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**MERGER CONTROL IN DEVELOPING COUNTRIES:
LESSONS FROM THE BRAZILIAN EXPERIENCE**

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INTRODUCTION

When based on sound economic principles, the enforcement of antitrust policy is expected to enhance economic efficiency, improve consumer welfare and spur economic growth. This is one of the reasons why antitrust laws were adopted or updated as part of market-oriented reforms in several developing countries during the 1990s.¹ Achieving sound enforcement of antitrust laws in transition economies, nevertheless, is far from easy.

The analytical exercise underlying most antitrust cases applies economic reasoning to predict the likely impact of business behaviour on competition and economic welfare, which is a rather complex effort, inevitably subject to some mistakes. The risk of perverse antitrust enforcement is not exclusive to developing countries but may be aggravated in those jurisdictions by low levels of expertise and the scarcity of human capital.² The quality of antitrust enforcement may also be affected by interventionist ideologies and politics.³ Interventionist ideologies and political pressure also affect antitrust enforcement in mature jurisdictions. Unique to emerging economies, perhaps, is the fact that the benefits of open markets are yet to come, undermining public confidence in market reforms. Also unique is the great extent to which the historical relationship between the public and the private sectors extremely state capture in the present.⁴

The hazards involved in the implementation of antitrust programs may be particularly high for developing countries in merger control cases.⁵ Although the economic analysis of mergers may be considered one of the simplest analytical exercises in the antitrust field, it frequently involves pitfalls. Because merger control activities affect market structure and firm behaviour in all industries, they also seem to be a propitious environment for the reintroduction of interventionist ideologies – from price controls to picking winners.

A look at Brazil's recent experience may help in understanding the difficulties of implementing sound merger control in transition economies. For several decades, the role of competition policy was minimal, as import substitution strategies were in place and price controls were the norm.⁶ Competition policy started to play a more active role in the Brazilian economy only in 1994, when a new antitrust law – which included provisions for merger control – was enacted (federal law 8.884/94).⁷

The Brazilian antitrust law broadly resembles competition laws of other countries. Articles 20 and 21 proscribe anticompetitive conduct, including single-firm conduct by monopolists or dominant firms and anticompetitive

agreements. Article 54 provides for the efficiency defence of potentially unlawful acts or contracts. In Paragraph 3, it specifically requires that mergers meeting certain thresholds must be notified, although notification need not occur before the deal is concluded. Mergers to be notified are those in which any of the participants in the transaction had total worldwide turnover in the most recent year of R\$400 million or in which the resulting company or group of companies accounts for 20 per cent or more of the relevant market share. Because its language is relatively imprecise, Article 54 has been interpreted as a controlling provision of all contracts and agreements.

A peculiarity of the Brazilian system of antitrust enforcement is that it is formed by three different bodies: the Conselho Administrativo de Defesa Econômica – CADE (Administrative Council for Economic Defence) and the Secretaria de Direito Econômico – SDE (Secretariat for Economic Law Enforcement) within the Ministry of Justice, and the Secretaria de Acompanhamento Econômico – SEAE (Secretariat for Economic Monitoring) within the Ministry of Finance. Cases are initiated by SDE, which, with the assistance and advice of SEAE, conducts preliminary investigations and administrative proceedings before submitting the file and its recommendations to CADE. CADE, a statutorily independent agency, subsequently makes the final decision regarding the case, against which an appeal may be made to the courts.⁸

Since the enactment of law 8.884/94, the number of mergers reviewed has grown from 99 in the first two years to over 600 in 2001. The increase in quantitative work, however, has not been accompanied by an improvement in institution building. A good illustration of this point is the fact that no merger guidelines have been issued by any of the agencies since 1999.⁹ Agencies have challenged very few cases, and no transaction has been prohibited outright since 1996, but some decisions incurred severe criticism from consumer protection groups, businesspeople and the press, who questioned whether the had agencies applied sound antitrust criteria in their analyses.¹⁰

This article reassesses three Brazilian merger cases and one joint venture as a basis for discussing some key difficulties that may arise in applying economic principles to antitrust enforcement in developing countries. All of the cases involve classic antitrust issues, and the conclusions reached by the authorities are to some degree controversial, providing good material for discussion. Each case also gives the opportunity to address issues that are particularly relevant to developing economies, such as the concern that strict merger control might damage the international competitiveness of local firms or

that temporary relief from antitrust laws should perhaps be recommended for sectors undergoing structural adjustments.

Section 1 discusses a classical horizontal merger case with homogeneous products. The acquisition of Pains would substantially increase Gerdau's market share, while entry and rivalry did not seem to be effective deterrents to the exercise of market power. Particularly interesting in this case is the discussion about the "failing firm argument", which may be frequently raised in transition economies as trade liberalization and other pro-market reforms tend to provoke structural adjustments.

Section 2 examines the AmBev case, a merger with differentiated products involving the two largest beer firms in the country. Post-merger market-shares would be as large as 75 per cent, investments made by incumbents in recent years made entry less likely, and control over the three most preferred brands made rivalry less effective. AmBev is perhaps the most interesting and controversial merger case to date in Brazil. One issue of particular interest is whether merger control in a developing country necessarily represents an obstacle to local firms' size and international competitiveness.

Section 3 deals with a vertical merger between the world's largest exporter of iron ore – the Brazilian CVRD – and the railway firms serving the company and its iron ore rivals. Vertical mergers have been a classic and controversial antitrust issue since Chicago School critics pointed out the pro-competitive effects of this type of merger and a more lenient approach towards them was recommended. The CVRD case illustrates the relevance of the recent economic literature based on the concept of "rising rivals' costs" for understanding the potential harm of vertical mergers and examining related technical issues.

Finally, section 4 examines two linked cases in which agreements – presented in the format of joint ventures – were concluded between competitors to restrain the supply of alcohol and avoid further price decreases, reducing the pace of structural adjustment in the alcohol industry. Over the years, the Government of Brazil has adopted several measures to support the real income of alcohol and sugar cane producers, which provoked excessive entry, a systematic oversupply of alcohol and a progressive decrease in its prices even in the presence of such measures. The alcohol case involved an important discussion about the "crisis cartel" argument, as the rationalization of the alcohol industry would cause some redeployment of capital and labour, which normally raises political and social concerns.

All sections of the paper follow the same format. Each one begins with

an overview of the basic facts, including the main characteristics of the transaction, the defendant's view, SEAE and SDE technical opinions and CADE's final decision. Next, the microeconomic fundamentals underlying the case are summarized, after which those economic tools are used to analyse the described facts. Each section ends with some tentative conclusions regarding the adequacy of the decision and some preliminary remarks on further issues.¹¹

1. HORIZONTAL MERGERS WITH HOMOGENEOUS PRODUCTS: THE GERDAU-PAINS CASE

In February 1994, the Uruguayan steel maker Siderurgica Laisa S.A. (Laisa), which is controlled by the Brazilian group Gerdau, acquired the firm Korf GmbH (Korf). The latter firm controls several other companies, including the Companhia Siderúrgica Pains (Pains). At the time of the merger, Pains was the third largest producer of long steels (concrete reinforcing bars, wire rods, bars and profiles) in Brazil, with annual sales of over 230 thousand metric tons.

The Gerdau Group itself – through its affiliated steel makers Cosigua, Riograndense, Aço Norte, Usiba, Cearense and Guaíra – was the second largest producer, with annual sales of over 1.5 million metric tons. The merging firms therefore claimed that the acquisition would bring about considerable synergies, mainly related to cost reduction and product improvement by means of the technology transfer from Pains.

The Secretariat for Economic Policy of the Ministry of Finance (SPE) issued a technical opinion that was favourable to the acquisition.¹² SDE, on the other hand, recommended only partial approval of the deal. At first, CADE followed the technical opinion of SDE and recommended that the acquisition receive antitrust clearance on condition that the Pains business unit was sold. The merging firms requested a second ruling concerning the transaction, reinforcing the argument that the merger would bring several efficiencies (cost reduction, quality improvements and technology transfers) that would be shared with consumers, and making a new argument based on the alleged fact that the sale of Korf was a necessary condition for its survival (a “failing firm” defence).¹³ The appeal made by the firms was successful, and in a second ruling the operation received clearance without any restrictions.

1.1 The economics of horizontal mergers

In its simplest approach, the economic analysis underlying the enforcement of merger control could be seen as an assessment of the net effect of the transaction on the economic welfare (total surplus). Mergers among competitors may reduce consumer surplus, as merged firms may find it profitable to increase their prices above pre-merger levels, reducing total surplus by the amount corresponding to the deadweight loss. Mergers may also generate merger-specific efficiencies, such as economies of scale and scope, increasing producer surplus and total surplus. In this “aggregate

economic welfare analysis”, mergers should be challenged only if deadweight losses are not compensated by efficiency gains obtained by the merging parties.¹⁴

In order to evaluate the welfare impacts of a transaction, one must start by defining the market where it occurs. A market is usually defined as a set of goods that could be considered meaningful (close) substitutes – in terms of either their physical characteristics or their areas of origin – and over which competition should prevail. To assess the degree of substitutability among goods, a conventional approach has been to consider whether a hypothetical profit-maximizing monopolist could profitably impose a small but significant and non-transitory price increase.¹⁵

Once the relevant market is defined, it is necessary to identify the firms that participate in it in order to calculate their market shares.¹⁶ When post-merger market shares are below a certain benchmark, it is presumed that the merging parties are not capable of unilaterally increasing their prices, and the operation does not raise any concern regarding economic welfare.¹⁷ A high post-merger market share is a necessary but not sufficient condition for determining whether the merged firm will find it profitable to increase its post-merger prices. In other words, the existence of market power does not imply that it will be exercised.¹⁸ The most common factor that may hinder the merging firms’ ability to exercise their market power is the possibility that new firms will enter the market, attracted by supra-normal profits, thus making a future price increase by the merged companies not worthwhile. Entry can be considered as a deterrent to the exercise of market power by the incumbent firms when it is easy, profitable and sufficient.¹⁹ Another limitation to the exercise of market power is the existence of vigorous rivalry between the firms in the relevant market. The investigation of this aspect of market structure is more difficult, as it involves an analysis of whether there are any leading firms and whether the market is mature or technologically dynamic, among other factors that contribute to the existence of rivalry between firms.

When consideration of these previous factors indicates that the merger creates conditions that lead to the exercise of market power, the analysis should evaluate the merger-specific efficiencies (efficiencies that cannot be achieved otherwise within a reasonable amount of time). Merger-specific efficiencies include (a) economies of scale; (b) economies of scope; (c) reduction of transaction costs; (d) introduction of a new product in the market; and (e) internalization of externalities (appropriation of the positive externalities/elimination of the negative externalities).²⁰ Efficiencies derived

from economies of scale or scope, or from the rationalization of productive plants, are often accepted, while managerial and administrative economies are often dismissed as speculative.²¹

1.2 The Gerdau-Pains case

Long steel products may be divided into (a) concrete reinforcement bars – steel bars with circular cross-sections that are used to reinforce concrete structures; (b) bars and profiles – bars produced in different cross-sections and used in window frames, scaffoldings, axles, structural parts of buildings and automotive vehicles; and (c) wire rods – continuous bars with circular cross-sections used for the production of wires, grids and similar items. All items undergo the same production processes up to the moment when they are laminated with specific equipment.

Although there are many types of long steels, producers can easily switch from one product line to another. Hence, all types of long steels should be included in the same relevant market. Relatively high costs of internalization – freight cost, import tariffs and logistic costs – in a context in which local prices are internationally competitive, hindered the competitiveness of imported products, leading to the conclusion that the geographic dimension of the antitrust market was national.

The Brazilian steel market, and particularly the long steels market, is highly concentrated, with the two largest players – the Gerdau Group and the Belgo-Mineira Group – representing 75 per cent of total domestic sales of the product. This concentrated structure results partly from the way the steel industry was created in Brazil, with a high proportion of public funds and therefore public ownership. Major economies of scale and scope and moderate increases in demand over the years are some other characteristics that cause industry concentration. The structure of the Brazilian steel industry remained unchanged even after the privatization of the state-owned steelmakers (the Siderbras Group).

The structure of the Brazilian long steel market is shown in table 1. It differs only slightly from the estimates used during the fact-finding stage of the merger analysis. Depending on the estimate, the combined market share of the Gerdau Group and Pains varied from 42.6 per cent in Malard (1996) to approximately 47 per cent in Pereira (1995), Carvalho (1995) and Soares (1995). Market shares were, in any event, reactively high. However, calculation of the market shares is only the first step in establishing whether the merging

firms have market power.

Table 1
Market Shares (Long Steel Products)*

Firm	Market share (per cent)
Grupo Gerdau	36.7
Pains	5.8
Grupo Gerdau + Pains	42.6
Grupo Belgo Mineira	39.3
Barra Mansa	4.9
Relaminadoras	6.4
Outros	6.8
Total	100.0

Source: Malard (1996).

Barriers were such that entry into this market was difficult. First, the investments necessary for the implementation of a steelmaking plant similar in size to Pains to produce long steels ranged from US\$100 to \$130 million and would require three years of construction. For a plant to produce concrete reinforcing bars, the necessary investment was around US\$60 million, and the building period would also be three years. Second, it is important to point out that when the acquisition took place, the excess capacity of the long steels market was around 25 per cent, which made new entry into this market unattractive. Moreover, there was also a need to establish well-structured distribution networks, which were available only to the Gerdau and Belgo-Mineira groups.

Therefore, given that the post-merger market shares were substantial – regardless of the estimate used – and market conditions made entry an unlikely deterrent to the exercise of market power, the acquisition raised important competitive concerns. Unless the acquisition generated efficiencies that might offset the negative effects, it would reduce economic welfare. The Gerdau Group claimed the following efficiencies.²²

- (a) Access to products developed by Korf;
- (b) Reduction of costs by the elimination of duplication of expenditures in research and development;

- (c) Joint operation in the administrative, operational and managerial areas;
- (d) An increase in the productive capacity of the Gerdau Group;
- (e) An increase in operational efficiency as a result of the possibility of more efficient programming of plant utilization;
- (f) Investments in Pains (US\$21.6 million); and
- (g) The sharing of benefits with consumers in the form of a better distribution network of concrete reinforcement bars in the Center-West region, diversification of products and new services.

Most of the claimed efficiencies, however, should not be considered as such from the antitrust perspective. Items (a), (c) and (f) are not merger-specific, since they may be achieved in ways other than the acquisition of Pains by the Gerdau Group. Item (d) is only a corollary of the acquisition of Pains. Item (g) is not an efficiency in itself; rather, it is an additional condition – imposed by Brazilian legislation – for the efficiencies to be taken into account in the case of anticompetitive mergers.

Under the Brazilian legislation, Article 54 establishes the rule of reason (the efficiency defence). Paragraph 1 of the article provides that any merger or contract that may limit or restrain competition can be approved by CADE provided that four conditions are met: (a) the transaction increases productivity and improves the quality of the product or fosters technological or economic development; (b) the transaction does not eliminate competition in a substantial portion of the market; (c) the transaction is limited to acts that are necessary to obtain the beneficial effects; and (d) the benefits are “proportionally allocated” between the parties and consumers. In this sense, the distributive claim made by the parties seems to show that they had entangled the existence of the efficiency effect (requirement d) and the requirement of its distribution (requirement a).

Also, it seems fair to conclude that antitrust law in Brazil does not follow a pure surplus approach. Article 54 suggests that antitrust authorities should block even mergers that generate efficiencies but that eliminate a substantial portion of competition in the relevant market (do not meet requirement (b)) or might not transfer part of those efficiencies to the consumers (do not meet requirement (d)). This approach may present agencies with some practical difficulties (how one can be sure that producer’s gains are to be transferred to consumers if competition is restrained by the mergers?) but has the clear intention of protecting consumer welfare.

Since post-merger market shares were high and entry unlikely, it seems that the acquisition of Pains by the Gerdau Group could bring about significant anticompetitive effects. On the other hand, several efficiencies could be dismissed as not being merger-specific, and even those that remained could be questioned on the basis of distributive requirements established by Article 54, paragraph 1. In this sense, it seems that the operation should have been challenged. CADE's first decision and SDE's technical opinion seem to have been consistent with the objectives of improving economic welfare. This interpretation is reinforced by the fact that during 1999–2002, consumers of long steels, mainly represented by trade associations of the construction business, have approached the antitrust authorities to complain about high and parallel price increases in particular and collusive behaviour in general.

1.3 The failing firm defence

After blocking the merger, Brazilian antitrust authorities were under pressure to review the outcome of the Gerdau-Pains case for several reasons, including the alleged fact that the conclusion of the deal was the only alternative to the failure of Korf (the so-called failing firm defence). Firm failures are a normal fact of the evolution of market systems but may be aggravated in developing countries, as market-oriented reforms – trade liberalization, deregulation and privatization – dramatically increase local firms' exposure to competition, negatively affecting the profitability of various industries. Although the failing firm argument may legitimately be considered a particular type of efficiency, a note of caution in its application to a case may be appropriate in order to avoid the capture of the authority by misleading arguments.

The failing firm defence is acceptable in cases where, if the merger did not occur, the assets would exit the market, causing a restraint on competition and a welfare loss greater than the one provoked by the merger, had it been permitted. The fact that a firm has been facing financial losses does not necessarily imply that its assets will leave the market, because it may be able to either meet its financial obligations in the near future or restructure its debts under bankruptcy laws. Even when failure is likely and assets are about to leave the market, alternative deals could cause less harm to competition. A failing firm may be acquired by a dominant firm in order to close the market to prospective entrants, in which case the alternative deal would be extremely pro-competitive and even exiting could have been a better outcome.²³

Misinterpreting short-run financial losses or authorizing anticompetitive

deals when less anticompetitive alternatives are available are two mistakes that should be avoided. In order to do so, specific requirements could be made as to when the failing firm defence is to be used by the parties. Evidence could be required that insolvency was achieved according to standard accounting rules; that the firm is not able to restructure itself under bankruptcy law; and that no less anticompetitive buyer at liquidation price exists. In this case, details make a difference: An acquisition price substantially above liquidation price, for instance, could be an indication of the existence of effective alternative purchasers.

2. HORIZONTAL MERGERS WITH DIFFERENTIATED PRODUCTS: THE AMBEV CASE²⁴

In June 1999, the Companhia Cervejaria Brahma (Brahma) announced its merger with Companhia Antarctica Paulista (Antarctica), creating the American Beverage Company (AmBev), with assets of US\$8 billion and an annual turnover of roughly US\$10 billion. Having produced more than 59 million hectolitres of beer and 27 million hectolitres of soft drinks in 1998, AmBev became the world's fifth largest company in the beverage industry.

Brahma and Antarctica were the two largest firms in the Brazilian beer industry, controlling roughly 75 per cent of national beer sales and the three most preferred brands (Skol, Brahma and Antarctica). Brahma and Antarctica also had important businesses in the soft drink industry: Each of them owned its own brand of *guaraná*, a very popular local soft drink believed to have strong export potential. The parties alleged that the merger would generate important efficiencies, mainly cost-related, improving their capacity to compete in the global beverage market. The common understanding was that the merger was a necessary and sufficient condition for the improvement of *guaraná* export performance.

SEAE and SDE adopted very similar views on the case. Both agencies considered that the transaction in the beer market would have a negative impact on competition and consumer welfare, as AmBev would have the ability and the incentive to unilaterally increase beer prices. Competition from differentiated rivals or low-cost competitors in the soft drink industry and low market shares in other related markets suggested that the merger would be pro-competitive or competitive-neutral in those industries. SEAE and SDE therefore recommended that CADE approve the merger subject to the divestiture one of the three leading brands (Skol, Brahma or Antarctica), the production facilities related to that brand and its contracts with retail points of sales or with systems of distribution. They also suggested the divestiture of two other beer plants in specific geographic markets.

At CADE's request, the Ministry of Industry, Trade and Development submitted an opinion recommending full, unconditional approval of the merger. CADE followed SEAE and SDE reports in some aspects but took a somewhat different decision regarding the remedies. Four out of seven commissioners agreed to approve the deal subject to the following remedies: the divestiture of Bavária, a minor brand, to a competitor with no more than 5 per cent of national beer sales; the offer of five production facilities in each of the five regions of the

country to the owner of Bavária; and some behavioural measures.²⁵

Nine months passed between the notification of the transaction and the final decision by CADE. During this period, SEAE and SDE conducted extensive inquiries with consumers and businesspeople from the distribution sector. Refined techniques were employed in order to define more rigorously the relevant market and the likelihood of anticompetitive effects. CADE held public hearings on the transaction in the five regions of the country, and its decision was issued in a public session that lasted 10 hours. From its very beginning, the case was highly controversial.

2.1 Horizontal mergers with differentiated products

The major difference in the analysis of mergers involving differentiated products is that, because products are not as close substitutes as in the case of homogeneous goods, evaluating the likelihood of unilateral price increases in a market may be a more complex exercise.²⁶ Differentiated products differ in physical properties and image, corresponding to different consumers' tastes. Because market segmentation matters, blocking a pro-competitive merger and not opposing an anticompetitive operation become more likely mistakes of merger control, because defining whether brands are sufficiently substitutable to make price increases unprofitable when the operation puts the most preferred brands in a market under the control of the same economic agent is a relatively complex exercise.

Emphasizing market segmentation is not necessarily a solution, since overly narrow market definitions may eliminate the horizontal effect of the merger.²⁷ The main issue here is to try to evaluate how different objective and subjective attributes of goods affect the degree of substitutability among them – that is, how brands are located in the abstract space of characteristics. The overall objective, as usual, is to try to infer how different attributes of goods – their distance in the aforementioned space – would affect consumers' reaction to an increase in the price of one of the goods.

The analysis of mergers involving differentiated products has been influenced by several contributions, among them that of Shapiro (1995). That paper suggests a set of procedures that roughly follow the methodology described in section 1.1. The study at hand, therefore, instead of repeating all the steps, focuses in the remainder of this section on the proposed analytical exercise to empirically assess brand (monopolistic) competition.²⁸

Suppose that brands A and B are merging. The question is how much of

the consumption of brand A would be lost to brand B in response to an increase in the price of brand A. If this amount is large, one can infer that brand B is perceived to be an important substitute for brand A. Once they merge, the larger this effect is, the more likely it is that the new entity will find it profitable to increase brand A's prices. The argument is intuitive: brand A's consumers will shift to brand B – but this reaction does not make the price increase unprofitable, since the firm also benefits from the increase in sales of brand B.

A standard tool for measuring the share of sales lost by brand A that will be directed to brand B is the “diversion ratio” test. This test measures, in percentage terms, how much of the demand lost by firm A, given an increase in its prices, will be redirected to brand B, assuming that the lost demand will be redistributed proportionally to the market share of brand A's competitors. If the merging brands are close substitutes, the diversion ratio will be high, and it is likely that the new entity will find it profitable to increase the price of brand B.

One consequence of this methodology is that mergers between most-preferred brands with high market shares tend to raise competitive concerns even when competitors are able to increase their supply. Inter-brand competition will discipline market power only if consumers of the merging brands recognize the rival brands as effective options because of their objective or subjective characteristics. Inter-brand competition may be also caused by new entrants positioning their brands close to brands A and B, but the economic reasoning is similar. If “close enough” substitute brands are not provided by either incumbents or entrants, the exercise of market power is likely, since a significant share of a brand's consumers would not shift their purchases to a distant product.

2.2 The AmBev case²⁹

The beer industry is characterized by monopolistic competition with important brand and spatial dimensions. Brahma and Antarctica owned more than 43 different beer brands representing distinct combinations of price and quality. The two companies also owned at least one production facility in each of the five regions of the country dedicated to local supply, which indicated that it would be uncompetitive to “export” beer from one region to another.

Although the beer market could be segmented according to the price-quality ratio, antitrust jurisprudence has usually considered that there is one beer market, since the cross-elasticity of beer and other alcoholic and non-alcoholic drinks is relatively low, with inter-brand substitution being considered

only when inter-brand rivalry is evaluated.³⁰

In defining the product market in the Brazilian beer industry, one particularity of local preferences was considered: consumers prefer to drink beer in returnable bottles on the premises of retail establishments rather than in one-way bottles at home.³¹ Brazil is a very large country, and transportation costs for beer are typically high compared to production costs, which makes it inefficient to transport beer to the whole country from only a few production facilities. Therefore, the geographic market related to this case was composed of five areas, roughly the five main regions of the country (South, Southeast, Center-West, Northeast and North), rather than one national beer market.³²

Table 2 shows the market shares of AmBev and its competitors in the relevant markets defined. It follows from table 2 that AmBev would become the leader in all of the markets, with a considerably larger participation than its main competitor (Kaiser), which had a share of less than 15 per cent in all regions. AmBev had market shares of over 65 per cent in all of the markets, achieving the maximum share of 90 per cent in the Northern region. High market shares mean that AmBev had the capacity to increase beer prices in the Brazilian market. But would it have an incentive to do so?

Table 2
Market Shares in the Brazilian Beer Industry

(in per cent)

Firm	South	Southeast	Center-West	Northeast	North
Antarctica	23.8	21.7	19.6	42.1	73.4
Brahma	19.1	23.8	19.1	30.7	18.4
Skol	22.2	28.3	37.0	9.0	0.0
AmBev	65.1	73.8	75.7	81.8	91.8
Kaiser	21.4	14.3	13.3	10.3	8.2
Schincariol	5.8	*	*	6.7	0.0
Others	7.7	11.9	11.0	1.2	0.0
Total	100.0	100.0	100.0	100.0	100.0

* Participation included in the line "Others".

Source: SEAE (1999b).

Effects on competition

As was argued before, one of the most important issues in evaluating horizontal mergers with differentiated products is the assessment of inter-brand rivalry, for which the diversion rate test is a useful tool. Table 3 presents the values of the diversion test ratio for each of the three main AmBev brands in each of the antitrust geographic markets. Diversion ratio values vary from a minimum of 40.5 per cent (when one assumes that Brahma and Skol increase their prices in the Southern market) to a maximum of 90 per cent (when one assumes that Brahma and Skol increase their prices in the Northern market), meaning in this last case that, everything else being constant, almost all of the consumers in the Northern market who shifted away from Brahma and Skol would choose Antarctica.³³

Table 3
Diversion Ratio between Beer Brands
(in per cent)

	From Brahma to Skol & Antarctica	From Brahma & Skol to Antarctica	From Antarctica to Brahma & Skol
South	56.86	40.5	54.1
Southeast	65.62	45.3	66.5
Center-West	69.96	44.6	69.8
Northeast	73.74	69.8	68.6
North	n.d.	90.0	69.2

Source: SEAE (1999b).

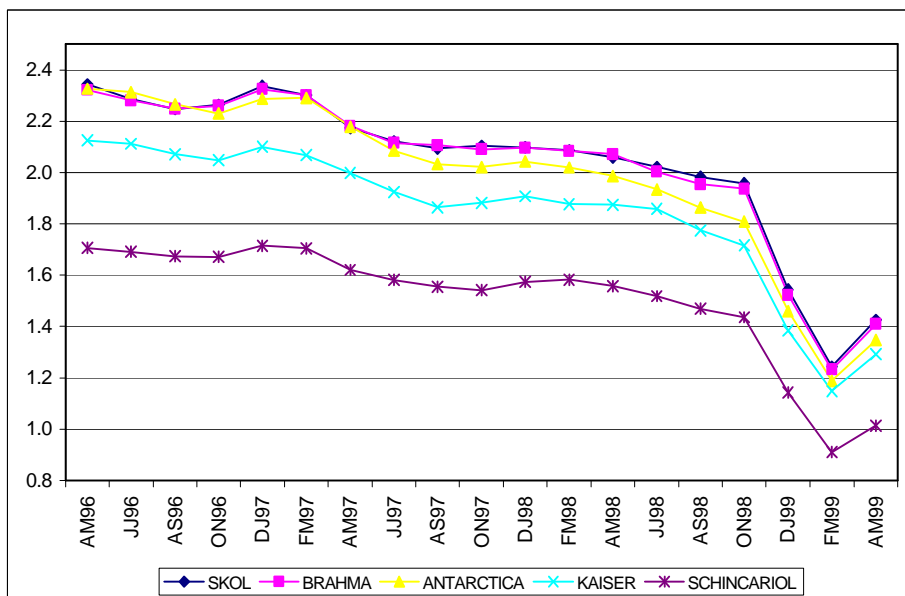
The diversion ratio values probably reflect a key aspect of the AmBev case: the fact that Antarctica, Brahma and Skol are the three most preferred premium beer brands in the Brazilian market. Hence, the first and second alternatives for a considerable part of the Antarctica consumers were likely to be Brahma and Skol. Similarly, for Brahma and Skol consumers the first or second alternative would probably be Antarctica. In other words, AmBev brands seem to be very close in the product space, reflecting consumers' preferences (i.e. that the consumers consider very close substitutes).

Before AmBev was created, the consumers whom Brahma would lose to Antarctica would have decreased its incentive to increase the prices of its controlled brands. Some decades ago, Brahma's incentives would have been even lower, as the Skol Company was also a strong competitor. After the merger, however, a large part of the consumers would redirect their demand to brands then controlled by AmBev. The drop in demand for Brahma, for instance, would bring about an increase in demand for Antarctica and Skol. AmBev's profits would increase twofold, first as a result of Brahma price increase and also with the increase in sales of Antarctica and Skol. It seems, therefore, that AmBev would have not only the ability but also the incentive to increase the prices of bottled beer in the Brazilian beer market.

In this sense, figure 1, which shows the evolution of prices of different beer brands over time, is also very instructive. Relative prices are a good indicator of the degree of proximity of brands in the product space. Similar prices suggest close brands, and different prices suggest distant brands. Figure 1 shows that the prices of Brahma and Antarctica are very similar; that there is some similarity between the prices of these two brands and the Skol

brand, and that the prices of Kaiser and Schincariol are considerably different from those of the remaining three brands. Evidence suggests, therefore, that the Kaiser and Schincariol brands are distant from Brahma, Antarctica and Skol and that the Skol brand is close to the Brahma and Antarctica brands.

Figure 1
Average Prices for Beer Brands: Brazilian Average
(in Brazilian real)



Source: SEAE (1999b).

Table 4, which gives estimates for cross-elasticity of demand, provides further useful evidence for this case.³⁴ From the reported results, it follows that Brahma is a close substitute for Antarctica, but Kaiser does not replace any one of them in the bottled-beer market; and that Kaiser substitutes for both of them, in the long and short runs, in the canned-beer market. The results also provide some supporting evidence for the importance of market segmentation, since some of the differences in the results for bottled beer and canned beer are statistically significant. Some of the estimates are neither theoretically consistent nor statistically significant.³⁵

Table 4
Cross-Elasticity of Demand Estimates

Bottles	Brahma CP	Antarctica LP	Kaiser CP
Brahma	-1.31	-4.88	1.11
(t statistics)	(-2.76)	(-2.39)	(3.18)
Antarctica	-2.36	-4.34	1.62 **
(t statistics)	(-4.07)	(-4.18)	(3.64)
Kaiser	0.85	2.05	0.14
(t statistics)	(1.45)	(1.39)	(0.33) *
Cans	CP	LP	CP
Brahma	-1.37	-1.26	0.57
(t statistics)	(-5.26)	(-3.87)	(1.92) *
Antarctica	0.12	0.15	-0.66
(t statistics)	(0.38) *	(0.38) *	(-1.53) *
Kaiser	1.87	2.98	1.25
(t statistics)	(4.74)	(3.83)	(2.65)

(*) Cannot reject the null hypothesis at 95 per cent of confidence level.

(**) Results inconsistent with the law of demand.

Source: SEAE (1999b).

New entry may also be a source of alternative brands and in this sense could inhibit the exercise of market power. But would it be timely, profitable and

sufficient for that purpose?

The two biggest barriers to entry in the Brazilian beer industry are investment in publicity (brand fixation) and development of a product distribution network. The advertising expenditures of the three largest firms in the beer industry have been considerable.³⁶ The establishment of the brand is a prerequisite for entry into the high-end segment of the beer industry but not for the low-end segment, in which the key variable of competition is price. Although the price-cost margins in the low-end segment tend to be lower, in principle there is nothing to make this segment economically unattractive. The distribution of beer in Brazil may take place either by means of vertical integration that creates a proprietary distribution network; or by contracting out the existing network of distributors. Although the available evidence does not allow conclusions about the optimal design of the network, exclusive arrangements between incumbents and independent distributors and low acceptance of the new brand could make the contracting-out option unfeasible.³⁷

According to the merging firms, depending on the complexity of the project, the amount of time required for the construction of a new plant and the development of products varies from 10 to 24 months, which means that the entry seemed timely. The minimum efficient scale was 3 million hectolitres/year, which corresponds to an investment of R\$180 million.³⁸ Note that none of these values include the costs of establishing a new brand or developing a distribution network for it, and they may be considered the most conservative estimates of the costs of entry. Considering sales opportunities available in the five antitrust markets, even this conservative project, however, would be profitable only in the Southern market. In the other markets, entry, although timely, would simply be economically unattractive. But even in this market there are important doubts as to whether it would be sufficient to avoid the exercise of market power, for it would be directed only to the low-end segment. In that sense, low-price beers, such as Schincariol and regular beers such as Kaiser would be more immediately affected.

It seems, therefore, that inter-brand competition by incumbents or new entrants would not be enough to change the capacity and the incentives that AmBev had to unilaterally increase the prices of some of its brands. But that does not imply that the merger would be welfare-reducing; this depends on the valuation of the alleged efficiencies.

Efficiencies

The merging parties reported benefits of US\$551.5 million and then reduced the value to US\$504.3 million, implying cost reductions of over 13 per cent. That would be unusual: Large mergers typically generate cost reductions of about 3 to 4 per cent. Also, many of the claimed benefits – such as the renegotiations of the debts of Antarctica – could hardly be defined as efficiency in economic terms, since they would represent transfers among economic agents. More importantly, most of the alleged benefits – for instance, the implementation of the productivity program with the distributors and improvement of the administrative practices of Antarctica – could not be considered specific to the merger. Finally, other efficiencies, such as the ones related to new products, improvement of productive processes and entry into new markets, were claimed but were not minimally demonstrated by merging parties, and were dismissed as too speculative.³⁹

Merger efficiencies were, therefore, overestimated by the parties. More important is the fact that Brazilian legislation does not seem to allow the use of efficiency as a defence when a merger creates a monopoly or quasi-monopoly. In fact, Article 54 (paragraph 1, item III) of the antitrust law specifically requires that, in order to be approved by CADE, a transaction must not eliminate competition in a large portion of the market and the benefits must be shared with consumers.

Speculative benefits and the fact that they would be unlikely to be shared with consumers when competition was highly reduced suggest that the anticompetitive merger should be challenged, a view taken by all three agencies. It is questionable, however, whether the behavioural remedy proposed by CADE was appropriate. First, it is not clear whether the divestiture of Bavaria would change AmBev's incentives to increase prices.⁴⁰ Second, it is hard to see how mandatory access to the distribution networks of AmBev would in fact guarantee that distributors would make at least as much effort to sell Bavaria beer as they would make to sell AmBev brands. On the other hand, the prohibition to shut down plants does not seem to be a necessary limitation on the firm's optimal configuration. Finally, the prohibition of exclusive arrangements with retail points of sale seems to be based on a misunderstanding regarding the law and economics of vertical restraints.⁴¹ Naturally, a simple alternative remedy would have been the divestiture of the whole business related to one of the three premium brands, in which case AmBev's incentives to increase beer prices would have been radically changed.⁴²

2.3 Merger control and international competitiveness

Policymakers in industrialized and developing countries, pointing to the high post-war growth rates of Japan, Germany and some East Asian countries, sometimes argue that having few large national firms per industry, acting as “national champions”, would lead to a higher level of exports, productivity and profits, improving a country’s overall economic performance. Even accepting that there is a correlation between a country’s economic performance and the combined sales growth of its “champions”, it is quite unclear why the creation of internationally competitive firms requires the existence of domestic monopolies. One missing link in this argument seems to be an explanation of how domestic monopolies would obtain the ability to compete in open global markets. Against this hypothesis, a growing body of empirical evidence suggests that domestic competition fosters innovation and that economies of scale are better obtained in selling to global markets.⁴³

The relationship between increased market share in the beer industry and increased exports of soft drinks (*guaraná*) is an example of why those arguments are unclear. The missing link here is the relationship between merger-specific cost reduction in the beer industry and quality improvement or cost reduction in the soft-drink market (which would therefore lead to an increase in exports of *guaraná*). On the contrary, since economies of scope at the production level and economies of scale at the firm level are not as significant as economies of scale at the production level, the disinvestment of any of its three important beer brands was unlikely to affect the exports of *guaraná*.

Based on the observation that beer prices in Brazil were decreasing in real terms by 4 to 5 per cent yearly before the transaction occurred, and considering that it was publicly known that Antarctica was in financial distress, a different interpretation of the private reasons for the deal is possible. Because Antarctica and Brahma were each other’s main rivals, Antarctica’s acquisition by a potential competitor represented a risk for Brahma, since it could foster competition in the Brazilian beer market.⁴⁴ The above-normal profits obtained from avoiding further competition could be used to fund the internationalization of AmBev. In this case, of course, consumers’ welfare would be financing – compulsorily and without any return – the internationalization of the firm, and that could be seen as the “missing link” between large market share in beer market and the creation of a Brazilian multinational.⁴⁵

Buying companies abroad, nevertheless, does not automatically improve the international competitiveness of local firms, especially in a sector in which international trade is a minor issue. A better defence in terms of the “national champions” hypothesis would have been to argue that economies of scale and scope or the rationalization of plants would have reduced AmBev’s costs, improving its ability to compete. These efficiencies brought by the merger would automatically be incorporated into the economic analysis, independently of any general argument regarding the importance of “national champions”, provided that a total welfare approach was used by the antitrust authorities.

Whether a total surplus analysis is applied or not is a matter of social preferences. But once a total welfare approach is adopted, merger-specific efficiencies – either static or dynamic – increase not only a producer’s welfare but also total surplus. In this sense, economically consistent merger control cannot be considered an obstacle to economic growth and development, as the analysis of the so-called “efficiencies” is mandatory. It is, nevertheless, an obstacle to businesses that try to substitute ideological arguments for economic reasoning in cases when the pursuit of their particular interests seems not to bring about public benefits.

3. VERTICAL INTEGRATION: THE PRIVATIZATION OF COMPANHIA VALE DO RIO DOCE⁴⁶

In 1997, as part of the privatization program, the Government of Brazil decided to sell its equity in the state-owned Companhia Vale do Rio Doce (CVRD). CVRD is one of the world's largest iron ore producers and exporters, as well as the biggest gold producer in Latin America, and one of the largest aluminium companies in Brazil. Before privatization, CVRD had acquired two important railways owned by the federal government: Estrada de Ferro Carajás (EFC) and Estrada de Ferro Vitória-Minas (EFVM), which connect the most important suppliers of iron ore (several rivals of CVRD) in Minas Gerais with the Southern region, where several important domestic consumers and the best port facilities are located.

Even though the operation involved several markets, the main anticompetitive risks stemmed from the possibility that CVRD would restrict access by non-integrated iron ore competitors to its transport services. CVRD had been vertically integrated before, but after privatization its incentives to adopt profit-maximizing strategies (which earlier could not be fully adopted because of agency problems typically associated with public ownership) probably increased. In this context, cost-raising strategies – through price or non-price discrimination against non-integrated rivals in the iron ore market – could be profitable to CVRD, to the detriment of overall welfare.

SEAE and SDE both recognized the anticompetitive risks associated with the transaction but decided not to recommend any far-reaching remedy, leaving to the Ministry of Transportation – the regulatory body in charge of the railroad sector – the role of preventing any abuse of dominance by CVRD. In 2001, CADE issued its final decision approving the transaction, subject to two main requirements. First, two subsidiaries had to be created, which was supposed to improve the quality of information available to the authorities regarding costs and conditions of access to rail services. Second, the contract regulating the privatization would have to be changed in order to stipulate that prices would be set by the regulator if negotiation between CVRD and its captive customers failed.

The privatization of CVRD is an important antitrust case for at least two other reasons. First, it illustrates how vertical integration may harm competition. Although recent economic literature has reemphasized the anticompetitive risks of this type of transaction, most antitrust authorities – especially in developing

countries – still follow an old-style Chicago approach, adopting a more lenient approach toward vertical mergers.⁴⁷ Second, it highlights issues that may arise when regulation and antitrust measures are applied to the same sector. In particular, the case highlights the risks of relying too much on regulation as a substitute for competition.

3.1 Vertical integration

One way in which vertical integration may cause anticompetitive effects is by means of anticompetitive exclusion. Anticompetitive exclusion occurs when a vertically integrated firm either increases the cost of some important input for non-integrated rivals or excludes its rival's access to the input (under competitive conditions). By raising the input costs or excluding non-integrated rivals, a firm can place downstream competitors at a cost disadvantage, facilitating either unilateral or coordinated price increases in the downstream market. Foreclosure of inputs is profitable, however, only when the losses associated with restraining the supply of the output are smaller than the above-normal profits originated in the downstream market. That, in turn, depends on some characteristics of the input and the product markets.

In the input market, one relevant characteristic is the availability of alternative sources of inputs. If rivals of the integrated firm can easily substitute the input supplied by other firms, those rivals will not be significantly affected. As a result, the integrated firm will have no incentives to foreclose the market of inputs to its competitors in the downstream market.⁴⁸ Also, when the input market is competitive and there are many alternative suppliers capable of offering the same or a similar input of similar quality at a similar price, and those alternative suppliers do not follow the strategy of the integrated firm, the costs of the firm in the downstream market may not be significantly affected. To evaluate the competition in the input market, it is necessary to consider market share, entry conditions and rivalry, just as was done in the case of the horizontal merger with homogeneous products.

In the product market, a key element to consider is the elasticity of demand. The probability that the price of the input will increase is restricted by the price elasticity of the demand for the input in the downstream market. Generally speaking, when demand for the input is inelastic, the likelihood and the magnitude of a price increase tend to be greater. In an extreme case, if an input is absolutely essential, a monopolist supplier could achieve monopolist profits.⁴⁹

Evaluating competition in the downstream product market is also important. Even the costs of some firms in the downstream market are raised by the foreclosure of the market to inputs, and the competitive ability of these firms tends to be reduced. If the cost of other firms (including vertically integrated ones) is not affected, the competition provided by them may be enough to prevent a price increase.

Finally, the impact of the exclusion on the profits of the downstream division of the integrated firm is a relevant factor in considering what strategy is most profitable for the vertically integrated firm. The larger the potential gains of the downstream division as a result of the market foreclosure, the higher the probability that this strategy will be successful. The impact on the profits of the downstream division of the integrated firm depends on several factors, such as the magnitude of the price increase in the downstream market, the market share and the productive capacity of the downstream division before the merger occurred and the profit margins gained by the expansion of sales.⁵⁰

In concluding this section, it would be worth noting that, to a large extent, analysis of vertical integration from an antitrust perspective can be thought of as a double horizontal analysis (for the input and output markets) to determine whether the strategy is feasible. If so, the next step is to evaluate whether it would be profitable. These steps will be discussed in the next section.

3.2 The CVRD case

In the CVRD case, railway transportation may be seen as an input (composing the upstream market) and the transported goods may be seen as different output markets (the downstream markets). Although vertical integration occurs with respect to different output markets, the following discussion will focus on the iron ore market. In this respect, the two main questions are: (a) Is CVRD able to successfully increase non-integrated rivals' costs? (b) Is the cost-raising strategy profitable?

CVRD's ability to affect non-integrated rivals' costs

Railroads have traditionally been classified as one of the sectors with natural monopoly characteristics.⁵¹ This characteristic of the industry does not imply that there is no competition in the services provided by any specific railway. Any given railroad will face competition from motor carriers, water carriers and pipelines, which constitute alternative services for certain commodities

(intermodal competition).⁵² Even if there is only one rail carrier between a pair of cities – origin and destination – this railroad may have no market power over shippers in the origin if other railways could carry the product to alternative destinations.

Intermodal competition is shaped by the product and the distances involved. For instance, in Brazil, commodities that have high value relative to their weight and are being transported for short distances may be economically shipped by motor carrier, since the road network in Brazil is large. However, iron ore has low value in relation to weight. Since the major iron ore mines are located far from the coast, the product has to be hauled for more than 500 kilometres before any port can be reached and the product can be exported.⁵³ CVRD was the only user of the EFC railroad. However, the EFVM railroad and Tubarão port facilities in the city of Vitória (also owned by CVRD) served several CVRD iron ore competitors such as Samitri, Ferteco and Socoimex.

Ferteco, however, could ship almost 40 per cent of its total production via the MRS railway and the port of Sepetiba in Rio de Janeiro, reducing CVRD's market power to 50 per cent of its iron ore production. Samitri and Socoimex had no other alternative destination and became captive consumers of CVRD.

Entry into the railway industry was unlikely as fixed costs were high; road transport predominated and, as a result, economic performance was poor.⁵⁴ Business analysts estimate that transportation costs represent from 35 to 50 per cent of the product price free on board, indicating that rail service is an important component of the export price. Finally, transportation costs are part of the variable costs, suggesting that increases in the prices of this input would immediately affect final prices.

The profitability of the cost-raising strategy

Iron ore is a homogeneous product. CVRD is the world's largest iron ore exporter, accounting for roughly 20 per cent of global sales. In 1999, the market share of the four largest firms was over 50 per cent, showing that the product market is relatively concentrated. Demand for iron ore has declined over the years because of productivity increases in steel production and the development of new technologies, such as the mini-mills that use scrap iron as an input. At the same time, the supply of iron ore has been stable over the years. As a result, real prices have decreased. Besides, Brazil is a major producer of iron, and its supply affects world prices. Therefore, reducing its

rivals' supply of iron could affect international prices.

Since entry is unlikely, incumbents seem to be able to sustain supranormal profits for some period. First, before production operations can be started at a mining site, it is necessary to carry out extensive geological research and construct a draining infrastructure. Thus, several years pass from the moment the investment decision is made until the time when the new assets can start operating. Second, barriers to entry are high because access to mines is difficult (usually for institutional reasons – rights to mine) and because entry is required at two levels, namely iron ore production and logistics (transport and port facilities). In fact, the Carajás project of CVRD would not have been possible without the construction of the EFC railroad and the Madeira port, which represent an investment of US\$1.9 billion, or 55 per cent of the total investment package. Finally, consolidation of the industry at the world level suggests that there is little space for new entrants.⁵⁵

Finally, it would be interesting to consider whether profit increases in the downstream division (iron ore products) would more than compensate for lost profits in the upstream division (railway services), in which case the cost-raising strategy would be profitable. No precise answer is possible for that question, as information regarding the price elasticity of demand in the iron ore market and the price elasticity of revenues in rail services is not available. But some indirect evidence is available: It is estimated that iron ore corresponds to roughly 80 per cent of the products transported by EFVM, and 50 per cent of those are CVRD products. This fact limits the impact of the cost-raising strategy to 40 per cent of the total quantity of services supplied.

Table 5
Concentration in the Transoceanic Market for Iron Ore, 1999

Firms	Country	Metric tons (in millions)	per cent
CVRD	Brazil	79.5	19.2
Hamersley (Rio Tinto)	Australia	58.7	14.2
BHP	Australia	55.3	13.4
Robe River (North)	Australia	28.9	7.0
MBR (Caemi)	Brazil	20.7	5.0
Iskor	South Africa	17.4	4.2
IOC (North)	Canada	14.5	3.5
LKAB*	Sweden	13.8	3.3

Ferteco (Thyssen)	Brazil	12.9	3.1
Samarco (Arbed/BHP)	Brazil	12.0	2.9
QCM (Caemi/Dofasco)	Canada	11.5	2.8
SNIM*	Mauritania	11.0	2.7
Samitri (Arbed)	Brazil	11.0	2.7
CVG Orinoco*	Venezuela	6.5	1.6
Others		60.3	14.6
Total		414.0	100.0

Source: De Paula (2000).

In this sense, the concern of Brazilian antitrust authorities regarding the anticompetitive effects of this vertical integration seems to have been justified. Triangulation with external evidence reinforces this argument. For instance, in September 1998, Robe River filed a complaint against Hamersley Iron with the Australian National Competition Council. Robe River requested access to Hamersley's rail infrastructure in the Pilbara region on the grounds that the access would be crucial to the development of a new mine named West Angelas. Even though the railroad connecting Pilbara to the Dampier Port is the property of Hamersley, Robe River claimed that this facility was essential to the development of a new mine in Pilbara and thus should be shared. The construction of another railroad was not economically viable.

In June 1999, an Australian court decided that the railroad was part of Hamersley's production process, rejecting the arguments from Robe River. Nevertheless, Robe River decided to go forward with the West Angelas project and to build its rail, connecting the new mine to the Cape Lambert port. In March 2000, the government of West Australia formally approved Robe River's West Angelas project. The initial expectation was that the mine would begin operating in 2002 with an initial capacity of 7 million metric tons, which would later increase to 20 million tons. The initial cost of the project was estimated to be US\$600 million, and a significant portion of this figure was to be spent on the construction of the new railroad. However, Robe River was the target of a hostile takeover by Rio Tinto (the owner of Hamersley). Curiously, one of the main reasons presented for the acquisition was that it would bring substantial gains through the integration of Robe River's West Angelas project with Hamersley's operations in Pilbara, eliminating the need to duplicate the railroad.⁵⁶

In Brazil, a similar situation seemed to have developed with Samitri,

which ended up being acquired by CVRD after having publicly complained about alleged difficulties in accessing the EFVM railroad and the Tubarão port facilities.⁵⁷ It is also interesting to notice that during 2000 and 2001, several other important acquisitions were made by CVRD. The company also acquired Samarco, Ferteco, Socoimex and Caemi (which owned MBR). With these acquisitions, the market shares of CVRD would increase roughly from 19 per cent to 32 per cent in the world iron ore market and, most importantly, from 34 per cent to 73 per cent in the domestic iron ore industry.

It is questionable, however, whether CADE's requirements were enough to improve the conditions for regulation and to protect captive consumers. Neither of the measures changed the incentives CVRD had to discriminate against non-integrated rivals, since CVRD continued being the owner of the two railroads. This caveat is even more relevant when one considers that, during the last three years, Ferteco and Samitri – two iron ore rivals of CVRD and captive consumers of EFVM – were acquired by CVRD after experiencing major financial distress caused at least in part by lack of access to transport facilities.⁵⁸

3.3 Further discussion

It would be interesting, therefore, to consider whether CADE took the appropriate remedy in light of the fact that CVRD had the ability and the interest to artificially increase its rivals' costs. The creation of subsidiaries implies, among other things, that CVRD will have to prepare detailed accounts identifying the revenue and costs of certain specified activities. The measure will help the regulator obtain cost information but, given the opportunities CVRD has to influence the disclosed information, the actual effectiveness of the measure is questionable. Nevertheless, in keeping the vertical structure of CVRD, the remedy preserves all the benefits of the integration.⁵⁹

The efficacy of CADE's remedy could be questioned on the grounds that it has no effects on the incentives of the firm and that competition depends basically on regulatory supervision. Full ownership separation (or simply vertical disintegration), by placing the railroad and the iron ore department of the firm under different and independent control, could have reduced the incentive and the ability of CVRD to restrict competition. In the case under consideration, selling EFVM would eliminate CVRD's ability to increase its rivals' costs. It therefore implies much less intensive regulatory supervision. Economies of vertical integration, however, are lost, which could place CVRD

at a competitive disadvantage internationally.

There are also intermediate options⁶⁰ reflecting different trade-offs between less regulation and more gains from vertical integration. In principle, the optimal choice depends on several factors, including the institutional environment and the magnitude of the alleged benefits. Other things being equal, if one considers that the economies from vertical integration are negligible, one may not be willing to risk competition, and more structural remedies may appear preferable. Also, if regulation is inexpensive and efficient, more regulatory-intensive solutions may be appropriate.

Unfortunately, real-world regulation is unlikely to be costless and efficient. Regulation costs are both budgetary – as a complex task, regulation requires qualified professionals – and economic. Economic costs derive from private-sector investments in unproductive activities such as hiring one's own staff of experts to influence the regulatory process. Finally, even the most well-intentioned regulators are not omniscient. Since regulated firms have better information about their operations and may use this knowledge to manipulate the regulatory outcome in their favour, it is very easy to regulate according to public-interest-normative prescriptions.

4. JOINT VENTURES: THE BRASIL-ÁLCOOL AND BOLSA BRASILEIRA DO ÁLCOOL CASES⁶¹

In early 1999, two important transactions in the Brazilian sugar and alcohol industry were submitted to the Brazilian antitrust agencies in the form of joint ventures.⁶² The first transaction submitted was the creation of the company named Brasil-Álcool S.A (BA). A few months latter, the firms involved in the previous transaction submitted another one, the creation of another company – Bolsa Brasileira do Álcool Ltda (BBA). Because, as the firms admitted, the transactions complemented each other, they will be analysed together.

BA was a new alcohol firm created throughout the partnership of 84 other producers of anhydrous and/or hydrated alcohol in the Center-South region of Brazil.⁶³ According to the agreement, each stockholder would transfer 10 or 15 per cent of its production from its 1998/1999 crop to BA.⁶⁴ Transferred alcohol was supposed to be the only source of goods for the new entity, which was not supposed to be involved in any productive activity. Control of BA – including the decision to sell its alcohol inventories – would be exercised only by the nine largest partners.

BBA was created with the purpose of trading, with exclusive rights, the alcohol production of 181 firms from the Center-South region. It is a new entity, but its main asset is the contractual right to commercialize the production of the 181 firms. For that purpose, it would be paid 0.3 per cent of the gross revenue. According to the contract, inventories to be traded were to be stored by BBA. The contract between BBA and the producers explicitly mentioned the objective of obtaining price increases for the product.

According to the parties, the aim of these two joint ventures was to stop a fall in alcohol prices that was caused by a temporary excess of supply in the industry, in a context where no market mechanism could substitute for these transactions with the same effectiveness. As a new firm in the market, BA was assumed to be a pro-competitive joint venture by the parties. The parties also argued that BBA, like any other vertical agreement, would bring economic benefits that more than compensated for possible consumer losses. The efficiencies claimed by the parties in both operations included (a) the survival of the industry in its actual productive configuration; (b) the guarantee of returns on investments that were already made; (c) the maintenance of direct jobs in the industry; and (d) the strategic importance of fuel alcohol as a form of protection against new petroleum crises.

SEAE and SDE rejected the thesis that BA was pro-competitive and that

BBA was not welfare-decreasing. On the contrary, both agencies viewed the creation of BA as a coordinated effort to withdraw 15 per cent of the alcohol supply from the producers in the Center-South region of Brazil. They recognized that BBA was a joint venture but interpreted the vertical agreement between its shareholders and BBA as an attempt to monopolize the supply of alcohol in the region. Both agencies, therefore, recommended that the joint ventures not be authorized and that the firms involved in the operation be fined for violating the antitrust law concerning cartel formation.⁶⁵ The parties involved gave up the operation before CADE could make a final ruling on the case, and CADE decided not to follow the suggestion regarding violation of the antitrust law.

4.1 The economics of territorial restraints

Territorial restraint contracts (TRCs), in which a distributor acquires exclusive rights to sell a good in a given region, are a type of vertical conduct that, even when carried out by firms with large market shares, may cause pro- or anticompetitive effects. Obviously, only contracts with a negative net effect on competition and economic welfare (i.e. where economic costs are larger than economic benefits) should be challenged by the authorities.

One type of economic benefit typically associated with TRCs is the elimination of free-riding between distributors. The elimination of free-riding increases the supply of goods by the producer and improves economic efficiency. The benefits come from the fact that TRCs eliminate the possibility that a distributor having lower costs (and prices) because it does not make the same sales efforts might appropriate part of the demand generated by the sales efforts of a rival whose costs (and prices) are higher as a result of such efforts.⁶⁶

However, not every relationship between suppliers and distributors creates or involves real free-riding problems among distributors. Two conditions are necessary for the existence of a real free-riding problem among distributors: (a) the sales (and the economic performance) of the supplier substantively depend on the sales effort made by the distributor; and (b) the distributors cannot be individually compensated according to the sales effort made by each one of them.⁶⁷

One anticompetitive effect of TRCs is the favouring of cartel formation by rival producers. A necessary condition for a cartel to be successful is that none of its members may increase its sales individually.⁶⁸ Since the prices that result

from the cartel tend to be higher than the competitive level, each firm has an incentive to secretly increase its demand to achieve higher profits. Obviously, if all firms behaved this way, prices would return to the competitive level and the cartel would fail in its efforts to increase prices.

But cheating the cartel may be the optimal decision for individual firms when detection and therefore punishment are believed to be difficult. However, the possibility of monitoring the market and detecting and punishing cheating is increased when a higher number of producers use the same exclusive distributor in a given geographic antitrust market. One risk of TRCs, therefore, is that the agreement may be used as a device for decision coordination and market monitoring among competitors, facilitating the implementation of a hard-core cartel.

4.2 The Brasil Álcool and Bolsa Brasileira do Alcool cases

From an economic perspective, it is difficult to accept the idea that BA was a joint venture. Economic agents are usually understood as independent entities with control over assets that could be used to supply a certain market. Hence, a new firm – whether or not it takes the form of a joint venture – is supposed to add some new assets, such as new production capacity; new products or new managerial capacity. BA could not be considered a new company, since no production facilities would be added. Furthermore, the transferred goods – its inventories of alcohol – would be controlled by the existing firms, which happened to be BA's rivals.

In this sense, BA seems to have been a coordinated effort to withdraw 15 per cent of the alcohol supply in the Center-South region of Brazil, in potential violation of the antitrust law. In fact, Article 20 proscribes any act able to produce the following effects, even if they do not materialize: (a) limiting or restraint of competition; (b) control of a relevant market; (c) increasing one's profits in a discretionary basis; or (d) abuse of one's market control. Article 21, usually seen as a non-exhaustive list of examples of infringements, explicitly prohibits "uniform or concerted business practices". Because recent Brazilian jurisprudence does not support a "per se" approach to infringement characterization of any agreement, the present analysis has to be completed by an evaluation of the alleged efficiencies. First, however, a discussion of some preliminary issues related to the BBA case is in order.

Data from the petroleum regulatory agency indicate that in the 1997/1998 harvest, the Brazilian production of alcohol was 15 billion litres, and

the Center-South region produced 88 per cent of the nationwide total, including 4.7 billion litres of anhydrous alcohol and 8.5 billion litres of hydrated alcohol.⁶⁹ The alcohol produced by the Center-South is marketed all over the country and has an important complementary role even in other regions of Brazil that produce alcohol locally, such as the Northeast, where local production is not sufficient. Because the Northeastern plants have lower productivity and higher production costs than the Center-Southern ones, it is not economically feasible for the Northeastern plants to supply the Center-South region.

The BBA's vertical agreement with its shareholders involved Center-Southern producers. For the reasons described above, it would not be appropriate to include producers from other regions in the relevant geographical market. Hence, the appropriate market to consider is the Center-South region. BBA's shareholders corresponded to roughly 85 per cent of alcohol production in the Center-South, a large share of the production in the region.

None of these efficiencies meets the traditionally accepted definition of efficiencies by economic analysis. In particular, these efficiencies hardly qualify as specific to the joint venture, since the same effects can be achieved by means that are less harmful to competition. For the first alleged efficiency, the survival of the industry, to be considered an economic efficiency, it does not necessary that each individual firm continue to operate in the market. Even in the context of a temporary crisis – which is not the case, as will be discussed later – given the differences in productivity among plants in the region, in the absence of public intervention the industry would naturally adjust by optimizing the supply, with the exit of some (less productive) firms and possibly mergers between some others. The industry as a whole is able to survive in a market even if several of its participants are not, and the disappearance of some firms would not necessarily decrease competition.

The second and third alleged efficiencies, the guarantee of return on previous investments and job preservation, can be considered welfare-increasing only if inputs are industry-specific, in which case the exit of firms may cause some waste of economic resources. Considering the availability of land and low-skilled labour – with growing mechanization of plantations, specialized labour has become less necessary – this is hardly the case. Indeed, several other pro-employment measures already applied by federal government in different circumstances could be extended to the objective of facilitating re-employment in the industry.

The fourth efficiency claimed by the firms was based on “strategic”

grounds. Brazil, however, has already developed and successfully tested the alternative technology of fuel alcohol. The availability of this technology does not require the continued existence of all firms (and their production plans) that existed at the moment the joint venture was submitted. Generally speaking, this argument does not differ much from the argument against free trade refuted more or less 180 years ago by David Ricardo.

The conclusion about alleged efficiencies could be even less favourable to the parties if one considers that the crisis of the alcohol industry was structural in nature and not temporary. In this case any antitrust exemption would simply postpone the necessary adjustment of supply and the consequent reallocation of resources. Economic welfare would then be lower than it could be for a given set of economic resources. Consider, for example, the use of labour. Once demand for alcohol is structurally lower, production will decrease and demand for labour will also fall. If public policy prevents the inevitable shift of labour from the alcohol industry to growing industries, less alcohol will be produced by the same amount of labour, which means that average labour productivity will decrease.

The structural nature of the crisis is demonstrated by the available data. Table 6 shows the imbalance between supply and demand in the industry in the 1980s and 1990s. The difference between production and apparent consumption of alcohol was larger in the early 1980s and peaked in 1984, when the surplus was over 1.3 million cubic metres. Because of this surplus, the prices paid to producers started to fall in 1982, and this trend was only reversed in 1996.⁷⁰ Despite the permanent alcohol surplus and the systematic fall in real prices paid to producers, both the amount of land used for sugar cane production and the supply of alcohol failed to decrease, as they would have if markets mechanisms had operated freely.

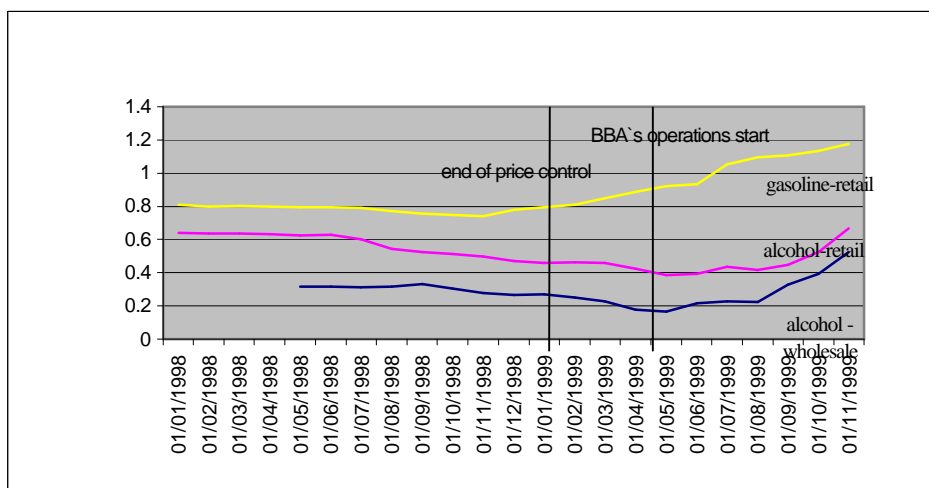
Table 6
Production, Apparent Consumption and Alcohol Prices

Year	Production (in m³)	Apparent consumption (in m³)	Production: apparent consumption (in m³)	Producers' price index (Center-South) (base 1978=100)
1982	4 163 000	3 681 697	481 303	86.84
1984	7 861 000	6 550 122	1 310 878	76.97
1986	11 820 000	10 668 365	1 151 635	61.03
1988	11 457 000	11 630 312	-173 312	55.91

1990	11 898 000	11 505 622	392 378	42.64
1992	12 752 000	11 529 764	1 222 236	44.99
1994	11 296 000	12 588 604	-1 292 604	40.36
1996	12 671 000	13 807 201	-1 136 201	56.29
1998	15 307 000	12 733 851	2 573 149	n.d.

For a given product, the imbalance between supply and demand exists only at a given price, once it is artificially imposed. Price is the variable that can balance supply and demand and eliminate any excess supply in a market. If prices are flexible enough, there is no imbalance and all of the surplus is consumed at a sufficiently lower price. By keeping price levels artificially high by means of coordinated commercialization, BA and BBA reduced the flexibility of alcohol prices and harmed the functioning of the market, stimulating stockpiling. The impact of the joint ventures on prices can be seen in figure 2.

Figure 2
Evolution of Gas and Alcohol Prices, 1998/99
(in Brazilian real)



Source: FIPE/ESALQ.

It is worth noting that the increase in alcohol prices could be achieved by market mechanisms. The price decrease made several firms unprofitable,

particularly the ones with higher production costs. If market mechanisms had operated freely, several firms would have been driven out of the market, which would have reduced the alcohol supply and balanced supply and demand, with a higher price increase. The cartel solution also generates price increases, but it does not drive inefficient firms out of the industry, which takes up resources that could be used in more efficient activities.⁷¹ All in all, it seemed that the joint ventures tried to prevent structural adjustments in the industry, which were for years postponed because of public incentives, political pressures or market imperfections. Moreover, since alcohol is an ingredient in gasoline, by increasing alcohol prices BA and BBA would have increased costs in all industries, negatively affecting the competitiveness of the Brazilian economy. It seems, therefore, that blocking the two joint ventures was an appropriate decision. A reasonable interpretation is that the two joint ventures appeared to form a cartel and therefore merited a fine. The formation of BA represented a coordinated restraint in 15 per cent of the alcohol supply in the Center-South market. The transfer of inventories to BA, a sales decision requiring the approval of its stockholders, which are themselves alcohol producers, solved a difficult problem of enforcement in cartel decisions. Other market characteristics facilitated the implementation of the cartel. This industry has considerable barriers to entry, particularly the ones related to excess capacity. The price elasticity of the demand is low, and in the short run there are no substitutes for alcohol.⁷² The large number of cartel participants made coordination between firms difficult, but the constitution of a BBA to centralize the alcohol distribution of the coalition members almost eliminated this problem. BBA also solved the cheating incentives of cartel arrangements, as it made monitoring and detection easier. There is therefore reason to agree that there was strong economic evidence favouring the cartel hypothesis highlighted by SEAE and SDE.

The BBA and BA cases illustrate how a territorial restraint agreement can be used for anticompetitive purposes. By monopolizing the distribution of alcohol in the Center-South region, BA would have been able to unilaterally increase alcohol prices. Coupled with the coordinated reduction of the supply made possible by the creation of BA – BBA seemed to be a creative strategy to implement a cartel-type agreement aiming to reduce the supply of alcohol and the price decreases. This raises an interesting issue for transition economies: the “crisis cartel” argument. Should industries in financial distress in developing countries be temporarily exempted from antitrust law? How would the “crisis cartel” argument apply to the alcohol case?

4.3 The crisis cartel argument

According to economic reasoning, the crisis cartel argument makes sense only when at least two conditions are met. First, the crisis must be structural in nature. Second, the solution must depend on the antitrust exception. To understand the second condition, it is helpful to discuss an example based on an oligopolistic market with excess of supply where prices do not fall because firms lobby the government for subsidies that compensate for their short-term losses.⁷³ In this oligopolistic setting, each firm may find it preferable not to incur the costs of capacity reduction, expecting competitors to do so, in which case it benefits from the price increase (and from the long-run economic viability of the industry) without the associated costs (free-riding at the expense of everyone else). Since everyone thinks similarly, the eventual result of this game may be a scenario involving excess capacity, low prices and lobbying for subsidies.

The previous reasoning reflects the classic “prisoners’ dilemma”, in which cooperation is not individually enforceable given the pay-offs of the game. In this setting, allowing some communication among agents may be the best method of achieving cooperation. Here an antitrust authorization – even on a case-by-case basis – to allow firms to legally reach agreement regarding reduction of capacity could be useful. The European Commission seems to agree with this justification for granting exemptions for crisis cartels.⁷⁴

In the *Stiching Baksteen* decision, for example, the Commission stated that in the absence of the crisis cartel, “[t]he other parties, as leading manufactures, would not have decided individually and independently to reduce capacity had they not been certain that competitors would follow their example”.⁷⁵ In previous cases, however, the Commission had refused to grant exemption for a crisis cartel of Dutch cement producers based on the argument that the measures adopted by the cartel participants – they had entered into an agreement providing for the allocation of quotas for the Netherlands along with uniform pricing and sales terms – were not necessary to address the problem.⁷⁶

In the Brazilian case, although the crisis is admittedly structural, the second requirement – that the crisis cartel be economically meaningful – seems not to have been met. As was pointed out earlier, it is unlikely that the capacity reduction – mainly through firm exit – would not have occurred had the cartel not been approved. The structure of the alcohol industry is far from oligopolistic: the largest market share is roughly 20 per cent and there are numerous enterprises with market shares lower than 5 per cent. In this context,

strategic action is not a reasonable hypothesis. Incurring losses from low prices, less efficient firms would be driven out of the market up to the point where supply reduction made prices higher than total long-run average costs and excess capacity disappeared.

Also, given that economic resources are limited, by artificially keeping alcohol prices high, BA and BBA would have tied up resources in this activity, thereby withholding them from activities society values more, or activities in which it could be more productive. This activity is part of overall agricultural activity, in which Brazil has comparative advantages, and overinvesting in it is likely to mean underinvesting in other export industries such as orange juice, soybeans or coffee.

5. CONCLUSIONS

During the 1990s several developing countries updated or enacted antitrust laws as part of market-oriented reforms. The rationale was that sound antitrust policy could enhance competition and improve consumer welfare. To highlight some common difficulties in implementing merger controls in developing countries, this study has focused on four Brazilian merger cases that are reasonably consistent with the economic foundations of the Brazilian antitrust law. In addition to technical issues, the discussion focused on some ideological and political factors that may undermine merger control in particular, and antitrust enforcement in general, in transition economies.

An overall conclusion of the paper is that rigorous enforcement of merger control is consistent with several of the concerns raised by transition economies. International competitiveness, for instance, can be taken into account by an examination of alleged efficiencies. Considering crisis cartels and the acquisition of failing firms as welfare-improving measures – a growing concern as market reforms force economic reallocation of factors – is also absolutely consistent with antitrust analysis. Finally, avoiding some vertical mergers may be necessary to strengthen competition.

It does not follow from this analysis that transition economies need either more or less antitrust intervention than developed ones. Rather, the point is that transition economies, like any market economy, may need better antitrust enforcement. The discussion illustrated how merger control based on sound economic principles might have contributed to improving consumer welfare, enhancing competition and spurring economic growth in the Brazilian economy.

Better antitrust enforcement depends on several institutional arrangements, including improvements in institutional capabilities, that are too complex to be discussed here. One of these institutional devices, however, can be mentioned: “guidelines” for antitrust analysis. Although legislation differs from country to country, the economic analysis underlying antitrust enforcement is more or less consensual. In this sense, defining routines or “algorithms” for decision-making in areas where consensus was reached, as this type of document does, could be useful.

While this discussion focused on merger cases, many of the economic techniques presented can be applied to non-merger cases. For example, definition of the relevant market is necessary in almost any antitrust case, while conditions of entry are useful for examining the economic rationale for predation. Although this analysis emphasized the local impacts of the cases

examined, all of them also had international implications, either regional or global. Gerdau-Pains is a typical Mercosur case, the creation of AmBev affected conditions of competition in the South American beer industry, and both the CVRD and Alcohol cases had clear implications for the welfare of countries importing iron ore and sugar. Therefore, they underscore the importance of intergovernmental cooperation, either regional or multilateral, for avoiding mercantilist disputes in antitrust enforcement.

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Notes

¹ See UNCTAD (2000) and OAS (1998). Antitrust laws were adopted or updated in small Latin American economies such as Costa Rica and Panama; in large former planned economies of Europe such as the Czech Republic and Hungary; in several African countries such as South Africa and Côte d'Ivoire; and in Asian countries such as Thailand and Indonesia.

² Posner (2000) has argued that lack of technical training might affect even mature jurisdictions when they have to address the kinds of dynamic problems that are typically important in antitrust cases involving innovation-based industries. On the role of economics in antitrust analysis and enforcement see, for example, Posner (1976), Bork (1978), Lockhart (1999) and Wood (1999). Consistency between economic principles and the outcome of antitrust enforcement may be jeopardized either because there is incomplete understanding of the necessary microeconomic tools (since industrial organization theory is constantly evolving) or because important facts are unknown to the authority (since information asymmetry is always a feature in interaction between the public and private sectors). For a historical overview of the relationship between legal thinking and the research on industrial organizations in the United States see Kovacic and Shapiro (2000).

³ See Page (1998).

⁴ Newberry (1992) illustrates the importance of safety nets for the evolution of economic reforms in Eastern Europe. Considera and Correa (2002) adopt a historical perspective on the relationship between the public and private sectors in the Brazilian economy to illustrate how this relationship could affect antitrust policy in the present.

⁵ For an overview of the difficulties involved in implementing merger controls in developing countries see, for instance, Kovacic (1998). Page (1998) discusses, based on some Brazilian cases, how merger enforcement may be affected by interventionist ideologies and rent-seeking. Rodriguez and Coate (1998) use cases from Brazil, the United States and Venezuela to illustrate some typical errors in the implementation of merger controls. Correa (1998) illustrates how misinterpretation of antitrust objectives – when no explicit analytical approach is in place – may block pro-competitive joint ventures in Brazil.

⁶ Although some previous attempts have been made, the first Brazilian antitrust law was Law 4.137/62, introduced in the early 1960s. During the 1970s and 1980s, however, market forces almost never operated freely. During several periods, the government controlled prices to a significant degree. Entry was restricted by regulations. High tariffs insulated local firms from international competition, and subsidies for specific sectors were used to try to improve export performance. The Government owned a significant portion of the country's largest enterprises. Most importantly, high inflation distorted relative prices.

⁷ In 1994 significant trade liberalization had already occurred, reducing the average tariff of the manufacturing sector to 20 per cent. Several public-owned enterprises undertook privatization, most price controls were suspended and a successful stabilization plan was introduced. This so-called Real Plan was based on the introduction of a new currency and tight fiscal and monetary policies, and it managed to

bring inflation to normal levels. For an overview of the trade liberalization process, see Moreira and Correa (1998). Correa (1999) examines in more detail how trade liberalization affected market power in the Brazilian economy.

⁸ The grounds for an appeal to the court are the same as for any administrative decision and are not specific to the competition law. For an overview of competition law and policy in Brazil, see Clark (2000).

⁹ Controlling mergers without merger guidelines, however, makes the outcome of each investigation overly dependent on the views of the official in charge, which may reduce consistency between merger enforcement and economic principles.

¹⁰ After CADE decided to impose conditions on a joint venture between Anheuser-Busch and Antarctica, *Business Week*, for example, asked whether the decision was antitrust or “anti-foreign” (see Katz and Melcher, 1997). *The Wall Street Journal* questioned the legal and theoretical foundations of this decision. *The Economist* (1999) highlighted how local competition was being jeopardized by questionable nationalistic beliefs and how the AmBev decision could affect the evolution of competition policy in Brazil: “The Brahma-Antarctica deal would set a dangerous precedent, should it be given the go-ahead. The Brazilians should beware what they call *ufanismo* – exaggerated, sentimental nationalism – and not let monopolistic big businesses pull the flag over their eyes.”

¹¹ The reader should keep in mind that antitrust decisions in relevant cases tend to be controversial, since the microeconomic foundations are less clear and the effects of lack of information are more important. In this sense, decisions cannot be classified as “right” or “wrong”. This study’s conclusions, therefore, should be seen as a necessarily biased view of the degree of consistency among the decision reached by the authorities, the facts and the microeconomics underlying the case.

¹² At the time of the merger, the Secretariat for Economic Policy of the Ministry of Finance (SPE) had the legal powers that currently rest with SEAE.

¹³ For further details see Souza (1996).

¹⁴ This is also known as the Williamson approach, since it was originally suggested by Williamson (1968), or the “trade-off” approach, since it simply represents an analysis of the costs and benefits of mergers and acquisitions for economic welfare. Under this approach, the antitrust authority works as a social planner that maximizes a utilitarian social welfare function, ignoring the redistributive consequences of the exercise of market power (transfers from consumers to producers). Introducing redistributive issues in antitrust analysis, while not unusual, is at least as troublesome there as in any economic analysis. In an alternative approach, the pure consumer surplus standard, a merger is to be challenged if it causes any price increase. For transactions that lessen competition, this approach implies that the efficiency gain has to be large enough to prevent the price increase. Finally, some jurisdictions would take into consideration non-economic goals in merger enforcement. It is beyond the scope of this paper to discuss whether it is appropriate for merger control to focus on objectives other than economic ones.

¹⁵ See U.S. Department of Justice and Federal Trade Commission (1992). SEAE and SDE (2001) follows the same terminology. The test is carried out by listing the group of products and the geographical areas supplied by the merging firms. If the

merging firms are able to profitably impose a small but significant and nontransitory price increase, then this defines the relevant market. However, if a such price increase is not profitable, this means that consumers have switched their consumption to other products or suppliers in adjacent geographical areas. Thus, one proceeds to the inclusion of substitute products and geographical areas until one reaches the smallest bundle of products and areas for which a price increase is profitable, which constitutes the relevant market.

¹⁶ It is common in antitrust analysis to consider as a part of the relevant market those firms able to enter the market quickly without incurring large sunk costs.

¹⁷ Standard concentration indexes are used to determine whether the operation raises concerns about coordination between rivals. The most common ones are C4 and C8 (the sum of the market shares of the four or eight largest firms in the market) and the Hirschmann-Herfindahl Index (HHI – the sum of the square of the market shares of market participants). Critical levels associated with limited competitive concerns can be defined in order to construct “safe harbours” based on both the post-merger HHI and its change, as is done by the United States. Besides considering the unilateral exercise of market power, merger analysis could also focus on the possibility that a merger will increase the likelihood of collusion among participants in the relevant markets.

¹⁸ From the perspective of economic theory, monopoly power – the difference between price and marginal cost as a fraction of the price – is usually seen as the meaningful economic concept, and market power is considered to be a loose synonym. From a practical point of view, however, it could be helpful to consider market power as the capacity to increase prices above a competitive level (and not the increase itself), since high market shares, a necessary condition for the existence of monopoly power in properly defined antitrust markets, are usually easier to verify than the profitability of the price increase. The authorities would conserve resources by stopping the merger analysis when a case does not involve enough market power to raise anticompetitive concerns.

¹⁹ Entry is easy if it is fast (typically less than two years) and if the mobility of capital is high enough to enable the new entrants' effective integration into the industry, which involves, among other things, product planning and design, market surveys, permits, construction and operation of the plant, marketing and distribution. Entry is profitable when the minimum viable scale (MVS) of the entrant firm or firms is greater than the sales opportunities they will face. The MVS is the minimum level of annual sales that the potential entrant must achieve in order to receive an adequate return on its capital. Entry may be likely, but not sufficient to bring the market prices back to pre-merger levels. Such is the case when the assets necessary for entry are not perfectly divisible, so that the entrants may not be able to respond to all sales opportunities.

²⁰ Economies of scale happen when fixed costs are a substantial share of total costs, or when a more productive technology is introduced. Economies of scope may happen when the fixed cost used for production of a good can be shared with other goods; when the use of inputs common to different products is best when used by only one firm, as opposed to several; and when the distribution and commercialization resources are best used by one firm, as opposed to several. Economies of transaction cost may materialize when the costs of preparing and enforcing contracts are high,

when input search costs are high, and when the relevant information for the search of a product are sold. Basically, appropriation of positive externalities by the merging parties may take place when there is appropriation of technological spillovers, when a rationalization of supply takes place in industries with excess capacity, and when more and better information is available to aid the decision-making process.

²¹ Also, in several regimes, the exam of efficiencies is considered only in cases where the anticompetitive effects were not significantly high: efficiencies rarely justify a merger conducive to a monopoly or quasi-monopoly condition.

²² See Soares (1995), p. 84.

²³ Economic surplus analysis would suggest even stricter requirements because the effect of the exit would not be a total loss of assets, since non-specific assets could be reallocated to other industries.

²⁴ Ato de Concentração (merger) no. 08012.005846/99-12.

²⁵ The several existing brands, which differ in physical properties and image, correspond to different consumer tastes and preferences. Two commissioners refused to participate because of potential conflicts of interest, and one voted to prohibit the transaction entirely. At the time of the decision, Bavária accounted for less than 4 per cent of national sales. The behavioural measures included (a) provision of access to the owner of Bavária to the Brahma system of distribution during a period of at least four years; (b) the offer of access to the Brahma distribution system for five regional breweries; (c) a prohibition on shutting down plants before offering them for sale; (d) provision of a training and relocation program for displaced workers during four years; and (e) prohibition of exclusivity arrangements with retail points of sale.

²⁶ As in the standard monopolistic competition case, the general idea here is to model the firms acting independently in setting the prices of their product brands. Although the operations that involve differentiated products also raise concerns about the coordinated exercise of market power, the focus will be on the unilateral exercise. Indeed, the possibility of coordination is lower in markets that involve heterogeneous products than in markets involving homogeneous ones.

²⁷ Simply because products would belong to different markets and the transaction would be treated as a conglomeration which, in general, would imply more lenient treatment by the antitrust authority.

²⁸ For more details on mergers with differentiated products, see also Baker (1996).

²⁹ The AmBev operation involved several products in the beverage industry. With respect to teas, isotonic drinks and juices, there was no horizontal effect, since only Brahma produced teas and isotonic drinks, and only Antarctica produced juices. For the mineral water and malt markets, the observed concentration did not raise significant competitive concerns, since AmBev's share in bottled water was minimal and the malt produced was all used in the production process. In this sense, contrary to what happens in other countries, there is no malt market in Brazil. In the soft drinks market, the formation of AmBev was actually pro-competitive, as it created a firm better able to compete with Coca-Cola, the leading firm in this market. Depending on the region, the market share of Coca-Cola varies from 37 per cent to 49 per cent. Barriers to entry in the low-price segment (*tubaínas*) are low, and therefore there was enough evidence that entry into this segment was causing even Coca-Cola to reduce its prices in recent

years. The present analysis will be restricted to the impact of the merger on the beer market.

³⁰ See Elzinga (1990) and Greer (1993). Also see Castro (1995) and Silva (1997).

³¹ In 1998, 74 per cent of sales took place in bars and restaurants and consumption of beer in returnable bottles was 68 per cent of the total. This characteristic of the product in Brazil will decisively affect conclusions about the competitive impacts of the transaction. Some analysts argued that preferences were moving towards consumption at home in disposable containers.

³² There is a slight discrepancy between the definitions adopted by SEAE and SDE, but it does not significantly affect the merit of the arguments.

³³ As was explained before, the diversion ratio test is an approximation of the amount of demand lost by the brands (as a result of the price increase of one) which would shift to the other(s) brand(s) whose prices were unchanged. For example, if the prices of the Brahma and Skol beer brands increased, 40.5 per cent of consumers in the Southern market would be willing to shift to Antarctica.

³⁴ The study was done by Issler and Resende (1999) and presented by AmBev. The cross-elasticity of demand between two goods reflects how demand for one good varies as a result of a change in the price of the other good. In theory, negative cross-elasticity occurs when the goods are complements and positive cross-elasticity occurs when the goods are substitutes. Empirical estimates do not always show the expected evidence of cross-elasticity. This may be due to real-world problems, such as consumers' building up inventories during promotions, or more technical reasons such as the sensitivity of the estimates to the functional form used. For a recent survey on this topic, see Baker and Rubinfeld (1999).

³⁵ More specifically, the reported results suggested that (a) the Brahma brand substitutes for the Antarctica brand in the bottled-beer market both in the short and in the long run; (b) it is not possible to accept the hypothesis that Brahma is a substitute for either Antarctica or Kaiser, in the long or short run; (c) it is not possible to accept the hypothesis that Brahma is a substitute for Antarctica or Kaiser in the canned-beer market in the short or long run; (d) the results relative to the Antarctica brands are not theoretically consistent (they have negative signs) or are not statistically reliable; (e) it is not possible to accept the hypothesis that the Kaiser brand is a substitute for Brahma or Antarctica in the bottled-beer market; and (f) Kaiser substitutes for Brahma and Antarctica in the long and short run, in the canned-beer market.

³⁶ For example, between 1989 and 1996, the average advertising expenditures of the leading firms, measured as a fraction of their net revenue, were as follows: Brahma, 2.9 per cent; Skol, 2.6 per cent; Antarctica, 3.3 per cent; and Kaiser, 5.8 per cent. Advertising is a classic means of trying to achieve product differentiation. Its purpose is to distance one's brand from its closest competitors in the product space, allowing supra-competitive prices to be charged.

³⁷ In the current productive configuration of the industry, there are firms that are vertically integrated (Kaiser) and others that contract out the distribution (Brahma and Antarctica). An exception is the need to maintain a minimum fleet of trucks to supply outlets where the product is sold without refrigeration. A possible explanation for this is that supermarkets have enough bargaining power to transfer distribution costs to

producers. Exclusive agreement contracts usually last for five years, always guarantee the brand a distribution monopoly in a certain area, and usually involve exclusive distributors of a single firm (either Brahma or Antarctica). Because independent distributors are also entrepreneurs making investments, they may find it economically unattractive to distribute a new brand.

³⁸ This value for the minimum efficient scale is consistent with information provided by the national development bank (BNDES), the United States Department of Justice and calculations presented in the economic literature. BNDES estimates the minimum viable scale of a plant to be 3 million hl/year. The necessary investment for a brewery operating at this level would range from R\$150 to R\$180 million.

³⁹ Santacruz (2000) has estimated that application of the standard concept to this case would imply a total value of US\$200 million. SEAE and SDE considered similar values, which would imply cost reductions of 5 per cent, much more compatible with international experience.

⁴⁰ Bavaria had very low market share and was positioned in a very specific segment of the market (its publicity strategy, for instance, was completely targeted to “country-style” consumers and had very little appeal to the national market as a whole). In this sense, Bavaria could hardly be perceived as an alternative for the consumers of the three Brazilian premium brands controlled by AmBev.

⁴¹ The fact that a producer has large market share is only a necessary condition for concluding that a vertical arrangement is welfare-reducing. Therefore, the vertical arrangements of AmBev should not be prohibited per se but, rather, should be evaluated on a case-by-case basis.

⁴² It could be also necessary to divest two production facilities in the South and Center-West markets, where only Brahma and Antarctica had any productive assets. One feasible option would be to sell the Skol business, as was suggested by SEAE. Skol production plants were promptly identifiable, distribution contracts particular to this brand were in place and the brand itself was restricted to the beer market, meaning that its divestiture would not have a negative external effects on AmBev’s investments in publicity.

⁴³ For further discussion of this topic see Khemani and Dutz (1995). Another aspect is the fact that domestic monopolies may imply input of worse quality and higher prices, negatively affecting the overall performance of the economy. This is one of the mistakes that can occur when one takes a partial equilibrium approach to real-world problems, forgetting that most of those problems have “general equilibrium” effects.

⁴⁴ In fact, Anheuser-Busch and Miller are examples of two large international beer firms that tried to enter the Brazilian market. In 1996, Antarctica formed a joint venture with Anheuser-Busch (AB) in order to establish a partnership for the production, marketing and sales of Budweiser beer in Brazil, as well as to increase the sales of Antarctica beers and soft drinks abroad. CADE ruled that the operation would receive clearance subject to an increase in AB’s equity share in Antarctica to 30 per cent. This implied that the U.S. firm would have to increase its investment in Brazil. Recently the joint venture was terminated because AB did not meet CADE’s requirement for the maintenance of the operation. In 1995, Brahma had signed a similar contract with Miller Brewing Company.

⁴⁵ But did anybody ask consumers whether they were willing to pay this "price" for the existence of a Brazilian multinational? Even in this context, some observers would favour the deal, arguing that since capital markets are imperfect in developing countries; these "alternative" sources for funding could be welfare-increasing. This possibility – based on the second-best analysis – cannot be accepted automatically without careful analysis.

⁴⁶ Ato de Concentração (merger) no. 08000.013801/97-52.

⁴⁷ For a nontechnical overview of literature about the competitive risks of vertical integration, see Riordan and Salop (1995). For a more technical summary of the subject, see Rey and Tirole (1996). For an example of Chicago school criticism of antitrust concern with vertical integration, see Bork (1978). Correa (2001) discusses how vertical integration in infrastructure industries may be particularly harmful for developing countries.

⁴⁸ The substitutes include the remaining producers of the input that is produced by the integrated firm, as well as the producers of alternative inputs of the same quality and price.

⁴⁹ Such elasticity is determined by the possibility of substitution by other inputs and products by the competition among firms in the downstream market. Besides, if the input represents only a small share of the firms' costs, then demand for this input is less elastic. Moreover, if demand for the product in the downstream market is inelastic, there is a greater risk of collusion and/or price coordination.

⁵⁰ It is also worth noting that in markets where there is no product differentiation, competition tends to be less vigorous than where the final products are homogeneous. Thus, the integrated firms tend to gain less with the foreclosure strategy. Also, the larger the impact of foreclosure on rivals' costs, the larger will be the effect on product prices in the downstream market (everything else being constant) and the gains of the integrated firm. Furthermore, since only variable (marginal) costs affect price in the short run, the foreclosure strategies involving inputs that enter the cost structure as variable costs tend to translate directly into price increases.

⁵¹ Natural monopolies occur in industries with large fixed costs, such that average costs are declining over all or for a large range of the demanded output and it is less costly for one firm to supply the market than it would be for two or more firms to do so.

⁵² See Pittman (1990).

⁵³ During 1995–1998, roughly 70 per cent of Brazilian iron ore production was exported. Most of the steel producers were integrated backwards toward iron ore production.

⁵⁴ In 1998, none of the four railroads that depended on agricultural and mixed bulk traffic was earning enough to cover total expenses, and only two were covering operating expenses. The railroads that depended on iron ore, coal and other minerals (EFVM and EFC among them) were not earning much more than the amount necessary to cover total costs.

⁵⁵ Between 1997 and 2000, at least six important acquisitions occurred involving more than US\$3 billion in assets.

⁵⁶ See De Paula (2000).

⁵⁷ Samitri asserted that every year it was more difficult to increase its cargo volume

in CVRD's logistics system. Samitri had an annual contract, valid up to December 2002, to ship 10.5 million metric tons to its customers abroad, with an option of 500 thousand more. In December 1999, the firm had its bid to increase annual exports to 12 million metric tons rejected by CVRD.

⁵⁸ In fact, SDE is investigating the effects of CVRD-EFVM conduct on Ferteco (Processo Administrativo no. 08012.006891/99-11 (SDE ex-officio - Ferteco)) and on Samitri (Processo Administrativo no. 08012.007285/99-78 (SDE ex-officio - Samitri)).

⁵⁹ It is important to recognize that, since access to railway and port facilities is an essential input for competition in the iron ore world market, the vertical integration could cause merger-related efficiencies.

⁶⁰ See, for instance, OECD (2000).

⁶¹ Atos de Concentração (mergers) no. 018012.002315/99-55 and no. 08012.004117/99-67, respectively.

⁶² Neither legislation nor jurisprudence is clear enough about the meaning of the term "joint venture" for antitrust purposes in Brazil. Hence, it is common to use the term loosely, as seems to have happened in these two cases.

⁶³ In Brazil, anhydrous alcohol and hydrated alcohol are used as automotive fuels. The former contains no water and is added to gasoline; the latter is a mixture of alcohol and water that is used directly in automobiles.

⁶⁴ The annexed distilleries (alcohol-producing units that are integrated with sugar mills) should contribute with 15 per cent, and the autonomous distilleries (independent producing units) with 10 per cent.

⁶⁵ In Brazil, notification of any act or contract can occur up to 15 days after the completion of the transaction. Therefore, when SEAE and SDE examined the cases, the firms were already operating in the marketplace.

⁶⁶ In this context, prohibiting a TRC would enable a rival distributor to appropriate a significant portion (if not the totality) of the demand generated by the sales effort. Thus, the TRC creates property rights associated with the sales effort of the distributor, since it prevents the supplier from marketing its products through other distributors in that region. Generally, the free-riding takes the form of using a product without having to share in associated costs. An agent that behaves thus is harming (generating an extra cost for) the agent that shares in the costs of making the product. Agents that are victims of free-riding do not appropriate all of the benefits created by their expenditures, and thus have an incentive to invest less than they would if they could appropriate all of the resulting benefits. Therefore, the free-rider agent is also harmful to society as a whole.

⁶⁷ Examples of situations in which such conditions should be present include the following: When the distributor spends large amounts to advertise a product that is also sold by other distributors; when the distributor must make large expenditures on the places in which the product is sold, such as showrooms; when the distributor must make large expenditures to train salespeople (as is the case for information technology products); and when a product's reputation largely depends on the distribution service, as with fast-food chain restaurants.

⁶⁸ Another condition is the inelasticity of demand – that is, price increases should increase profits, not reduce them. Intuitively, if a cartel faces an elastic demand, price

increases of, say, 10 per cent would result in a reduction in the quantity demanded that is higher than this percentage, generating a profit reduction (instead of a profit increase, with is the ultimate purpose of cartels). Another necessary condition is the existence of significant barriers to the entrance of new competitors. If other firms can easily enter the market, they will be attracted by the price increase, and the reduction of supply achieved by the cartel will be offset so that prices tend to return to competitive levels.

⁶⁹ See Atos de Concentração (mergers) no. 018012.002315/99-55 and no. 08012.004117/99-67.

⁷⁰ The fuel alcohol surplus resulted partly from reduced demand for alcohol-powered vehicles. This reduced demand was caused mainly by lack of consumer confidence, which in turn was caused by alcohol shortages in the 1980s. During that time, better sugar prices in the international market led producers to reduce alcohol production. A simultaneous drop in petroleum prices drove fuel alcohol prices down in the domestic market.

⁷¹ For more details, see SEAE (1999a) and SEAE (1999b).

⁷² Obviously, gasoline is a substitute for alcohol. However, short-run substitution is limited: alcohol-powered cars cannot use other types of fuel. In the long run, price increases may lead consumers to replace their alcohol-powered automobiles with ones using other kinds of fuel.

⁷³ Alternatively, extra funds could be thought of as coming from cross-subsidization internal to the firms. To embark on a cross-subsidization strategy, a private firm must expect the long-term profits obtained by staying in the market to be larger than the short-term losses the group will be forced to absorb.

⁷⁴ For a critical view of the European experience see Fiebig (1999). The U.S. jurisprudence is quite different. During the Great Depression, for example, the Supreme Court rejected the interpretation that horizontal agreements between oil refiners in order to avoid “cut-throat” competition and “ruinously” low prices could bring public benefits, maintaining the view that price-fixing agreements are per se a violation of the Sherman Act.

⁷⁵ See Commission Decision 94/296, 1994. O.J. (L. 131) 15, 17. In *Synthetic Fibres*, for example, the Commission exempted a crisis cartel for the first time. The 10 largest European producers were agreeing to close to 18 per cent of their production capacity. The Commission granted permission for the exchange of information about production capacity and about other important changes in the market but required the firms to supply to a trustee all relevant information concerning the capacity to be dismantled and to permit inspections of their plants.

⁷⁶ See Commission Decision 72/468, 1972. O.J. (L. 303) 7.