Foreign Investment and Consolidation in the Brazilian Mobile Telecommunications Market

Marcos Maciel*, Jason Whalley and Robert van der Meer

Department of Management Science
Strathclyde Business School
Graham Hills Building
40, George Street,
Glasgow G1 1QE
Scotland – UK

*Corresponding author.
T: +44 (0) 141 548 4545
F: +44 (0) 141 552 6686
E: marcos.maciel@strath.ac.uk

Abstract
During the implementation of market-based reforms in mobile telecommunications, the Brazilian Government opted for dividing the country in ten regions, thus creating a highly fragmented market. Later on, through several mergers and acquisitions the market was consolidated by three main foreign groups. This paper analyses the rationale behind the Government’s decision to fragment the market and describes the events that led to consolidation. It identifies the different strategies adopted by the companies and the overall competitive landscape of the mobile market that emerged after the process of consolidation.

Keywords: Foreign investment, Brazil, consolidation, mobile operators.

JEL-Code: F23, G34, L96

Draft Paper – please do not quote without permission of the authors

Paper presented at the
16th International Telecommunications Society European Regional Conference
Porto, Portugal, 4 - 6 September 2005
1. Introduction

Mergers and acquisitions have played a significant role in changing the competitive landscape in mobile telecommunications markets throughout the world (Curwen and Whalley, 2004; Economist, 2005; Whalley and Curwen, 2005). After the privatisation and liberalisation of the markets that happened mainly in the second half of the 1990s, foreign direct investment was a particular way to foster competition in developed and developing countries alike by increasing the number of competitors. The process of consolidation among mobile telcos is driven by economies of scale and scope, faster access to foreign markets and increased sources of revenues (e.g. international roaming) (Chan-Olmsted and Jamison, 2001; Hallowell, 1999). In the current highly competitive mobile market, the role of brand awareness is also a key driver for M&A activity (Vodafone, 2005). This process of consolidation is happening in a global scale (i.e. Vodafone’s extensive M&As), in one region (i.e. Orange in Europe, BellSouth/Telefónica in Latin America) and even within a country (i.e. Cingular/AT&T Wireless and Sprint/Nextel in the USA).

Largely overlooked has been the substantial M&A activity in the Brazilian mobile market. Foreign companies have transformed the market structure from a highly fragmented one, with 40 regional mobile operators, to a consolidated market, where the four main operators control 92% of the subscribers. In fact, Brazil is one of the best examples of the market forces that favour companies’ consolidation and the role played by the government in this process (hindering and encouraging its occurrence). Two interesting points emerge from these events: to understand why the Brazilian market was so fragmented and to analyse the role of foreign investments on the subsequent consolidation.

As a consequence, this paper is structured in three more sections. First, the process of privatisation and liberalisation of the Brazilian mobile market and the Government’s rationale for fragmenting the market are analysed. Then, the main drivers of the consolidation of the market are presented and the process of joint ventures and M&A that happened is discussed. The data that underpins the descriptions of the companies is drawn from a variety of sources such as annual reports, websites, consultancy reports and the popular business press. Through drawing on a broad range of sources it was possible to triangulate the data to ensure that the descriptions are as accurate as possible. Finally, some discussions of the companies’ strategy and conclusions are drawn in the final section.
2. Fragmentation

Since its creation in 1972, up to its privatisation in 1998, Telebrás was the state-owned monopoly telecommunication operator in Brazil\(^1\). Telebrás was, in fact, a holding company that comprised 27 regional operators and Embratel, which was responsible for national and international long distance service\(^2\).

This purely state model, however, began to show signs that it was reaching the limit of its effectiveness at the end of the 1980s. The worldwide telecoms sector was already undergoing rapid technological changes and demanded fast reactions from telcos to meet the growing demand for increasingly specialised and sophisticated services. Telebrás and its subsidiaries, however, did not have the ability to meet this growing demand for investments. As a state-owned company, Telebrás was subject to wide-ranging regulation by the Communications, Finance and Planning Ministries and its investments had to be included in the annual Federal budget and approved by Congress. In addition, the absence of competition, due to the monopoly, did not offer Telebrás any incentive to improve its services (Ministry of Communications, 1996). Telebrás was not efficient enough to cope with the market demands. In urban centres like Rio de Janeiro or São Paulo, it was common for a fixed telephone line to be sold for US$7,000 on the black market (Anatel, 2000).

Mobile Service was implemented in Brazil in 1990 and was operated by each of the 27 Telebrás subsidiaries. The mobile service had similar problems as the fixed telephony, with huge pent-up demand and inadequate quality of service (Anatel, 2002). Another characteristic of the telecommunications scenario in Brazil prior to the implementation of market-based reforms was the inequalities of telephone distribution across the country. In 1994, for example, the disparities between states regarding the teledensity were impressive, in some cases attaining a difference of 29 times from one state to another (Anatel, 2000). This situation was reinforced by the social and economical inequality between regions of the country and represented a key challenge that the Government had to deal with. For instance, in the northeast region of the country the income per capita is 50% of the Brazilian average and only 35% of the income per capita of the southeast region (which is responsible for 58% of the country’s GDP). This inequality is also true regarding the population density, which is 20 times greater in the southeast than in the north\(^3\).

---

1 There were four other companies, which were responsible for less than 5% of the telephones lines: CRT – controlled by the State Government of Rio Grande do Sul; CTBC – private company in operation in some small cities in Minas Gerais, São Paulo, Goiás and Mato Grosso do Sul; SERCOMTEL – municipal company in the city of Londrina; and Ceterp – municipal company in the city of Ribeirão Preto (Ministry of Communications, 1996).

2 For details regarding the creation of Telebrás see Novaes, 1998.

3 See Ferreira, 2004 and Baer, 2001, pp. 323 – 354 for a detailed analysis of social and economic inequalities in Brazil.
The process of privatisation and liberalisation of the market started in 1995 with the Constitutional Amendment no. 8, which along with the law no. 9295 of 1996 and the General Law of Telecommunications (LGT) of 1997 constitutes the regulatory framework for the market-based reforms of the telecommunications sector (for more details see Mattos and Coutinho, 2005). The National Regulatory Agency (Anatel) was created in 1997. The reform of the telecommunications sector in Brazil was designed to achieve five major objectives:

- strengthen the regulatory role of the State and eliminate its role as an entrepreneur;
- increase the range and improve the quality of telecommunication services;
- in a competitive environment, create opportunities that encourage investments and foster technological and industrial development;
- provide conditions so that the sector development is consistent with the country’s goals for social development; and
- maximise the sale value of state-owned telecommunication companies without prejudicing the foregoing objectives (Ministry of Communications, 1996).

In the 1997 auction for the B-band (850MHz) mobile licences the Government wanted to ensure that there were a reasonable number of new operators (Ministry of Communications, 1996). Therefore, the rules of the auction divided the country into ten licence areas, which were then divided into two groups: the first included all the more economically favourable areas and the second included the less favourable areas. Each potential buyer of a licence could only buy one company in each of the two groups. The rules also precluded any change in the control of the companies before 60 months of commercial operation, in order to allow regional competition to be established. The auction was considered a success with the government raising a total of U$7.44 billion, a premium of 236% over the minimum price (Novaes, 1998).

The privatisation of the fixed and mobile Telebrás subsidiaries took place in July 1998 and, as in the case of the B-band, the Government imposed certain restrictions on acquisition by a single group of more than one company. This was consistent with the Government’s intention of having a fragmented market. The auction raised a total of US$19 billion, of which roughly US$ 7 billion was raised by the sale of the mobile operators. These values represented a premium of 64% for Telebrás as a whole and a premium of 189% for the mobile operators, over the respective minimum price.

---

4 See Bogdan-Martin and De La Torre, 2001 for a detailed analysis of Anatel.
5 All the figures are expressed in US$, based on the interbank exchange rate at the time.
6 It is out of the scope of this paper to analyse the effectiveness of the public policies adopted.
7 The share of the companies on auction was 19.26% of the total capital. Foreign investors held approximately 40% of the total capital and the remaining shares were held by telephone owners (Novaes, 1998).
One of the key decisions for the liberalisation and privatisation of the mobile market was to divide the country in ten regions (see Figure 1). But why fragment the market in the first place? Four factors lead to the reasoning behind the Government’s decision to divide the mobile market at the time of the implementation of market-based reforms. Firstly, the social and economical regional inequalities in the country represented a strong motive against selling national licences. Due to the existing pent-up demand, the companies could be tempted to operate the service only in the richest regions, therefore widening the disparities within the country. Secondly, the historical division of Telebrás and its subsidiaries provided a more straightforward way to sell the assets of the incumbent. This also facilitated the transition from a public to a private model, since the companies were operated separately in each State of Brazil.

Thirdly, the division of the market in many companies represented the means to even the information asymmetry between the companies and the regulatory authority, hence preventing any abuse of market power by the companies\(^8\) (Ministry of Communications, 1996). Fourthly, by dividing the country into several regions the Government could maximise the revenue from the auctions.

![Figure 1: Mobile Regions in Brazil](image)

Since the full liberalisation of the mobile market took place just three years after the B-band operators had launched commercial services, these companies had to pursue extremely aggressive market entry strategies before a third operator was introduced. This, coupled with large pent-up demand and the poor quality of services provided by the state-owned operators, led to high rates of

---

subscriber growth for B-band operators. In 2001, the year of the next auctions, the B-band operators had an average market share of 32.9% (Anatel, 2001). A strong performance by the privatised incumbent operators also contributed to the market’s remarkable growth since 1998. After the Telebrás auction process, A-band shareholders invested in the newly privatised entities, enabling them to continue (or begin) their digital upgrades (CDMA and TDMA) and launch new services during 1998. Infrastructure investments were crucial, especially to the A-band operators, as these helped relieve the severe capacity constraints of their analogue networks (Yankee Group, 2000).

By the end of 2001, the Brazilian market had grown to 28.7 million subscribers (17.2% teledensity) from 5.6 million in 1998 (4.5% teledensity). Brazil was then the world’s 9th largest mobile telephony market in terms of number of subscribers. Even so, the Government wanted to introduce more competition into the market and conducted the auction for three more licences in each region of the country. In contrast to the previous auctions, the auction of the C-, D- and E-bands saw the country divided into three regions (see dotted lines in Figure 1). This division mirrored that of the fixed-telephony auction. After an intense debate, Anatel opted for the 1,800MHz frequency for these new bands (instead of 1,900 MHz), not least because this would facilitate the introduction of GSM technology into Brazil9 (see Pereira-Filho, 2003). However, the process of auctioning these new licences was not straight forward. After a complex process of four different auctions10, the Government finally succeeded in selling mobile licences in two more bands, D and E (1,800 MHz). Due to the lack of interest by the companies, the Government decided to call off the auction for the C-band. As a result of this process the Government raised a sum of roughly U$2.3 billion and succeed in creating a competitive market for mobile service with four companies in each region of the country11.

The introduction of new competitors into the market coincided with the introduction of a new regulatory framework. The operators of A and B-bands were regulated by the SMC (Mobile Cellular Service) rules12 and the new companies (D- and E-bands) were under the SMP rules (Personal Mobile Service). Compared to SMC rules, SMP rules had some disadvantages, such as: the obligation to adopt the Carrier Selection Code for long distance calls13 and more stringent

---

9 All the companies of A and B-band operated in the frequency of 850MHz and used CDMA or TDMA digital technology. The A-band operators also had analogue AMPS networks that they inherited from the Telebrás era.
10 Since several regional licences were being auctioned, only some licences were acquired in each of the auctions, therefore new auctions had to be made to sell the remaining licences.
11 Some of the licences auctioned were later returned to the Government. Thus, some regions still have only three competitors (see Table 1).
13 Different from other countries (for instance UK), in Brazil the mobile numbers have an area code. The country has 67 different area codes and to make a call between different area codes it is necessary to dial the area code in every call. Since 1999, the fixed telephones had to select the long distance operator that would complete long distance calls, but the mobile telephones did not need it. In the SMC, the long distance revenue belongs to the mobile company. In the SMP
quality goals. There were, however, some advantages as well, namely, the company could apply for a licence to operate fixed long distance service (National and International), could acquire an extension band in 1,800MHz (for A- and B-band operators) and could change control (by merger, acquisitions, etc) before the previous deadline of 2003, which was the main incentive for migration to the new rules (Anatel, 2005). Adoption of the SMP rules was optional for the existing companies and obligatory for the new ones (D and E-Band). Having said this, Anatel did apply a great deal of pressure on A- and B-band operators to adopt the new rules, what they eventually did.

The implementation of these new regulations and the fierce competition that followed the introduction of the new players after 2002 resulted in an impressive growth in the number of mobile subscribers. In June 2005, there were 75.5 million mobile subscribers in the country making Brazil the fifth largest mobile market in the world\(^{14}\). In addition, the problem of regional inequalities of mobile teledensity was also ameliorated. In 2005, the lowest mobile teledensity was 15.75% (in the state of Maranhão) and the highest was 60.1% (in the state of Rio Grande do Sul), a multiple of less than 4 times\(^{15}\) compared to 29 times in 1994.

**3. Consolidation**

The 1997 and 1998 auctions created 15 different groups of mobile companies controlling between them 40 mobile operators\(^{16}\). To this, the 2001 auctions (D and E-Band) added another 10 more mobile operators (see Table 1 for a complete list of the mobile operators). In addition, in 2001, the biggest mobile operator in Brazil, Telesp Celular, controlled less than 18% of the mobile market. It is not hard to see that consolidation was paramount. Nevertheless, the SMC rules stated that changes in voting control were only possible after five years of commercial operation or after the company adopted the SMP rules.

---

the mobile customers follow the same way of dialling as the fixed customer, with Carrier Code, and the revenue belongs to the fixed long distance operator.

\(^{14}\) After China, USA, Japan and Russia.

\(^{15}\) Not considering the Federal District, due to specific conditions like small geographic area and population. The Federal District has more than 100% of mobile teledensity.

\(^{16}\) For this reckoning, the definition of ‘group of mobile companies’ is based on the voting control and of ‘mobile operator’ is based on the shareholders structure.
Table 1: Mobile Operators in Brazil by Area and Band

<table>
<thead>
<tr>
<th>SMP Area</th>
<th>SMC Area</th>
<th>Company Name (winning consortium) [Group after consolidation]</th>
<th>A-band</th>
<th>B-band</th>
<th>D-band</th>
<th>E-band</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 RJ, ES</td>
<td></td>
<td>Tele Sudeste Cel (Holding) (Telefónica de España, Iberdrola, NTT, Itochu)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telegel Cel [Vivo]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telegem Cel [Vivo]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Amazônia</td>
<td></td>
<td>Tele Norte Cel (Holding) (Teleaima Cel [NC]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Teleamazon Cel [NC]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Teleamapá Cel [NC]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telepará Cel [NC]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telma Cel [NC]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 MG</td>
<td></td>
<td>Telemig Celular (Telesystem, Local Pension Funds, Opportunity) [NC]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CTBC Telecom (NA) [NC]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 BA, SE</td>
<td></td>
<td>Tele Leste Celular (Holding) (Telefónica de España, Iberdrola)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telebahia Cel [Vivo]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telergipe Cel [Vivo]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tele Noordeste Cel (Holding) (Telecom Italia, Globopar, Bradesco)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telasa Cel [TIM]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Teleceará Cel [TIM]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telepísa Cel [TIM]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telnor Cel [TIM]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telpa Cel [TIM]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telpe Cel [TIM]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Northeast</td>
<td></td>
<td>Tele Celular Sul (Holding) (Telecom Italia, Globopar, Bradesco)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telepar Cel [TIM]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telescel Cel [TIM]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CTMR Cel (RS) [TIM]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sercomtel Cel (NA) [NC]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 PR, SC</td>
<td></td>
<td>CRT Cel (Telefónica de España, RBS) [Vivo]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Teletel (Bell Canada, Local Pension Funds)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[Claro]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 - RS</td>
<td></td>
<td>Tele Centro Oeste Cel (Holding) (Splice)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telegel Cel [Vivo]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telebrasil Cel [Vivo]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telegoias Cel [Vivo]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telemat Cel [Vivo]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telemos Cel [Vivo]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telecon Cel [Vivo]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CTBC Telecom (NA) [NC]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>One (TIM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Amercile (Bell Canada, Local Pension Funds)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[Claro]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 SP Metro</td>
<td></td>
<td>Telesp Celular (Portuguese Telecom) [Vivo]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CTBC Telecom (NA) [NC]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ceterp Cel (NA) [Vivo]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:

a) Licences returned to the Government and not yet re-assigned.
b) Telemig Celular acquired E-band licence to provide service in the same region of CTBC Telecom (some cities in Minas Gerais State).
* NA – Not Auctioned; NC – Not consolidated by any of the three main groups.

Sources: Novaes, 1998; Anatel, 2001 and Anatel, 2005
At this time, several international players were present in the fragmented Brazilian market, namely: BellSouth, Bell Canada, Telia, TIM, Motorola, DDI (Japan), Korea Telecom Mobile, Qualcomm, Telefónica, Portugal Telecom and América Móvil. However, it was clear that the consolidation process would leave just a few of them. The following sub-sections detail the events that eventually led to three companies emerging: Vivo, TIM and Claro.  

### 3.1 Vivo (Telefónica and Portugal Telecom)

Telefónica, the Spanish incumbent, entered the Brazilian market at the beginning of 1997 through its participation in the management of CRT. However, the main acquisitions made by the company were during the privatisation of Telebrás in 1998. Telefónica participated in the consortium that successfully bid to acquire: Telesp (Fixed Telephony) for U$5 billion; Telerj Celular and Telest Celular for U$1.21 billion and Telebahia Celular and Telergipe Celular for U$348 million. At the time of the privatisation, these mobile companies used analogue technology (AMPS). Telefónica decided to develop a digital network using the CDMA technology, perhaps foreseeing the future demise of TDMA technology. In 1999, Telefónica acquired 100% of the municipal company Ceterp for U$76 million. The company provided fixed and mobile telephony (A-band) in the city of Riberão Preto (São Paulo). In 2001, Telefónica grouped its three mobile operations in the country under the brand name Telefónica Celular.

Portugal Telecom’s entry into the Brazilian mobile market occurred in 1998. The company acquired the biggest mobile operator in the country, Telesp Celular, for U$3 billion (19.26% of the equity capital). Like Telefónica, Portugal Telecom also decided to use the CDMA technology. In fact, Portugal Telecom and Telefónica were the only groups that opted for CDMA; all the other A- and B-band operators opting for TDMA. In January 2001, Portugal Telecom entered into an agreement with Inepar and Motorola to acquire 49% of the ordinary shares and 100% of the

---

*17 It is out of the scope of this paper to analyse the reasons why other companies withdrew from the market.
*18 Telefónica’s fixed operations in Brazil are controlled via Telefónica Latinoamérica Group and its mobile operations are controlled via Telefónica Móviles Group.
*19 The privatisation of CRT occurred before the privatisation of Telebrás, in 1996.
*20 Due to regulatory constraints, Telefónica returned the concession for the fixed operation in CRT after winning the concession for fixed telephony in the State of São Paulo, retaining only CRT’s mobile licence.
*21 These values represent the price paid for 19.26% of the equity capital of the holding companies that control these mobile operators, respectively Tele Sudeste Celular and Tele Leste Celular. Subsequently, in a series of transactions Telefónica increased its stake in both companies.
*22 This acquisition received regulatory approval to occur before 2003 because Ceterp operated within the same region of Telefónica. For this same reason, Telefónica had to sell Ceterp’s mobile business to Telesp Celular (Portugal Telecom) retaining only the fixed operations.
preferential shares of Global Telecom, the B-band operator in the south of Brazil, for US$1.21 billion\textsuperscript{23}.

In October 2002, the process of consolidation in Brazil began. Telefónica and Portugal Telecom signed a joint venture agreement to create Brasilcel\textsuperscript{24}. This company would control all the mobile operations of both groups in Brazil and would be equally owned by the two parent companies. The companies believed that the joint venture would be successful for four reasons.

- both companies used the same digital technology (CDMA) and since the beginning of 2002 both companies had launched services with 2.5G (CDMA 1xRTT);
- the companies had contiguous operating areas. Since the Brazilian legislation does not allow that the same company holds more than one mobile licence in the same area, no operation had to be sold off;
- the control of Brasilcel was equally divided between its parent companies. The CEO being appointed by Portugal Telecom, whilst the president of the administrative council appointed by Telefónica\textsuperscript{25}; and
- the experience that the two groups had in working as a joint venture in Morocco. The joint operation in Morocco had been in place for more than two years and no sign of conflict between the partners had appeared.

The joint venture started operations with 13.7 million customers (40\% of market share), making it the largest mobile company, not only in Brazil but in the whole of South America. Although not covering the majority area of Brazil, it operated in an area that represented more than 70\% of the country’s GDP.

Brasilcel’s leadership in the market was further reinforced in January 2003 with the acquisition of Tele Centro Oeste (TCO). TCO was the A-band operator in Centre-west region and owned NBT, the B-band operator in the North region. Brasilcel paid US$495 million for 64\% of TCO’s voting capital (20.69\% of total capital). By acquiring TCO, the company increased its customer base to 16.8 million, representing almost half of the Brazilian market and over 11 million more subscribers than its closest competitor. However, TCO used TDMA technology, so investment was needed to install a CDMA overlay. With this acquisition, Brasilcel extended its presence to almost the entire Brazilian market, to areas that comprise 86\% of its territory and which produce 83\% of the country’s GDP (see Figure 2).

\textsuperscript{23} Due to regulatory matters, Portugal Telecom could not have voting control of the company until 2003 or after adopting SMP rules. The transaction was ratified by Anatel under a series of conditions, with Portugal Telecom being allowed initially to become only the technical operator of Global Telecom.

\textsuperscript{24} This was approved by Anatel because the companies decided to adopt the SMP rules.

\textsuperscript{25} This would change over a period of time, so the CEO becoming appointed by Telefónica and the President of administrative council appointed by Portugal Telecom, and then change again and so on.
In April 2003, Brasilcel was re-branded as ‘Vivo’. The company invested more than U$11 million in the launch of the Vivo brand throughout the country. This change was driven by the aim to have a stronger national brand, reduce the cost of marketing campaigns and increase roaming usage. In October 2004, Vivo launched the first 3G service in Brazil with the technology CDMA EV-DO. As of June 2005, Vivo had 28.4 million subscriber representing 38% of market share.

3.2 TIM (Telecom Italia Mobile)

The first investment of Telecom Italia Group in Brazil took place in the B-band auctions in 1997. Telecom Italia Mobile (TIM), through its Stet subsidiary, participated in the Vicunha consortium (Maxitel), which won the B-band licence in Bahia, Sergipe and Minas Gerais for U$685 million. TIM had a minority stake of 43.15% in the consortium. In 1998, Telecom Italia, via its subsidiaries, decided to participate in the privatisation of Telebrás through different consortia that acquired two mobile operators and one fixed operator. The two mobile operators acquired were Tele Nordeste Celular for U$568 million and Tele Sul Celular for U$650 million. In both cases 19.26% of equity capital was acquired. The fixed operator was Tele Centro Sul, for U$1,780 million, later renamed as Brasil Telecom (BrT).

In 1999, TIM increased its stake in both Tele Nordeste Celular (TIM Nordeste) and in Tele Sul Celular (TIM Sul) to 51.8%, by acquiring the shares that were floated in the stock market.
Subsequently, in 2000, the company also acquire a controlling share in Maxitel for US$266 million, bringing its equity investment to 96.67% of the total share capital. The company decided to use TDMA technology in its three mobile networks. In 2001, TIM concluded that a national presence would offer advantages to compete in the Brazilian market. The company, therefore, decided to participate in the auctions for the D- and E-bands. It invested US$879 million and acquired GSM licences in all the regions of the country where it was not yet operating. As a consequence, TIM became the first, and so far the only, mobile operator to have a national footprint in Brazil (see Figure 3).

However, before TIM could launch its new operations, there was a regulatory issue to be resolved. The SMP legislation stated that a mobile company, or its parent company, that had voting control in a fixed operator could only launch D- and E-bands mobile services if the fixed operator had met its universalisation goals imposed by Anatel prior to the December 2003 official deadline. Since Telecom Italia owned 38% of BrT, it requested that the company invested to comply with this regulatory demand. However, the other shareholders of BrT, in particular the Opportunity Group, refused to make the required investments.

![Figure 3: TIM Licensed Area](image)

---

26 To anticipate the goals required heavy investments by the companies. The other two local concessionaries, Telemar and Telefônica anticipated their goals.

27 According to Brazilian telecommunication law, ownership of more than 20% of voting capital or appointment of directors for the board is considered to represent control of the company. For more details see Anatel Resolution n.101/99 in [www.anatel.gov.br/biblioteca](http://www.anatel.gov.br/biblioteca).
Therefore, in mid 2002, TIM had the entire necessary infrastructure ready for the launch of its new operations, but could not launch the service. The problem became even more complex after BrT acquired a mobile licence. Despite the fact the Telecom Italia wanted to keep its control of BrT, the only possible solution was to reduce its stake in BrT until it complied with the regulatory requirements. Thus, in September 2002, Telecom Italia reduced its stake in BrT from 38% to 19.9% and was free to initiate the GSM mobile operations. Telecom Italia had the right to return to the control of BrT after December 2003, but the situation between the shareholders, namely Telecom Italia, Opportunity and Citigroup, became so contentious and acrimonious that it is now a matter of intense judiciary contents involving Brazilian and USA courts. The latest development of this conflict was the appeal made by TIM for the London Arbitrage Court, on August 1, 2005.

TIM, finally, launched its GSM operations in October 2002. At the beginning of 2003, TIM decided to adopt the new mobile legislation (SMP) for all its operations. The company then acquired an extension band in 1,800MHz for its A- and B-band operations and built a GSM overlay on top of its TDMA networks. As of June 2005, TIM had 16.7 million subscriber representing 22% of market share.

3.3 Claro (América Móvil)

In September 2000, América Móvil was created as a spin-off from Telmex (Teléfonos de México) with the mission to develop mobile businesses across Latin America. In November 2000, América Móvil established a US$4 billion joint venture with Bell Canada International (44.3%) and SBC Communications (11.4%) called Telecom Americas. América Móvil started with a 44.3% interest in the joint venture, but after several ownership reorganisations in 2001 and 2002 Telecom Americas became majority owned by América Móvil (98.9%) and focused solely at the Brazilian market. In the Brazilian mobile market, Telecom Americas initially held 59% equity interest in ATL (B-band operator in the States of Rio de Janeiro and Espírito Santo); 16.3% interest in Telet (B-band operator in Rio Grande do Sul); and 16.3% interest in Americel (B-band operator in the Centre-west of Brazil).

Recognising the potential growth of the Brazilian mobile market, Telecom Americas decided in 2001 to strengthen its presence in the country by increasing its equity interest in its three mobile operators and, if possible, acquiring other companies. Thus, through a series of transactions,

---

Telecom Americas increased its interest in ATL\(^{29}\) (to 100%), Americel (to 77.4%) and Telet (to 77.5%). However, due to the SMC rules, Telecom Americas had only 19.9% of voting shares in each of these companies (i.e. no voting control). The company could acquire the voting control of its investments after 2003 or after its adoption of SMP rules. Telecom Americas also acquired 19.9% of the voting shares and 100% of the preferred shares of Tess, the Band B mobile operator in the state of São Paulo\(^{30}\) from Telia for US$950 million.

These investments were strategically significant for América Móvil since their geographic areas were complementary and all used TDMA technology. In September 2002, Telecom Americas had four mobile businesses in Brazil serving 4.5 million subscribers and was the fourth largest mobile group in the country with 14% of the market.

At this point, Telecom Americas had to increase its presence in the market in order to safeguard its position against possible takeovers. Thus, in November of 2002, Telecom Americas decided to participate in the auctions for new mobile licences and bought for US$150 million licences to provide service in the Metropolitan area of São Paulo and four other States (Paraná, Santa Catarina, Bahia and Sergipe)\(^{31}\). This was the first green-field investment made by the company in Brazil, since all the other operations were acquisitions.

Consistent with its strategy of being an “acquirer”, in March 2003, Telecom Americas acquired 97.5% of BSE, the B-band operator in the Northeast of Brazil for US$180 million from BellSouth and Safra Bank\(^{32}\). Later on, in November 2003, the company also acquired BCP operations in São Paulo for US$625 million. Once more, these acquisitions were geographically complimentary and all used TDMA. With this move Telecom Americas became the second mobile operator in Brazil, in terms of market share, with 9.5 million customers (21% of market share) in the end of 2003.

In August 2003, América Móvil invested roughly US$12 million to re-brand all its operations in Brazil as ‘Claro’. In August 2003, the company also decided to adopt the new regulatory framework under SMP rules. Claro’s green-field operators use GSM technology. Thus, it bought an extension band in 1,800MHz for its B-band operations and started in 2003 the roll-out of a GSM overlay on top of all its existing TDMA networks. In September 2004, Claro acquired a GSM licence in Minas Gerais for US$18 million. Therefore, the company now has licence to operate in an area that covers 95% of the country GDP (see Figure 4).

\(^{29}\) In August 2001, Telecom Americas acquired from Williams Communications Group an additional 41% economic interest in ATL, for a purchase price of US 400 million. Also in 2001, Telecoems acquired the shares of Americel and Telet owned by TeleSystem International and investment and pension funds for an undisclosed amount.

\(^{30}\) Tess operates in the state area except the city and metropolitan region of São Paulo.

\(^{31}\) The licence for São Paulo State was returned to the government later on due to the purchase of BCP.

\(^{32}\) Later in 2003, Telecom Americas acquired the remaining interests in BSE held by minority shareholders.
One of the main obstacles faced by Claro was its lack of fixed operator. Claro was the only one of the main mobile groups that did not have a fixed operator partner and this could jeopardise its long term survival in the market, due to the increasing promotion of converged services by the other groups. Aware of the potential threats that this may cause, Telmex (that is controlled by the same group that controls América Móvil) decided to invest heavily to overcome this situation. Thus, in 2004 Telmex bought AT&T LA\textsuperscript{33} for U$196 million. Since the beginning of 2003 AT&T LA was operating under chapter 11 of the US bankrupt code. Telmex also acquired Embratel, the Brazilian long distance incumbent from MCI. Telmex paid U$400 million for 51.8\% of voting shares of Embratel, and subsequently increased its stake to 95\% of voting shares and 45\% of preferential shares (64\% of equity capital). Whilst Embratel did not have a significant market share in the residential local telephony, it had a large proportion of the corporate market and was investing heavily to increase its presence in the local market\textsuperscript{34}. In order to further enhance its market position, in 2005 Telmex acquired from Globopart 37.1\% of Net, the main cable operator in Brazil, for US313 million. There are speculations in the market that Telmex could soon increase its stake in Net and merge its Embratel and Net operations to provide triple-play solutions. As of June 2005, Claro had 16.2 million subscriber representing 21\% of market share.

\textsuperscript{33} AT&T LA had operations in Brazil, Chile, Argentina, Peru and Colombia.

\textsuperscript{34} Embratel had previously bought Vesper, a new entrant in local fixed telephony operating in São Paulo state, the north and the east of Brazil.
3.4 Other Mobile Operators

There are five other mobile operators in Brazil. The biggest one is Oi, which has 8.1 million mobile subscribers (10.6% of market share) and is owned by Telemar, the largest fixed operator in the country in terms of subscribers. The other operators are: Telemig/Amazonia Celular (4.1 million subscribers), BrT GSM (1 million subscribers), CTBC (0.3 million subscribers) and Sercomtel (around 80 thousand subscribers). Telemig/Amazonia Celular and BrT GSM are controlled by Citigroup and local pension funds. The other companies are controlled by Brazilian investors. Nevertheless, most of these regional players may be acquired by one of the main mobile groups in the future.

4. Discussion and Conclusion

With hindsight, it is clear that the decision made by the Brazilian Government to divide the country in ten regions during the implementation of market-based reforms had far-reaching consequences. This was the key step in improving mobile service in the remote and poor areas of the country, not only by investments in network roll-outs, but also in tariff competition and handset subsidy.

After this fragmented market had accomplished its purpose, consolidation was inevitable given the economics of mobile networks. Among several important players in the mobile world arena that were competing in Brazil, four companies emerged in this process of consolidation: Telefónica, Portugal Telecom, TIM and América Móvil. Significantly, each of the groups employed a completely different approach in the process of consolidation.

Telefónica and Portugal Telecom had a strategy of acquiring mainly incumbent operators (A-band) and avoiding any green-field investments. As shown in Table 2 and Figure 5, this strategy allowed a fast increase in subscriber base and an Ebitda margin in line with the most profitable operators in the industry (e.g. Vodafone). However, not only the companies paid a relative high price for their acquisitions, but also they where not able to have a very high stake on their new operators, as can be seen by the number of proportionate subscribers. In addition, they opted for a joint venture, which are, however, not without their risks as partners may disagree on strategic and operational issues.35 Vivo also made a risky bet being the only operator in Brazil to use CDMA technology. Since it does not have licence to operate in the whole country, its customers can not

---

35 These issues are dealt with at length in the literature, see, for example: Park and Kim, 1997 or Porter and Fuller, 1986.
make digital roaming in some areas. Furthermore, the company still has more than 20% of its customers with TDMA handsets and its growth rate is below that of the national average (see Figure 6). Another consequence of its option for CDMA is that it has to make higher subsidies on the handsets than its GSM competitors, due to higher scale economies of the GSM technology. On a more positive note, Vivo did not have to build a new network on the top of its CDMA, as was the case with the other operators that had to invest in a GSM network before their TDMA network had completed five years of commercial operation.

Table 2 – Selected Operational Data

<table>
<thead>
<tr>
<th>Selected Operational Data</th>
<th>Vivo</th>
<th>TIM(^a)</th>
<th>Claro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Revenue - 2004 (R$ million)</td>
<td>10,929</td>
<td>6,617</td>
<td>5,248</td>
</tr>
<tr>
<td>Ebitda(^b) Margin - 2004</td>
<td>33.4%</td>
<td>19.9%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Subscribers - 2Q05 (million)</td>
<td>28.45</td>
<td>16.75</td>
<td>16.20</td>
</tr>
<tr>
<td>Proportionate Subscribers(^c) - 2Q05 (million)</td>
<td>17.56</td>
<td>11.80</td>
<td>16.02</td>
</tr>
<tr>
<td>Market share - 2Q05</td>
<td>38.0%</td>
<td>22.2%</td>
<td>21.4%</td>
</tr>
<tr>
<td>Share Variation(^d) 2005(^e) / 2001</td>
<td>50%</td>
<td>-30%</td>
<td>200%</td>
</tr>
</tbody>
</table>

Notes:

a) Considering only the Brazilian operations of TIM.
b) Earnings Before Interest Depreciation and Amortisation.
c) Proportionate subscriber calculated by the equity participation of the main controlling group in each of the mobile operators. In the case of Vivo, it is considered the sum of Portugal Telecom and Telefónica stakes.
d) Considering the year average close price adjusted for dividends and splits of the following listed companies: Vivo – TEM: NYSE; TIM – TIM.MI (Italy Stock Exchange) and Claro – AMX: NYSE. Vivo has five operators listed in the Brazilian stock market (Bovespa) and four operators listed in the NYSE. Only the A-band operators of TIM are listed (Bovespa and NYSE) and Claro is not listed. Therefore, the most traded shares of each of the parent companies were presented, in order to make comparison possible.
e) until 30 June 2005.

Sources: Companies Reports, Anatel and FT.com.

Figure 5: Subscriber Base Evolution (in million)

Figure 6: Market Share Evolution (%)

\(^{36}\) There is analogue (AMPS) roaming available, although it is subject to fraud, poor battery life and no digital VAS.
América Móvil has adopted a different strategy in Brazil. Through numerous acquisitions and a handful of green-field investments, the company has sought to maximise its coverage area. In the case of the acquisitions, the company had a very interesting approach, targeting companies with financial problems. Thus, the strategy was to buy companies in trouble and restructure them so that they become profitable. The B-band operators were ideal candidates in this respect because they were heavily indebted in US Dollars due to the costs of acquiring the licences and then constructing the network before the bust of the internet bubble and before the depreciation of the Brazilian currency (Real). This strategy is best exemplified by the case of BCP SP. The company paid U$2.6 billion for its licence and supposedly invested a similar amount to build its networks and to acquire its subscribers. At the time of its acquisition by Claro, BCP had debts of U$1.7 billion and had default a short term loan payment of U$375 million, having its debts downgraded as junk and being effectively controlled by a pool of banks. Nevertheless, Claro acquired the company for U$625 million, with shareholders and creditors assuming a huge loss. The strategy applied by América Móvil allowed almost full ownership of all its operations in the country, as shown by the number of proportionate subscribers in Table 2. However, Claro has to increase its Ebitda margin, which is the lowest among the Brazilian mobile groups. América Móvil’ strategy, which was applied elsewhere in Latin America as well, has proved very successful so far, with its shares increasing by roughly 200% compared to 2001.

TIM’s expansion strategy in Brazil was different from those of Telefónica and Portugal Telecom (Vivo) and América Móvil (Claro). Two growth models were adopted: the first is an expansion strategy based on acquisitions and alliances, adopted by Telefónica and Portugal Telecom, on one hand, and América Móvil on the other. The second is a strategy based on integration and synergies among some incumbent operations and several green-field investments, which was the strategy adopted by TIM. Indeed, through an aggressive strategy of green-field investments, it became the only operator to have a national footprint in Brazil, which provided it with an important advantage over its competitors. It allowed a fast growth in subscriber numbers, making TIM the second largest mobile group in the country. TIM enjoys full ownership of its new operations (B-, D- and E-bands), but a much lower ownership of its A-band operations, which is reflected by its number of proportionate subscribers. This is also revealed by its Ebitda margin, with A-band operators with a high Ebitda margin and the other operators with a much lower one, placing TIM’s Ebitda margin between that of Vivo and Claro.

As far as technology is concerned, apart from Vivo, all other operators in Brazil have opted initially for TDMA and then for GSM. In fact, the growth of GSM in Brazil was exceptionally fast. As Figure 7 shows, the number of TDMA subscribers is falling, while the number of GSM
subscriber has a steady growth. The number of CDMA subscribers is also growing, although with a slower pace.

![Chart](image)

**Figure 7: Mobile Technologies in Brazil (in millions of subscribers)**

Foreign investment has proved essential for the development of the mobile market in Brazil. The process of consolidation carried out by one Mexican and three European companies created big companies with national, or almost national, footprint that changed the market structure and the competitive landscape in place after the introduction of market-based reforms. This process was largely driven by the geography licence area of each operator and by the technology adopted by them.

These foreign companies, however, are soon going to focus on profitability after the investments made in the past years. Though, this slow down in investments may not be in line with the Government’s aspiration, as it is due to auction 3G licences soon (which requires more investment by the companies) and is keen to see the continuity of handset subsidy and tariff reduction that increase the affordability of telecommunications in the country. In addition, the three main groups that operate in Brazil also control most of the Latin American mobile market. This raises interesting questions that could complement this paper by (1) analysing whether this will be compatible with public policies and Brazilian interest (2) placing Brazilian investments in a wider context of foreign direct investments in the region and (3) looking more at the interplay between regulation and investments.
References


Anatel (2002). *Presentation of Anatel’s President: Including the Excluded*. Brasília: Anatel


