before the case at hand. Again the result does not give evidence of a "learning effect" on the Brazilian programme. Additionally we tested for time effects, but no significant impact was found (results not shown in the Table).

[8] We also added other performance measures to the regressions, such as the average capacity utilization and the rate of growth in production. None of the coefficients were significant and are therefore not included in the Table.

banking sector). These schemes are less costly politically since they are attractive to workers, and therefore, to the power of unions.

[Insert Table 5 here]

Looking at results in Table 5, with respect to voluntary labour downsizing, the corresponding coefficients are negative but not statistically significant. In the case of compulsory labour downsizing, the results show a negative and statistically significant coefficient at the 1% level. Therefore, according to these results, labour downsizing before privatisation is not priced by the buyers. From the point of view of increased government revenues, if a state-owned enterprise is overstaffed, it is probably best for governments to wait and let the new owners make the decisions after they buy the firm. Governments may not be able to identify the particular workers that should be retained, and therefore, they risk retrenching the wrong, more productive personnel (Haltiwanger and Singh, 1999; Rama, 1999).  This could result in a loss of know-how that could exacerbate short-run post-privatisation efficiency problems and/or cause permanent damage to the firm's productive structure. The negative sign on the coefficient of compulsory labour downsizing may be an indication that the government was dismissing the workers that the new owners would rather keep. It is disingenuous to think that the government can satisfy the desires of the new owners better than they could themselves. In the case of voluntary labour downsizing, the negative sign may be an indication of adverse selection, as workers with the highest productivity or the best chances of finding alternative work are most likely to leave under these schemes (Kahn, 1985; Jeon and Laffont, 1999).

In summary, under the assumption of exogeneity in the explanatory variables, our results appear to support the ideas that (i) change of the CEO and efficiency measures seem the only restructuring measures to have a positive effect on PQ; (ii) debt absorption and labour cuts have a negative effect on prices; (iii) private ownership concentration right after privatisation increases privatisation prices; (iv) the identity of the new owners matters, as foreign investors, institutions and local corporations are associated with higher prices while employees ownership does not increase prices; (v) the speed of privatisation matters, with delays in the process being responsible for lower premiums; (vi) more competitive auctions increase prices, as predicted (vii) cash requirements have a negative effect on PQ, independent of the fact that they lower

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competition; (viii) characteristics of the firm like profitability and presence of active unions are important determinants of PQ, with more profitable firms selling at higher prices, and the presence of active unions having a negative effect on the price. On the other hand voluntary labour downsizing schemes fail to increase privatisation prices and compulsory labour downsizing schemes appear to be very counterproductive, as they have a negative impact on PQ.

## 6. Instrumental Variables

A problem with the empirical results above is that they do not take account of potential endogeneity problems. Indeed, a misspecification can arise if the ownership structure of a firm is endogenous to its value because of informational advantages certain investors have. For example, if certain investors had private or inside information about the quality of particular firm's assets or management, then they would have been attracted to the better quality firms. As a result, better firms could have ended up with both a more concentrated ownership as well as higher prices. A simple regression of PQ on indicators of ownership concentration would then be biased. Similarly, it is likely that restructuring measures are not undertaken randomly, but are selectively targeted to firms that need them most. We would expect the government to absorb the debt of highly indebted state-owned enterprises or to fire workers when firms face serious overemployment. Thus, if the endogenous nature of these measures is not considered, the findings above may be misleading as regression coefficients would capture not only the effect of the restructuring measure, but also the negative effects of being in distress or having a bloated work force.

In order to deal with endogeneity issues, we follow Lopez-de-Silanes (1997) and apply a two-step instrumental variables approach. In the first step, we estimate a non-linear reduced-form equation that describes the probability that a particular variable, such as firm restructuring, for instance will be implemented. The second step is to use the predictors obtained in the first step as *generated instruments* to estimate the PQ equation and account for the final impact of the endogenous variables on PQ. The variables used in the first step are what Lopez-de-Silanes (1997) calls *excluded instruments*, as they are not included in the PQ equation. These instruments have very low statistical power when included in the PQ equation, but they are highly correlated

with the potentially endogenous variables, as shown by applying *F*-statistics to test for the joint hypothesis that they are all equal to zero.

Following Lopez-de-Silanes (1997) for restructuring variables (as well as for the total length of the auction and the number of bidders) and Boubakri et al.'s (2005) for ownership structure variables, we use the groups of excluded instruments reported in Table B.1 of Appendix B. These excluded instruments are as follows:

1. *Leading consulting firm.* A leading consulting firm of a consortium was in charge of conducting an appraisal of the company, suggesting restructuring measures, identifying potential investors and suggesting also a sale's method and a minimum price. Some prior restructuring measures are thus associated with certain consulting firms. Thirty three different consulting firms were leaders of those consortiums of consulting firms involved in privatisation.

2. *Management characteristics.* These include previous work history, experience and academic degrees of the chief executive officer.

3. *Labour union affiliation*. These include the scope, size, and political affiliation of the union.

4. *Firm characteristics.* These include characteristics of SOEs determined well in advance such as (a) if the SOE acted as a subsidiary to a holding SOE for firms in similar business; (b) if the SOE was listed on the stock exchange; (c) relative size of assets within the whole population of SOEs; (d) a measure of SOE' operating risk (we use the standard deviation of annual return on equity of the SOE at time t during the 3 years preceding the privatisation year - low risk SOE means a firm with sustainable and less volatile return on equity); and (e) growth of the SOE (for which we use as a proxy the average annual real sales growth rate during the three years preceding the privatisation year).

5. *Auction publicity and required deposits.* These include actions undertaken during the auction process to attract bidders such as announcement of the auction in various national or international newspapers or both, and the deposit required from bidders as a proportion of assets of the firm.

6. *Timing of privatisation*. Ownership structure variables and some restructuring measures may respond to the prevailing macroeconomic conditions. To control for privatisation timing, we include a dummy variable that takes the value of one if the sample-firm is privatised after the median privatisation date, and zero otherwise.

7. *Public offering after the auction*. In some cases, in addition to the auction, the government announced to sell some residual shares of the SOE in a public offering, after the auction has been accomplished. This may have influenced the resulting private ownership structure. We include a dummy that takes the value of one if there was a public offering and zero otherwise.

As required by this procedure, none of these variables is statistically significant when included in the PQ equation. The estimates in the last column of Table B.1 (Appendix B) for each potentially endogenous variable return *F*-statistics of the excluded instruments higher than 3.5. These values are in line with the recommended values by Staiger and Stock (1997), suggesting that the first stage was adequately specified in all cases. Appendix B shows the first-stage regression for all potential endogenous variables used in this research. In particular, this is the case for number of bidders, total length of the auction, CEO change, debt absorption, total labour cuts, voluntary labour downsizing, compulsory labour downsizing, efficiency measures, private ownership concentration, foreign ownership on concentration, institutional ownership on concentration, employees ownership on concentration and local corporations ownership on concentration.

Table 6 shows our basic findings when we correct for endogeneity using the above method.

[Insert Table 6 here]

With respect to prior restructuring policies, the results are very similar. The change of the CEO is still positive and statistically significant in both models of Table 6. Debt absorption is associated with a negative and statistically significant impact on PQ at the 1% level. On the other hand, the efficiency measures dummy coefficient, although keeping the positive sign, is not statistically significant in any of the models. Similarly, with respect to total labour cuts, we find that, even though the variable considered in Table 6 keeps the negative sign as in the non-instrumented regressions, it is only weakly significant in model 2. These findings indicate that, when we control for endogeneity, labour retrenchment policies are seldom the optimal policy (consistent with Chong *et al.* 2011).

With respect to the new private ownership structure right after privatisation, private ownership concentration is still positive and statistically significant in model 1 of Table 6 (although only significant at the 10% level). With respect to the identity of owners on concentration, even though foreign ownership keeps the same sign as before, the coefficient is now not statistically significant (model 2). At first sight, this result is puzzling, because it contradicts the theoretical contentions of Boycko *et al.* (1996) and Dyck (2001) that foreign investors are the source of better governance and higher performance, which should be reflected in higher prices. Yet, Claessens (1997) finds a similar result in that only domestic ownership and not foreign ownership has a significant effect on voucher prices for the Czech and Slovak Republics. The author argues that perhaps there are offsetting costs of foreign majority ownership as foreign owners are not initially at ease in an environment that is relatively unknown to them, and that the transfer of know-how may require a long period of time. Institutional ownership and local corporations ownership are both positive and statistically significant as in the non-instrumented regressions. The results again show some support to Boycko *et al.*'s (1996) argument that employees make poor stockholders/monitors, since the employee ownership concentration variable is negative and statistically significant at the 5 % level in model 2 of Table 6.

With respect to auction and firm characteristics, the results still support our previous findings that lengthy privatisation processes come at a substantial cost to the government, as the coefficient on the length variable is negative and statistically significant in both models of Table 6. Controlling for endogeneity, we find that the number of bidders still has a positive and significant effect on PQ (model 1), as implied by the auction theory. On the other hand, the coefficient of the cash-only dummy still shows a negative impact on PQ as before. However, different form previous results, the coefficient is now statistically significant in model 2 of Table 6. The advantages of requiring just cash, like the instant infusion into the treasury, must therefore be carefully weighed against this evidence of the discount in PQ they entailed. Looking at firm characteristics, the results differ slightly from previous findings. As before, net income to sales ratio and firm size are positive and statistically significant. The number of strikes as a measure of the strength of the union still has a negative effect as in the non-instrumental regressions; however, it does not have statistical significance. Finally, firm age does not have an impact on PQ when controlling for endogeneity.

Again, the nature of the labour downsizing process may be an issue to explore. We do this in Table 7, where we split the total labour cuts variable into voluntary and compulsory labour downsizing.

[Insert Table 7 here]

The results do not differ from the ordinary least squares findings. Voluntary and compulsory downsizing schemes both yield a negative sign (although the former, as before, is not statistically significant). These findings are consistent with Chong *et al.* (2011) and Chong and Galdo (2006) , suggesting that governments should concentrate on providing a social safety net for displaced workers in general rather than attempting to make employment decisions in a highly charged political atmosphere. Delay also opens the door for more, and more effective, opposition from the party out of power and others opposed to the privatisation and reform process.

## 7. Conclusions

Using a sample of 118 transaction contracts from the Brazilian privatisation programme, we have provided an empirical analysis of the determinants of the net price received by the government. We used as dependent variable the so called PQ proposed by Lopez-de-Silanes (1997). Our results show that, after controlling for endogeneity, replacing the CEO is associated with an increase in privatisation prices. Efficiency measures aimed at improving operating performance of the firms and voluntary labour downsizing schemes fail to improve premiums. On the other hand, restructuring measures such as debt absorption and compulsory labour downsizing schemes have a significant negative impact on net prices. We also find that prices are very sensitive to the level of competition in the auction and that the longer it takes to put the company on the block the lower the premium obtained.

We show that to maximize the revenue raised from the shares sold in the auction, it is important to design the sale with the final ownership structure in mind. The more concentrated private ownership is, the higher prices are. Identity of owners on concentration is also shown to matter as domestic institutions and local corporations are associated with higher prices, while employee ownership concentration has a negative impact on premiums. This case suggests conflicts of interest.

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# TABLES

**Table 1:** Descriptive Statistics of Variables

| Variable | Obs. | Mean | Std. dev. | Minimum | Maximum |
|---|---|---|---|---|---|
| Privatisation Q (PQ) | 98 | 1.3860 | 0.8602 | -0.1611 | 5.1296 |
| Tobin's Q | 98 | 1.5280 | 0.8093 | 0.3465 | 5.1513 |
| **A. Prior restructuring policies** | | | | | |
| CEO change dummy | 99 | 0.6061 | 0.4911 | 0 | 1 |
| Debt absorbed/total liabilities | 99 | 0.1255 | 0.2176 | 0 | 0.761 |
| Efficiency measures dummy | 99 | 0.4748 | 0.5019 | 0 | 1 |
| Percentage of total labour cuts | 99 | 0.1735 | 0.1540 | 0 | 0.6256 |
| Percentage of compulsory labour downsizing | 99 | 0.1130 | 0.1495 | 0 | 0.6256 |
| Percentage of voluntary labour downsizing | 99 | 0.0605 | 0.1232 | 0 | 0.4985 |
| **B. New private ownership structure** | | | | | |
| Private ownership concentration (3 largest private shareholders) | 99 | 0.7519 | 0.2307 | 0.15 | 1 |
| Foreign ownership on concentration | 99 | 0.2009 | 0.2582 | 0 | 0.9997 |
| Institutional ownership on concentration | 99 | 0.1605 | 0.2902 | 0 | 1 |
| Employees ownership on concentration | 99 | 0.0405 | 0.0599 | 0 | 0.251 |
| Local corporations ownership on concentration | 99 | 0.3500 | 0.3511 | 0 | 1 |
| **C. Auction process characteristics** | | | | | |
| Total length of sale from rumours to completion (days) | 99 | 880.1111 | 497.5964 | 198 | 2231 |
| Internal length of sale from rumours to first public announcement (days) | 98 | 794.7857 | 505.4627 | 111 | 2197 |
| Public length of sale from first public announcement to completion (days) | 98 | 88.5816 | 106.5193 | 17 | 760 |
| Number of firms sold before | 99 | 55.9192 | 35.9088 | 0 | 120 |
| Within-Industry order of sale | 99 | 7.9798 | 7.1600 | 0 | 26 |
| Number of bidders | 91 | 2.2857 | 1.7656 | 1 | 10 |
| Cash-sale only dummy | 99 | 0.5657 | 0.4982 | 0 | 1 |
| **D. Firm characteristics** | | | | | |
| Net income/sales | 99 | -0.0658 | 0.2240 | -0.7339 | 0.6077 |
| Operating Income/sales | 85 | -0.0180 | 0.2304 | -0.6409 | 1.3694 |
| Sales/total assets | 98 | 0.5586 | 0.4445 | 0.0100 | 2 |
| Total liabilities/total assets | 84 | 0.4844 | 0.2878 | 0.0141 | 1.9472 |
| Growth in production | 71 | 0.0323 | 0.0997 | -0.3568 | 0.2841 |
| Capacity utilization | 70 | 0.7701 | 0.1392 | 0.3589 | 0.9630 |
| Number of employees | 91 | 3838.066 | 6233.942 | 2 | 37000 |
| Labour Productivity change | 69 | 0.1673 | 0.2060 | -0.2680 | 0.7925 |
| Number of strikes | 99 | 1.2121 | 1.6859 | 0 | 5 |
| Firm size (log of sales) | 98 | 19.1589 | 1.6667 | 11.44223 | 22.8310 |
| Age of firm (years) | 99 | 32.8586 | 21.6064 | 7 | 108 |
| Government in industry | 99 | 0.6939 | 0.2659 | 0.21 | 1 |
| Company market share | 99 | 0.2831 | 0.2990 | 0.004 | 1 |

This Table reports summary statistics for the sample of 98 Privatisation Contracts of companies privatised in Brazil between 1991 and 2004. Definitions for each variable can be found in Table A.1.

**Table 2:** The Sample of Privatised SOEs

| Year | Total number of privatised companies | Total number of privatisation contracts | Privatisation contracts in the sample | Auction Results included in the sample (US$ millions) | Auction Results not included in the sample (US$ millions) |
|---|---|---|---|---|---|
| 1991 | 6 | 4 | 4 | 2096 | - |
| 1992 | 17 | 14 | 14 | 2469.8 | - |
| 1993 | 7 | 6 | 6 | 3026.2 | - |
| 1994 | 12 | 9 | 9 | 619.5 | - |
| 1995 | 8 | 8 | 8 | 1123.4 | - |
| 1996 | 13 | 13 | 7 | 3307.9 | 1501.5 |
| 1997 | 19 | 19 | 16 | 14348 | 685.7 |
| 1998 | 71 | 30 | 20 | 29476.4 | 690.8 |
| 1999 | 6 | 6 | 5 | 2338.6 | 20.9 |
| 2000 | 5 | 5 | 5 | 5951.3 | - |
| 2001 | 2 | 2 | 2 | 298.4 | - |
| 2002 | 1 | 1 | 1 | 76.8 | - |
| 2004 | 1 | 1 | 1 | 26.6 | - |
| Total: | 168 | 118 | 98 | 65158.9 | 2898.9 |

**Table 3:** Privatisation Contracts According to Sectors

| Sector | Number of privatisation contracts | PQ | Tobin's Q |
|---|---|---|---|
| Steel | 8 | 0.6451 | 1.0925 |
| Petrochemicals | 27 | 1.1330 | 1.1533 |
| Fertilizers | 5 | 0.7825 | 0.8040 |
| Mining | 2 | 0.9571 | 0.9926 |
| Aviation | 1 | -0.0046 | 1.0784 |
| Others | 4 | 1.5412 | 1.8772 |
| Gas distribution | 2 | 4.2290 | 4.4522 |
| Electric Sector | 23 | 1.8424 | 1.8904 |
| Telecommunications | 13 | 2.1313 | 2.1600 |
| Banking and Financial Sector | 13 | 0.7349 | 1.1389 |
| Total Sample | 98 | 1.3860 | 1.5280 |

**Table 4:** Prior Restructuring Policies, Private Ownership Structure and Privatisation Q.

**OLS**

| Dependent Variable: Privatisation Q | Model (1) | Model (2) |
|---|---|---|
| **1. Prior Restructuring Policies** | | |
| CEO change dummy | 0.2719*** | 0.3094*** |
| | (0.0982) | (0.0957) |
| Debt absorbed/total liabilities | -1.2413*** | -1.2324*** |
| | (0.3601) | (0.3687) |
| Efficiency measures dummy | 0.1839 | 0.3157* |
| | (0.1660) | (0.1655) |
| Percentage of total labour cuts | -0.9482*** | -0.9961*** |
| | (0.3327) | (0.3155) |
| | | |
| **2. New Private Ownership Structure** | | |
| Private ownership concentration | 0.6507** | |
| (3 largest private shareholders) | (0.3093) | |
| Foreign ownership | | 1.1805*** |
| on concentration | | (0.3212) |
| Institutional ownership | | 0.7448** |
| on concentration | | (0.3442) |
| Employees ownership | | -1.2786 |
| on concentration | | (0.9769) |
| Local corporations ownership | | 0.6777** |
| on concentration | | (0.2871) |
| | | |
| **3.Auction and Firm Characteristics** | | |
| Total length of the auction | -0.0004*** | -0.0004*** |
| | (0.0001) | (0.0001) |
| Number of Bidders | 0.0979*** | 0.0989*** |
| | (0.0303) | (0.0292) |
| Cash-sale only dummy | -0.2300 | -0.1419 |
| | (0.1617) | (0.1584) |
| Net income/total sales | 0.7807*** | 0.9527*** |
| | (0.2222) | (0.2207) |
| Number of strikes | -0.3281*** | -0.3943*** |
| | (0.0925) | (0.0912) |
| Firm Size | 0.0788** | 0.0954*** |
| | (0.0344) | (0.0337) |
| Firm Age (years) | 0.0049* | 0.0047* |
| | (0.0028) | (0.0026) |
| Intercept | -0.0858 | -0.3814 |
| | (0.7677) | (0.7283) |
| Industry dummies | yes | yes |
| Number of observations | 90 | 90 |
| Adjusted $R^2$ | 0.8067 | 0.8268 |

Robust standard errors in parentheses.
***Significant at 1%; **significant at 5%; *significant at 10%

**Table 5:** Voluntary and Compulsory Labour Downsizing and Privatisation Q.

**OLS**

| Dependent Variable: Privatisation Q | Model (1) | Model (2) |
|---|---|---|
| **1. Prior Restructuring Policies** | | |
| CEO change dummy | 0.2624*** | 0.2977*** |
| | (0.0955) | (0.0932) |
| Debt absorbed/total liabilities | -1.3249*** | -1.3761*** |
| | (0.3521) | (0.3645) |
| Efficiency measures dummy | 0.1748 | 0.3064* |
| | (0.1615) | (0.1610) |
| Percentage of voluntary labour downsizing | -0.1830 | -0.2551 |
| | (0.4726) | (0.4583) |
| Percentage of compulsory labour downsizing | -1.1885*** | -1.2165*** |
| | (0.3411) | (0.3231) |
| | | |
| **2. New Private Ownership Structure** | | |
| Private ownership concentration (3 largest private shareholders) | 0.6774** | |
| | (0.3009) | |
| Foreign ownership on concentration | | 1.1855*** |
| | | (0.3124) |
| Institutional ownership on concentration | | 0.8708** |
| | | (0.3397) |
| Employees ownership on concentration | | -1.2222 |
| | | (0.9503) |
| Local corporations' ownership on concentration | | 0.6858** |
| | | (0.2792) |
| | | |
| **3.Auction and Firm Characteristics** | | |
| Total length of the auction | -0.0004*** | -0.0004*** |
| | (0.0001) | (0.0001) |
| Number of Bidders | 0.0874*** | 0.0877*** |
| | (0.0298) | (0.0289) |
| Cash-sale only dummy | -0.1818 | -0.1020 |
| | (0.1587) | (0.1551) |
| Net income/total sales | 0.8656*** | 1.0272*** |
| | (0.2194) | (0.2173) |
| Number of strikes | -0.3081*** | -0.3727*** |
| | (0.0903) | (0.0892) |
| Firm Size | 0.0701** | 0.0844** |
| | (0.0337) | (0.0332) |
| Firm Age (years) | 0.0056** | 0.0055** |
| | (0.0027) | (0.0026) |
| Intercept | 0.0847 | -0.1773 |
| | (0.7503) | (0.7144) |
| Industry dummies | yes | yes |
| Number of observations | 90 | 90 |
| Adjusted $R^2$ | 0.8172 | 0.8362 |

Robust standard errors in parentheses.
***Significant at 1%; **significant at 5%; *significant at 10%

**Table 6:** Prior Restructuring Policies, Private Ownership Structure and Privatisation Q.

## Instrumental Variables

| Dependent Variable: Privatisation Q | Model (1) | Model (2) |
|---|---|---|
| **1. Prior Restructuring Policies** | | |
| CEO change dummy | 0.0685* | 0.0850** |
| | (0.0391) | (0.0378) |
| Debt absorbed/total liabilities | -0.4608*** | -0.4799*** |
| | (0.1239) | (0.1161) |
| Efficiency measures dummy | 0.0268 | 0.0871 |
| | (0.0526) | (0.0609) |
| Percentage of total labour cuts | -0.4053 | -0.6315* |
| | (0.2937) | (0.3659) |
| | | |
| **2. New Private Ownership Structure** | | |
| Private ownership concentration | 0.9489* | |
| (3 largest private shareholders) | (0.5104) | |
| Foreign ownership | | 0.3420 |
| on concentration | | (0.3996) |
| Institutional ownership | | 0.8943** |
| on concentration | | (0.3801) |
| Employees ownership | | -2.2503** |
| on concentration | | (1.0351) |
| Local corporations ownership | | 1.8915*** |
| on concentration | | (0.5439) |
| | | |
| **3. Auction and Firm Characteristics** | | |
| Total length of the auction | -0.0004** | -0.0003* |
| | (0.0002) | (0.0002) |
| Number of Bidders | 0.1480** | 0.1048 |
| | (0..0693) | (0.0698) |
| Cash-sale only dummy | -0.2879 | -0.4692** |
| | (0.1776) | (0.1767) |
| Net income/total sales | 0.4826** | 0.6536*** |
| | (0.2309) | (0.2360) |
| Number of strikes | -0.1002 | -0.0719 |
| | (0.0667) | (0.0648) |
| Firm Size | 0.0685* | 0.1459*** |
| | (0.0375) | (0.0456) |
| Firm Age (years) | 0.0017 | -0.0012 |
| | (0.0031) | (0.0033) |
| Intercept | -0.5835 | -1.5864* |
| | (0.9470) | (0.9217) |
| Industry dummies | yes | yes |
| Number of observations | 98 | 98 |
| Adjusted $R^2$ | 0.7604 | 0.7824 |

Robust standard errors in parentheses.
***Significant at 1%; **significant at 5%; *significant at 10%

**Table 7:** Voluntary and Compulsory Labour Downsizing and Privatisation Q.

**Instrumental Variables**

| *Dependent Variable:* *Privatisation Q* | Model (1) | Model (2) |
|---|---|---|
| **1. Prior Restructuring Policies** | | |
| CEO change dummy | 0.0601 | 0.0731[*] |
| | (0.0385) | (0.0368) |
| Debt absorbed/total liabilities | -0.4539[***] | -0.4691[***] |
| | (0.1227) | (0.1158) |
| Efficiency measures dummy | 0.0353 | 0.0886 |
| | (0.0544) | (0.0610) |
| Percentage of voluntary labour | -0.7423 | -0.9615 |
| downsizing | (0.7053) | (0.7617) |
| Percentage of compulsory labour | -1.1402[**] | -1.3581[**] |
| downsizing | (0.5024) | (0.5365) |
| | | |
| **2. New Private Ownership Structure** | | |
| Private ownership concentration | 1.0373[**] | |
| (3 largest private shareholders) | (0.5041) | |
| Foreign ownership | | 0.3569 |
| on concentration | | (0.3911) |
| Institutional ownership | | 1.0017[***] |
| on concentration | | (0.3630) |
| Employees ownership | | -2.2545[**] |
| on concentration | | (1.0218) |
| Local corporations ownership | | 1.9844[***] |
| on concentration | | (0.5508) |
| | | |
| **3. Auction and Firm Characteristics** | | |
| Total length of the auction | -0.0004[**] | -0.0003[*] |
| | (0.0002) | (0.0002) |
| Number of Bidders | 0.1497[**] | 0.1123 |
| | (0.0703) | (0.0712) |
| Cash-sale only dummy | -0.3086[*] | -0.4830[***] |
| | (0.1827) | (0.1833) |
| Net income/total sales | 0.4514[*] | 0.6167[**] |
| | (0.2334) | (0.2390) |
| Number of strikes | -0.1063 | -0.0814 |
| | (0.0666) | (0.0647) |
| Firm Size | 0.0673[*] | 0.1413[***] |
| | (0.0369) | (0.0439) |
| Firm Age (years) | 0.0023 | -0.0005 |
| | (0.0031) | (0.0033) |
| Intercept | -0.4481 | -1.3265 |
| | (0.9392) | (0.8980) |
| Industry dummies | yes | yes |
| Number of observations | 90 | 90 |
| Adjusted $R^2$ | 0.7671 | 0.7891 |

Robust standard errors in parentheses.
***Significant at 1%; **significant at 5%; *significant at 10%

# Appendix A – List of Variables and Definitions

**Table A.1:** Description of Variables

| Variable | Description |
|---|---|
| *Panel A: Price measures* | |
| Privatisation Q (PQ) | The net present value of the nominal price of sale as registered in the privatisation contract after all privatisation and restructuring costs are taken into account adjusted by the percentage of company shares sold plus total liabilities at the time of privatisation, divided by the total assets of the company at the time of privatisation. |
| Tobin's Q | Nominal price adjusted by the percentage of shares sold plus total liabilities of the SOE at the time of privatisation all divided by total assets of the SOE at the time of privatisation. |
| *Panel B: Prior restructuring measures* | |
| CEO change dummy | Dummy variable equal to 1 if the CEO was changed in the two years prior to privatisation and 0 otherwise. |
| Debt absorbed/total liabilities | Debt absorption undertaken by the government before privatisation, divided by total liabilities at the time of privatisation. |
| Efficiency measures | Dummy variable equal to 1 if the company underwent an efficiency improvement programme in the two years prior to privatisation, and 0 otherwise. These measures are directives or programmes aimed at improving performance and operating efficiency, or at increasing management's flexibility to make financial and production decisions. |
| Percentage of total labour cuts | Percentage of the total labour force fired in the two years prior to privatisation. |
| Percentage of voluntary labour downsizing | Percentage of labour force reduced under voluntary severance programmes. |
| Percentage of compulsory labour downsizing | Percentage of labour force reduced under compulsory severance programmes. |
| *Panel C: New private ownership structure* | |
| Private ownership concentration | Percentage of shares owned by the three private largest shareholders right after privatisation. |
| Foreign ownership on concentration | Percentage of shares owned by foreign investors on concentration right after privatisation. |
| Institutional ownership on concentration | Percentage of shares owned by institutional investors on concentration right after privatisation. |
| Employees ownership on concentration | Percentage of shares owned by employees on concentration right after privatisation. |
| Local corporations ownership on concentration | Percentage of shares owned by local corporations on concentration right after privatisation. |
| *Panel D: Auction process characteristics* | |
| Total length of sale | The total number of days between the first recommendation to privatise and the completion of privatisation. |
| Internal length of sale | The number of days between the first recommendation and the first public announcement of privatisation. |

| | |
|---|---|
| Public length of sale | The number of days between the first public announcement of privatisation and the completion of the sale. |
| Number of SOEs sold before | The number of companies privatised before the case at hand since the beginning of the privatisation program. |
| Within-Industry order of sale | The number of companies privatised before the case at hand in the same industry |
| Year dummies | A set of year dummies for each of the years between 1991 and 2004. The dummy equals one if the firm was privatised that year and 0 otherwise. |
| Time dummy | Dummy variable that takes the value 1 if the sample-firm is privatised after the median privatisation date, and 0 otherwise. |
| Number of bidders | The number of different groups of bidders in each auction. |
| Leading consulting firm dummies | A set of 33 dummy variables one for each of the leading consulting firms in charge of the privatisation process of a company. Dummy equals 1 if that particular consulting firm was responsible for that company and 0 otherwise. |
| Cash-sale only dummy | Dummy variable equal to 1 if the form of payment was only cash, and 0 otherwise. |
| Required deposit/assets | The required deposit to be allowed to enter the auction as a percentage of the total assets of the company at the time of privatisation. |
| Percentage of shares privatised | The percentage of shares sold in the auction. |
| *Panel E: Firm characteristics* | |
| Net income/sales | The four-year average of net income over total sales before privatisation. |
| Operating income/sales | The four-year average of operating income over total sales before privatisation. |
| Capacity utilization | The four-year average of capacity utilization before privatisation. |
| Sales/total assets | The four-year average of sales over total assets before privatisation. |
| Growth in production | The four-year geometric average of production growth before privatisation. |
| Growth | The average annual growth rate of sales during the 3 years preceding the privatisation year. |
| Risk | The standard deviation of annual return on equity during the 3 years preceding the privatisation year. |
| Total liabilities/total assets | The four-year average of total liabilities over total assets before privatisation. |
| Labour productivity change | The one-year change in the ratio of value of production to number of total employees. |
| Size | Logarithm of the firm total sales in the pre-privatisation period. |
| Age of firm | Firm age measured in years since establishment. |
| Listed SOE | A dummy variable that takes the value 1 if the privatised enterprise was listed on the stock exchange before privatisation, and 0 otherwise. |
| Number of strikes | The number of strikes experienced by the SOE in the five years before privatisation. |

| | |
|---|---|
| Firm-level union | Dummy variable equal to 1 if the union comprised workers only from that SOE, and 0 otherwise. |
| Industry-level union | Dummy variable equal to 1 if the workers of the company belonged to a union for the whole industry, and 0 otherwise. |
| National union | Dummy variable equal to 1 if the workers of the company belonged to a national union not specific to an industry, and 0 otherwise. |
| Subsidiary SOE | Dummy variable equal to 1 if the company acted solely as a subsidiary of another SOE, and 0 otherwise. |
| Bureaucrat manager | Dummy variable equal to 1 if the manager (or CEO) was a bureaucrat with less than three years on the job, and 0 otherwise. |
| Experienced bureaucrat | Dummy variable equal to 1 if the manager (or CEO) was an experienced bureaucrat with manager over three years on the job, and 0 otherwise. |
| Government share of industry's supply | The government's percentage participation in the total supply of the industry. |
| Company market share | The average market share of the SOE during the two-year period before privatisation. |
| Nontradable good | Dummy variable equal to 1 if the main product of the company is a nontradable good, and 0 otherwise. |
| Product requiring concession | Dummy variable equal to 1 if the product of the company required government concession, and 0 otherwise. |
| Price controls | Dummy variable equal to 1 if the main product of the company was subject to price controls. |

This table describes the variables collected for each of the firms privatised in Brazil in the period 1991-2004. The variables described are those used in Tables 1 through 7 and the instruments used in the first-step regression of the econometric procedure. The first column gives the name of the variable or the ratio. The second column describes the item.

# Appendix B- First Step of Nonlinear Two-Step Estimations

### Table B.1: Instruments for Potentially Endogenous Variables

| Dependent variables in the first-stage regression | Leading consulting firm | Manage-ment character-istics | Labour union affiliation | Firm characteristics determined in advance | Auction publicity and required deposits | Public offering right after the auction | Time of the process | F-statistic on excluded instruments |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Groups of instruments | | |
| Number of bidders | | | yes | yes | yes | | yes | 7.08 |
| Total length of sale | yes | | | yes | yes | | | 5.07 |
| CEO change | | yes | yes | yes | yes | | yes | 8.87 |
| Debt absorption | yes | | | yes | yes | yes | yes | 3.97 |
| Efficiency Measures | | yes | yes | yes | yes | | yes | 11.13 |
| Total Labour Cuts | yes | | yes | yes | | | yes | 3.47 |
| Voluntary Labour Downsizing | yes | | yes | yes | | | yes | 6.22 |
| Compulsory Labour Downsizing | yes | | yes | yes | | | yes | 3.94 |
| Private Ownership Concentration | | | yes | yes | yes | yes | yes | 9.56 |
| Foreign Ownership on Concentration | | | | yes | yes | yes | yes | 3.75 |
| Institutional Ownership on Concentration | | | | yes | yes | yes | yes | 5.23 |
| Employees Ownership on Concentration | | | yes | yes | | yes | yes | 3.59 |
| Local Corporations Ownership on Concentration | | | | yes | yes | yes | yes | 8.01 |

## Table B.2-First Stage: Number of Bidders

Dependent Variable: <u>Number of Bidders</u>
Two-step procedure
**First step:** OLS, White corrected

| | |
|---|---|
| Announcement in international press | 1.646645** |
| | (0.7518907) |
| Required deposit to bid/ total assets | 2.194648*** |
| | (0.5470889) |
| Time dummy | 1.162956*** |
| | (0.3374054) |
| Industry level union dummy | 1.509111*** |
| | (0.4342086) |
| Listed SOE  dummy | 0.8842015** |
| | (0.3542292) |
| Growth | 1.547826** |
| | (0.7297344) |
| Total assets/mean assets of sample | -0.1072319 |
| | (0.0869801) |
| Intercept | -1.069754* |
| | (0.5777613) |
| Adjusted $R^2$ | 0.3236 |
| F-statistics on excluded instruments | 7.08 |
| (Prob > F) | 0.0000 |
| Number of observations | 90 |

Robust standard errors in parentheses.
***Significant at 1%; **significant at 5%; *significant at 10%

### Table B.3- First Stage: Total Length of the Auction

| | |
|---|---|
| Required deposit to bid/ total assets | -508.9066*** |
| | (161.6321) |
| Total assets/mean assets of sample | -4.027864 |
| | (22.5984) |
| Subsidiary SOE dummy | 90.78196 |
| | (137.3947) |
| Announcement in international press | 52.54313 |
| | (198.7289) |
| Leading consulting firm 1 | 129.8544 |
| | (483.8936) |
| Leading consulting firm 2 | 189.1146 |
| | (467.1087) |
| Leading consulting firm 3 | -24.81643 |
| | (340.5779) |
| Leading consulting firm 4 | 199.8051 |
| | (309.2338) |
| Leading consulting firm 5 | 461.3265 |
| | (476.0344) |
| Leading consulting firm 6 | 41.37853 |
| | (343.87) |
| Leading consulting firm 7 | -27.85628 |
| | (464.8627) |
| Leading consulting firm 8 | 677.5188* |
| | (362.3517) |
| Leading consulting firm 9 | 252.175 |
| | (362.2473) |
| Leading consulting firm 10 | 140.0348 |
| | (369.6495) |
| Leading consulting firm 11 | 635.7535* |
| | (367.6368) |
| Leading consulting firm 12 | 1031.934*** |
| | (364.6644) |
| Leading consulting firm 13 | 1375.848*** |
| | (393.5919) |
| Leading consulting firm 14 | 948.41** |
| | (462.9177) |
| Leading consulting firm 15 | 164.1937 |
| | (360.5183) |
| Leading consulting firm 16 | 787.058* |
| | (402.9887) |
| Leading consulting firm 17 | 899.6478** |
| | (410.0345) |
| Leading consulting firm 18 | 444.6549 |
| | (408.3474) |
| Leading consulting firm 19 | 230.0804 |
| | (470.5192) |
| Leading consulting firm 20 | -181.4767 |
| | (498.9264) |

| | |
|---|---|
| Leading consulting firm 21 | 621.9927 |
| | (478.3561) |
| Leading consulting firm 22 | -98.00438 |
| | (462.3433) |
| Leading consulting firm 23 | 104.6805 |
| | (461.5755) |
| Leading consulting firm 24 | 274.15 |
| | (479.5458 ) |
| Leading consulting firm 25 | 265.5331 |
| | (363.5752) |
| Leading consulting firm 26 | 82.21412 |
| | (463.525) |
| Leading consulting firm 27 | 290.9993 |
| | (326.8581) |
| Leading consulting firm 28 | -36.21814 |
| | (465.4158) |
| Leading consulting firm 29 | 423.8332 |
| | (462.1617) |
| Leading consulting firm 30 | 393.0335 |
| | (467.5474) |
| Leading consulting firm 31 | -235.856 |
| | (355.8128) |
| Leading consulting firm 32 | -62.74639 |
| | (466.1499) |
| Leading consulting firm 33 | 92.73661 |
| | (413.6462) |
| Intercept | 682.5939[*] |
| | (353.5529) |
| Adjusted $R^2$ | 0.6080 |
| F-statistic on excluded instruments | 5.07 |
| (Prob > F) | 0.0000 |
| Number of observations | 98 |

Robust standard errors in parentheses.
***Significant at 1%; **significant at 5%; *significant at 10%

## Table B.4- First Stage: CEO change

| Dependent Variable: <u>CEO change dummy</u> Two-step procedure **First step:** Probit | |
|---|---|
| Announcement in international press | 0.9168492 |
| | (.6383186) |
| Required deposit to bid/total assets | 3.376.596*** |
| | (0.9975108) |
| CEO experienced bureaucrat | -2.513.888*** |
| | (0.4552229) |
| Listed SOE dummy | 0.4490482 |
| | (0.4334787) |
| Total assets/mean assets of sample | -0.0327565 |
| | (0.1040667) |
| Industry-level union dummy | 1.379.703** |
| | (0.6923401) |
| National union dummy | 0.6594067 |
| | (0.8497341) |
| Subsidiary SOE dummy | -0.169089 |
| | (0.5766912) |
| Time dummy | 0.6228886 |
| | (0.442676) |
| Growth | -1.65735* |
| | (0.978134) |
| Intercept | -0.6131565 |
| | (0.8755799) |
| Pseudo $R^2$ | 0.5051 |
| F-statistic on excluded instruments | 8.87 |
| (Prob > F) | 0.0000 |
| Number of observations | 98 |

Robust standard errors in parentheses.
***Significant at 1%; **significant at 5%; *significant at 10%

## Table B.5- First Stage: Debt absorbed/Total liabilities

Dependent Variable: <u>Debt absorbed/Total liabilities</u>

Two-step procedure

**First step:** Tobit

| | |
|---|---|
| Risk | 0.0587529*** |
| | (0.0205838) |
| Required deposit to bid/total assets | -0.1786065 |
| | (0.126217) |
| Announcement in international press | 0.3443306* |
| | (0.1870141) |
| Total assets/mean assets of sample | -0.0727481 |
| | (0.0614554) |
| Listed SOE dummy | 0.1516878* |
| | (0.0838848) |
| Time dummy | 0.0118978 |
| | (0.1305557) |
| Public offering after the auction dummy | -0.6360211 |
| | (0.3826532) |
| Leading consulting firm 3 | -0.3333676 |
| | (0.499547) |
| Leading consulting firm 4 | -0.8743742 |
| | (1.029573) |
| Leading consulting firm 5 | -1.284626 |
| | (1.086445) |
| Leading consulting firm 6 | -0.2382466 |
| | (0.5570847) |
| Leading consulting firm 7 | -0.7379893 |
| | (0.9291488) |
| Leading consulting firm 9 | -1.408155 |
| | (1.029802) |
| Leading consulting firm 10 | -0.9047242 |
| | (1.016349) |
| Leading consulting firm 15 | -1.569697 |
| | (1.003994) |
| Leading consulting firm 16 | -0.7653583 |
| | (0.773786) |
| Leading consulting firm 17 | -1.266587 |
| | (1.105871) |
| Leading consulting firm 18 | -1.103114 |
| | (1.002634) |
| Leading consulting firm 19 | -0.8343464 |
| | (1.006739) |
| Leading consulting firm 20 | -1.54787 |
| | (1.130321) |
| Leading consulting firm 23 | -1.016914 |
| | (0.9923993) |
| Leading consulting firm 25 | -1.283742 |

|  |  |
|---|---|
|  | (0.9909641) |
| Leading consulting firm 26 | -0.9878798 |
|  | (1.03803) |
| Leading consulting firm 27 | -1.372075 |
|  | (1.016677) |
| Leading consulting firm 29 | -1.205469 |
|  | (1.007045) |
| Leading consulting firm 33 | -0.9577947 |
|  | (0.8420679) |
| Intercept | 1.357642 |
|  | (1.007249) |
| Pseudo $R^2$ | 1.1243 |
| F-statistic on excluded instruments | 3.97 |
| (Prob > F) | 0.0000 |
| Number of observations | 98 |

Robust standard errors in parentheses.
***Significant at 1%; **significant at 5%; *significant at 10%

## /Table B.6- First Stage: Efficiency measures

Dependent Variable: <u>Efficiency measures dummy</u>

Two-step procedure

**First step:** Probit

| | |
|---|---|
| Announcement in international press | 3.337184*** |
| | (1.032637) |
| CEO experienced bureaucrat | -0.2255732 |
| | (0.402086) |
| Listed SOE dummy | -0.071417 |
| | (0.443892) |
| Total assets/mean assets of sample | 0.0656719 |
| | (0.090857) |
| Industry level union dummy | -0.6905169 |
| | (0.498801) |
| National union dummy | 0.0396866 |
| | (0.901027) |
| Subsidiary SOE dummy | -2.150768*** |
| | (0.638989) |
| Time dummy | 2.202959*** |
| | (0.412658) |
| Growth | 0.8618816 |
| | 0.888727 |
| Intercept | -0.774834 |
| | (0.6006986) |
| Pseudo R$^2$ | 0.5324 |
| F-statistic on excluded instruments | 11.13 |
| (Prob > F) | 0.0000 |
| Number of observations | 98 |

Robust standard errors in parentheses.

***Significant at 1%; **significant at 5%; *significant at 10%

## Table B.7- First Stage: Percentage of Total Labour Cuts

Dependent Variable: <u>Percentage of Total Labour Cuts</u>
Two-step procedure
**First step:** Tobit

| | |
|---|---|
| Time dummy | 0.1260336** |
| | (0.0588894) |
| Total assets/mean assets of sample | -0.0111334 |
| | (0.0083091) |
| National union dummy | -0.2575633** |
| | (0.1012001) |
| Industry-level union dummy | -0.1699061** |
| | (0.0647656) |
| Risk | 0.0307057** |
| | (0.0148243) |
| Subsidiary SOE dummy | -0.2828153*** |
| | (0.0598774) |
| Leading consulting firm 1 | -0.244643 |
| | (0.1670254) |
| Leading consulting firm 2 | -0.0383378 |
| | (0.168349) |
| Leading consulting firm 3 | -0.0389411 |
| | (0.1219743) |
| Leading consulting firm 4 | 0.0737631 |
| | (0.1124207) |
| Leading consulting firm 5 | -0.1576969 |
| | (0.1670798) |
| Leading consulting firm 6 | -0.068115 |
| | (0.1217385) |
| Leading consulting firm 7 | -0.0472353 |
| | (0.1669239) |
| Leading consulting firm 8 | 0.1381494 |
| | (0.1327753) |
| Leading consulting firm 9 | 0-.0315229 |
| | (0.1350685) |
| Leading consulting firm 10 | 0-.0333592 |
| | (0.1373385) |
| Leading consulting firm 11 | 0-.018784 |
| | (0.1341111) |
| Leading consulting firm 12 | 0.0828161 |
| | (0.1320948) |
| Leading consulting firm 13 | 0.1012471 |
| | (0.1446059) |
| Leading consulting firm 15 | -0.0091119 |
| | (0.1317742) |
| Leading consulting firm 16 | -0.093764 |
| | (0.1449482) |
| Leading consulting firm 17 | 0.1053248 |
| | (0.1576017) |
| Leading consulting firm 18 | 0.2237453 |
| | (0.1531286) |
| Leading consulting firm 19 | 0.0563778 |
| | (0.1680442) |

| | |
|---|---|
| Leading consulting firm 21 | -0.010671 |
| | (0.1683617) |
| Leading consulting firm 22 | -0.1067526 |
| | (0.1671281) |
| Leading consulting firm 23 | 0.0368204 |
| | (0.1725951) |
| Leading consulting firm 24 | 0.5365675*** |
| | (0.1967156) |
| Leading consulting firm 25 | 0.1729703 |
| | (0.1386725) |
| Leading consulting firm 26 | 0.1552325 |
| | (0.1733896) |
| Leading consulting firm 27 | -0.2106801* |
| | (0.1226536) |
| Leading consulting firm 28 | -0.1161898 |
| | (0.172121) |
| Leading consulting firm 29 | 0.1216159 |
| | (0.1877764) |
| Leading consulting firm 30 | -0.064777 |
| | (0.1732112) |
| Leading consulting firm 31 | -0.2723799* |
| | (0.1366809) |
| Leading consulting firm 32 | -0.0566699 |
| | (0.1726187) |
| Leading consulting firm 33 | 0.3007744* |
| | (0.1551707) |
| Intercept | 0.2824132** |
| | (0.1244578) |
| Pseudo $R^2$ | 9.3546 |
| F-statistic on excluded instruments | 3.47 |
| (Prob > F) | 0.0000 |
| Number of observations | 98 |

Robust standard errors in parentheses.

***Significant at 1%; **significant at 5%; *significant at 10%

## Table B.8- First Stage: Percentage of Voluntary Labour Downsizing

Dependent Variable: <u>Percentage of Voluntary  Labour Downsizing</u>
Two-step procedure
**First step:** Tobit

| | |
|---|---|
| Time dummy | .117612*** |
| | (.03551) |
| Total assets/mean assets of sample | -.0073043 |
| | (.0049405) |
| National union dummy | -.099512 |
| | (.0623779) |
| Industry-level union dummy | -.0155817 |
| | (.0405585) |
| Risk | .030571*** |
| | (.0092296) |
| Subsidiary SOE dummy | -.0949892*** |
| | (.0315962) |
| Leading consulting firm 1 | .0763948 |
| | (.1048808) |
| Leading consulting firm 2 | .0899348 |
| | (.1057763) |
| Leading consulting firm 3 | .0508841 |
| | (.0766086) |
| Leading consulting firm 4 | .0582118 |
| | (.0706101) |
| Leading consulting firm 5 | .078164 |
| | (.1049106) |
| Leading consulting firm 6 | .0461751 |
| | (.0764752) |
| Leading consulting firm 7 | .0882086 |
| | (.1048251) |
| Leading consulting firm 8 | .0925098 |
| | (.0834153) |
| Leading consulting firm 9 | .0721598 |
| | (.0845519) |
| Leading consulting firm 10 | .1047424 |
| | (.0860038) |
| Leading consulting firm 11 | .0744036 |
| | (.0838601) |
| Leading consulting firm 12 | .0930375 |
| | (.0828611) |
| Leading consulting firm 13 | .1223002 |
| | (.0892008) |
| Leading consulting firm 14 | .0934117 |
| | (.1058345) |
| Leading consulting firm 15 | .1005499 |
| | (.0826193) |
| Leading consulting firm 16 | .1041837 |
| | (.0909998) |
| Leading consulting firm 17 | .2797927*** |
| | (.0936359) |
| Leading consulting firm 18 | .1097417 |
| | (.0959744) |

| | |
|---|---|
| Leading consulting firm 19 | .0684146 |
| | (.1055829) |
| Leading consulting firm 20 | -.0758039 |
| | (.134107) |
| Leading consulting firm 21 | .0897662 |
| | (.1057839) |
| Leading consulting firm 22 | .0754782 |
| | (.1049379) |
| Leading consulting firm 23 | .2479127 |
| | (.1081328) |
| Leading consulting firm 24 | .1562417 |
| | (.121467) |
| Leading consulting firm 25 | .3166491[***] |
| | (.0864977) |
| Leading consulting firm 26 | .3694637[***] |
| | (.108586) |
| Leading consulting firm 27 | .08095 |
| | (.076751) |
| Leading consulting firm 28 | .2510236 |
| | (.1078719) |
| Leading consulting firm 29 | .3304309 |
| | (.1172683) |
| Leading consulting firm 30 | .1486489 |
| | (.1084857) |
| Leading consulting firm 31 | -.0149413 |
| | (.0845365) |
| Leading consulting firm 32 | .3120617[***] |
| | (.1081512) |
| Leading consulting firm 33 | .0026052 |
| | (.0970191) |
| Intercept | -.0781078 |
| | (.0780741) |
| Pseudo $R^2$ | 0.8070 |
| F-statistic on excluded instruments | 6.22 |
| (Prob > F) | 0.0000 |
| Number of observations | 98 |

Robust standard errors in parentheses.
***Significant at 1%; **significant at 5%; *significant at 10%

## Table B.9- First Stage: Percentage of Compulsory Labour Downsizing

Dependent Variable: Percentage of Compulsory  Labour Downsizing

Two-step procedure

**First step:** Tobit

| | |
|---|---|
| Time dummy | .0139395 |
| | (.0645321) |
| Total assets/mean assets of sample | -.0066188 |
| | (.0089783) |
| National union dummy | -.1434603 |
| | (.113359) |
| Industry-level union dummy | -.151342[**] |
| | (.0737068) |
| Risk | -.0025014 |
| | (.0167729) |
| Subsidiary SOE dummy | -.096292[*] |
| | (.0574197) |
| Leading consulting firm 1 | -.3210994 |
| | (.1905994) |
| Leading consulting firm 2 | -.1332592 |
| | (.1922268) |
| Leading consulting firm 3 | -.0866218 |
| | (.1392204) |
| Leading consulting firm 4 | .0119872 |
| | (.1283193) |
| Leading consulting firm 5 | -.2368309 |
| | (.1906535) |
| Leading consulting firm 6 | -.1157281 |
| | (.1389779) |
| Leading consulting firm 7 | -.1321186 |
| | (.1904981) |
| Leading consulting firm 8 | .0410933 |
| | (.1515901) |
| Leading consulting firm 9 | -.0904774 |
| | (.1536558) |
| Leading consulting firm 10 | -.1394001 |
| | (.1562942) |
| Leading consulting firm 11 | -.0753875 |
| | (.1523985) |
| Leading consulting firm 12 | -.0032282 |
| | (.1505831) |
| Leading consulting firm 13 | -.0175573 |
| | (.1621042) |
| Leading consulting firm 14 | -.211036 |
| | (.1923326) |
| Leading consulting firm 15 | -.1040089 |
| | (.1501437) |
| Leading consulting firm 16 | -.1942363 |
| | (.1653735) |
| Leading consulting firm 17 | -.1591703 |
| | (.1701641) |
| Leading consulting firm 18 | .1050315 |
| | (.1744139) |

| | |
|---|---|
| Leading consulting firm 19 | -.0152539 |
| | (.1918753) |
| Leading consulting firm 20 | -.0935682 |
| | (.243712) |
| Leading consulting firm 21 | -.1055489 |
| | (.1922406) |
| Leading consulting firm 22 | -.1832285 |
| | (.1907031) |
| Leading consulting firm 23 | -.2191039 |
| | (.1965092) |
| Leading consulting firm 24 | .2676105 |
| | (.2207413) |
| Leading consulting firm 25 | -.1775563 |
| | (.1571919) |
| Leading consulting firm 26 | -.2248545 |
| | (.1973329) |
| Leading consulting firm 27 | -.2956458** |
| | (.1394792) |
| Leading consulting firm 28 | -.3738196* |
| | (.196035) |
| Leading consulting firm 29 | -.2298602 |
| | (.2131112) |
| Leading consulting firm 30 | -.2234964 |
| | (.1971505) |
| Leading consulting firm 31 | -.1954597 |
| | (.1536277) |
| Leading consulting firm 32 | -.3763485* |
| | (.1965426) |
| Leading consulting firm 33 | .3050935* |
| | (.1763124) |
| Intercept | .3629954** |
| | (.1418836) |
| Pseudo $R^2$ | 0.5659 |
| F-statistic on excluded instruments | 3.94 |
| (Prob > F) | 0.0108 |
| Number of observations | 98 |

Robust standard errors in parentheses.
***Significant at 1%; **significant at 5%; *significant at 10%

## Table B.10- First Stage: Private Ownership Concentration

| Dependent Variable: <u>Private Ownership Concentration</u><br>(3 largest private shareholders)<br>Two-step procedure<br>**First step:** Tobit | |
| --- | --- |
| Risk | 0.0146122 |
| | (0.015232) |
| Growth | -0.5982403*** |
| | (0.0898198) |
| Public offering after the auction *dummy* | -0.0595861 |
| | (0.0742844) |
| Time dummy | 0.0652028 |
| | (0.0416766) |
| Total assets/mean assets of sample | -0.041102*** |
| | (0.0109889) |
| National union dummy | 0.1481831 |
| | (0.0911655) |
| Industry-level union dummy | 0.1538396*** |
| | (0.0543701) |
| Announcement in international press | -0.19395*** |
| | (0.0722334) |
| Required deposit to bid/ total assets | 0.0714483 |
| | (0.0635673) |
| Intercept | 0.7250828*** |
| | (0.0637609) |
| Pseudo $R^2$ | 2.8519 |
| F-statistic on excluded instruments | 9.56 |
| (Prob > F) | 0.0000 |
| Number of observations | 98 |

Robust standard errors in parentheses.
***Significant at 1%; **significant at 5%; *significant at 10%

## Table B.11- First Stage: Foreign Ownership on Concentration

Dependent Variable: <u>Foreign Ownership on Concentration</u>

Two-step procedure

**First step:** Tobit

| | |
|---|---|
| Risk | -0.0588998 |
| | (0.0545519) |
| Growth | 0.6092736*** |
| | (0.229993) |
| Public offering after the auction *dummy* | -0.3067552 |
| | (0.2304023) |
| Time dummy | 0.2409703** |
| | (0.1044531) |
| Total assets/mean assets of sample | -0.012901 |
| | (0.0281761) |
| Required deposit to bid/ total assets | 0.0199971 |
| | (0.1552171) |
| Intercept | -0.1683321 |
| | (0.1029954) |
| Pseudo $R^2$ | 0.1923 |
| F-statistic on excluded instruments | 3.75 |
| (Prob > F) | 0.0009 |
| Number of observations | 98 |

Robust standard errors in parentheses.

***Significant at 1%; **significant at 5%; *significant at 10%

## Table B.12- First Stage: Institutional Ownership on Concentration

Dependent Variable: <u>Institutional Ownership on Concentration</u>
Two-step procedure
**First step:** Tobit

| | |
|---|---|
| Risk | 0.0165293 |
| | (0.0418815) |
| Growth | -1.02369*** |
| | (0.2725392) |
| Public offering after the auction *dummy* | 0.2102628 |
| | (0.2114676) |
| Time dummy | 0.6261632*** |
| | (0.1413616) |
| Total assets/mean assets of sample | 0.0008585 |
| | (0.0306817) |
| Announcement in international press | 0.6107815*** |
| | (0.1966322) |
| Required deposit to bid/ total assets | -0.0971578 |
| | (0.186145) |
| Intercept | -0.3354047** |
| | (0.1409909) |
| Pseudo R$^2$ | 0.2778 |
| F-statistic on excluded instruments | 5.23 |
| (Prob > F) | 0.0000 |
| Number of observations | 98 |

Robust standard errors in parentheses.
***Significant at 1%; **significant at 5%; *significant at 10%

## Table B.13- First Stage: Employee Ownership on Concentration

| Dependent Variable: Employees Ownership on Concentration | |
|---|---|
| Two-step procedure | |
| **First step:** Tobit | |
| Risk | -0.001258 |
| | (0.0100522) |
| Growth | -0.0937516 |
| | (0.0749108) |
| Public offering after the auction dummy | 0.0844914* |
| | (0.047537) |
| Time dummy | 0.0293881 |
| | (0.0326546) |
| Total assets/mean assets of sample | 0.0003085 |
| | (0.0076541) |
| Industry-level union dummy | -0.0950232** |
| | (0.0364809) |
| National union dummy | -0.0251608 |
| | (0.0606299) |
| Ownership period requirement | 0.0001653** |
| to employees | (0.0606299) |
| Intercept | 0.018903 |
| | (0.041997) |
| Pseudo $R^2$ | 1.2107 |
| F-statistic on excluded instruments | 3.59 |
| (Prob > F) | 0.0040 |
| Number of observations | 98 |

Robust standard errors in parentheses.
***Significant at 1%; **significant at 5%; *significant at 10%

### Table B.14- First Stage: Local Corporations Ownership on Concentration

| | |
|---|---|
| Dependent Variable: <u>Local Corporations' Ownership on Concentration</u> | |
| Two-step procedure | |
| **First step:** Tobit | |
| Risk | .0105932 |
| | (.0339084) |
| Growth | -.0787031 |
| | (.2126997) |
| Public offering after the auction dummy | -.1624045 |
| | (.1710687) |
| Time dummy | -.5536409 |
| | (.0962359) |
| Total assets/mean assets of sample | -.0458481 |
| | (.0301002) |
| Announcement in international press | -.557748 |
| | (.1779044) |
| Required deposit to bid/ total assets | .2047401 |
| | (.1387141) |
| Intercept | .5775448 |
| | (.0814058) |
| Pseudo $R^2$ | 0.3280 |
| F-statistic on excluded instruments | 8.01 |
| (Prob > F) | 0.0000 |
| Number of observations | 98 |

Robust standard errors in parentheses.
***Significant at 1%; **significant at 5%; *significant at 10%