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### **LOST IN TRANSLATION: Interpreting the Brazilian Electric Power Privatisation Failure**

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# TABLE OF CONTENTS

## ABSTRACT

1	INTRODUCTION	5
2	BRAZILIAN POWER REFORMS: A BRIEF NARRATIVE	6
	Early Moves towards Privatisation in Brazil	7
	Macroeconomic Stability and the Mandate for Privatisation	8
	Electric Power Privatisation under the Real Plan	9
3.	POLICY SYMBIOSIS: UNDERSTANDING THE THEORETICAL AND STRATEGIC UNDERPINNINGS OF MACROECONOMIC STABILISATION AND PRIVATISATION POLICIES IN BRAZIL	12
	Manufacturing Privatisation Successes	12
	Gambling with the Security of Supply	14
	Policy Symbiosis: The Self-Reinforcing Virtuous Cycle of Stabilisation and Privatisation	18
4.	FROM THE VIRTUOUS TO THE VICIOUS CYCLE	20
	The On-going Price Effects of Privatisation	21
	Internal Contradictions in Privatisation and Investment Plans	23
	The False Promise of Liberalisation	26
	Lost in Translation: The Fragility of the Brazilian Privatisation Strategy	27
5.	FROM THE INDIVIDUAL TO THE TYPE: THE PERFORMANCE AND EVOLUTION OF PRIVATISATION IN DEVELOPING COUNTRIES	28
	Were Privatisation Failures Implementation Problems?	30
	The Generalised Pattern of Privatisation Failure	32
6.	CONCLUSIONS	33

## **ABSTRACT**

Did Latin American privatisation policies fail because of flawed implementation of fundamentally sound policies or because privatisation policies were themselves seriously flawed? Using the Brazilian electric power reforms as a narrative tool, this paper examines the causal chain assumed by large-scale privatisation policies implemented as part of structural reform and adjustment programmes. The paper concludes that many privatisation policies and the economic stabilisation programmes within which they were embedded were not mutually reinforcing as policymakers had expected and that in their application, much of what privatisation theories claimed was lost in translation.

## **Keywords**

Brazil, privatisation, electric power, infrastructure

# LOST IN TRANSLATION

## Interpreting the Brazilian Electric Power Privatisation Failure

### 1 INTRODUCTION

Like its neighbours Chile and Argentina, Brazil based its electric power reform on the orthodox therapies of privatisation and liberalisation. The Brazilian federal government initiated the reforms in 1993 and persevered with them until a lack of investment in generation led to a crippling energy crisis in 2001 and forced the nation into rationing electricity. By the following year privatisation was politically dead. None of the major candidates in Brazil's 2002 presidential elections, not even the incumbent administration's nominee, favoured continuing the process.

In the wake of the rationing, blame was hurled in all directions. Some blamed the neo-liberal reforms for going too far;<sup>1</sup> others for not going far enough.<sup>2</sup> Some accused foreign investors of being overly speculative,<sup>3</sup> while others criticised corporatist bureaucrats for resisting privatisation and liberalisation.<sup>4</sup> Many faulted political impasses for stalling privatisation and investment.<sup>5</sup> The more fatalist blamed the drought for drying up Brazil's hydroelectric reservoirs. The debate on the failure of electric power reforms in Brazil, like the general debates on privatisation, had fallen into two well-defined camps, with one camp claiming privatisation failed because it was poorly implemented and the other insisting that privatisation was a mistake.

How does one arbitrate between these dichotomous explanations and should we try privatisation again? To answer this question, this paper analyses the Brazilian electric power reforms, a case which largely satisfies the criteria demanded of a critical case. Among all the Latin American countries, Brazil was one of the best placed to benefit from orthodox reforms. First, many Brazilian electricity companies, especially the generation companies, were technically well-managed even under state ownership. By enabling more supportive economic and commercial environments, orthodox reforms should have facilitated even more efficiency and investment. Second, electricity rates

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<sup>1</sup> See Ildo Sauer, *Reconstrução do Setor Elétrico Brasileiro* (São Paulo 2003) and Luiz Pinguelli, *Diretrizes e Linhas de Ação Para o Setor Elétrico Brasileiro* (Rio de Janeiro 2002) for arguments critical of the way the Brazilian power privatisation was conducted.

<sup>2</sup> José Claudio Linhares Pires, 'As Perspectivas do Setor Elétrico Após o Racionamento', BNDES Texto para Discussão, No. 97 (2002).

<sup>3</sup>A. Biondi, *O Brasil Privatizado: Um Balanço do Desmonte do Estado* (São Paulo 1999); J. Petras, J. and H. Veltmeyer, *Cardoso's Brazil: A Land for Sale* (Lanham 1999).

<sup>4</sup> Norman Gall, 'Apagão Política Energetica', Braudel Papers No. 32 (São Paulo 2002).

<sup>5</sup> Peter Greiner, 'Soluções ao Inves de mais Confusão', Braudel Papers No. 32. (São Paulo 2002)

in Brazil were never populist in the traditional sense. Cross-subsidies in the sector favoured large industrial consumers at the expense of residential ones. Populist political resistance to price rationalisation, which is one of the key barriers to implementing orthodox reform, was therefore unlikely. Third, the Brazilian federal government had already completed the basic and politically difficult reforms before initiating privatisation. Electricity rates had been raised and many of the state-owned electricity companies had begun streamlining their workforce, forcing thousands of employees into early retirement. Fourth, as Latin America's biggest economy, Brazil enjoyed the investor interest which should have helped cement the orthodox reforms. Finally, the Brazilians had access to a wide range of experiences of power reform implemented in other countries from which to learn. Given these favourable factors, privatisation should have delivered immediate and self-reinforcing benefits. Instead, the programme was in shambles within five years. First, privatisation of power generation companies stalled. Then, the privatised distribution companies, because of their high levels of debt in foreign exchange, began to haemorrhage money following the devaluation of the Brazilian Real. Finally, the government's attempts to induce private investment through independent power projects (IPPs) also failed.

Were the Brazilian power reform failure an isolated disappointment amongst a series of successful privatisation initiatives in the region, it would still have been useful to study its experience given that the country's power industry is the largest and most sophisticated in the region. However, the Brazilian experience is not unique and privatisation has become deeply unpopular throughout Latin America. Given that Brazil was more favourably placed to benefit from privatisation, understanding why the power reforms failed in Brazil has the potential to explain at a more fundamental level the general weaknesses in privatisation practice.

## **2 BRAZILIAN POWER REFORMS: A BRIEF NARRATIVE**

Emphasizing the utility and importance of using narrative and stories to analyse and provide policy advice, John Forester evokes F. Scott Fitzgerald's dictum that "if he began with an individual, he soon had a type, but if he began with a type, he soon had nothing."<sup>6</sup> Following Fitzgerald's dictum, this paper faithfully reproduces its inductive approach to the research and presents first the narrative basis of its analytic claims. While this section relates the story that inspired the research, those following analyse the failure of electric power reforms in Brazil in order to develop the general dynamics underpinning privatisation failures.

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<sup>6</sup> John Forester, 'Policy Analysis and Planning: From Science to Argument', in Frank Fischer and John Forester (eds) *The Argumentative Turn in Policy Analysis and Planning* (Durham 1996).

## Early Moves towards Privatisation in Brazil

After an impressive performance in the post-War period, especially between 1968 and 1973 when the economy grew at annual rates averaging 10 per cent, Brazil stalled, like many other developing countries, in the face of successive oil price and international lending rate shocks. The Brazilian military government's inability to pull the country out of unrelenting stagflation transformed the country's political and economic policy landscape in the 1980s. In a pattern which was repeated throughout the continent, Brazil's entrepreneurial state and import-substitution policies lost credibility and economic policymaking was taken over by a new group of policy entrepreneurs that hewed to neoliberal ideas. Pointing to the highly-indebted and inefficient state-owned enterprises, they blamed state failure for stagnant growth and the nation's debt problem and advocated a massive retrenchment of the state.

In 1990, following its neighbours' lead, Brazil embarked upon a comprehensive privatisation programme under the presidency of Fernando Collor de Mello. Collor had campaigned on a modernist platform of promoting private investment and public sector downsizing and to this end he immediately instituted a National Privatisation Programme (PND), an ambitious project pursuing privatisation on a sectoral basis and targeting traditionally state-owned firms such as large mineral and mining enterprises. His administration also wanted to privatise public utilities, especially in electric power and telecommunications, but the 1988 Brazilian Constitution forbade private provision of infrastructure services. While his administration was trying to navigate through this constitutional impediment, Collor was impeached on corruption charges in 1992.

Under Collor's Vice President and successor Itamar Franco, the Brazilian Congress passed critical pieces of legislation that paved the way for the institutional reform and financial recovery of the electric power industry. Law 8,643/93 eliminated the uniform national electricity rate and did away with the legally guaranteed but rarely honoured 10 per cent rate of return established by the 1934 Water Code. Instead, it allowed a substantial increase in electricity rates to reflect the power companies' operational costs as well as to provide an adequate return on capital. More importantly for subsequent privatisation, the law cleaned up the power companies' books by having the Treasury assume US\$ 26 billion of their debts. Resolution 1,063/93 initiated market liberalisation by allowing large energy-intensive customers to negotiate electricity rates directly with utilities. Decree 1009/93, which created the national electricity transmission system (SINTREL), enabled free access to the federal transmission network thereby facilitating, theoretically and legally, competition in the generation sector. These laws collectively laid the foundation to modernising the institutional relationships in the electricity sector and putting it back on a sound commercial footing. Franco, however, made no effort to privatise power companies. He was not a reformer in the neoliberal mould nor was he sympathetic to foreign capital. Nevertheless, in response to these initial reforms, power companies began to recover financially and also to increase their operational efficiencies.

## Macroeconomic Stability and the Mandate for Privatisation

The economic stabilisation plans Franco inherited from Collor were, however, failing: Inflation was still running at between 25 per cent and 30 per cent a month, the operational deficit hovered around 2.5 per cent of GDP, and real GDP was falling. With these problems plaguing his administration, Franco went through three finance ministers, at the rate of about one every two months, before finally appointing Senator Fernando Henrique Cardoso to the post in May 1993.

As Finance Minister, Cardoso began with some immediate fiscal cuts and then focused on monetary stability. After attempting but generally failing to cut federal and state expenditures swiftly and sufficiently, Cardoso introduced the Real Plan. Similar to the Argentine Law of Convertibility, this plan first created an index pegged one-to-one with the US dollar and then, in July 1994, introduced a new currency, the Real, based on this index. The Real Plan worked: Almost immediately inflation fell from a monthly rate that exceeded 50 per cent to less than 1 per cent.

The Real Plan succeeded in controlling inflation because it appeared to be a visible and credible commitment to monetary and, by extension, fiscal responsibility and it unleashed the virtuous cycle of stability and growth which the orthodoxy had been predicting: Monetary stability stimulated pent-up demand and industrial production, which led to growth rates exceeding 5 per cent in the latter half of 1994.<sup>7</sup>

In response to the improving economic climate, the mandate for neoliberal reform and privatisation became clear. Six months before the presidential elections in October 1994, Cardoso was trailing the Workers Party's candidate, Lula da Silva by 17 per cent to 41 per cent in terms of voting intentions but the success of the Real Plan propelled Cardoso to the Presidency.<sup>8</sup> Having defeated inflation and established a strong currency, Cardoso had both the desire and the political capital to push through the constitutional amendments and the new laws required to privatise Brazil's public utilities. In his first year in office, Congress passed the *Concessions Law* (Law 8,987/95), which opened public utility services to competitive auctions in which private investors could participate and Law 9,074/95, which established the procedures for conducting public bidding and the designation of IPPs to supply power to large non-captive consumers.<sup>9</sup> With the legal groundwork laid, electricity privatisation quickly followed.

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<sup>7</sup> Edmund Amann and Werner Baer, 'The Illusion of Stability: The Brazilian Economy under Cardoso', *World Development*, Vol. 28, No. 10 (2000), pp. 1805-; Baer, *The Brazilian Economy: Growth and Development. 5<sup>th</sup> Edition* (Westport 2001).

<sup>8</sup> M. Coimbra, 'As Batalhas de Itararé', *Carta Capital*, Vol.13, No.409 (2006), pp. 38-39.

<sup>9</sup> Concessions were for 30 years for distribution and transmission companies and 35 years for generation companies.



## **Electric Power Privatisation under the Real Plan**

On the 21 May 1996, after months of preparation and intense negotiation, a majority stake in Light, the electricity distribution company for the city of Rio de Janeiro, was sold to a consortium of European and American investors for US\$ 2.3 billion. It was, at the time, one of the largest privatisation sales in Latin America and it heralded the beginning of Brazil's massive infrastructure privatisation programme, one which would eventually bring in over US\$ 100 billion in revenue for the federal and state governments.

### ***Power Privatisation: Strategy and Structure***

As conceived by the Cardoso administration, the privatisation and restructuring of the electricity industry was to be done in two phases. Distribution companies (DISCOS) were to be privatised in the first phase followed by the generation companies (GENCOS) in the second phase. This did not require much restructuring because the Brazilian electricity industry was for most parts already vertically separated. Only the state governments of São Paulo, Parana, Minas Gerais and Rio Grande do Sul owned vertically integrated generation-cum-distribution companies. The rest of the generation and transmission infrastructure was owned by federal GENCOS under its holding company Eletrobrás while the DISCOS were owned by their respective state governments.<sup>10</sup>

The decision to privatise distribution before generation was unusual. The most pressing investment requirements are usually in generation. In Brazil too, when the privatisation process had begun in 1995, Eletrobrás had estimated that the power sector would require between US\$ 8.2 to US\$ 13.2 billion in annual investment (depending on the actual rates of economic growth) over the following decade and of this amount generation would require over 50 per cent of the total investment, transmission would require about 34 per cent and distribution about 14 per cent.<sup>11</sup> Notwithstanding this, the Cardoso administration preferred privatising DISCOS first because it distrusted state governments' fiscal attitudes. In the past, state-owned banks liberally made massive loans to their state governments and the Brazilian

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<sup>10</sup> A few years after the nationalisation of the American & Foreign Power Company (AMFORP), one of the two main foreign electricity groups in Brazil, Eletrobrás transferred AMFORP's distribution assets to their respective state governments. One exception was Escelsa, the DISCO for the state of Espírito Santo, which refused to take over the company. The other exception was the DISCO for the city of Rio de Janeiro, Light, which remained with Eletrobrás following the nationalisation of the Brazilian Power Traction and Light Company in 1979. These two DISCOS were the first power companies to be privatised.

<sup>11</sup> Eletrobrás, *O Planejamento da Expansão do Setor de Energia Elétrica: A Atuação da Eletrobrás e do Grupo Coordenador do Planejamento dos Sistemas Elétricos (GCPS)*, (Rio de Janeiro 2002).

Central Bank was forced to bail them out when the latter defaulted. To tackle this problem, Cardoso pressured state governments to privatise their banks. Similarly, state-owned DISCOS regularly defaulted on payments for wholesale power to the federal GENCOS, which could hardly turn off power supply to entire cities or states in retaliation. For this reason, the Cardoso administration wanted to separate state governments from their DISCOS. Arguing that private investors in generation would in any case want federal guarantees against the risk that state-owned DISCOS might again default on their payments for wholesale power, the Cardoso administration proceeded to privatise them first.

The strategy to privatise DISCOS first corresponded with another administration priority which was to begin privatisation as soon as possible in order to take advantage of the favourable international investment climate and their immediate post-election popularity wave. GENCO privatisation would have been slower, requiring time to design the proposed wholesale power market and to set up the institutions needed to regulate the sector and to establish water-use charges, which was important given that over 90 per cent of Brazil's electricity was produced by large multi-purpose hydro projects. The administration reasoned that the market rules and the other necessary institutional infrastructure could be created while the DISCOS were being privatised. Indeed, when DISCO privatisation commenced, the power sector still lacked an independent regulatory authority but the administration had decided that the terms of service could be written into the DISCOS' concession contracts and would suffice until the regulatory agency could be established.

### ***Regulation and Market Structure***

Distribution companies were auctioned under a 30-year concession basis. Their regulation followed the well-established British model of price-cap regulation, which was applied to costs directly under the control of the DISCO, while other costs such as that of wholesale power purchases and taxes and surcharges were to be automatically passed through to retail tariffs. The wholesale power purchases were subject to a pass-through price ceiling called the *Valor Normativo* (VN), which was essentially the maximum price at which DISCOS could acquire power. Initially, the VN was standard for all types of power; later it was differentiated according to the source of the power with hydropower being priced lowest and alternative forms such as wind and solar enjoying a higher VN. The concessions contracts also allowed DISCOS to self-supply up to 35 per cent of their total wholesale power requirements. This was done partly to make the concessions more attractive to investors. More importantly, since power supplies were already stretched thin and GENCO privatisation would take time, the administration wanted to create a space for immediate private investment in generation.

At this stage a competitive wholesale power market had not yet been established. GENCOS supplied power to DISCOS at prices administered by the federal government. This system was later formalised in 1998 when the federal government mediated the signing of initial power purchase contracts

among DISCOS and GENCOS, which locked in the price of wholesale power for eight years (adjusted annually for inflation). After the first four years, a quarter of the total volume of the electricity initially contracted was supposed to be released every year so that at the end of the eight years a fully functioning and competitive wholesale power market would be established. During this period the administration expected to privatise generation and to further liberalise retail markets.

### ***The Collapse of Generation Privatisation and the Road to Rationing***

DISCO privatisation proceeded relatively smoothly even though it began in the absence of the supporting institutional infrastructure. However, the size and complexity of the Brazilian power industry—consisting of 64 DISCOS, 20 transmission companies and 15 GENCOS—meant that privatising generation would take time. In fact, it took over a year after privatisation began to establish the electric power regulatory agency (ANEEL) and it was not until May 1998, almost three years after DISCO privatisation had commenced, that the Brazilian Congress passed legislation enabling GENCO privatisation.

By this time the Asian and Russian financial crises had derailed the Real Plan. The currency peg was abandoned in January 1999 and the Real's value quickly dropped in half, trading at over R\$ 2 to the dollar. The privatised DISCOS began to suffer large losses because of their high levels of hard currency debt and clamoured for rate relief. Although the electricity rate increases subsequently allowed by ANEEL outpaced inflation rates, this was not sufficient to compensate investors for the losses they suffered in the currency markets. Not surprisingly, in this economically chaotic environment the privatisation of GENCOS and the large state-owned vertically integrated companies such as Copel and Cemig stalled as a result of investor disinterest and increasing domestic opposition. When the federal government put up the smallest of its GENCOS, Eletrosul, for sale, it received only one bid at the minimum reserve price.

Despite the evident paralysis in power privatisation, the Cardoso administration did not allow the federal GENCOS to ramp up their investments even though they were financially able to do so. Instead, in February 2000, the administration launched a Priority Thermoelectric Power Programme (PPT) through which it intended to channel funds from the national development bank (BNDES) to private investors in order to induce them to build a projected 49 new thermoelectric power plants totalling over 18 GW of installed capacity. BNDES offered to finance up to 80 per cent of the project costs but private investors remained averse in spite of this incentive. With the government's policy floundering, the administration finally asked Petrobrás, Brazil's massive state-owned oil company, to step in and take charge of 15 projects. However, by the time Petrobrás began to construct the plants it was too late and in May 2001, warned by the Brazilian National Electricity Systems Operator (ONS) that the hydroelectric reservoirs in most of the country were practically depleted; Cardoso was forced to declare an emergency electricity rationing. All except the smallest residential customers were instructed to reduce their consumption by at least 20 per cent, failing which

they would be fined or even disconnected. The rationing lasted 10 months and cost the industry at least US\$ 5 billion in lost revenue. Estimates of the loss in GDP caused by electricity rationing vary between 1.5 and 2 per cent, which indicates a further loss of about US\$ 10 billion to the Brazilian economy.

### **3. POLICY SYMBIOSIS: UNDERSTANDING THE THEORETICAL AND STRATEGIC UNDERPINNINGS OF MACROECONOMIC STABILISATION AND PRIVATISATION POLICIES IN BRAZIL**

In the initial years, the Brazilian power privatisation programme was a resounding success. By late 1997, almost all the major DISCOS had been privatised with most of them fetching handsome premiums over their minimum reserve prices (see Table 1, page 13). In fact, on a per-MW basis, Brazilian DISCOS generally commanded a much higher price than DISCOS in other Latin American countries. As a result of this frenetic pace of selling Brazil, which before 1995 had privatised little, became the largest recipient of privatisation revenues in Latin America.

In hindsight, the fact that investors bid so high might be considered curious or surprising, especially if we consider that in the initial stages an independent regulatory agency that would protect investor interests did not exist. DISCOS were sold with only their concessions contracts, which were not comprehensive and left unaddressed many critical issues such as what would be the basis for the periodic rate revisions. In addition, significant risks such as those related to exchange rates remained with the investors. Nor were there any clear policy directives on the future industrial structure, other than vague government commitments to further privatisation and liberalisation.

If privatisation could generate early successes even within this ambiguous policy environment, why was the Cardoso administration unable to sustain its power reforms programme?

#### **Manufacturing Privatisation Successes**

The early successes of the Brazilian power reforms programme can be attributed to a generalised enthusiasm about the prospects for high levels of profits to be made from international infrastructure investments. While the lack of institutional clarity and maturity in the re-organised infrastructure sectors did increase uncertainty for investors, this was adequately compensated for by the potentially high levels of returns that the developing country governments were in those days willing to allow investors. In Brazil, the Cardoso administration's underlying assumption, which was borne out by the high privatisation prices, was that investor interest in the initial stages of privatisation had little to do with the state of the institutional infrastructure of the sector and much to do with the perceptions of the government's policy orientation. Favourable perceptions of the government's policy orientation were created through initial concessions contracts and pricing policies that were very advantageous to private investors.

**Table 1**  
**Privatisation Prices and Premiums Paid for Brazilian DISCOS**

	<b>Value of Sale (US\$ million)</b>	<b>Premium (%) Paid of Minimum Reserve Price</b>	<b>% of Total Capital Bought</b>	<b>Sales (GWh/year)</b>	<b>Winning Consortium</b>
Ecselsa	385	11.78	50.00	5,487	Iven and GTD (Brazil)
Light	2,217	-	54.00	21,689	EDF (France) AES (USA) Houston (USA)
Cerj	588	30.27	70.26	5,733	Chilectra/Enersis (Chile) EDP (Portugal)
Coelba	1,602	77.38	62.54	7,985	Iberdrola (Spain) Previ (Brazil)
CEEE (Centre-West)	1,372	93.55	90.91	5,772	AES (USA)
CEEE (North-Northeast)	1,487	82.62	90.75	4,611	VBC (Brazil) CEA (USA) Previ (Brazil)
CPFL	2,741	70.15	41.06	16,704	VBC (Brazil) Bonaire (Brazil)
Enersul	568	83.79	48.67	2,513	Ecselsa
Cemat	356	21.09	86.91	2,139	Grupo Rede/Inepar (Brazil)
Energipe	525	96.05	86.42	1,492	Cataguases-Leopoldina (Brazil) CMS (USA)
Cosern	616	73.90	85.75	2,084	Iberdrola (Spain) Previ (Brazil)
Coelce	868	27.20	53.11	4,778	Enersis (Chile) Endesa (Spain)
Eletropaulo Metropolitana	1,776	-	29.80	34,779	EDF/AES/Houston
Celipa	388	-	51.26	3,014	Grupo Rede/Inepar (Brazil)
Elektro	1,273	98.90	46.62	10,295	Enron Brazil Power Holding
Eletropaulo Bandeirante	860	-	29.80	23,170	CPFL/EDP

Source: BNDES

Distribution margins—which are generally to the order of 40 per cent of final rates—were increased so that they ended up representing 60 per cent of the final rates. Retail electricity prices rose substantially right away but wholesale (that is, generation) prices, because they accrued to federal GENCOS which were not yet slated for privatisation, lagged behind.

As a result of favourable policies, in the first two years after privatisation DISCO profits rose from about US\$ 100 million to about US\$ 2 billion. Note that this increased profitability cannot be attributed to increasing efficiencies resulting from privatisation because by 1996 only three DISCOS had been privatised and their combined profits added up to only US\$ 115 million.<sup>12</sup> DISCO profitability was thus increased *before* privatisation. In addition, several potential profit making opportunities were built into the concessions contracts: DISCOS were allowed to self-supply up to 35 per cent of their power requirements; they were allowed to explore related commercial opportunities, such as in internet and telecommunications, which would be outside the concessions contracts' regulatory purview; almost no minimum investment or service expansions conditions were imposed upon them; and despite being regulated by the RPI-X model, the X factor was set at 0 for the initial five years, thereby allowing them to appropriate all benefits arising from efficiency improvements.

### **Gambling with the Security of Supply**

Even as the Brazilian electric power privatisation programme initially appeared to be delivering success after success, the security of electricity supply in Brazil was being steadily compromised. The electricity supply situation was already critical when power privatisation began in late 1995. In addition, electricity demand accelerated after the Real Plan because monetary stability had stimulated consumer demand and industrial production. Consequently, the power supply markets became even tighter. In the three years after privatisation, which began when the power supply situation was already grave, power consumption increased by over 15 per cent but installed capacity increases trailed behind at 10 per cent (see Figure 1). These were not the only evidence of the deterioration in the security of electricity supply in Brazil. As early as 1996, a BNDES study indicated that Brazil faced an elevated risk of rationing after 2000 and even the consultants contracted by the Ministry of Mines and Energy to advise on the privatisation and the restructuring of the industry warned that Brazil would face an elevated risk of rationing if generation investment suffered any delays.<sup>13</sup> Nevertheless, shortly after initiating DISCO privatisation, the Cardoso administration began to enter the Eletrobrás GENCOS into the PND, drastically curtailing their investment programmes and withdrawing many concessions to develop hydropower sites which had been awarded to the GENCOS. The consequent deterioration in the security of supply was evidenced by the fact that in each year following 1996 the levels of the hydropower reservoirs were always less than those in the corresponding period in the preceding year (see Figure 2). In other words, the

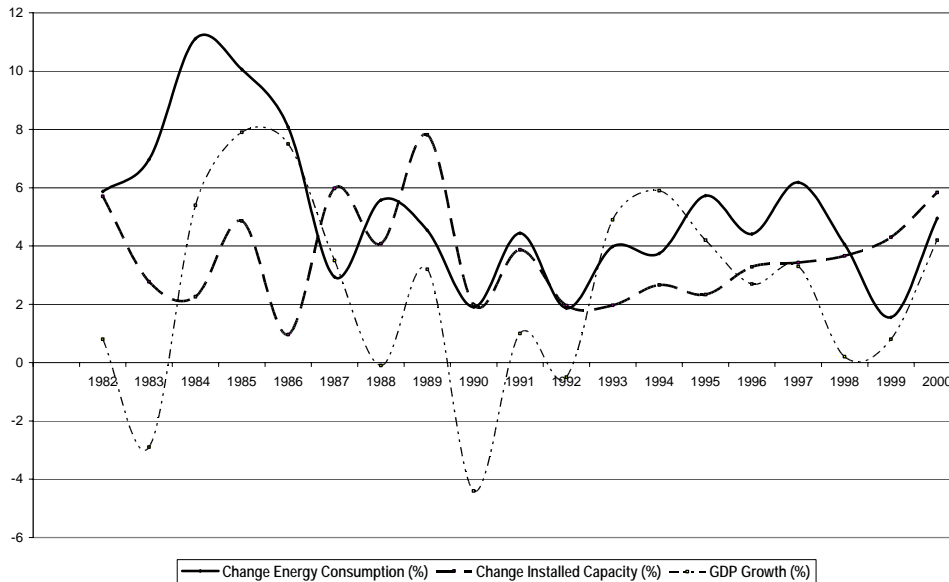
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<sup>12</sup> See A. Mendonça and C. Dahl, 'The Brazilian Electrical System Reform', *Energy Policy*, Vol. 27, No. 2 (1999), pp. 73-83; and BNDES, *Cadernos de Infra-estrutura: Setor Elétrico – Perfil das Concessionárias, Vol. 2* (Rio de Janeiro 2001).

<sup>13</sup> Coopers and Lybrand, *Projeto de Reestruturação do Setor Elétrico Brasileiro. Relatório Consolidado Etapa IV-I* (1997).

reserve stock of water, necessary to guarantee the security of electricity supply in an industry in which hydropower supplied over 90 per cent of electricity requirements, was steadily being depleted.<sup>14</sup>

**Figure 1**  
**Electricity Consumption and Installed Capacity Changes (1981-2000)**

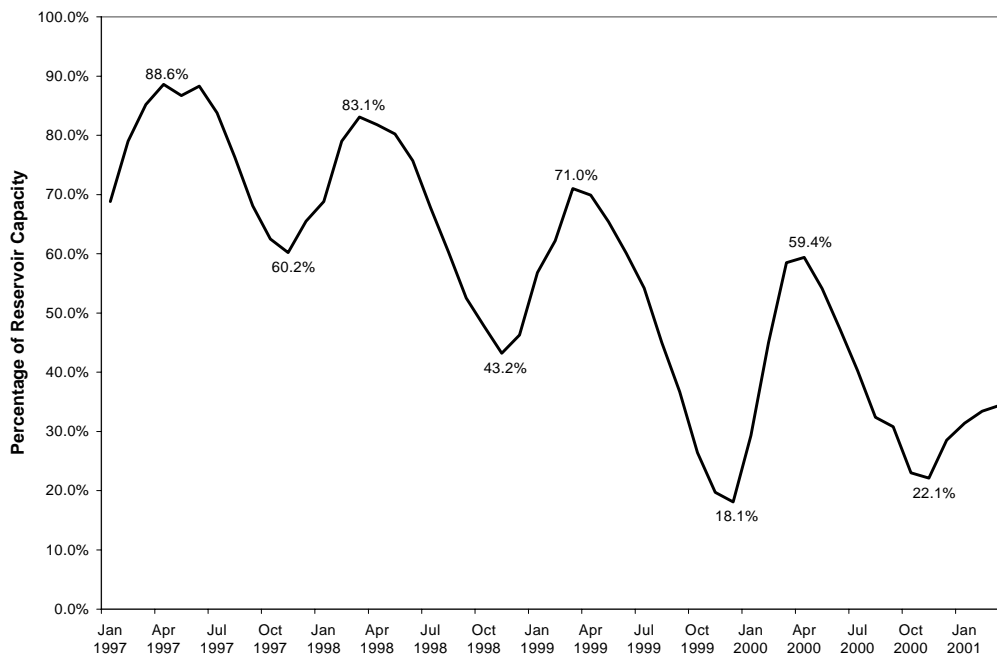


Source: Eletrobrás

<sup>14</sup> Brazil's hydropower reservoirs are fed by seasonal rainfall, being depleted during the summer and recharged during the winter. Rainfall in Brazil is quite erratic and it is not uncommon to have several consecutive years of below-average rainfall. Consequently, Brazilian electricity planners deliberately constructed large reservoirs so that there would be enough water stored to carry the system through the dry years. Charts prepared by Eletrobrás indicate that since 1996 these reservoirs were being progressively depleted of their reserve storage capacities. While it was not a simple task to determine what level of reserve storage is adequate given that predicting rainfall years in advance is impossible, Eletrobrás' research lab CEPTEL had overcome this problem by developing a sophisticated probabilistic stochastic computational programme called NEWAVE to determine whether existing reservoir capacities are adequate or if new power generation facilities are needed. NEWAVE calculates the possible electricity production capabilities under 2,000 different rainfall scenarios and installed capacity is considered inadequate if expected demand would not be satisfied in more than 5 per cent of the scenarios. After 1995, this threshold safety margin of 5 per cent began to be breached and the number of scenarios predicting a risk of rationing began to approach 20 per cent. The figures on the risk of rationing were published by various sources including Eletrobrás and were widely available.

Public power investment was frozen not, as is commonly believed and as the Cardoso administration repeatedly tried to point out, because of a lack of public financial resources. The initial power industry reforms of 1993 had set the stage for the recuperation of the financial health of the GENCOS (see Figure 3). Given its debt levels and projected cash flows at that point in time, Eletrobrás could have invested up to US\$ 7 billion per annum. Instead, because of restrictions imposed by the federal government, Eletrobrás investments were less than US\$ 3 billion per annum during this period.

**Figure 2**  
**Systems Centralwest/Southeast Reservoir Levels 1997-2001**



Source: ONS

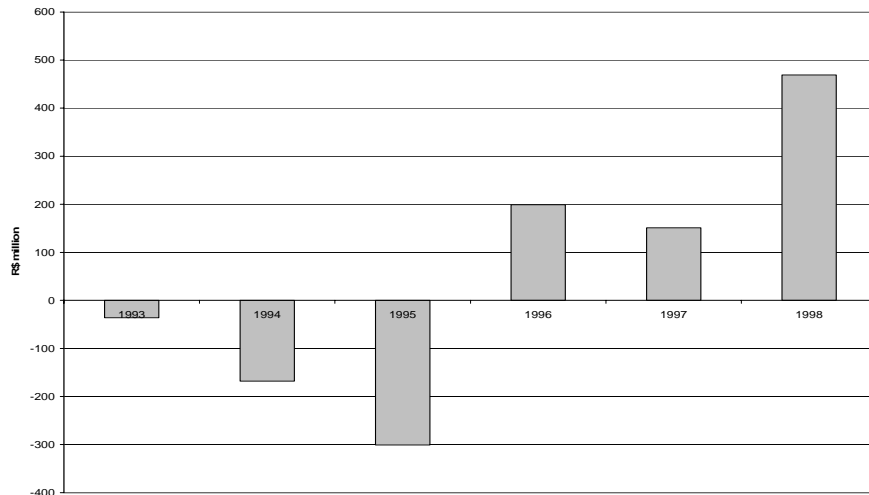
It also cannot be argued that public investments were frozen because the slack was being taken up by private investors. GENCO privatisation was not scheduled to begin until after DISCO privatisation was almost completed and given Brazil's size and the sheer number of DISCOS involved, this would obviously take time.

A plausible hypothesis is that curbs on the Eletrobrás companies' investment programmes were retained in order to increase the sales prices of the GENCOS by providing them with a clean balance sheet. Given that the hydroelectric system could be stretched for a few years because of the reservoir balances which had been maintained, the administration applied GENCOS' increasing revenues to paying down their debts instead of amplifying their investment programmes. Between 1995 and 1997, Furnas' debt was more than halved, from R\$ 5.65 billion to R\$ 2.72 billion. Eletrosul's debt reduction was even more dramatic: in two years it slashed its debt 80 per cent, from R\$ 1.45 billion to R\$ 300 million. The downside was that excessively depleting



reservoirs in order to postpone investments and improve the GENCOS' balance sheets was running down the capacity of the system to deal with extended dry weather periods.

**Figure 3**  
**Brazilian Generation Company Profits (1994-1998)**



Source: Eletrobrás

There were other indications that public investments in electric power generation were not limited because of the government's financial constraints. Despite an outward determination to withdraw the government from the power sector, the Cardoso administration actively employed state resources to ensure high levels of "private" investment. Almost throughout the privatisation process, BNDES made low-interest loans available to potential (mostly foreign) investors for up to 50 per cent of the reserve price.<sup>15</sup> In some cases, BNDES even took equity positions in the privatised enterprises. Initially, BNDES had intended to finance the privatisation of only those firms which were in relatively unattractive markets such as in the smaller states in Brazil's poorer northeast. In the end, under pressure from the Cardoso administration, these loans were extended for the privatisation of all power companies. BNDES was not the only source of public money being provided to private investors in the power industry. In several subsequent sales, funds originating from other federal entities, such as Previ (Banco do Brasil's workers' pension fund, which is one of the largest in the country) figured prominently in the investor consortia. For example, a consortium headed by Spain's Ibredrola bought Coelba, Bahia's DISCO, but Banco do Brasil and Previ's shares in this

<sup>15</sup> This policy of providing BNDES financing to foreign investors was fairly controversial and severely criticized by some segments of policy and popular opinion in Brazil.

consortium were almost the same as Iberdrola's. In all of these cases the administration applied pressure on government-owned financial institutions to invest in privatisation and the objective was to increase the sales prices of these firms. This view is supported by public statements made by senior BNDES executives where they confirm that BNDES funding was vital to ensuring that power company privatisation fetched high prices.

### **Policy Symbiosis: The Self-Reinforcing Virtuous Cycle of Stabilisation and Privatisation**

If the need for investment was the publicly-stated reason for privatisation, then why did the Cardoso administration use BNDES and other funds controlled by the state to promote privatisation at higher sale prices and not investment in new electric power infrastructure? (We cannot consider revenues from privatisation as an indication of investment in the power sector since it signifies merely a transfer in the ownership of assets rather than true investment in the form of the creation of new productive assets). One could argue that increasing the sales prices of DISCOS was not the main purpose of extending BNDES loans by claiming that lowering the cost of capital would provide incentives for larger investments in new infrastructure. The theory behind competitive auctions would, however, insist that any lowering of the cost of capital would automatically translate into a higher willingness-to-pay for the firm. Consequently, as BNDES financing implicitly reduced the buyer's cost of capital, it inflated the nominal value of the firm. If privatisation was intended to bring in foreign and private investment, then BNDES financing was counter-productive in that it had a substitutive rather than complementary effect.

From the administration's point of view, the desire to focus on privatisation revenues especially through the application of federally-controlled financial resources has to be understood by examining the political and economic context within which privatisation was being conducted. As Finance Minister, Cardoso's principal preoccupation was to deal with hyperinflation, which he had beaten. As President, Cardoso had inherited a massive debt burden which continued to threaten the precarious stability established by the Real Plan, the preservation of which was the basis of his administration's economic programme.

Brazil's fundamental economic problem as diagnosed by the Cardoso administration along the then-popular neo-liberal lines was that the economic policies of the entrepreneurial state had led to a massive increase in public sector debt which in turn had led to high rates of inflation, exchange rate instability and ultimately, low economic growth. Furthermore, given the government's debt problems, state ownership in critical sectors such as electric power and telecommunications had led to insufficient public investment and precluded private investment. With insufficient investment, public services were inadequately and inefficiently provided, thereby further dampening economic growth. The solution was privatisation. It would establish a virtuous self-reinforcing cycle of efficiency and growth by reducing the public debt,

thereby contributing to monetary and exchange rate stability which, in turn, would attract investment.

Brazil's own experience and those of other countries had shown that a degree of economic stability was a prerequisite to attracting investor interest. Under Collor, privatisation had not clearly articulated with a macro stabilisation policy; at most, his administration had linked privatisation to debt reduction and his PND had limited the scope of foreign investment. In reality, given the economic instability, foreign interest in acquiring Brazilian assets was low and foreign investors purchased only 5 per cent of the assets sold under Collor's privatisation programme.<sup>16</sup> Foreign investment was, however, essential in promoting stability because it was needed to prop up the value of the domestic currency. In order to attract this stability-inducing investment, an autonomous stabilisation plan, such as the Real Plan, would have to be introduced first in order to break the cycle of inflation and exchange rate volatility and provide macroeconomic stability. This would, in turn, attract foreign investors, which was essential for the longer term sustenance of the stabilisation plan. Thus, in contrast to Collor's privatisation plans, Cardoso's privatisation strategy placed much fewer restrictions on foreign capital and it wanted foreign investors to take majority positions in the privatised companies. Not surprisingly, Brazilian-led investor groups rarely won the auctions for the large DISCOS that were initially privatised (see Table 1).

Amann and Baer (2000) have shown that the stability provided by this approach was bought at the cost of an overvalued Real, which was the main instrument used to control inflation.<sup>17</sup> This had several negative repercussions on the Brazilian economy. To maintain an overvalued Real the government had to offer extremely high interest rates. This worsened the fiscal situation as it pushed up debt service payments, which added up to 13 per cent of GDP or about 40 per cent of total tax revenues. Exports also suffered as the overvalued Real made domestic producers less competitive and, for the first time in several decades, Brazil became a net importer.

The operating assumption that justified the costs of maintaining this stability was that these up-front expenses would be rewarded by higher growth rates which would eventually reduce fiscal deficits by increasing tax revenues and lowering public expenditures. A dynamic and growing economy would in turn provide more profit-making opportunities to foreign investors, thereby reducing over time the risk premium that they were demanding.

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<sup>16</sup> See Armando Castelar Pinheiro and Fabio Giambiagi, 'Brazilian Privatization in the 1990s', *World Development*, Vol. 22, No. 5 (1994), pp. 737-53.

<sup>17</sup> See Amann and Baer, 'The Illusion of Stability: The Brazilian Economy under Cardoso'. According to the authors trade liberalisation via the reduction of tariffs also helped control inflation as cheaper imports (given the overvalued Real) either displaced domestic producers or prevented them from raising their prices. Their claims are backed and extended by George E. Schambaugh, 'The Power of Money: Global Capital and Policy Choices in Developing Countries', *American Journal of Political Science*, Vol. 48, No. 2 (2004), pp. 281-95, who finds that fixed exchange rate regimes tend to overvalue and appreciate the domestic currency.

In order for this strategy to work, it was essential to maintain the monetary stability of the Real Plan till such time as economic growth consolidated itself in Brazil. Privatisation served to maintain stability in three ways. First, the administration expected Brazil's massive infrastructure firms—primarily in electric power and telecommunications—to fetch tens of billions of dollars. They expected this influx of foreign exchange to increase demand for the Real and keep its value vis-à-vis the dollar stable. The resulting monetary stability itself would reinforce investor confidence, thereby pushing privatisation prices even higher. Second, privatisation would provide immediate funds to help pay for a large one-time reduction in the federal debt. Third, it would fiscally discipline the federal and, more importantly, state governments by selling the institutions, such as state-owned banks and power companies, that had facilitated fiscal indiscipline. Removal of investment responsibility in these sectors from the state would also lower the public sector borrowing requirements (PSBR), which was expected to further increase investor confidence.

Privatisation and the Real Plan were thus symbiotic. Given the operating strategy of the Real Plan, the use of state-controlled resources such as BNDES funds to help inflate sales prices was logical from the macroeconomic perspective. Such injections were necessary to ensure the economic stability that would buy credibility for the government's reform plans. While the Cardoso administration did prioritise macroeconomic imperatives over electricity sector needs, they did not view the two as necessarily antagonistic. They expected that because of macroeconomic stability the privatisation of DISCOS and then GENCOS would proceed smoothly, that the newly established electric power regulatory body would be able to control excessive profit-seeking yet allow enough returns so that the private investors would bring in new investment, technologies and efficiencies, and consequently, that consumers would enjoy good service at appropriate prices. In short, they expected privatisation to initiate a virtuous cycle of investment, good service, profit and reinvestment.

#### **4. FROM THE VIRTUOUS TO THE VICIOUS CYCLE**

On theoretical grounds, it did not appear that the Cardoso administration's reasoning or strategy was flawed. In addition to the standard criticisms of public ownership on agency, property rights and public choice grounds, the efficiency claims of privatisation rested largely on the beneficial effects of competition, with which it is usually associated. Even in monopolistic markets, some forms of competition are possible with privatisation, for example, if not in the market, then for the market. This latter kind of competition was employed in privatising DISCOS in Brazil. Even though DISCOS were auctioned as monopolies, the theoretical assumption was that each investor would compete to win the concession, bidding the maximum amount that would still allow him/her to make his/her minimum required rates of return on capital. The theory predicted that the most efficient investors would win such auctions since they would be the ones who would stand to make the largest operational profits at any given level of regulated rates. It followed that

both governments and consumers should benefit from such transactions: The former should be able to capture the full value for their assets (and apply it towards debt reduction) whereas the latter should continually benefit because real rates should progressively fall in response to the regulators' judicious setting of X factors under price-cap regulation. Even though the Brazilian power reforms were geared more towards sustaining macroeconomic stability and did not directly provide incentives for investment in new power infrastructure, most privatisation analyses predicted that getting the fundamentals right, opening the sector to private investors and allowing markets to operate would automatically ensure adequate investment and appropriate prices.

### **The On-going Price Effects of Privatisation**

The first indications that power reforms in Brazil were diverging from the expected causal chain were provided by post-privatisation trends in electricity rates. We can assume given the frenetic competition and the premiums paid that electricity rates at the time of privatisation were, if not generous, sufficient to attract private investment in the sector and that given that price-cap regulation was in force, retail electricity rates would fall in real terms over the years. However, a study of Brazilian retail electricity rates reveals that they have been increasing since 1995 (see Figure 4). Between 1995 and 2001, average electricity rates increased by 106.24 per cent while the IGP-M price index that was being used to correct electricity prices for inflation increased by only 66.82 per cent.<sup>18</sup> If privatised power companies are supposed to become continually more efficient, then it appears contradictory that real distribution rates should increase.

Potential explanations for these unexpected results are indicated by empirical investigations of investor behaviour, which reveal many deviations from the (virtuous) chain of causality which theory predicted would accrue to privatisation. It has been observed that firms which win auctions are not necessarily the most efficient, just the most optimistic.<sup>19</sup> To some extent this optimism may stem from investor beliefs that they are more efficient than they really are but to a larger extent a different dynamic prevails in the case of developing countries. Here, governments and regulation are viewed as more malleable to foreign investor pressure and investors may bid high just to make

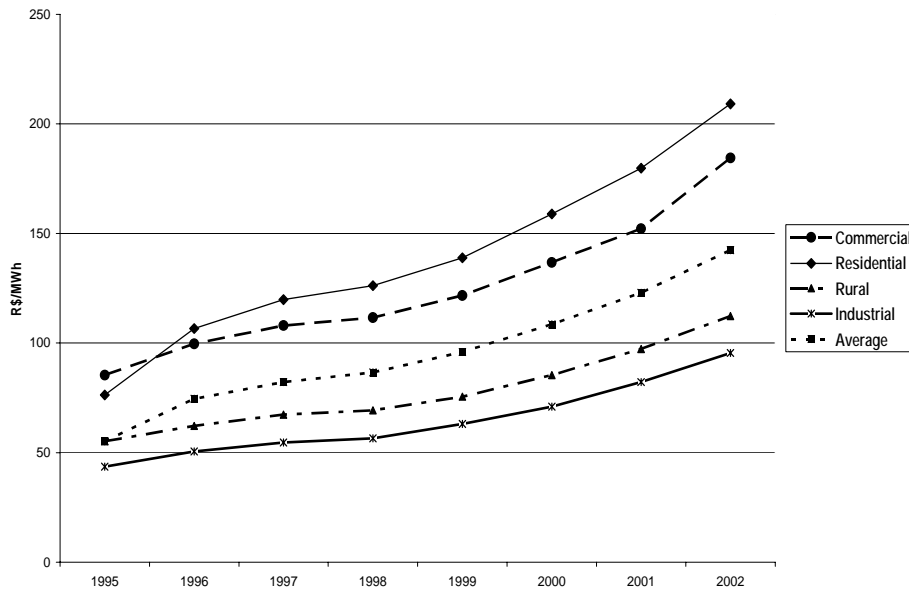
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<sup>18</sup> The IGP-M, which combines wholesale as well as retail price indices, is one of several inflation indexes used in Brazil. It is calculated by the Getulio Vargas Foundation, an independent private university and think-tank in Brazil.

<sup>19</sup>E. Capen, R. Clapp and W. Campbell, 'Competitive Bidding in High Risk Situations', *Journal of Petroleum Technology* Vol.23 (1971), pp. 641-653 as cited in J. Linhares Pires and F. Giambiagi, 'Retorno dos Novos Investimentos Privados em Contexto de Incerteza: Uma Proposta de Mudança do Mecanismo de Concessão de Rodovias no Brasil', *BNDES Texto para Discussão* No. 81. (2002).

sure they win the auction because they expect to be able to renegotiate better contract terms in the immediate future.<sup>20</sup>

**Figure 4**  
**Retail Electricity Prices**



Source: ANEEL

Where competitive forces are minimal or absent, this dynamic may have severe repercussions. In competitive industries, even if investors overspend on acquiring an asset, consumers may not suffer because competitive pressures might prevent one firm from passing on the costs of its mistake. In regulated industries, prices are administratively established and are based on an implicit or explicit guarantee to provide investors an adequate rate of return on capital. This causes a circularity problem whereby the more an investor pays for an asset, the more the pressure will be on regulators to allow higher rates, especially in developing countries where regulatory institutions are nascent and weak and where governments are keen to attract further

<sup>20</sup> This dynamic is borne out by empirical studies which show that almost half of all infrastructure concessions contracts are renegotiated within the first two years, almost always in favour of the investors. See J. Guasch, 'Granting and Renegotiating Infrastructure Concessions: Doing it Right', World Bank Institute of Development Studies (2004). One classic example of renegotiation is the case of the water concession in Buenos Aires. Shortly after the concession was awarded based on the minimum tariff that the investor would charge to provide services under a given set of contractual conditions, the contract was renegotiated at a tariff that significantly exceeded the next best offer.

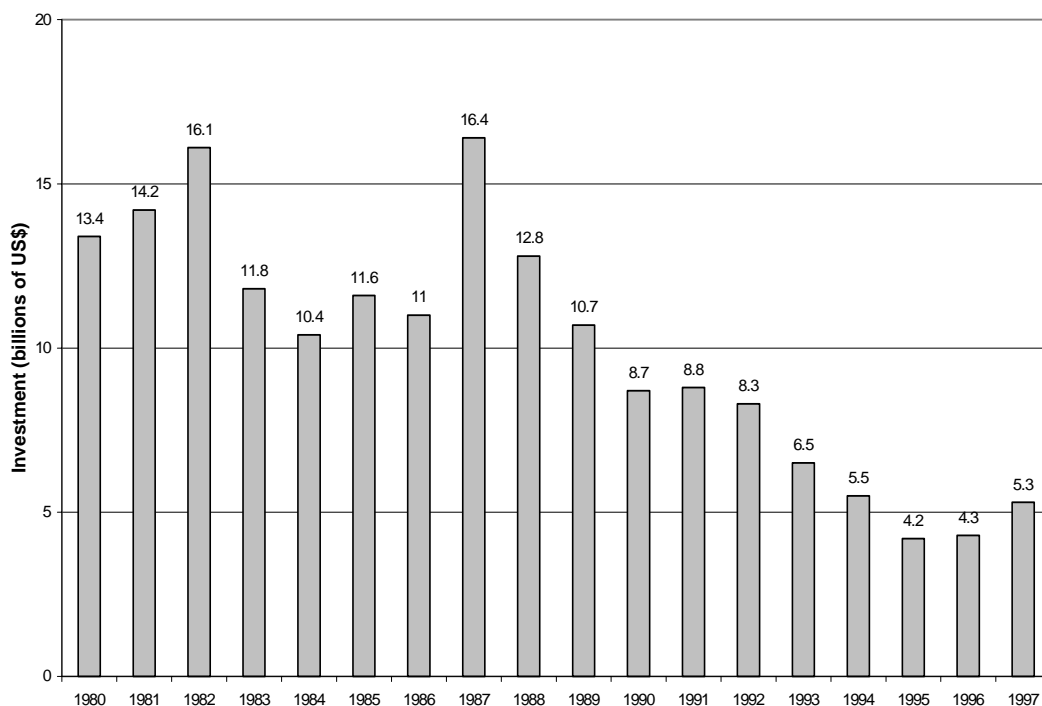
investment.<sup>21</sup> Consequently, contrary to what the privatisation policy assumed, in most regulated infrastructures where there is limited competition, prices did not go through only a one-time correction at the moment of privatisation but displayed a consistent upward trend.

### Internal Contradictions in Privatisation and Investment Plans

The second and more serious indication that power reforms had deviated from the virtuous causal chain came from electric power investment trends: Although electric power investment had picked up after 1995, by 1998 it was still below pre-reform 1993 levels (see Figure 5).

Why did the power reforms not lead to the expected spurt in investment? Partly, the sums being invested in the Brazilian power sector were being used to purchase existing assets rather than create new ones. More importantly, serious distortions were appearing in the financial dynamics of the power sector given the Cardoso administration's strategy of making DISCOS as attractive as possible to investors.

**Figure 5**  
**Investment in the Brazilian Electric Power Industry (1980-1997)**



Source: Eletrobras

<sup>21</sup> See Mark Armstrong, Samuel Cowan and John Vickers, *Regulatory Reform: Economic Analysis and the British Experience*, (Cambridge 1994) for an in-depth explanation of the circularity problem.

Viewed in isolation, the Cardoso administration's decision to increase distribution margins and retail rates was undesirable but not sufficient to cause a general crisis in the industry. In combination with the macroeconomic constraints then prevailing, it was unworkable. Up to a point, the Cardoso administration could allow electricity rates to rise, gambling that as in the case of the Real Plan economic growth would bring the overall as well as the power sector economy back into equilibrium. It was, however, a risky venture. Given that electricity is a basic input into most economic activities, the administration could not raise power rates beyond a certain point without creating inflationary pressures, which was what the Cardoso administration's economic policies were focussed on.

Given the immediate need to allow investors high returns while at the same time not allowing retail rates to increase even more dramatically, the government squeezed generation margins. Since the GENCOS were still federally owned, the government was able to adopt this strategy and use the initial contracts to keep wholesale power supplied at rates around US\$ 30 per MWh, which was significantly below the system's long term marginal expansion cost (around US\$ 36-40 per MWh) or in other words below rates that would make new generation investments financially viable. The fact that the government squeezed generation margins was not immediately obvious because even with low wholesale rates federal GENCOS appeared to be making healthy profits (see Figure 3). While it could logically have been assumed that generation margins were more or less healthy, in reality GENCOS in Brazil benefited from the fact that much of their power was generated by hydroelectric plants whose capital costs had already been amortised, thus enabling them to operate profitably because of the low operating costs associated with hydroelectricity (around US\$ 5 per MWh). New generation investment, be it in hydro or thermal power plants, would require much higher levels of remuneration and result in a much higher wholesale and retail rate for electricity. The government's decision to squeeze generation margins thus handicapped private investment in new power generation facilities.

A secondary effect of increasing distribution margins and the pressures that it created on electricity prices was that the government avoided measures which would have increased security of power supply because such measures would have increased average power prices even further. For example, capacity payments which remunerate investors for making stand-by generation plants available would have helped back-up hydropower during times of water scarcity. However, capacity payments were not implemented because they would have had to be tacked on to power rates as additional, which would have raised average power rates even more.<sup>22</sup>

Orthodox proponents of privatisation and liberalisation argue that the government's reluctance in allowing prices to rise to what a liberalised market

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<sup>22</sup> Such capacity payments were finally instituted after the power rationing of 2001 and added to retail rates.



would have established is one important reason that electricity privatisation failed, thus blaming the incompleteness of the Cardoso administration's policy reforms for the eventual rationing.<sup>23</sup> The Brazilian case thus appears to provide an empirical confirmation of Vernon's concept of the obsolescing bargain wherein the government, once investors are committed with heavy sunk costs, proceeds to expropriate their earnings by restraining prices the firms are allowed to charge.<sup>24</sup>

This argument is factually plausible but it ignores the economic backdrop to electricity sector reforms in Brazil: Higher electricity rates would feed right back into the macroeconomic problem of inflation, which was what the economic stabilisation plans were focused on. It was not so much that rampant rate increases would create a populist backlash that deterred the administration from allowing larger increases in electricity rates. It was that the electricity rate increases and the economic policies were having a severe negative impact on economic growth and forcing an adverse reaction from the very policy constituencies within the administration that were pushing for privatisation and liberalisation. In response to the unfolding economic crisis, a faction from Cardoso's own party even tried to have the Finance Minister and the Central Bank president replaced and did succeed in removing the latter.<sup>25</sup>

The disagreements over how to limit the electricity rate increases also weakened some of the critical institutions associated with the privatisation power sector. As electricity rates rose, the Treasury, which was pushing privatisation, began to pressure the electric power regulatory agency, ANEEL, to find ways to control the increase in electricity rates. In turn, ANEEL began to lose credibility because it was unable to find appropriate solutions to maintaining the regulatory contract and facilitating private investment while keeping electricity rates in check. The internal discord within the administration became so strong—at one point Cardoso wanted to fire the president of ANEEL—that ANEEL complained that its activities should be restricted solely to regulation and that it should not be responsible for developing power sector policies or issuing licenses for new plants.

In the end, government efforts to control electricity rates increased perceptions of policy risk of earnings appropriation. This translated into lower levels of private investment in generation as investors waited to see how the administration intended to resolve the internal contradiction in its reform plans of trying to control prices while increasing investment.<sup>26</sup> The lower levels of private investment combined with the curtailing of federal GENCO investments made power supply markets tighter, with the resultant scarcity

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<sup>23</sup> Gall, 'Apagão Política Energetica'; Greiner, 'Soluções ao Inves de mais Confusão'.

<sup>24</sup> See Raymond Vernon, *Sovereignty at Bay: The Multinational Spread of US Enterprises*, (New York 1971).

<sup>25</sup> J. de Onis, 'Brazil's New Capitalism', *Foreign Affairs*, (May-June 2000).

<sup>26</sup> See R. Colitt, 'Power Supply Running Dry', *Financial Times*, (20 July 2001); G. Dyer, 'Energy Crisis puts Country in Political Spin', *Financial Times*, (20 July 2001); and Global Power Report, 'Brazil Developers Dismiss Proposed \$ 29.40/MWh Ceiling on Gas Generation', 28 May 1999.

itself creating additional pressures on wholesale electricity rates. Rather than the expected virtuous cycle, Brazilian power reforms became trapped in a vicious cycle.

Privatisation was thus internally contradictory and short-lived. It required massive increases in public utility prices, which the government was able to accept to only a limited extent, and when the economy's ability to absorb price increases reached its limit, government reactions made further private investment unviable.

## **The False Promise of Liberalisation**

Let us now turn our attention to one of the main criticisms of the Brazilian power reforms, which is that liberalisation was not carried far enough. A more sophisticated approach to privatisation argues that efficiency gains and corresponding benefits for consumers accrue not so much from privatisation as from accompanying market liberalisation and competition.<sup>27</sup> However, wholesale power market liberalisation and the putative efficiency gains ascribed to it would not have improved the fragile equation according to which the industry was being privatised. Wholesale prices in Brazil could be controlled to some extent without bankrupting the power companies because a large proportion of the power was being produced by hydroelectric plants whose capital costs had already been amortised. By mixing the amortised and other energy, average electricity rates were lower than the market-clearing rates. The market liberalisation that was being proposed, which was based on the model which was then operational in Great Britain, would mean that average power prices earned by all power plants would automatically gravitate towards the much higher market-clearing prices that are determined by the marginal costs of new generation plants. A federal commission later (after the rationing) estimated that liberalising the market would lead to a doubling of wholesale power rates, from about R\$ 40.7 per MWh to R\$ 92.1 per MWh and, as a consequence, average retail prices would increase from R\$ 124 per MWh to R\$ 170 per MWh over the same period.<sup>28</sup> Given the enormous difference in the costs of the amortised hydroelectric plants and the proposed new sources of electricity, any static efficiency gains that market liberalisation would bring would be too low to compensate for this windfall profit and price increase. Any potential dynamic efficiency gains, which might or might not push market-clearing prices to such low levels, would in any case be realised much too far in the future to have compensatory effects within the time-frame required by the Real Plan.

Although the presence of cheap power from amortised hydroelectric plants contributed greatly to complicating Brazilian wholesale power market

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<sup>27</sup> George Yarrow, 'A Theory of Privatization, or Why Bureaucrats are Still in Business', *World Development*, Vol. 27, No. 1 (1999), pp. 157-168.

<sup>28</sup> Ministério de Minas e Energia, Comitê de Revitalização do Modelo do Setor Elétrico, Relatório de Progresso No. 2, (Brasília 2002).

liberalisation, studies from other countries have shown that even in the absence of such unique circumstances, power market privatisation and liberalisation tend not to simultaneously promote price reductions and security of supply. In some cases, such as in California, the problem with power markets was driven by a dynamic opposite to that in Brazil: Stranded assets in the form of relatively expensive power plants built under regulatory regimes which guaranteed them a specified rate of return being then required to compete in a deregulated market.<sup>29</sup>

## **Lost in Translation: The Fragility of the Brazilian Privatisation Strategy**

The Brazilian power reforms were essentially fragile and, like the country's Real Plan, based on the gamble that assuming certain costs and risks in the short term would provide the economic stability and growth which would carry the industry to a stable equilibrium. However, the stability-based growth cycle that the Real and privatisation plans anticipated was not sustainable, to a large extent because it was too expensive, in terms of both the interest payments required to maintain the value of the Real and the high post-privatisation utility rates. After several years, these high costs were not rewarded with increased credibility because investors withdrew massively in the wake of the Asian and Russian financial crises. The government was no longer able to maintain the currency peg which was, in effect, covering up the fact that utility rates had been pushed to very high levels. The subsequent and inevitable devaluation ensured that such high utility rates could not be maintained and the privatisation programme collapsed under the weight of its own needs.

The idea that the Real Plan's stability would help pay down the debt also failed. The interest rates necessary to maintain the currency peg became so expensive, sometimes exceeding 50 per cent for some short-term debt, that in the end the Real Plan resulted in a net outflow of resources from the Treasury and a 77 per cent increase in the national debt (see Figure 6).

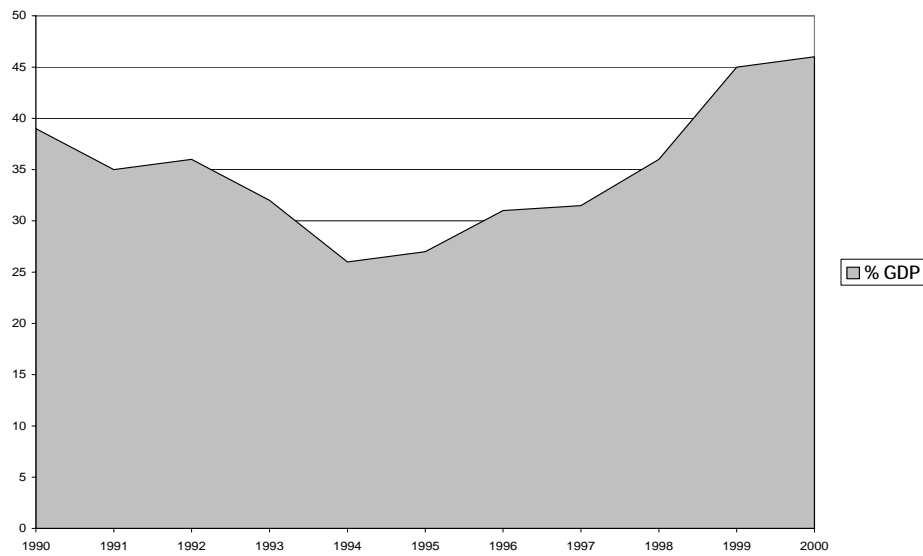
In this chaotic economic situation issues that were identified as implementation problems were actually symptoms of a combination of policies intended to promote privatisation and of coping mechanisms in the face of a

**Figure 6**

### **Brazil Net Debt**

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<sup>29</sup> While a more in-depth approach to the weaknesses of power markets is beyond the scope of this paper, the interested reader may refer to the following sources: J.R. Branston, 'A Counterfactual Price Analysis of British Electricity Privatisation', *Utilities Policy*, Vol. 9 (2000), pp. 31-46; Chi-Keung Voo, 'What Went Wrong in California's Electricity Market', *Energy*, Vol. 26 (2001), pp. 747-58; Ferdinand E. Banks, 'Economics of Electricity Deregulation and Privatization: An Introductory Survey', *Energy*, Vol. 21, No. 4 (1996), pp. 249-61; Paul Joskow, 'California's Electricity Crisis', NBER Working Paper, No. 8842 (2001); David Newbery, 'The Regulator's Review of the English Electricity Pool', *Utilities Policy*, Vol. 7, No. 3 (1998), pp. 129-41.



Source: Banco Central do Brasil

privatisation policy that was tenuous and towards the end, rapidly failing. For example: (1) The failure to create a strong regulatory agency and clear market rules before beginning privatisation was motivated by the need to begin privatisation quickly to take advantage of favourable market and political conditions; (2) the government's controls over electricity rates and its failure to liberalise the market were motivated by a desire to control rapid increases in electricity prices and the consequent inflationary pressures; and (3) the frequent policy changes at the margin resulted from the administration trying to balance investor interests with domestic economic concerns. Table 2 summarises some of the policy initiatives of the Brazilian electric power reforms which were criticised as implementation problems and shows how their underlying motivations were to try to make privatisation work. The table also explains the policies' underlying assumptions and indicates where these assumptions were incorrect, thereby identifying how these policy initiatives became mis-translated and resulted in perverse outcomes quite different from what the administration had intended.

## 5. FROM THE INDIVIDUAL TO THE TYPE: THE PERFORMANCE AND EVOLUTION OF PRIVATISATION IN DEVELOPING COUNTRIES

This paper has deliberately provided a detailed narrative in order to clearly identify policymakers' rationales and the points of departure from the expected causal chain, and to provide sufficient detail to allow scholars to compare this with other cases. It is usually problematic to generalise findings from even careful case-based empirical research but the failures of Brazilian power privatisation are not idiosyncratic. On the contrary, the general dynamics of the failure of stability-based privatisation programmes have been repeated in many other contexts in Latin America, most notably Argentina where the

implementation of power reforms was quite different and, in fact, for a long time considered optimal. For example, Argentina privatised generation first and ensured adequate competition by restricting the size of power companies. Nevertheless, electricity prices rose and the system collapsed after the Peso's devaluation. While the stage at which privatisation failure becomes evident and the extent to which privatisation was conducted before its collapse has varied across countries, there are certain trends which are consistent.

First, post-privatisation prices in developing countries have risen consistently.<sup>30</sup> If private operators are supposed to continually improve efficiencies, post-privatisation prices for public services should show a falling trend (after adjusting for inflation), which in most sectors other than in telecommunications they do not.<sup>31</sup> Many studies point to cases in which privatisation resulted in reduced prices, but careful analysis of these cases, for example electricity privatisation in the UK and Argentina, and water privatisation in Buenos Aires, Argentina reveals that prices were increased substantially just before privatisation<sup>32</sup> indicating that many of the oft-cited claims on price reductions through privatisations are spurious.

Second, privatisation was supposed to unlock global private capital flows into developing country infrastructures. These flows were indeed substantial but still a small fraction of the public investment in the same period. In addition, not all of what is counted as private investment represents new sources of finance. In reality, post-privatisation investments have often used many of the same sources of funds as state-led investments such as multilateral aid agencies and even public funds. For example, about half of "private" investment in Brazilian electric power between 1995 and 2000 actually came from BNDES loans channelled through private companies.<sup>33</sup>

Third, and most critically, in developing countries privatisation in combination with other reforms was supposed to deliver strong and sustained economic growth. Indeed, the pragmatic privatisation thesis was that developing countries were privatising at one level to deal with immediate fiscal

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<sup>30</sup> See, for example in the electricity industry, H. Nagayama, 'Effects of Regulatory Reforms in the Electricity Supply Industry on Electricity Prices in Developing Countries', *Energy Policy*. (2007).

<sup>31</sup> David McKenzie, and Dilip Mookherjee, 'Paradox and Perception: Evidence from Four Latin American Countries', in Nancy Birdsall and John Nellis (eds.) *Privatization Reality Check: The Distributional Impact of Privatization in Developing Countries* (Washington DC 2005).

<sup>32</sup> David Newbery and Micheal Pollitt, 'The Restructuring and Privatisation of Britain's CEB—Was it Worth It?', *Journal of Industrial Economics*, Vol. 45 (1997); J. Delfino, and A. Casarin, 'The Reform of the Utilities Sector in Argentina', WIDER discussion Paper No. 74 (2001); A. Loftus and D. McDonald, 'Of Liquid Dreams: A Political Ecology of Water Privatization in Buenos Aires', *Environment and Urbanization*, Vol. 13, No. 2 (2001); George Yarrow, 'British Electricity Prices since Privatisation', Research Report, Regulatory Policy Research Centre, Hertford College (Oxford 1992).

<sup>33</sup> BNDES (2001) O Apoio do BNDES ao Setor Elétrico. Informe Infra-estrutura, No. 52.

problems<sup>34</sup> but more critical to the enthusiasm for privatisation was the belief that it and associated reforms would lead to higher rates of growth. Privatisation appears to have largely delivered on efficiency and productivity at the firm level in absolute terms<sup>35</sup> but the more substantial claims of diffuse benefits to governments and customers have not been realised.<sup>36</sup> Privatisation also appears to have been particularly weak in overcoming the heavy financial burdens imposed by broad structural reforms initiatives.

### **Were Privatisation Failures Implementation Problems?**

The orthodox defence of privatisation tends to blame bad implementation for its failures. At the political or strategic level, it suggests that the policy environments within which privatisation programmes were implemented were inadequate to control rent-seeking and political interference, thereby dampening investor interest. It condemns policymakers for not being committed to privatisation and abandoning it once their initial interests in obtaining fiscal manoeuvring space were served. It also criticises policymakers for being timid and deserting reforms in the face of opposed agency from bureaucrats and public protests. Although orthodox analyses sometimes acknowledge that privatisation is poorly equipped to deal with the distributive conflicts which lead to public protest, more often they claim that (1) such conflicts may be more a result of politicking than actual conflict and (2) that the benefits of privatisation are still substantial and conflict could be avoided if these were better distributed through superior implementation.<sup>37</sup> At the tactical level, the orthodoxy blames governments for instituting inadequate or flawed regulatory and market frameworks and insists that better designed policies

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<sup>34</sup> See Ravi Ramamurti, 'Why are Developing Countries Privatizing?', *Journal of International Business Studies*, Vol. 23, No. 2 (1992).

<sup>35</sup> See William Megginson and Jeffrey Netter, 'From State to Market: A Survey of Empirical Studies on Privatization', *Journal of Economic Literature*, Vol. 39 (2001), pp. 321-389.

<sup>36</sup> Newbery and Pollitt, 'The Restructuring and Privatisation of Britain's CEGB—Was it Worth It?'

<sup>37</sup> Nancy Birdsall and John Nellis, 'Privatization Reality Check: Distributional Effects in Developing Countries', in Nancy Birdsall and John Nellis (eds.), *Privatization Reality Check: The Distributional Impact of Privatization in Developing Countries* (Washington DC 2005).

would have averted privatisation failures.<sup>38</sup> A common conclusion of these literatures and approaches is that privatisation programmes fell victim not so much to strategic flaws but rather to not enough attention being paid to preparation and implementation, especially in their institutional aspects. Consequently, such analyses argue and exhort that privatisation should neither be abandoned nor reversed; instead efforts to privatise correctly should be strengthened.<sup>39</sup> This literature does argue for building up state capacity, but only so far as to support privatisation, and does not even consider how devoting the same amount of resources to the public sector might improve publicly owned utility performance.

Many of these analyses are empirically flimsy. The claim that governments were fickle and prematurely abandoned privatisation is contradicted by empirical research that goes beyond merely checking whether privatisation was continued or not. In the Brazilian case, for example, the fact that the government did not renege on their contractual obligations until after the rationing and insisted on ploughing public financial resources into private firms through the PPT in order to stimulate private investment in the power industry implies that the administration was not arbitrarily confiscating private investors' returns but rather trying to make a difficult policy work. It was not only in Brazil that privatisation initially enjoyed substantial and broad political support and where policy inconsistencies and opposition followed rather than preceded privatisation failures.<sup>40</sup> The wider empirical research suggests a more

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<sup>38</sup> A volume edited by Alberto Chong and Florencio Lopez-de-Silanes, for example, concludes that efficiency and wages generally increased through privatisation and that increases in prices and monopoly power should only be blamed on bad regulation. See, Alberto Chong and Florencio Lopez-de-Silanes (eds.), *Privatization in Latin America: Myths and Reality* (Palo Alto 2005). The book also accuses the Brazilian government of losing the opportunity to pay down the federal debt with privatisation proceeds, which completely ignores the fact that it was the high interest payments necessary to maintain the currency peg which was responsible for the increase in the national debt and that applying privatisation proceeds to reducing the debt would have a negligible effect in comparison.

<sup>39</sup> See Ioannis Kessides, *Reforming Infrastructure: Privatization, Regulation and Competition*, (Washington DC 2004) and Sunita Kikeri and John Nellis, 'An Assessment of Privatization', *World Bank Research Observer*, Vol. 19, No. 1 (2004), pp. 87-118.

<sup>40</sup> See Leslie Elliot Armijo and Phillippe Faucher, 'We Have a Consensus: Explaining Political Support for Market Reforms in Latin America', *Latin American Politics and Society*, Vol. 44, No. 2 (2002), pp. 1-40, in which the authors argue that reforms were supported by both the elite and the masses. Similarly, Volker Schneider, Simon Fink and Marc Tenbucken, 'Buying out the State: A Comparative Perspective on the Privatization of Infrastructures', *Comparative Political Studies*, Vol. 38, No. 6 (2007), pp. 704-27, find that veto players and corporatist interest groups were insignificant barriers to privatisation and Glen Biglaiser and David S. Brown, 'The Determinants of Economic Liberalization in Latin America', *Political Research Quarterly*, Vol. 58, No. 4 (2005), pp. 671-80, conclude that opposed domestic political factors institutions did not systematically prejudice reform.

generalised pattern where policy related troubles followed rather than instigated privatisation failures.

Under such circumstances where both governments and investors want to continue with privatisation and private investment, an explanation more plausible than the obsolescing bargain is that privatisation policies were not providing either party their minimum required payoff. From the governments' point of view, prices for public services were increasing uncontrollably. In Brazil, a trade journal highlighted the fact that retail electricity rates in Rio de Janeiro had begun to exceed those charged in California or Paris.<sup>41</sup> From the investors' point of view, their earnings were insufficient to compensate their risk adjusted costs of capital. A recent study of the returns of privatised DISCOS in Brazil, Argentina, Chile and the United States finds that the average return on capital for Brazilian DISCOS was consistently below their weighted average cost of capital (WACC). However, the actual returns to power investors in Brazil have, except for the turbulent years of 1998-2000, consistently exceeded the returns to electric power investors in the United States.<sup>42</sup> Yet, the Brazilian investments were considered unattractive because, given investors' perceptions of risk in Brazil; the WACC for power investments was around 14 per cent as opposed to 6 per cent for power investments in the United States. Clearly then, if investors demands are to be satisfied in a capital intensive industry such as electric power, Brazilian consumers are forced to pay a higher price for electricity than their US counterparts. Thus, neither the governments nor the investors were able to satisfy their primary interests through privatisation. The domestic economy was incapable of meeting investor demands over the long-term and investors were unable and unwilling to supply investment at the prices that the domestic economy could sustain.

## **The Generalised Pattern of Privatisation Failure**

In general, privatisation passes through three phases. Its initial phase, of courtship and honeymoon, is characterised by mutual accommodation. Privatisation works at this stage because both governments and investors are willing to pay high prices and take risks in order to demonstrate their commitment to and credibility of their stated positions. For their part, governments enter into politically painful structural readjustment programmes, pay high interest rates to maintain currency stability and allow substantial increases in the prices for public services in order to provide investors the high returns that their risky investments require. In return, investors undertake large sunk investments in politically-risky environments. Substantial financial flows accrue to this mutual accommodation, simulating the domestic economies in the short term and reinforcing the reforms.

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<sup>41</sup> C. Tautz, 'O Injusto Preço da Energia no Brasil', *Brasil Energia*, No. 248 (July 2001).

<sup>42</sup> Katia Rocha, Fernando Camcho and Gabriela Bragança, 'Return on Capital of Brazilian Electricity Distributors: A Comparative Analysis', *Energy Policy*, Vol. 25 (2007), pp. 2526-37.



In the second, critical, phase privatisation programmes confront reality, disenchantment and misunderstanding. During this phase, reforms are expected to consolidate themselves. Governments expect investors to begin rewarding their commitment to reform by undertaking larger investments, increasing efficiencies, reducing their risk premiums and lowering the real costs of public services. Investors, having committed billions of dollars to purchasing government assets are however interested in first recouping their investments by repatriating high levels of initial earnings, and in testing whether governments' commitments to reforms will endure. In the meantime, the efficiency dividend, though significant, does not yield any real price benefits to customers because investors capture most of the accrued gains. During this period, the initial economic surge also abates as overvalued domestic currencies, high domestic interest rates and high public service prices increase domestic production costs and render domestic producers less competitive in both internal and external markets. In this environment, governments' efforts to protect and maintain economic competitiveness and restart growth by limiting further increases in public service prices are interpreted by investors as manifestations of the obsolescing bargain wherein governments are again acting capriciously and confiscating investor earnings. In response, they limit their investments and began to pressure governments to compensate them for their losses in currency markets. The implementation problems such as troublesome market rules which are often cited as the cause of privatisation failures are, under these circumstances, marginal impediments to privatisation and private investment. In most cases where they are cited, the effects of these barriers are to somehow limit further increases to already-high prices for public services, which is exactly what the governments want and need to do for broader economic strategy reasons. More than implementation problems and a lack of mutual credibility, mutual incompatibility of the two actors' primary interests within the instable economic environment derail privatisation programmes.

In the final phase, depending upon the severity of the economic turmoil and the level of mutual distrust that has accumulated in the previous phase, the outcomes range from acrimonious separation to uneasy coexistence. In some cases, investors abandon their concessions and try, generally unsuccessfully, to recover damages from arbitration panels. In other cases, investors continue to operate their concessions, but under more restrictive pricing environments. Private investment in most infrastructures falls dramatically in this period and governments are once again forced to reassume primary responsibility for expanding infrastructure services.

## **6. CONCLUSIONS**

The analysis presented in this paper arbitrates between the strategy versus implementation failure hypotheses and concludes that while elements of both strategy and implementation failure were present in the Brazilian power privatisation case, the effect of the former dominated and generated the latter failure. Policies that were meant to facilitate and consolidate privatisation had become lost in translation. Supporting the Real Plan required large inflows of

foreign exchange, which the administration tried to ensure by raising investors' potential profits. This did facilitate DISCO privatisation but at the same time made investment in generation unattractive because it forced the government to squeeze generation margins in order to prevent electricity rates from climbing too high. The withdrawal of federal investment was expected to signal that the government was serious about privatisation and bolster investor confidence. Instead, the curtailing of public investments at a critical juncture translated into tighter markets that lessened the government's manoeuvring space to adopt more strategic power sector policies. In many instances, what would be classified as implementation failures were actually coping mechanisms intended to deal with distortions generated by policies that were failing their own logic. Better implementation of the same policies would have done little to lessen the magnitude of the failure and the resultant losses to the Brazilian power industry and the general economy.

Brazilian power reforms failed because they were fragile and their success relied greatly on a number of favourable assumptions which were in reality quite uncertain. The first assumption was that the initial economic stability provided by the Real Plan could be sustained (partly by the country's privatisation programme) providing the economic growth which would compensate over time the high costs that the country was incurring to ensure that stability. In the initial stages privatisation worked because both government and investors underestimated potential risks and overestimated potential profitability and efficiency gains. This strategy fell apart when the delicate balance upon which they operated was upset by the financial crises that spread from Asia and Russia to Latin America. The second assumption was that there was a treasure trove of efficiency waiting to accrue to privatisation and that this would ameliorate the distortions that the stability-focussed privatisation programmes were creating. In reality, the efficiency gains from privatisation were substantial but insufficient to compensate for the costs imposed by the stability-promoting strategies within which it was embedded. What the Brazilian electric power case has demonstrated, and what other privatisation cases appear to indicate, is that the theorising favouring privatisation is often bolstered by untenable assumptions about implementation dynamics and that much has been lost in the translation from theory to application.