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OWNERSHIP STRUCTURE IN THE POST-PRIVATIZED BRAZILIAN STEEL INDUSTRY: COMPLEXITY, INSTABILITY AND THE LINGERING ROLE OF THE STATE

Edmund Amann
University of Manchester,
Germano Mendes De Paula
Universidade Federal de Uberlândia
and
João Carlos Ferraz
Universidade Federal Rio de Janeiro

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Institute for Development Policy and Management, University of Manchester,
Harold Hankins Building, Precinct Centre, Oxford Road, Manchester M13 9QH, UK
Tel: +44-161 275 2798 Fax: +44-161 275 0808
Email: crc@man.ac.uk Web: http://idpm.man.ac.uk/crc/

Abstract

This article examines the impacts of privatization on patterns of ownership structure and the role of the State in the Brazilian steel industry. Following a review of the theoretical literature our empirical analysis suggests that the results of privatization on the sector have been considerably more complex and nuanced than might have been expected. In particular we find that privatization has been associated with increasing complexity and instability in patterns of corporate ownership. At the same time, the State, far from withdrawing to the regulatory sidelines, has continued to play an active role both as a lender and as an important indirect investor.

Keywords: Brazil, Latin America, Privatization, Corporate Ownership, Role of the State

INTRODUCTION

Beginning in 1988, Brazil embarked on one of the world's largest privatization programs. Over the course of the next few years a great many enterprises were transferred to the private sector, across a cluster of industries ranging from steel, to petrochemicals to public utilities. Privatization has involved substantial transfer of assets from the public to the private sector and has also been argued to have radically altered patterns of efficiency. The majority of analyses so far conducted regarding privatization in Brazil and elsewhere have been characterized by a focus on two types of issues: the economic success of privatization in terms of its contribution to public finances and in relation to its impacts on productive efficiency, once private owners take the helm of companies. As Gray (1996, p.2) puts it, in the case of transition economies: "the primary goal behind privatization is to create true representatives for capital, and thereby to change the fundamental objectives of enterprise owners towards greater efficiency".

While the relationship between privatization and productive efficiency is a vital issue, it is far from being the only one worthy of attention by academics and policymakers. In the course of this paper we wish to shed light on issues that have been up to now somewhat overlooked. Specifically, using the Brazilian steel industry as our case study we will pay attention to two questions: a) does privatization deliver enhanced corporate governance standards? b) does privatization necessarily entail the final exit of the State as an investor?

Privatization, Corporate Governance and Development

Having set out our questions, it is worth delving into their theoretical motivation. Regarding the first, the issue of corporate governance has received enormous attention in the literature over the past ten years. For Shleifer and Vishny (1996, p.2) "corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment". The authors argue that in the case of state-owned companies the "bureaucrats controlling state firms have at best only an indirect concern about profits (because profits flow into the government budget), and have objectives that are very different from the social interest. Nonetheless, they have virtually complete power over these firms, and can direct them to pursue any political objective. State ownership is then an example of concentrated control with no cash flow rights *and* socially harmful objectives. Viewed from this perspective, the inefficiency of state firms is not at all surprising" (ibid. p.47).

In this context, privatization has the potential to reduce the principal-agency problems, one of the key distortions regarding corporate governance. However, Shleifer and Vishny (1996), analyzing the case of Russia, stress that post privatization difficulties with corporate governance may arise. One of the problems is "the virtual absence of protection for minority shareholders makes it attractive for managers to divert resources from the firms" (ibid. p.48). The second problem is that the managers in many cases are not competent to restructure the privatized firms.

According to Babic (2003, p. 3) "corporate governance is of great importance for national development because it has a growing role in helping to increase the flow of financial capital to firms in developing countries". For Babic, sound corporate governance for transition economies (and other less developed countries) requires: "(1) creation of the key institution, the private corporation, which drives the successful economic transformation to a market based economy, (2) effective allocation of capital and development of financial markets, (3) attracting foreign investment and (4) making a contribution to the process of national development" (ibid. p.2).

A literature has emerged associating privatization and changing patterns of corporate ownership with the promotion of capital markets in developing countries. It can be argued, in a broad sense, that privatization can be utilized as a way to improve economic efficiency through changing patterns of corporate ownership, thereby promoting the robustness of capital markets. The general link usually made is that a public offering of shares could bring about a dispersed ownership structure and, consequently, a deep and liquid equity market. However, to employ such a model of privatization is not always easy or practical in less developed country (LDC) settings. According to Young (1993, p. 104), the public offering of shares is the most difficult technique of privatization and should not be used by governments that wish for an accelerated sale of state-owned enterprises (SOEs). Indeed, the list of requirements needed to successfully apply such a model is lengthy and demanding. First of all, the enterprise concerned must show reasonable economic performance or at least be capable of generating this within a short period. Second, a great deal of financial and managerial information needs to be prepared and disclosed. Third, a liquid domestic capital market is needed (Vuylsteke, 1988, p. 13), while finally an intense publicity campaign is required.

In fact, these considerations could lead one to suggest that a chicken and egg problem might exist. Does privatization require a good domestic capital market or might it actually be used to create one? For Young (1993, p. 102), instead of waiting for the development of capital markets and then dispersing ownership, ownership dispersion should be employed as a way of fostering capital markets. Nevertheless, according to Perotti and Guney (1993, p. 84), in countries where capital markets are more developed, it is more useful to adopt a public offering of shares as a privatization technique. On the contrary, where the capital market is more embryonic, it is more reasonable to employ direct sale of shares (through various means such as auction, tender and direct negotiation). This, in fact, has been the case in Brazil and in the great majority of LDCs. In these countries, the direct sale of shares to corporate entities has been by far the most prevalent technique of privatization utilized. In our case study, we find that the largest acquirers consisted of domestic banks and, paradoxically, even other SOEs and public sector pension funds.

One critical assessment can be made regarding the analysis of privatization processes around the world. A substantial part of the literature concerning privatization is related to the pioneering case of Britain, in which the dispersed ownership model was adopted. Also, considerable emphasis has been placed on the analysis of privatization in transition economies, where the routes of privatization are very distinctive and have included sales to outside owners, management-employee buyouts, equal-access voucher privatization and restitution (Gray, 1996). However, this was definitely not the case for the great majority of LDCs as well as for the steel industry as a whole. Sader (1994) analyses 2.279 privatizations in LDCs, during the 1988-93 period, in which 81.4% of the total number of transactions were based on the direct sale of shares. By contrast, public offerings of shares were responsible for only 12.3% of the total. De Paula (1998) compares the privatization of 37 steel companies worldwide during the 1984-1997 period, and shows that direct sales of shares were the most frequent cases. Therefore, instead of being a way to disperse the ownership structure, in LDCs it is probable that privatization implied an even greater concentration of asset holding and, consequently, wealth.

Rabelo and Coutinho (2001, p.15) conducted a large-scale analysis of the corporate governance issue in the Brazilian economy. It is not our objective to review all the issues developed by the authors. However, two points should be mentioned. First of all, according to the authors, the separation of ownership and management has not been the key preoccupation of corporate governance in Brazil. In fact, it was a common practice by new incumbents to keep management personnel in their previous positions. According to Rabelo and Coutinho (2001), given the concentrated ownership structure, the relevant agency conflict in Brazil is the one between controlling and minority shareholders.

A second noteworthy aspect is the use of pyramidal ownership structures that make it possible for dominant shareholders to control firms even with a very small share of their total capital. We believe that pyramidal ownership structures are, in fact, just the tip of the iceberg. We do suggest that this is a particular mode of corporate governance, along the same lines as a cross-ownership relationship. To stress the point, we wish to assess, through scrutinizing the case of the steel industry, whether privatization in Brazil has resulted in a complex and unstable ownership structure. A complex ownership structure we define to be as one in which the assets of a given corporation are controlled by a relatively small number of investors from different origins, grouped together in different formats, either directly or through a holding company. An unstable ownership structure we define to be one in which there are recurrent changes in the composition of the largest shareholders. If our unstable and complex ownership structure hypothesis proves correct, privatization might, under these circumstances, reinforce unsatisfactory corporate governance patterns.

Privatization and the Changing Role of the State

Regarding our second question, privatization is conventionally thought of in theoretical terms as involving a transformation (and concomitant reduction) in the role of the State from that of an owner to that of a regulator (Cook and Minogue, 2002). According to Bienen and Waterbury (1989, p.617), privatization corresponds to a counter movement in the growth of government size that has characterized the post war period, both in developed and in less developed countries. For Bienen and Waterbury, privatization implies the sale or leasing of public assets and the contracting out. Kay and Thompson (1986, p.18) also add the deregulation as a third defining feature.

For Lundqvist (1988) the core characteristic of privatization is the governmental intention to transfer responsibilities from the public to the private sector. In this sense, the spontaneous decision of private citizens to take over previously state responsibilities, independently of a governmental decision, cannot be considered a privatization *per se*. Furthermore, privatization is a highly visible process politically. While many policy measures pass unnoticed, the sale of a SOE frequently attracts considerable public attention. Popular concern tends to center on fears that public resources might be utilized to appropriate personal gains or that the selling prices is excessively low (Schneider, 1992, pp.7-8).

Lundqvist (1988) also stresses that privatization should not be considered equivalent to the introduction of market principles, due to the fact that the private sector consists of profit and non-profit organizations. For the same author, privatization does not only mean the retraction of the State as a producer of goods and services but also the diminution of subsidies and public regulation. Therefore, privatization involves three categories: production, finance and regulation. By combining these categories, which can be performed by public or private institutions, eight typical cases can be identified. One such group, the production, finance and regulation are exercised by public institutions. However, the most interesting case is represented by mixed experiences such as private production and public finance and regulation. In many cases, the privatization of production was accompanied by the growth of the role of the State as a regulator.

The secondary objective of this article is therefore to explore these notions. Employing evidence from the Brazilian steel sector, we attempt to show that the State, despite the wide scope of the privatization program, continued to exercise an active influence above and beyond its role as a regulator[1]. In particular, through various public sector entities, the State remained an important provider of capital (equity and loan finance) to the sector after privatization.

Structure and Objectives

Informed by the theoretical perspectives outlined above our main purpose is to analyze ownership structure following privatization of one the most important sectors in Brazil, the steel industry, and the role the State has played in this. An analysis of this issue now seems especially appropriate for at least three reasons. Firstly, ten years has now passed since the sale of large steel companies was completed. Therefore, with the benefit of the passage of time it is now possible to observe long run trends. Secondly, important changes in market structure are currently in progress, with the entry of new foreign companies into the sector and the expansion of Brazilian firms abroad. It should be stressed that the increasing scale of inward direct investment has raised political concerns in the Brazilian elite and in the government itself due to fact that steel is one of the most competitive business sectors in the country and, consequently, generates large trade surpluses.

Our main goals can be summarized as follows. Firstly, we wish to determine the pattern of ownership generated by and after privatization of the Brazilian steel industry. We highlight two main features: the complexity and instability of the ownership structure. Secondly, we wish to discuss the historical evolution of the role of the State in the sector in the post privatization period. Our evidence shows that privatization, in contrast to what might be expected, did not imply the reduction of the State's importance but rather a change in its role, from owner to provider of capital. The explanations for this flow from two main factors: a) other SOEs and pension funds related to public institutions took part in privatizations[2]; b) due to the lack of domestic private capital, after privatization the steel industry increased once again its dependence on financing from the government development bank, BNDES. Finally, we will point to the ambiguities implicit in the relationship between patterns of corporate governance on the one hand and financial and operational performance on the other. Specifically we argue that for a number of reasons, despite improved financial performance, the privatized Brazilian steel companies proved unable to attract increasing participation from minority shareholders.

The organization of this article consists of four sections, including this introduction. The next and second section is dedicated to a review of the historical development of the Brazilian steel industry. The third concerns itself with the investigation of the privatization program. The section considers the post-privatization performance of the sector and analyses the ownership structure and corporate governance issues after privatization. The fourth and final section summarizes the main findings of the article.

A BRIEF HISTORICAL REVIEW THE BRAZILIAN STEEL INDUSTRY

The Brazilian steel industry started its operation in 1925, when Companhia Siderúrgica Belgo-Mineira commissioned the Sabará works, in the State of Minas Gerais. It is important to stress that this company was established in 1921, as an association between the Luxembourg-based group Arbed and local investors. In 1935, Belgo-Mineira initiated the construction of the João Monlevade works, also in Minas Gerais, and until now still the company's largest mill (Baer, 1970 p.88). From 1924 to 1946, Brazilian steel production rose from 4.5 to 342 thousand tons, in which Belgo-Mineira was responsible for 70% of the total (De Paula, 1998, p.226-227).

A second landmark event for the Brazilian steel industry was the establishment of Companhia Siderúrgica Nacional (CSN), in the State of Rio de Janeiro, which was the pioneer in flat steel production in Brazil. The Volta Redonda works, Brazil's first coke integrated mill, came on stream in 1946[3]. Two years later, the complex was totally completed, and the company was producing a wide range of products, such as hot and cold rolled coils, galvanizing sheet and tinplate. As is stressed by many authors, such as Mangabeira (1993, p.65), the constitution of CSN, during the Vargas term, was aimed at fostering the industrial development of the country. Moreover, the development of CSN was part of a strong nationalist policy, trying to reduce dependency on foreign economic influence. The state-owned steel enterprise played three roles simultaneously: a) to make up for the lack of domestic private capital; b) to substitute imports, allowing the local supply of a basic input for industrialization; and c) to present a showcase to the world demonstrating new-found economic sovereignty.

Closer relationships between domestic private capital, foreign investors and the State were further developed in the 1950s. One company (Acesita) was established in 1951 by a foreign investor, but due to the lack of capital, was eventually acquired in 1952 by the government-owned bank Banco do Brasil (Gomes, 1983, p.355). Furthermore, Mannesmann of Germany began the operation of a subsidiary in Brazil to supply tubes to Petrobrás, the state-owned oil and gas monopoly. Next, in the late-1950s, two new companies were established, Usiminas and Cosipa. The first corresponded to a joint venture between the Brazilian State and Japanese companies, led by the then Yawata Steel (now, Nippon Steel). It should be highlighted that this was the first foreign investment ever made by the Japanese steel industry[4]. Cosipa, for its part, was controlled by the State itself and other SOEs.

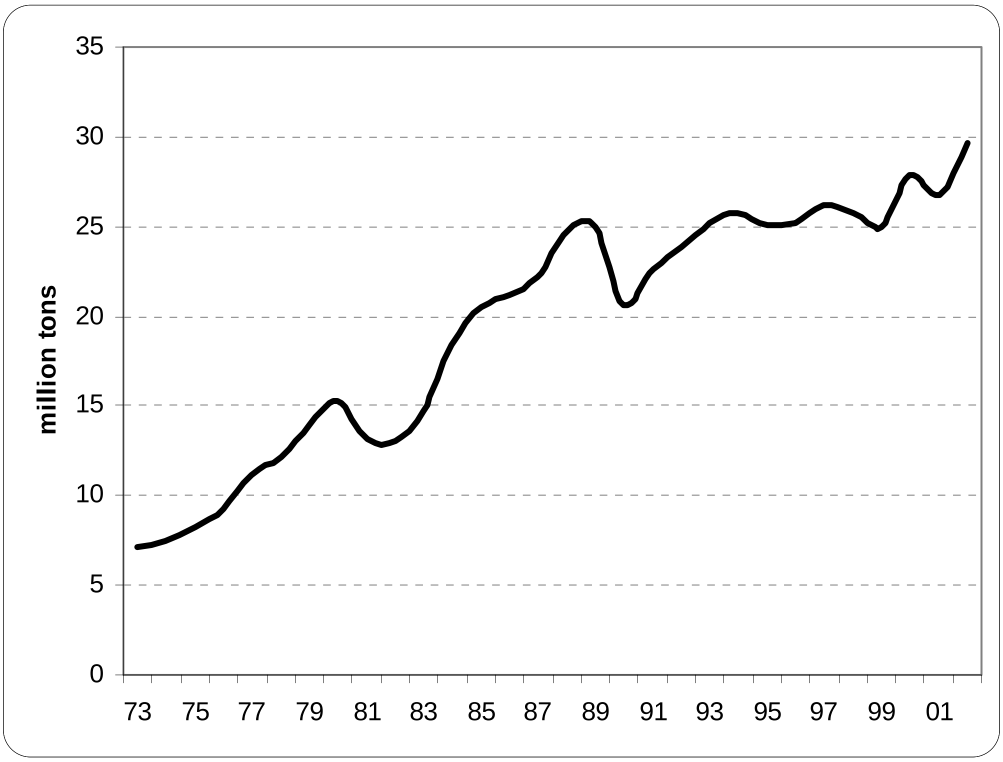
During the 1960s, the steel industry was chosen as a high priority sector by the government. The then Banco Nacional de Desenvolvimento Econômico (BNDE), which was established in the previous decade, lent the majority of its funds to the steel industry. In the period 1960-65 around 69% of total lending carried out by the BNDE was directed at the steel industry. In the first half of the 1960s, Usiminas and Cosipa were started-up. In 1968, the First National Steel Plan was issued, consisting of four main pillars: a) an interministerial committee to establish sectoral policies; b) a holding company to embrace SOEs; c) another committee to foster private steel companies; d) the National Steel Fund, which was never founded. The main consequence of these actions was the launch of the state-owned holding company Siderbrás, in 1974.

The 1970s can be considered the golden age of the SOE model in Brazilian steel. The intermediate goods industry as a whole was among the sectors most favored by a huge investment program headed by the State. The so-called Second National Development Plan (PND II) prioritized steel, petrochemicals, fertilizers and pulp and paper, which at the time were generating large trade deficits. The priority areas of PND II were: a) the production of capital goods and intermediate goods; b) the transportation and communication infrastructure; c) the development of alternative energy sources, with the intent of diminishing reliance on foreign supplies (Batista, 1987, p.69). In the 1974-80 period, US$13.5 billion were invested in Brazilian steel, of which Siderbrás was responsible for 77% (De Paula, 1998, p.230). Among the SOEs, the 1970s saw not only the expansion of CSN, Usiminas and Cosipa, but also the establishment of new large SOE mills, CST and Açominas. In the case of CST, this development consisted of a joint venture of the Brazilian State with Japanese (Kawasaki Steel) and Italian (Finsider, at the time a SOE itself) investors.

In the mid-1970s the Brazilian steel market structure could be summarized as follows. First, large SOE mills (CSN, Usiminas and Cosipa) dominated the flat steel business. Second, foreign investors had a multiplicity of involvement in the sector. This varied from leading long steel (Belgo-Mineira) and tube (Mannesmann) market segments, associated with SOE controlled companies (i.e. Usiminas and CST) and also partnerships with domestic private companies. In addition, small mills came to be controlled by the government due to their financial fragility (Cofavi and Cosim, for instance) or in order to diversify the type of energy consumed (Usiba and Piratini).

Repeatedly viewed as a "lost decade", the 1980s was in fact while not a golden age for Brazilian steel then at least the beginning of an "export age". During this decade, three important steel mills were commissioned: CST, Açominas and Mendes Jr. Although the latter, a joint venture with a heavy construction company, was the smallest, for our purposes it can be considered the most significant in terms of illustrating the evolving relationship between the State and the private sector. First of all, the government pressured Mendes Jr. to enlarge the original size of the mill by factor of 10, due to a jump in forecast demand. However, as a consequence of the plant's new dimensions, Siderbrás was obliged to hold a 49% equity stake, because the light long steel business was "reserved" for the private sector (both domestic and foreign). Meanwhile, the production of crude steel jumped from 15.3 (in 1980) to 25 million (in 1989) – see Graph 1.

Graph 1: Brazilian Crude Steel Production, 1973-2002



Source: The Brazilian Steel Institute

PRIVATIZATION, PERFORMANCE AND OWNERSHIP STRUCTURE

The Process of Privatization

The privatization of the Brazilian steel industry can be divided into two different phases: a) the sale of small-sized companies, in the period 1988-92; b) the transfer to the private sector of Big Six companies (1991-93). The Big Six comprised of Usiminas, CST, Acesita, CSN, Cosipa and Açominas.

Regarding the first phase, six small firms were sold. They had become SOEs for two different reasons: a) financial necessity (Cosim, Cimetal, Cofavi and Cosinor); b) the need to diversify energy sources (Usiba and Piratini). The main consequence of this first step of steel privatization was to strengthen the market control of the Brazilian company, Gerdau, which bought Cimetal, Cosinor, Usiba and Piratini[5]. Moreover, two companies originally acquired by Dufer, Cosim and Cofavi, changed their ownership afterwards. Belgo-Mineira is currently the owner of what was known as Cofavi.

In the case of Gerdau, it should be stressed that during the 1990s, the company engaged in an intense strategy of international as well as internal ownership restructuring. Indeed, Gerdau was committed to a large asset restructuring. The parent company has consolidated its various companies by merging 28 of them and reducing the number of publicly traded companies from six to only two: Metalúrgica Gerdau (holding) and Gerdau S.A. (operating). The final phase of this restructuring was completed in June 1997.

The Big Six Brazilian steel SOEs were privatized during the 1991-93 period. Steel and petrochemicals were among the first sectors to be transferred to private investors by means of public auctions. Indeed, the administration of President Collor de Melo viewed privatization as a symbol of its commitment to radical economic reform. Three features should stressed: a) in an international comparison among 22 countries that privatized 37 steel companies in the period between 1984 and 1997, De Paula (1998) notes that Brazil was the only country that chose auctions as the technique of privatization for steel companies; b) a 40% ceiling on purchases of voting stock was imposed on foreign investors; c) there were serious concerns that the government had paid too little attention to the future ownership structure of the steel industry after privatization. In relation to this last feature, it is worth recalling a contemporary World Bank report:

> "There seems to be an apparent absence of timely industry-wide strategic thinking prior to privatization. More time should be spent substantially ahead of the sale studying strategic aspects of the industry, how an industry might ideally be organized, what legal, policy and regulatory changes are needed for the industry to reach international competitiveness, attract buyers and maintain competitive pressure, and how the mode of privatization might be modified to accomplish this strategy" (World Bank, 1992, p.vi).

The privatization of the Big Six steel companies started with the sale of Usiminas, in late-1991. The privatization was divided initially into three blocks, consisting of an auction of common shares (representing the majority control), an auction of non-voting shares and a public offering of heavily discounted shares directed exclusively at employees. The largest acquirers were domestic banks (mainly, Bozano Simonsen), the pension funds associated with SOEs, the mining company Companhia Vale do Rio Doce (CVRD) and steel distributors – see Table 1. A first impression is that the government promoted a dispersion of ownership. However, this interpretation is misleading. Firstly, CVRD was at the time an SOE itself. The decision to buy stemmed from the fact that CVRD had accumulated non-paid debentures of Siderbrás (received in exchange for unpaid iron ore bills) and was able to use these "junk bonds" to gain participation in connected businesses within the steel industry. Nevertheless, it cannot be denied that the government allowed an SOE to participate as a bidder in a privatization auction. Secondly, we should note that the largest pension funds in Brazil are related to SOEs too. In fact, Previ, which is the largest pension fund in the country (belonging to Banco do Brasil employees – a group of public sector workers), acquired a strategic stake in Usiminas[6]. Therefore, this evidence shows that privatization did not lead to wholesale transfer of assets from the public to the *bona fide* private sector.

Table 1. Expected and Actual Performance of Brazilian Steel Companies Post-privatisation

Variable	Proxy	Expected Change	Actual Change for All Companies	Actual Change for Steel Companies
1. Profitability	Return on Sales = Net income/sales	↑	↑	↑
	Return on Assets = Net income/total assets	↑	n.a.	↑
	Return on Equity = Net income/equity	↑	↑	↑
2.Operating efficiency	Sales efficiency = Real sales/total number of employees	↑	↑	↑
	Net income efficiency = Net income/total number of employees	↑	↑	↑
3.Capital expenditure	Capital expenditure to sales = Capital expenditure/sales	↑	↑	↑
	Capital expenditure to assets = capital expenditure/total assets	↑	↑	↑
4. Output	Real Sales = Nominal sales/consumer price index	↑	↑	↑
5. Employment	Total employment = total number of employees	↓	↓	↓
6. Leverage	Debt to assets = Total debt/total assets	↓	↓	↓
	Long term debt to equity = long term debt/equity	↓	n.a	↓
7. Dividends	Dividends to sales = cash dividends/sales	↑	n.a	↑
	Dividend payout = cash dividends/net income	↑	n.a	↑
8. Exports	Exports to sales = Exports/sales	↑	n.a	↓

Source: Pinheiro (1996); Moonen (1999)

Much the same pattern was observed in the remaining privatizations, with naturally some variations. CST and Acesita were sold in 1992. In the first case, the main buyers were a combination of domestic banks (Bozano Simonsen and Unibanco) and the pension fund Previ. The original international stakeholders Kawasaki Steel and Finsider had the right to acquire 14% of the voting capital, reaching the 40%-ceiling maximum set. The employees were also beneficiaries of a public offering of shares with substantial discounts. Acesita, differently from the other Big companies, belonged to Banco do Brasil. On the first day of the auction, the sale was unsuccessful. There were rumors that the government, in an attempt to prevent this failure halting the privatization process, pressured the public sector pension funds to buy Acesita. Previ, once more, played a prominent role, leading other pension funds to participate in the privatization of Acesita. Paradoxically, the largest shareholder changed from Banco do Brasil itself to Previ, the pension fund of Banco do Brasil employees.

Following the impeachment of President Collor de Mello, the new incumbent, Itamar Franco continued the privatization program. CSN, which was considered a symbol of nationalism in Brazil, was sold in 1993. In the auction, the main acquirers were the mining company CVRD, the textile group Vicunha and the domestic bank Bamerindus. Cosipa, for its part, was purchased by Usiminas, Bozano Simonsen and a group of steel distributors. Finally, Açominas was bought by a consortium headed by Siderúrgica Mendes Jr., Villares (a private-owned special steel producer), CVRD and banks controlled by the State of Minas Gerais.

Regarding the involvement of foreign investors, it should be noted that the exclusive mode of participation was portfolio investment. During the auctions, foreign participation was almost insignificant. Indeed, even in the case of Usiminas and CSN, in which it was greater, foreign capital purchased only 4.5% and 2.5% of voting capital, respectively. In fact, this situation was only reversed in the second phase of the privatization of Usiminas, when investors from abroad acquired US$ 361 million in equity. According to our estimates, foreign investors invested US$ 565 million in the Brazilian Big Six privatization program, which was equivalent to only 10.4% of the total privatization revenue. However, even this sum may be an overestimate. The Brazilian government accepted its own "junk bonds" in return for shares without the market discount that was prevalent at that moment. The only exception was the case of external debts, for which were applied a 25% discount[7].

Pinho (2001, p.7) estimates that the total privatization revenue of Brazilian steel firms reached almost US$ 5.0 billion. This figure differs from ours, probably because of the fact that we explicitly considered the second phase of privatization of Usiminas and Cosipa, in which the mechanism of public offering of shares was utilized. Pinho (2001) shows that the participation of domestic capital was equivalent to 90.4% of the privatization proceeds. Within this group, it should be highlighted that SOEs (to a large extent, CVRD) accounted for 12.2%. Moreover, the pension funds, which were almost exclusively related to SOEs themselves were responsible for another 15.0%. This offers striking evidence that during the privatization itself, the visible hand of the State continued to play a significant role as a provider of equity capital.

Despite the prominent role of the public sector, domestic private sector banks purchased the largest share of the Big Six steel firms. According to Pinho (2001, p.16), their investments amounted to US$ 1.7 billion, or 33.6% of the total privatization revenues. This would strongly impact the ownership structure trajectory of the sector, as we shall see shortly. On the other hand, the participation of the Brazilian private sector domestic groups was quite disappointing. They invested only US$ 1.1 billion (or 21.8%). This is somewhat troubling especially considering the fact that privatization usually represents a once-and-for-all opportunity for enterprises (foreign or domestic) to enter new branches of industry.

Among the Big Six steel company privatizations, beyond the auction sale, the government opted for a public offering of shares specially focused on attracting minority shareholders. However, this approach was adopted in just three cases: Usiminas, CSN and Cosipa. In the first case, its important to stress that Usiminas was chosen to be the first privatized steel company, due to its image of efficiency and good management. The government offered 10% of Usiminas shares in the public offering, but only 6% were sold. The lack of demand from minority shareholders also occurred in the experience of CSN. The government had reserved 13.9% for the public, though only 9.9% were subscribed. Solely in the case of Cosipa, was the public offering (equivalent to 10.3% of its shares) totally subscribed. Thus, the privatization of the Brazilian steel industry was unable initially to attract minority shareholders.

The performance of Privatized Steel Companies

Perhaps the most significant expected benefit of privatization is that it will give rise to an improvement in efficiency in the enterprises to which it is applied. Megginson, Nash & Randenborgh (1994) established a widely-followed approach to the study of the impacts of privatization on corporate performance. Their methodology, centring on the Wilcoxon Signed Rank Test and the Sign Test, was applied in the Brazilian case by Pinheiro (1996). Pinheiro analyzed the performance of fifty Brazilian companies that were privatized during the 1980s and 1990s. He found that, for those enterprises sold in the 1991-94 period, performance improved in accordance with expectations in all variables. This period witnessed the sale of the Big Six steel companies. In the case of those enterprises privatized in the 1980s, performance improved in all indices bar profit per employee, return on sales, leverage and investment per unit of assets. The third column of Table 2 shows Pinheiro's combined results for all companies privatized in the period 1981-1994.

Table 2 Privatisation of the Big Steel Companies in Brazil, 1991-94

Companies	Capa city (Mt/y)	Date of Sale	Privatisation Technique	Value of Sale (US$ M)	Proportion of Total Holding Sold (%)	Main Acquirers (% of voting capital)	Combined Pension Funds Participation (% of voting capital)	Combined Foreign Investors Participation (% of voting capital)
Usiminas	4.2	Oct. 91 Sept. 94	Auction Public Offering of Shares	1,461 480	70 16	Bozano Simonsen (7.6%), Other Banks (20.6%), CVRD (15%), Previ (15%), Other Pension Funds (11.1%), Steel Distributors (4.4%).	26.1	4.5
CST	3.0	Jul. 92	Auction	354	90	Bozano Simonsen (25.4%), Unibanco (20%), CVRD (15%)	1.7	0.7
Acesita	0.85	Oct. 92	Auction	465	74	Previ (15%), Other Pension Funds (21.1%), Banks (18.6%)	36.1	1.8
CSN	4.6	Apr. 93	Auction	1.495	91	CVRD (9.4%), Vicunha (9.2%), Bamerindus (9.1%), Bradesco (7.7%), Other Banks (18.3%), Pension Funds (2.7%)	8.5	2.7
Cosipa	3.9	Aug. 93 1994	Auction Public Offering of Shares	360 226	60 24	Usiminas (49.7%), Bozano (12.4%), Steel Distributors (12.4%)	0.2	2.6
Açominas	2.4	Sept. 93	Auction	599	100	Mendes Jr. (31.7%), Villares (6.2%), State-owned Banks of Minas Gerais (7.4%), CVRD (5%)	0.6	0.0
Total				**5.444**				

Source: De Paula (1995), De Paula (1998)

Moonen (1999), also employing the Megginson, Nash & Randenborgh methodology, established a positive relationship between privatization and various indicators of efficiency for the Brazilian steel industry. The fourth column of Table 2 below illustrates the actual changes observed among the Big Six Brazilian steel companies. The comparison concerning performance was made in the five to nine year period encompassing privatization. As can be seen, in the vast majority of cases, the theoretical expectation of enhanced performance was borne out in reality, the only exception being that of exports (which in fact actually decreased).

Another important performance characteristic is constituted by capital investment. In the period between 1974 and 1983 average annual investment in the Brazilian steel sector reached US$ 2 bn. However, in the years 1984-1993, average annual investment dropped to US$ 476m, even considering that new greenfield plants, whose construction began in the 1970s, were inaugurated in the mid-1980s: Mendes Jr (in 1984) and Açominas (1986).

Privatization has been associated with a second boom of investment. In the 1994-2002 period Brazilian steel companies invested US$ 1.36 bn per year.

Regarding labor productivity, Andrade et. al. (2001, p.10) demonstrate that privatization has given rise to substantial improvements. Between 1990 and 1994 labor productivity (measured in terms of tons per employee per year) rose from 155 to 264. By 2000 Andrade et al. estimate that labor productivity had reached 493 tons per employee per year. Whereas the authors referred to above have focused on issues of financial and productive efficiency we wish to draw attention to a far less researched area: the impacts of privatization on patterns of ownership and corporate governance.

Ownership Structure in the Post-Privatization Period

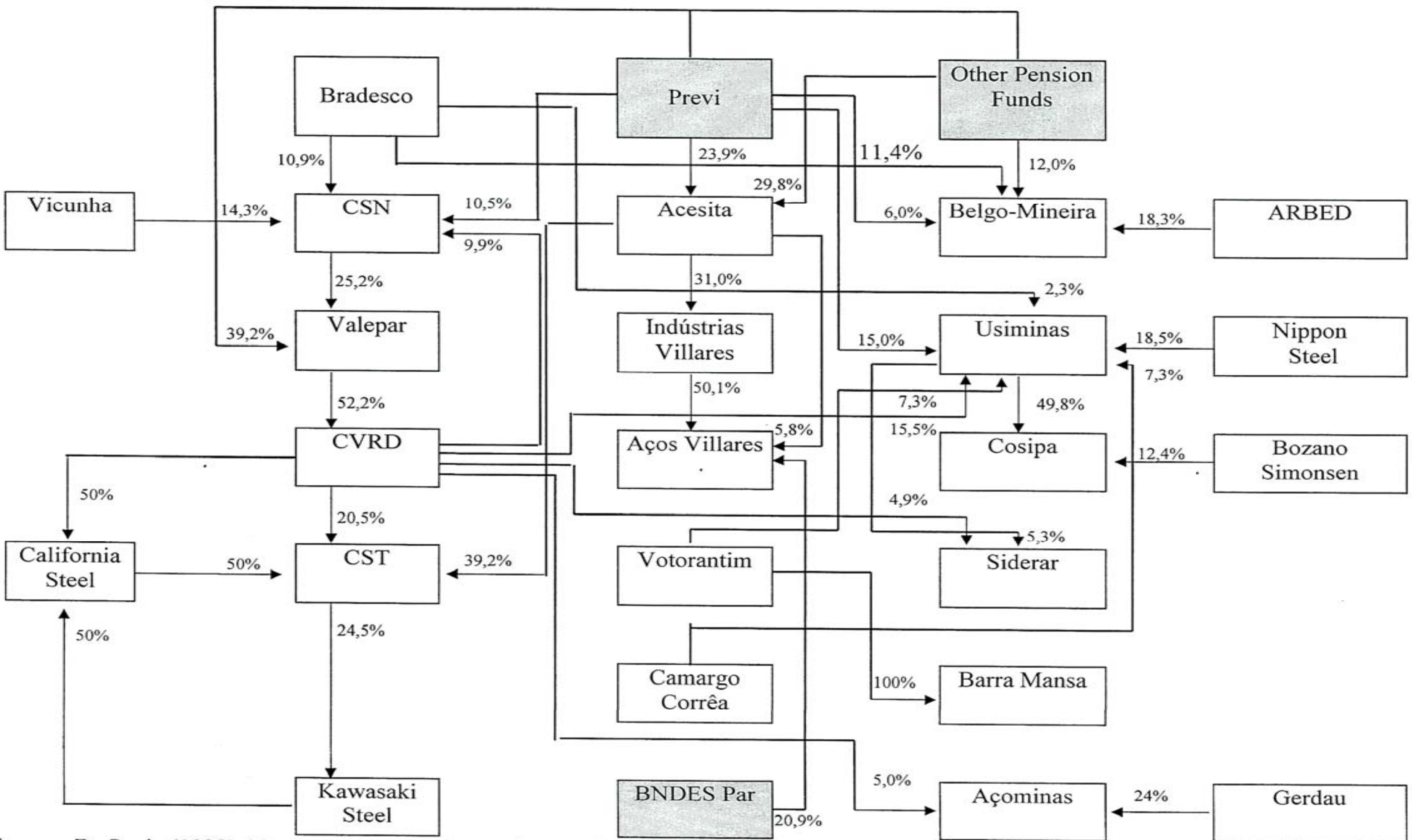
As we noted in the introduction, one of the principal objectives of this paper is to establish the relationship between privatization and patterns of corporate governance. Bearing this in mind we want to stress two features regarding corporate governance: complexity (defined as where the assets of a given corporation are controlled by a relatively small number of investors from different origins, grouped together in different formats, either directly or through a holding company) and instability (defined as where there are recurrent changes in the composition of the largest shareholders).

We will illustrate this argument by analyzing the ownership structure of the Brazilian steel industry in the post-privatization period. Regarding complexity, Figure 1 shows very confused ownership relations among companies and investors. For instance, there was a cross-ownership relation between CSN and CVRD, which in its turn was privatized in 1997[8]. The mining company CVRD held 9.9% of CSN. The latter controlled 25.2% of the holding company Valepar, which had a 52.2% stake in CSN itself. Therefore, it can be seen that privatization of the Brazilian steel companies heightened the complexity, or in other words, a relatively small number of investors from different origins, controlling newly privatized corporations and grouped together in a multitude of different configurations, either directly or through holding companies. The opacity of these patterns of ownership is, to say the least, striking. To stress the point, it can be argued that privatization implied a pattern of corporate governance that was very far from any model that might be conducive to transparency, the forging of common investor goals or a sustainable ownership structure. In other words, this kind of complex ownership discourages the attractiveness of investing for minority shareholders for two main reasons: a) since the large investors have stakes in different companies (an even in the competing firms), they may forge alliances among themselves in order to seek their ultimate goals instead of the best interest of each company individually; b) the largest shareholders can sell their stakes, appropriating the majority control premium, which is far from accessible to the minority.

It should be remembered that CVRD, at the time it was a SOE, bought a minority stake in privatized steel companies other than CSN. In the late-1990s, it had a 20.5% stake in CST, a 5.0% stake in Açominas and 15.5% of Usiminas, which had for its part 49.8% of Cosipa. CVRD was also the owner of 50% of California Steel, a US-based company, which had an additional 4% stake in CST. Acesita had also 5.8% of voting capital of Aços Villares and 31% of the voting capital of Indústrias Villares, which controlled 50.1% of Aços Villares.

To complete this surrealist picture of the complexity that characterizes the post-privatization ownership structure of the Brazilian steel industry, it should be emphasized that two types of shareholders had significant stakes in more than one steel company. The leading domestic bank Bradesco controlled a 10.9% equity stake in CSN, 11.4% of Belgo-Mineira and 2.3% of Usiminas. On its own, the pension fund Previ held 10.5% of the voting capital of CSN, 15% of Usiminas, 23.9% of Acesita and 6% of Belgo-Mineira. Furthermore, Previ, jointly with other pension funds, controlled 39.2% of Valepar. These funds had important stakes in Acesita (29.3%) and Belgo-Mineira (12.0%) too.

Figure 1: The Ownership Structure of The Brazilian Steel Industry in 1997



Source: De Paula (1998). Note: percentages denote shares of voting capital; Shaded boxes indicate entities associated with the public sector entities

The second main characteristic of the ownership structure is instability. We believe that this is a result of two main factors. On one hand, Brazil was the only country that used auctions as a privatization technique to sell steel companies. Therefore, in contrast to other countries that utilized tenders, it proved easier for the shareholders to exit the company. Using tenders, the investors establish a consortium and the ownership changes happen within these groupings, while new outside investors do not emerge[9]. When public offerings of shares were employed, by contrast, the dispersed ownership structure meant that acquisitions and selling of shares did not necessarily imply alterations in the main strategic orientation of the firms. On the other hand, this instability is a clear consequence of the fact that the main motivation underpinning the original acquisitions was financial, specifically to realize value from state “junk bonds” (in the case of CVRD), to realize profits after turning the companies around or experiencing a steel price recovery (banks) or even to invest in a long-term, low income, low risk business (pension funds).

Regarding ownership structure instability, meaning frequent consecutive changes in partnership composition, after privatization, De Paula (2002) finds that, excluding privatizations, between 1993 and 2002, there were 23 ownership transactions and three instances of asset leasing implemented in the Brazilian steel industry. In an attempt to summaries the diversity of these ownership changes, Table 3 below divides the transactions into eight categories.

Table 3

Ownership Changes in the Brazilian Post-Privatised Steel Industry, By Category, 1993-2002

Type of Ownership Change	**Number of Transactions**
Changes in the Internal Composition of Main Shareholders	7
Financial Institution Sale of Equity Stakes	5
New International Entrants	3
Acquisition of Traditional Private Sector Companies[i]	3
Leasing of Assets	3
Acquisition of Majority Control of a Former SOE	2
New Domestic Group Entrants	1
Other Cases (including CVRD-CSN separation)	2
TOTAL	26

Source: adapted from De Paula (2002)

First and most importantly, some banks decided to exit the steel sector and realize their gains. Thus, Banco Bamerindus exited CSN in 1995, Bozano Simonsen did the same in relation to Usiminas and CST in 1996 and Unibanco sold its shares in CST in the same year. Indeed, Pinho (2001, p. 42), after raising some concerns about the accuracy of the figures, estimated that Bozano Simonsen bank gained some 52% of profits in reselling its stake in Usiminas. Nevertheless, this extraordinary gain was superseded by the sale of Bamerindus' participation in CSN (a 181% profit) and Bozano Simonsen and Unibanco's stake in CST (388%).

To be fair, not all transactions could trace their roots to the privatization process. This is the case of the long steel business, in which SOEs had not played a significant role. In Table 3 we identify three ownership changes related to companies that had always been in the private sector, and three cases of asset leasing. Although these operations were quite important in terms of their absolute number, they were not significant in relation to the overall financial value of transactions.

It should be emphasized that, in the post-privatization age, changes in ownership have significantly modified the market structure of the Brazilian steel industry. In this connection, the case of Açominas is instructive, especially for understanding the continuing role played by the State. For the privatization auction, two consortia were formed: one headed by Usiminas, Gerdau and Belgo-Mineira; another led by Siderúrgica Mendes Jr. with the support of state-owned banks from the State of Minas Gerais. The auction was won by the second consortium. However, Mendes Jr. arguably abused its position as the largest shareholder (a classic problem of corporate governance) and main client, since it did not pay for the semi-finished products that it received from Açominas. As a consequence, a set of ownership transactions was carried out. These culminated in the sale of the stakes of Mendes Jr., CVRD, Banco Econômico, and the state-owned banks of Minas Gerais to Gerdau. The latter thereby assumed almost 80% of the voting capital of Açominas. Thus, Gerdau, even though it did not participate in the privatization of the Big Six steel companies, eventually became the majority shareholder of Açominas.

The lack of importance of foreign investors during the privatization of Big Six companies has been reversed since 1997. Since then, three foreign newcomers have entered the industry. The Singapore-based company NatSteel bought a stake in Açominas in 1997. Afterwards, as a consequence of the withdrawal of Mendes Jr., CVRD and the state-owned bank of Minas Gerais, the Asian firm came to be the second-largest shareholder of Açominas. However, immediately after Gerdau attained a majority position, NatSteel agreed, in the early-2002, to sell its stake to Gerdau. The other newcomers are Usinor (which was merged with the European steel companies Arbed and Aceralia, and renamed Arcelor) and Sidenor. The then French company Usinor made a strategic investment in Acesita, in 1998, and became an important indirect shareholder in CST. The Spanish company Sidenor assumed majority control of Aços Villares, a speciality long steel company, in 2000.

Regarding the second key question posed in the introduction, that of the changing role of the State, the phenomenon of public institutions acting in conjunction with foreign investors should be stressed[10]. For example, State of Minas Gerais banks were equity partners alongside NatSteel in Açominas; in the case of Usinor-Acesita, the second largest shareholder continues to be Previ; in Aços Villares, although never an SOE, the second largest shareholder is a subsidiary of the public bank BNDES. While foreign steel companies have a large influence on the management and operation of the Brazilian steel firms, it may be seen that the State – in its various forms – continues to play a significant role, benefiting foreign investors in two ways. Firstly, due to the fact that the State in its new guise, as investor rather than operator, does not have the technical knowledge to operate the steel works, it can be considered a politically influential silent partner. Secondly, the State's participation has assisted international investors by effectively diminishing the amount of money that they have been required to inject into steel companies in order to ensure adequate operation.

The case of Usiminas is interesting in terms of a privatized corporation expanding its sectoral presence and promoting association with local capital. Firstly, the company set in motion a very complex ownership restructuring of its Cosipa subsidiary in early-1999. This involved the division of Cosipa into two companies with one of them merging with Usiminas. This represents a case of reverse acquisition, because, although the acquirer was Cosipa, for fiscal considerations, the new company held on to the name of Usiminas. Moreover, in late-2001, Usiminas converted the debentures of Cosipa, diluting the share of minority shareholders and enlarging its stake from 32% to 93% of total capital. Naturally, this dilution has received a lot of criticism from minority shareholders.

Secondly, Votorantim, Brazil's largest diversified group, bought a 7.3% stake in Usiminas in 1998. The case of Votorantim well illustrates the cautious posture adopted by local private capital. Votorantim has operated a long steel mill - Barra Mansa - since 1937 and is an economic group focusing on activities where large barriers to entry, homogeneous product and natural resource oriented businesses prevail. Consequently, the group has come to specialize in the production of such industrial commodities as aluminum, nickel, zinc, cement, pulp and paper. Thus, one might expect that Votorantim would be a prime candidate in any equity purchases of steel companies. However, it only acquired a minority stake in Usiminas six years after the company's privatization and after having lost the bidding contest for CVRD[11].

Differently from Votorantim, whose main strategy can be defined as conservative, Vicunha, another leading Brazilian company, aggressively used the opportunities that privatization opened up to enter new businesses. Indeed, Goldstein & Schneider (2000, pp.21-22) stress that Vicunha, in fact, has turned into a conglomerate through privatization. It entered the steel industry by purchasing a 14% stake in CSN, in 1993. Four years later, Vicunha's CEO, Benjamin Steinbruch, was the architect of the consortium that won the auction for CVRD.

Moreover, via a joint venture with Telecom Italia, Vicunha won a mobile-phone license for the State of Bahia.

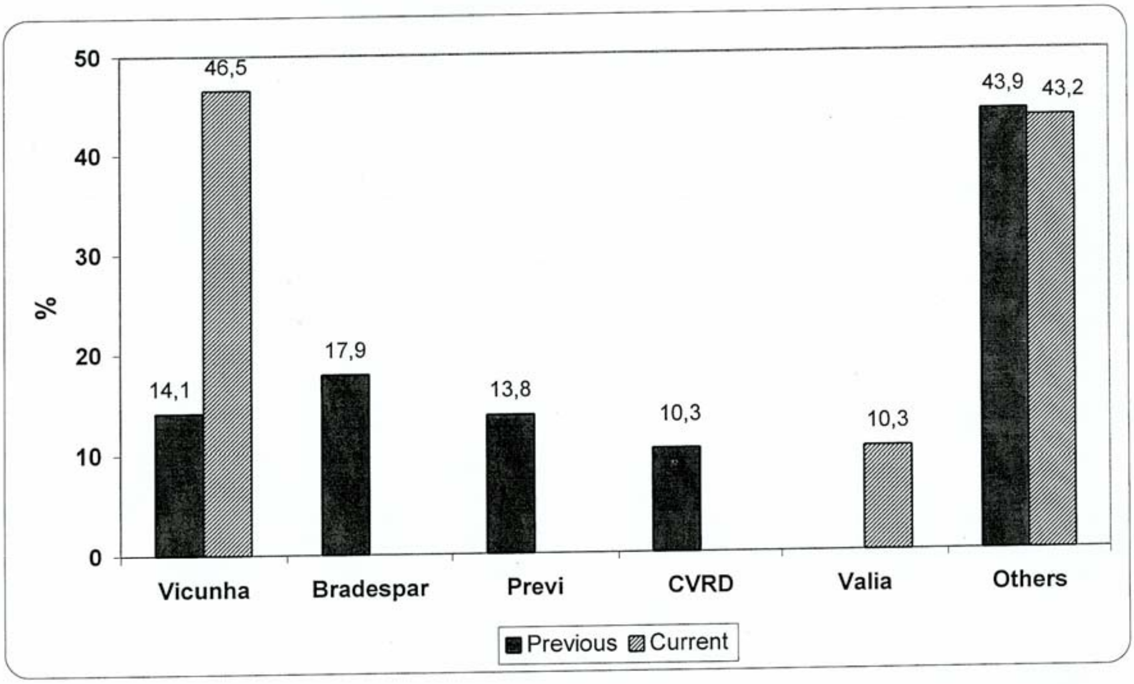
According to Goldstein and Schneider (2000), Vicunha's acquisitions and investments demonstrate a strategy to gain control of assets that would otherwise take generations to assemble. Moreover, this strategy poses an additional problem regarding corporate governance in general and cross ownership in particular. Vicunha gained control over CVRD through its stake in CSN, which can be viewed as quasi-pyramidal corporate control[12]. On the other hand, in order to do this, Vicunha took a few risks. It was prepared to borrow to gain control of CVRD – most of CSN's 39% stake was covered by a US$ 1.1 billion loan – and to accept shared control in all its ventures. According to Goldstein & Schneider (2000, pp.22-23):

> "[Steinbruch's] empire, however, soon faced the conglomerate dangers of management overstretch and lack of focus. Moreover, CVRD's complex shareholder structure and a jumble of non-core business interests dragged the share price down by nearly half since privatization. Steinbruch was therefore obliged to reshuffle his impressive industrial portfolio. In 1999 CSN sold its Ribeirão Grande cement firm to Votorantim (…) Most importantly, the cross-ownership between CSN and CVRD is being severed (descruzamento)"

The elimination of cross-ownership between CSN and CVRD resulted through two transactions. First, Bradespar (an investment company that was spun off from Bradesco, the largest Brazilian private bank, in March 2000) and Previ (the country's largest pension fund) sold all their shares in CSN to Vicunha, for a consideration of US$ 1.18 bn. Due to the fact that Bradespar and Previ held, respectively, 17.9% and 13.8% of CSN shares, Vicunha enhanced its stake in CSN from 14% to 46% (Graph 2). Simultaneously, CVRD sold to Valia (CVRD's employee pension fund) 10.3% of CSN's total capital, for US$ 250m, in order to eliminate Valia's actuarial deficit. To help finance ownership restructuring, CSN also distributed huge dividends in 2000 - around US$ 920m - larger than the company's net income in that year (US$ 840m). This measure was connected with the financial resources that Vicunha had to raise to finance the increase of its stake in CSN. However, it also demanded further credit from the development bank BNDES and even from Bradespar and Previ. In total, Vicunha issued US$ 1 bn in debentures. Thus, the State, via BNDES, had to expand its exposure to Vicunha in order to disentangle the cross-ownership structure arising from the privatization process.

Graph 2

CSN's Ownership Structure, 2000-01



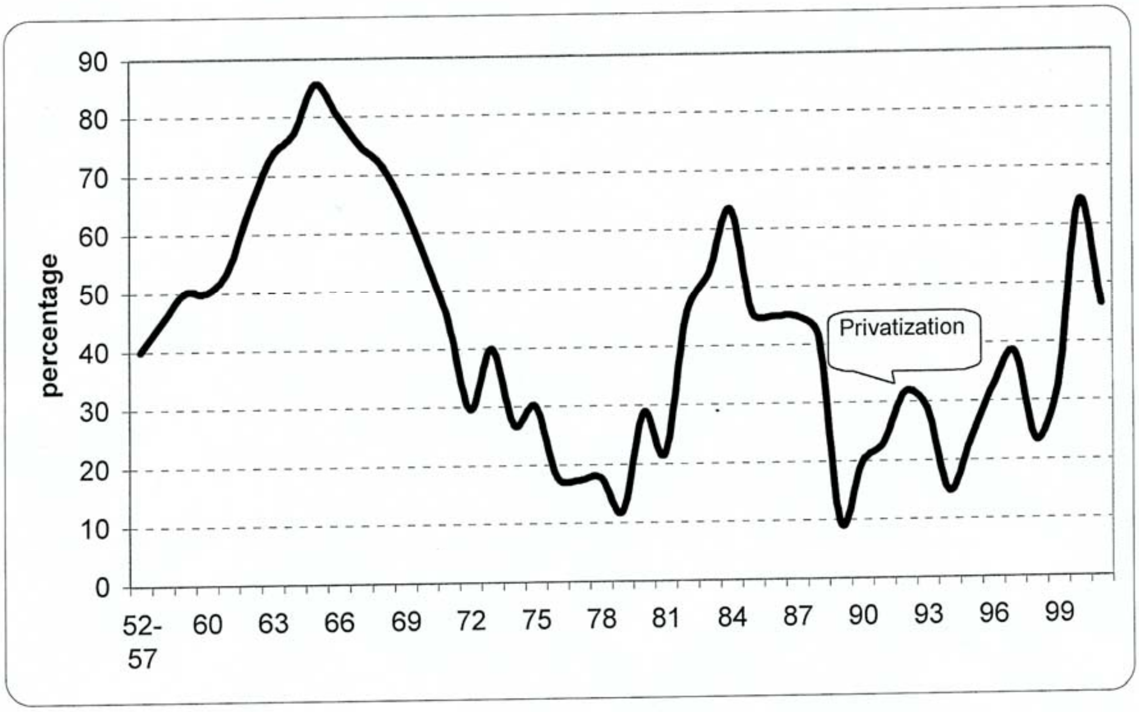
Source: CSN

Secondly, CVRD's ownership restructuring was carried out as follows. Bradespar and Previ purchased the shares belonging to CSN in Valepar for US$ 1.32 billion. Valepar is a holding company established during the CVRD privatization process. It holds 42% of the voting capital and 27% of total capital of CVRD. As CSN used to control 32% of Valepar shares, it indirectly had 8.65% of the total capital of CVRD. With this second transaction, Litel, a specific purpose company controlled by Previ (in which other pension funds, such as Petros, Funcef and Funcesp also take part), augmented its stake in Valepar to 42% from 25%. Bradespar directly and indirectly, via Eletron (a joint venture with the Brazilian investment bank Opportunity), raised its share in Valepar to 35% from 21%. The other shareholders of Valepar in mid-2002 were: Sweet River (a holding belonging to international investors, which sold their stake to Litel and Bradespar in March 2003) and Investvale (an investment fund owned by CVRD's employees).

One additional feature should be highlighted. In the 1960s, the BNDES focused its lending on the sector to such an extent that it became known as the “Steel Bank”. The same happened, though without similar intensity, during the course of the following decade. However, since the mid-1980s due to efforts to reduce the size of the State in the Brazilian economy, the BNDES has been barred from lending money to SOEs (by Resolution 2005 of the National Monetary Council), including public sector steel companies. This prohibition was, of course, lifted once these companies were privatized. Indeed, as Graph 3 shows, the dependence of the Brazilian steel companies on financing provided by the public sector bank BNDES increased from 9.7% (in 1989) to 23.2% (in 1991, the year that marked the beginning of the Big Six privatizations) to over 45% in the period 2000-01.

Graph 3

BNDES Loan to the Steel Industry as a Proportion of Total Sector Investment, 1957-2001



Source: Andrade and Cunha (2003)

We want also to tackle a very interesting feature: the relationship between performance and the pattern of corporate governance. From our point view, this should be analyzed through at least two prisms. On one hand, the most predictable way is to correlate corporate governance and performance. In this sense, the Brazilian steel industry can be viewed as a case where the performance improvements were so substantial, that even retaining and reinforcing an unsatisfactory pattern of corporate governance, the financial results were extremely favorable. However, it can be argued that even given the good financial results, the capability of the Brazilian steel industry to internationalize could have been better fostered had a superior corporate governance standard been developed.

Nevertheless, we want to stress that the more intriguing relationship operates in fact in the opposite direction. Although the Brazilian steel companies enhanced their performance, they were unable to escape from two tough realities: a) the number of shareholders has not increased. In the case of Usiminas, the number has been stable during the last five years. Therefore, simply the presence of good results is not necessarily sufficient to attract minority investors: b) at the moment of boosting investment, the steel companies cannot count on equity finance to any great extent. This is an especially serious limitation given the very high interest rates that prevail in private sector domestic financial market. Consequently, enterprises have needed to depend on the governmental bank, the BNDES.

FINAL REMARKS

We have made it clear that the privatization of the Brazilian steel industry delivered significant benefits in terms of financial and operational performance. Nevertheless, the outcomes at least in terms of improved corporate governance have been quite disappointing. We have argued that the post privatization ownership structure in the Brazilian steel industry has been marked by complexity-*cum*-instability. Moreover, we have demonstrated that, despite privatization, the State, paradoxically, has continued to hold important roles in the development of the steel sector mainly as a provider of equity and loan finance.

We should stress that we are not oblivious to the benefits of privatization. In fact, to repeat the point, there is considerable evidence that significant increases in productive efficiency have been obtained by privatized companies (Rocha, Iootty and Ferraz 2001). However, we have tried to enlarge the scope of the debate, moving beyond more conventional analyses of financial and productive efficiency. Although we cannot deny the validity of the latter kind of exercise, we do argue that new issues should feature in the privatization debate, especially where LDCs are concerned. In particular, we want to emphasize that patterns of corporate ownership following privatization should also be considered as a key issue for LDCs, where capital market weaknesses and lack of managerial accountability are the rule rather than the exception[13].

To sum up, we tackled two specific questions, using the Brazilian steel industry as a case study:

a) does privatization deliver enhanced corporate governance standards?
b) does privatization necessarily entail the final exit of the State as an investor?

Regarding the first question, we showed that public offering of shares and, consequently, a dispersed ownership structure was a rare phenomenon in LDCs. Exactly the same observation was argued to apply in the case of steel industry worldwide. We showed that the direct sale of shares to corporate entities and financial institutions has been the most important privatization technique employed in LDCs. In our case study of the Brazilian steel industry, privatization led to a very complex and unstable ownership structure[14]. Naturally, these characteristics did not assist in attracting minority shareholders to the sector. Partly for this reason, the pattern of corporate funding in the Brazilian steel industry has tended to center itself still further on the accumulation of debt rather than the raising of equity capital.

Two further important conclusions can be drawn in relation to the first question. First, the privatization program reviewed in our case study proved unable to induce changes in corporate governance favorable to the development of transparency and stability among asset holders. It could, of course, be argued in return that the main purpose of privatization in LDCs is not to bring about such changes but rather to boost industrial performance and assist in the process of fiscal adjustment. Regarding the latter, the Brazilian privatization program offers little evidence to dispute this contention given its centrality as a source of public revenue in the 1990s. Therefore, we would want to emphasize that only a limited number of policy outcomes should be expected simultaneously from privatization. Thus, whatever individual benefits may accrue, privatization should not be viewed as a panacea.

Second, after privatization, the Brazilian steel industry engaged in a strong investment program. However, due to the maintenance of its previous patterns of financing, its dependency deepened on the only financial institution in Brazil carrying out long-term corporate lending. Not surprisingly, this is a State-owned bank, the BNDES, which has provided financial support for investment, for ownership restructuring and for holding assets in the industry.

In relation to the second question, that concerning the role of the State, we have already provided several conclusions. The BNDES was, from the 1960s through to the post-privatization period, one of the most important sources of funds to highly capital intense sectors like steel. Furthermore, the privatization of this industry, as we have emphasized, led to a complex ownership structure. This led to situations in which the BNDES engaged in financial interventions with the aim of actually simplifying such structures as happened, for example, in the case of CVRD and CSN. Thus, we believe that there is evidence enough to suggest that more simplistic analyses, according to which privatization involves a reduction in the role of the State (except for its regulatory duties, including antitrust policy), are misleading. In fact, the relationship between foreign, private domestic and State capital in the Brazilian steel sector has become complex, varying from cooperation to competition. Although there are no government-controlled companies in the industry anymore, the State, via the BNDES, continues to be a prominent player.

It should also be clear that the State in Brazil has not withdrawn totally from its role as a key investor (as opposed to its other role as a lender). As we showed in Figure 1, the BNDESPar (a subsidiary of BNDES) and public sector pension funds such as Previ hold important equity stakes in major steel companies, including Usiminas, Acesita, Belgo-Mineira and so on. If we add the case of the mining company CVRD, the importance of public sector pension funds is emphasized still further. Therefore, in highlighting the lingering role of the State, we believe we have drawn a rather more nuanced picture than is common in examining LDC privatization experiences.

Weighing up our arguments, one thing becomes increasingly apparent: the relatedness between the corporate governance issue and the role of the State. As we have demonstrated, privatization was unable to transform the pattern of corporate governance in such a way that steel enterprises were able to gain increased access to equity finance. Given Brazil's persistently high real private sector interest rates, a natural consequence of this has been to drive the newly privatized steel enterprises back into the financing arms of the State banks. Indeed, the role of State in the steel business continues to be the provider of capital, both in terms of equity and loan finance.

Notes

[1] In the case of the Brazilian steel industry, the role of the State as regulator naturally centers on issues of antitrust policy rather than the price or quality regulation associated with public utilities.

[2] Feigenbaum & Henig (1994, pp. 199-200) highlight a similar irony in the case of Moroccan privatization program: the main acquirer of SOE was the King.

[3] Coke integrated mills are plants which convert iron ore into semi-finished or finished steel products. Traditionally, this required coke ovens, blast furnaces, steel making furnaces and rolling mills.

[4] The initial investment made by the Japanese consisted of a 40% stake. Later on this stake was reduced to 14% and eventually even to 4.65%. However, just before the privatization of the company, in order to solve a legal problem, they had the right to pay US$28.5m in order to improve their share to 12.88%. Currently, Japanese investors possess a 18.39% stake in the voting capital of Usiminas and 9.45% of the total capital.

[5] Gerdau's growth was based mainly via the utilization of mini-mill plants. This kind of plant uses scrap instead of iron ore. This technology is more compact, starting at the steel shop.

[6] Rabelo & Coutinho (2001, p. 48) state that, by the end of 1999, Brazilian pension funds had some US$ 60 billion in assets. Of this total, 30% was invested in shares. These institutions owned approximately 15% of the total value of companies listed in the São Paulo Stock Exchange (Bovespa). At that time, Previ's assets totaled US$ 17.8 billion. Vieira (2001, p. 103) draws attention to the fact that Previ is not only the largest Brazilian pension fund, but also traditionally has had the largest exposure to the capital markets. Vieira estimates that, in the period 1990-99, Previ allocated almost 41% of its total asset portfolio to equity markets. At the same time, Petros (which belongs to Petrobrás employees) and Sistel (belonging to former Telebrás employees) invested 29% and 26%, respectively, of their assets in shares.

[7] According to Brumer (1994, p. 294), the average of the market discount at the time of privatization of steel companies was: Usiminas (50%), CST (50%), Acesita (55%), CSN (45%), Cosipa (35%) and Açominas (60%). Taking into the consideration these six privatizations, the average discount reached 49%.

[8] CVRD was privatized in May 1997. Two consortia took part in the auction, one led by CSN and the other by Votorantim. The first one emerged the winner, being formed by CSN itself, pension funds (Previ, Petros, Fundação CESP and Funcef) and financial institutions (Opportunity and National Banks). This consortium bought 42% of voting capital of CVRD for a consideration of US$ 3.3 billion (Mello, 2002, p. 94). As a consequence, a cross-ownership relation between CSN and CVRD was generated.

[9] The case of the Argentinean telecommunications privatization offers an interesting contrast with that of Brazilian steel. Regarding the technique of privatization, it was decided to divide the incumbent state monopoly in two prior to sale (Herrera, 1992). In both cases, a consortium was formed by an international telecom company, a diversified domestic group and an international financial institution. Afterwards, the major trend regarding corporate ownership was the increase of the stake belonging to the international telecommunication company. This situation is very distant from that of Brazilian steel, in which the complexity and instability of corporate control was much more intense.

[10] In the past, the Brazilian State assisted multinational corporations and local domestic groups in developing greenfield sites. This business-government relationship became well known internationally with the publication of Peter Evans' 1979 book *Dependent Development: The Alliance of Multinational, State, and Local Capital in Brazil*. In the particular case of the steel business, coke-integrated mills were solely constructed by SOEs. Nowadays, this relationship is connected with brownfield investment and the division of tasks is not so clearly defined.

[11] According to Ruiz (1997, p. 181), during the 1980-87 period, Votorantim's corporate strategy was based on the reduction of indebtedness and investing only its own capital in mutually related activities. Only at the end of 1980s did the group expand its investments. The selected sectors, pulp and paper and citrus juices had already become internationally competitive. This could be considered a rather conservative strategy. For Goldstein & Schneider (2000, pp. 25-26), Votorantim's big asset is a strong balance sheet. In spite of operating in capital-intensive industries, total debt is less than cash holdings. In the 1990s, being already the country's largest private electricity generator, Votorantim became an important investor in the privatized energy business, through a joint venture with the heavy construction group Camargo Corrêa and the domestic bank, Bradesco.

[12] The existence of pure or quasi-pyramidal structure, naturally, does not solely stem from privatization. In the experience of the Brazilian steel industry, Gerdau has a prominent role. The Gerdau Johannpeter family controls the company, via holdings, with just 8.3% of total capital (Rabelo & Coutinho, 2001, p. 16).

[13] According to Rabelo & Coutinho (2001, p. 4): "*The recent histories of many large Brazilian family-owned and –managed business groups illustrate well the difficulty of removing owner-managers that are clearly destroying value. Another deleterious practice is to allocate resources in a manner that favors the private interests of controlling owner-managers at the expense of the corporation*"

[14] Siffert Fo. (1998, p. 11) shows that the participation of the shared stockholding control in the cumulative revenues of the 100 largest non-financial companies in Brazil increased from 3.5% (in 1990) to 12.4% (in 1997). The author stresses that this new trend is largely associated with the privatization process. Therefore, the growing complexity of ownership structures following privatizations is clearly not confined to the steel industry.

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