Multinationals from Emerging Countries: Internationalization of Brazilian Companies between 1970 and 2013

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Abstract

In recent years, an increasing number of Brazilian companies have begun to operate abroad. Several factors contributed to this – most importantly, a new approach adopted by the Brazilian government that directly promotes international expansion through the National Bank for Economic and Social Development (BNDES). The purpose of this paper is to provide a long-term perspective on how these economic groups were created, as well as their activities from 1970 to 2013. In order to understand the internationalization of Brazilian companies and their operations during the early 21st century, this article seeks to answer questions such as: what advantages does Brazil have for the creation of multinational companies? What advantages were developed by the companies themselves that make them competitive on the international market? A preliminary conclusion derived from this analysis is that it was the combination of the advantages provided by Brazil and those developed by the companies themselves that led to these capacities and competitiveness on the international level.

Keywords: Brazil, internationalization, competitiveness, transnational corporations, enterprises

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Acronyms

BOE	Barrel of oil equivalent
BNDE	National Bank for Economic Development (Banco Nacional de Desarrollo Económico)
BNDES	National Bank for Economic and Social Development (Banco Nacional de Desarrollo Económico y Social)
BRICS	Brazil, Russia, India, China and South Africa
Cenpes	Leopoldo Américo Miguez de Mello Research and Development Center (Centro de Investigaciones y Desarrollo Leopoldo Américo Miguez de Mello)
CSA	Country-specific advantage
CSN	National Iron and Steel Works (Compañía Siderúrgica Nacional)
Embrapa	Brazilian Agricultural Research Company (Empresa Brasileña de Investigación Agropecuaria)
FSA	Firm-specific advantage
GDP	Gross domestic product
IBGE	Brazilian Institute of Geography and Statistics (Instituto Brasileño de Geografía y Estadística)
IGP-M	General market price index
IPEA	Institute of Applied Economic Research (Instituto de Investigaciones Económicas Aplicadas)
ITA	Technological Institute of Aeronautics (Instituto Tecnológico de Aeronáutica)
MDIC	Ministry of Development, Industry and Foreign Trade (Ministerio de Desarrollo Industria y Comercio Exterior)
NDP	National Development Plan (Plan Nacional de Desarrollo)
OPEC	Organization of Petroleum Exporting Countries
R&D+I	Research, Development and Innovation
UFPR	Federal University of Paraná (Universidad Federal de Paraná)
Unicamp	State University of Campinas (Universidad Estatal de Campinas)
Unoesc	University of Western Santa Catarina (Universidad del Oeste de Santa Catarina)
USDA	United States Department of Agriculture

1. INTRODUCTION

In an analysis of a study by the University of Sao Paulo and the Getúlio Vargas Foundation, Viturino (2011) concludes that national companies are forming global networks through acquisitions and are increasingly committed to innovation abroad. He reports that in November 2010, the holy cities of Mecca and Medina received two million pilgrims from around the Middle East to celebrate Ramadan. About 32,000 of these made highway journeys on buses manufactured especially for the occasion by the Marcopolo company. "The pilgrims cannot have anything above their heads while traveling to these cities, so we created a vehicle with a removable roof," said Ruben Bisi, Director of International Operations. "Since 2003, Marcopolo has sold 2,700 intercity buses to Saudi Arabia, 700 of them convertibles, so that no one causes offense to Allah"[1] (Viturino 2011: 1).

Marcopolo is representative of the recent phenomenon of Brazilian companies that have opted for a business model that is open to the participation of international subsidiaries in processes of innovation. This space to create products and processes adapted to different markets was a key factor in 38% of the company's revenues generated outside Brazil in 2009. Thus, after fifty years of international activities, Marcopolo operates subsidiaries in Mexico, Argentina, Colombia, South Africa, Egypt, and India (Viturino 2011).

In recent years, both old and new Brazilian multinationals have been able to count on the support of the government, which – through BNDES – changed its position and began to support the process of internationalization. This paper aims to provide a long-term framework to understand the formation and operations of these groups from 1970 to 2013. To better understand the beginnings of the internationalization of Brazilian companies and their operations at the start of the 21st century, this study seeks to answer questions such as: What are Brazil's specific advantages in creating multinationals? What are the specific advantages developed by companies in order to become competitive on the international market? What specific characteristics of Brazilian multinationals make them different from other internationalized firms?

To achieve this goal, the paper has been divided into three sections. The purpose of the first is to understand how the Brazilian economy has evolved since the middle of the last century. Between 1940 and 1980, Brazil was transformed from an "agro-exporting economy" to an industrial economy. It was during these decades that a modern and diversified industry

1. Translation by *Apuntes*.

developed, creating an environment conducive to the emergence and/or strengthening of internationalization. It was at this stage that internationalization took place for three basic purposes: to sell raw materials that were abundant in Brazil (country-specific advantages), as was case of the Vale company; to obtain raw materials that the country lacked (Petrobras is an example); or to represent the country diplomatically or provide services for Brazilians living abroad, as was the case of the Banco do Brasil.

Then, between 1980 and 2000, the Brazilian economy faced a growth crisis and had to deal with rising inflation and high foreign debt, among other problems. At this stage, several companies, especially those in construction, sought out the international market to take advantage of its industrial capabilities, its infrastructure, and its accumulated knowledge on implementation of large projects, as well as to manage and maintain their teams of executives and employees. Two of the groups that expanded abroad at this stage are Odebrecht and Camargo Corrêa, each of which developed specific advantages.

At the beginning of the new millennium, the Brazilian economy returned to growth and the internal market strengthened, which made it possible for more companies to become multinationals. It is important to highlight the various factors that contributed to this phenomenon: monetary stability, strengthening of the domestic economy, reduction of poverty (with a better distribution of income), growth of the stock market, a significant increase in exports and the clear decision of the federal government to promote the formation of large groups with the potential to take on the international market. To demonstrate how this occurred, we discuss the increase in companies that export their products, on the one hand, and, on the other, we provide an overview of the twenty most internationalized companies.

In the last section, we present three cases that demonstrate both the advantages provided by Brazil and those created and developed by the companies themselves to enable their internationalization. Petrobras, Gerdau, and Odebrecht worked on company-specific advantages, creating research centers, innovation, and new technologies as well as devising efficient management models. On the other hand, another group of companies including Vale, JBS-Friboi, and BRF-Brasil Foods have expanded as a result of the specific advantages of Brazil in terms of natural resources and self-management models that help explain the presence of these companies on various continents. Finally, we present some conclusions and discuss some challenges to achieving better insertion of domestic groups into foreign markets.

2. EVOLUTION OF THE BRAZILIAN ECONOMY IN THE SECOND HALF OF THE 20TH CENTURY AND THE BEGINNING OF THE 21ST CENTURY

Brazil was an agricultural exporter in colonial times (1500-1822), during the Empire (1822-1889), and during the First Republic (1889-1930). The transition to an industrial economy began in the late 19th century, but intensified with the implementation of the policy of industrialization through import substitution, which began when Getúlio Vargas came to power in 1930 and lasted until the end of the 1970s.

The number of industrial start-ups in the country rose from 13,569 in 1920 to 49,418 in 1940 (IBGE 1957) and the number of workers in the sector during that period increased from 293,673 to 781,185. Then, in the 1940s and 1950s, state investment began to play an important role in the formation of some companies that today are among the country's major multinationals. For example, the National Steel Works (CSN) was founded in 1941, with Guilherme Guinle (FGV CPDOC n.d.) as its first president. It engaged in the production of raw materials. In addition, in 1942, the Vale do Rio Doce Company was founded to meet the demand for iron ore on the international market during WWII.

Soon after, other state companies were established, including BNDE (currently BNDES) in 1952. This bank, together with the Banco do Brasil, became responsible for financing medium and long term industrialization. Petrobras, a company founded in 1953, created a monopoly in oil exploration, production, and refining, while Eletrobras, founded in 1962, was responsible for building power plants and high voltage transmission lines to meet the demand for electricity (Eletrobras n.d.).

An important stage in the industrialization of Brazil took place during the 1950s: the "50 years in 5" Target Plan launched by President Juscelino Kubitschek. According to Villela (2005: 55), this plan "contemplated investments in the areas of energy, transportation, basic industries and food and education, with a budget equivalent to 5% of GDP during the 1957-1961 period."[2] Gremaud *et al.* (2002: 378-379) divide the Target Plan into three main parts: a) state investment in infrastructure, with emphasis on the transport and electrical energy sectors; b) promotion of increased production of intermediate goods such as steel, coal, cement, and zinc; and c) provision of incentives for new consumer durables and capital goods industries.

2. Translation by *Apuntes.*

The decades of the 1960s and 1970s were marked by growth in industrialization, especially as a result of NDP I and NDP II. NDP I was a development plan launched during the government of Emilio Garrastazu Médici (1972-1974) with the purpose of encouraging major national integration projects (transportation, export corridors, telecommunications, the Rio-Niterói bridge, the Trans-Amazon highway, and the Tres Marías and Itaipú hydroelectric projects); special regional development plans; and the expansion of state investments.

NDP II was intended to help fulfill the policies of the first plan by complementing the process of import substitution. It was created during the government of Ernesto Geisel (1974-1979) with the purpose of developing base industries (steel and petrochemicals), capital goods, autonomy in basic inputs (non-ferrous metals, minerals, agricultural fertilizers and pesticides, pulp and paper), energy (nuclear, oil, alcohol, and hydroelectric), two basic plans of scientific and technological development, and the first plan for the National Postgraduate System.[3]

According to Castro (2005: 143), "during the period 1950-1980, Brazil's GDP grew at an average rate of 7.4% per year."[4] This growth, partly driven by the aforementioned economic plans, contributed to the emergence of many start-up enterprises and the growth of companies that now endeavor to take their place on the international stage. One of the practical results of the industrialization process was the continuous decrease of basic goods as a percentage of total exports. Castro (2005) finds that these decreased from 65% in 1973 to 32% in 1984. On the other hand, during this same period, this decline was offset by the increased relative weight of exports of manufactured goods, which increased from 23% to 56%.

It is in this context that the large internationalized Brazilian companies of today started or increased their performance in the domestic market and abroad. At first, they turned to foreign markets for several reasons: a) to export raw materials abundant in Brazil (e.g., Vale, an example of "country-specific advantages"); b) to obtain scarce raw materials (Petrobras, which had not yet developed "their own specific advantages" to discover and explore for deepwater oil); c) to take advantage of infrastructure in place, know-how, highly trained technicians (as was the case of Odebrecht and other construction firms).

The 1980s began with serious economic problems, including rising inflation, a sharp increase in external debt, and low GDP growth. In addition, from a political perspective, it became

3. Data on NDP I and NDP II are from Almeida (2005).
4. Translation by *Apuntes*.

increasingly difficult for the military to maintain themselves in power and they needed to prepare for a transition back to civilian government.

One of the factors that contributed to the end of the long period of economic growth was the second oil crisis in 1979. According to Hermann (2005: 97), as a result of a decision by OPEC, the price of a barrel of oil on the international market jumped from an average of US$ 13.60 in 1978 to US$ 30.03 in 1979 and US$ 35.69 the following year, at a time when the country imported 82.7% of its oil.

Inflation did great harm to businesses and economic activities. Even though there was already high inflation in the 1960s and 1970s, uncontrolled or hyperinflation occurred mainly from 1980 to 1994. Inflation rose from 110% in 1980 to 235% in 1985 and to 2,947.7% in 1990 (this translated into a daily average inflation rate of 8.07%, i.e., in a single day, inflation was higher than for the whole of 2013). Hyperinflation persisted in 1993, with the IGP-M reaching 2,567.5% according to the IBGE.

Economists and politicians, as well as the population of Brazil as a whole, needed to make an effort for nearly a decade and a half to control inflation. To do so, a series of plans were developed. The first was the Cruzado Plan (1986), followed by the Bresser (1987), Verão (1989), Collor I (1990) and Collor II (1991) plans. These plans were based on price and wage freezes, which were effective at first but did not overcome inflation over the medium and long-term. It was only after the launching of the Real Plan in 1994 that inflation dropped to levels close to those of developed countries.

Another problem that affected the Brazilian economy was external debt. According to Matos (2006), it reached US$ 37.2 billion in 1980. From there, it rose to US$ 78.6 billion in 1985, US$ 86.9 billion in 1990, and to US$ 100.5 billion in 2000. In many developing countries, the payment of interest and the principal balance of the debt caused serious disruptions. As a result, on more than one occasion, they called for a moratorium due to difficulties in making payments. The Brazilian case was no exception.

These difficulties were reflected in low economic growth throughout the 1980s; GDP grew only 1.3% on average between 1980 and 1984 and 4.4% in 1985 and 1989, while inflation remained high. Such macroeconomic policy conditions seriously limited the possibility of action by some companies, especially those that had grown rapidly in the previous years to meet the demands of the "Brazilian miracle." With the end of growth and the crisis of the domestic market, some companies directed their efforts towards the international market in order to continue to grow.

Another factor contributing to economic change was the National Privatization Program (Law N° 8031 of 1990) promulgated during the government of Fernando Collor de Mello (1990-1992). During his term of office, only 18 companies were privatized, leaving for his successor, Fernando Henrique Cardoso (1995-2002), the task of privatizing a majority of state companies, placing them under the control of business groups. As a result of this process, some Brazilian-owned private groups were strengthened and increased in size (Bradesco, Itaú, Gerdau, Odebrecht and Vale, among others), which subsequently contributed to their process of internationalization.

From the mid-1990s until 2013, the Brazilian economy did well, favoring companies operating in the domestic market, which – combined with other factors – contributed to an increased process of internationalization. According to Mattos and Jayme Junior: "[...] there seems to be no doubt that the government of Lula (2003-2010) had the best performance in recent Brazilian history in terms of the growth of per capita GDP and social inclusion"[5] (2011: 35).

These same factors, as well as others discussed below, are also highlighted in Curado's (2011) analysis. According to him, the years 2003-2008 were marked by renewed economic growth, with an average annual GDP growth rate of 4.2%, about twice the 2% annual rate during previous period (1995-2005). Another statistic that sheds light on the economy of the period is the investment/GDP ratio, which was 16.23% in 2003 and rose to 20.10% in 2008. However, this rate is still low when compared to that of other emerging countries, though economic growth has shown an upturn in recent years.

The effects of increased growth during this time were felt in the labor market. In January 2003, the unemployment rate was 11.3%; in October 2010, it dropped to 6.1%, the lowest rate recorded in the historical series that began in 1983. As a result, the real average wages of a primary job, according to the IBGE, increased from 1,202.60 Brazilian reals (BRL) in 2003 to BRL 1,515.40 in 2010.

The reduction of poverty was another important effect. The rate of extreme poverty decreased from 11.49% in 2005 to 7.28% in 2009, according to the calculations of the IPEA. In 2005, this rate was 30.82%, while in 2009 it descended to 21.42%. The decline in levels of poverty and extreme poverty was the result of a combination of factors, which included an increase in the minimum wage. In 2007, a policy was adopted to readjust this

5. Translation by *Apuntes.*

wage until 2023, taking into account the inflation rate and the real increase as a result of variation in the GDP. Thanks to this policy, the purchasing power of the minimum wage experienced a recovery that, when measured in terms of the basic market basket of goods, went from 1.20 baskets in 1995 to 2.24 baskets in 2012.

Another result of economic growth was the expansion of the Family Basket program, which benefited 12.9 million families, or about 50 million people who had a per capita monthly income of less than BRL 140.00. In 2011, this program injected around BRL 13 billion into the economy, representing about 0.4% of the country's GDP (Planalto 2011).

The combination of these factors with others such as aggregate pay increases, the reduction of poverty, availability of new credits, economic stabilization that came with the end of inflation from the mid-1990s, the strengthening of the Sao Paulo Stock Exchange, an increase in the volume of exports, increases in formal employment, and decreases in unemployment, all constituted positive factors that led to the consolidation of companies in the domestic market, which in turn contributed to a greater number of companies initiating or strengthening their process of internationalization.

3. BRAZILIAN COMPANIES THAT EXPORT TO THE WORLD MARKET

An important stage in the process of internationalization of companies is the commencement and increase of exportation. Indeed, analyzing how many of a country's companies are involved in foreign trade is one way of evaluating their chances of building a multinational group. By verifying what occurred over the last thirteen years, which coincided with the recovery of the Brazilian economy from the beginning of the third millennium, as indicated above, it can be seen that companies of all sizes expanded. Still, the biggest increase was in large groups, whose number increased from 77 to 386 firms (Table 1).

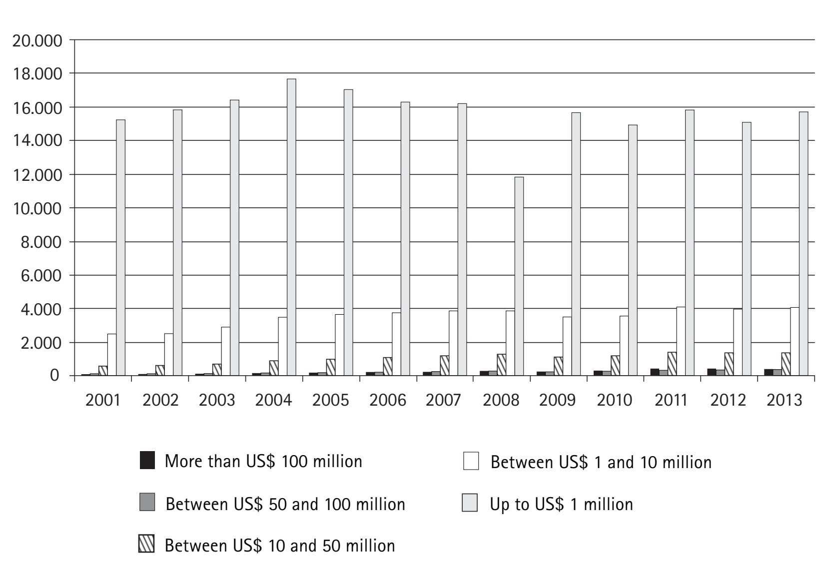
Table 1
Brazilian companies that export to the world market, 2001-2013

Range	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Over US$ 100 million	77	83	103	139	174	202	220	271	235	293	407	412	386
Between US$ 50 and 100 million	103	100	116	152	171	195	234	262	213	249	307	329	357
Between US$ 10 and 50 million	558	595	683	876	963	1,069	1,175	1,261	1,095	1,174	1,384	1,348	1,351
Between US$ 1 and 10 million	2,466	2,488	2,875	3,463	3,627	3,730	3,836	3,841	3,479	3,536	4,070	3,945	4,046
Up to US$ 1 million	15,194	15,789	16,370	17,622	16,996	16,249	16,163	11,789	15,621	14,889	15,782	15,049	15,667
Total	18,398	19,055	20,147	22,252	21,931	21,445	21,628	17,424	20,643	20,141	21,950	21,083	21,807

Source: MDIC (2012); compiled by authors.

Table 1 also demonstrates that there was a sharp decline due to the 2008 crisis. The reason for this was that many of the firms exported to the countries most affected by that crisis; that is, those in North America and Europe. Micro and small enterprises were affected the most, as can be seen in Figure 1.

Figure 1
Brazilian companies that export to the world market, 2001-2013



Source: MDIC (2011); compiled by authors.

4. THE MOST INTERNATIONALIZED BRAZILIAN COMPANIES

There are several ways to verify the extent to which a business group is internationalized. In Brazil, the Dom Cabral Foundation performs such an analysis based on three criteria: the sales, assets, and employees of each group, comparing the size of each within Brazil and abroad. The analysis issued in 2014 was the ninth prepared by this foundation. The lists provided undergoe small changes from year to year that are of little significance. Analyzing the profiles of the 20 most internationalized companies, it can be seen that there are four in the food sector and two in the construction sector, while others are from sectors as wide-ranging as aircraft manufacturing and information technology. This demonstrates that there is variety in the sectors represented, although the groups are not necessarily the largest in terms of sales and earnings among the country's multinational firms or in their share of the international market as a whole, as can be seen in Table 2.

Table 2
The most internationalized Brazilian companies, by index and countries where subsidiary companies are located, 2014

Position	Company	Internationalization Index	Number of countries with subsidiary companies
1	JBS-Friboi	0.589	17
2	Gerdau	0.542	19
3	Stefanini	0.496	27
4	Magnesita Refratários	0.457	19
5	Marfrig Alimentos	0.433	16
6	Metalfrio	0.427	5*
7	Ibope	0.364	13
8	Odebrecht	0.439	28
9	Sabó	0.333	11*
10	Minerva Foods	0.320	9*
11	Tigre	0.306	9*
12	Vale	0.283	31
13	Weg	0.280	25
14	Suzano	0.271	9*
15	BRF-Brasil Foods	0.271	19
16	Camargo Corrêa	0.250	17
17	Embraer	0.231	5*
18	Ci&T	0.208	5*
19	Marcopolo	0.195	24
20	Artecola	0.194	5*

Note: an asterisk indicates that the data is from the enterprise's website.
Source: Fundación Dom Cabral (2014); compiled by authors.

One of the noteworthy aspects of the index of the most internationalized companies is the presence of Marfrig (ranked fifth in 2014); this is a new company, formed in 2000s, and operates in the traditional food sector. This company knew how to take advantage of the positive momentum of the national economy and the support of BNDES, and made acquisitions and achieved mergers in both the domestic and external markets. This makes it a case that deserves further study. The other companies are well known in Brazil and abroad.

Among the data from the Dom Cabral Foundation on the regions of the world where Brazilian companies have the greatest presence, the Americas stand out, followed by Europe. In terms of countries, the largest presence is in the United States, followed by several countries in Latin America (Table 3).

Table 3
Countries with the most Brazilian companies, 2014

Position	Country	Number of companies
1	United States	41
2	Argentina	35
3	Chile	30
4	Colombia	23
5	Uruguay	23
6	Mexico	22
7	Peru	22
8	China	21
9	United Kingdom	19
10	Paraguay	17
11	Venezuela	17
12	Portugal	16
13	France	13

Source: Fundación Dom Cabral (2014).

We can also verify internationalized companies by analyzing the list of the ten largest Brazilian exporters that sell over US$ 100 million annually. According to the list prepared by the MDIC in 2011, the largest are Petrobras, Vale, Embraer, Samarco Mineração, Companhia Brasileira de Metalurgia e Mineração, Acelormittal do Brasil, Coopersucar, Alunorte Alumina do Norte do Brasil, Fiat Automóveis, and Caterpillar do Brasil. Only two (Embraer and Vale) can be found in the list of the most internationalized.

5. BRAZILIAN COMPANIES ATTEMPTING TO ENTER THE INTERNATIONAL MARKET

In recent years, a significant number of companies in the BRICS and other "emerging countries" are entering the global market. Brazil is in an intermediate position. According to a study by the Boston Consulting Group (cited in Camargos 2007: 36), there are twelve Brazilian companies among the 100 globalized companies belonging to this group of nations. According to this study, Brazil is surpassed by China (44) and India (21), but is ahead of Russia (7) and Mexico (6).

The country came late to this process when compared with China, India, and the developed nations. Only during recent administrations, especially in the two terms of President Lula (2003-2010), were there clear incentives for the formation of conglomerates with the power to intervene in foreign markets on several levels: exports, buying foreign competitors, and the establishment of industrial plants abroad. A key player in this process was BNDEs,[7] acting in its function as a bank financing the formation of conglomerates, encouraging mergers, acquisitions, and joint ventures, and providing resources for the purchase of foreign competitors.

When it comes to theoretical explanations of the process of internationalization, there are two main trends, divisible between classical theories and new theories, that seek to explain the trajectory of firms from the "traditional countries" (United States, Japan, Europe) as well as from the "emerging countries" (BRICS).[8] In this paper, we focus only on two aspects: the specific advantages of countries and of companies, in order to better approach the objectives established at the beginning.

Rugman (2010) revised his initial theory, highlighting various aspects that remain valid in explaining the internationalization of companies in emerging countries and mentions others that have become obsolete. Here, we present Rugman's discussion regarding specific advantages of countries and of firms. Rugman highlights the fact that leaders of multinationals exploit both CSAs and FSAs in their strategies to optimize internationalization.

7. For more information on the role of BNDES in the process of internationalization of Brazilian companies, see, among others: Alem and Cavalcanti (2005); Carvalho *et al.* (2002); Simão (2010); Dalla Costa and Souza Santos (2010); Alvorada Institute (2011).
8. The literature on classical and new theories that seek to explain the process of internationalization of companies is broad and includes various studies that address the issue. For a synthesis of both types of theory, see, among others: Marinho (2013); Ramamurti and Singh (2010); Guillen and Garcia Canal (2010); Goldstein (2009).

> […] the Country Specific Advantages – CSAs represent the natural factor endowments of a nation. They are based on the key variables in its aggregate production function. For example, CSAs can consist of the quantity, quality, and cost of the major factor endowment, namely resources. (Rugman 2010: 50)

Regarding firm-specific advantages, Rugman affirms that:

> […] the Firm Specific Advantages – FSAs possessed by a firm are based ultimately on its internalization of an asset, such as production knowledge, managerial, or marketing capabilities over which the firm has proprietary control. FSAs are thus related to the firm's ability to coordinate the use of the advantage in production, marketing, or the customization of services. (Rugman 2010: 51)

Based on this discussion, and keeping in mind that there are other ways to analyze the internationalization process, we have selected three internationalized groups that had CSA and three other groups that developed these advantages. Indeed, the companies were selected on the basis of their advantages by virtue of being Brazilian or, in the second group, by virtue of having developed their own advantages that are associated with the advantages of the country.

The companies Vale, JBS-Friboi, and BRF-Brasil Foods are discussed below because of the specific advantages of Brazil in terms of natural resources, which are accompanied by their own management models. On the other hand, Petrobras, Gerdau, and Odebrecht provide examples of enterprises that developed firm-specific advantages, creating centers of research, innovation, and new technologies, and devising efficient management models that help explain their presence on different continents.

5.1 Vale, JBS-Friboi, and BRF-Brasil Foods and CSAs

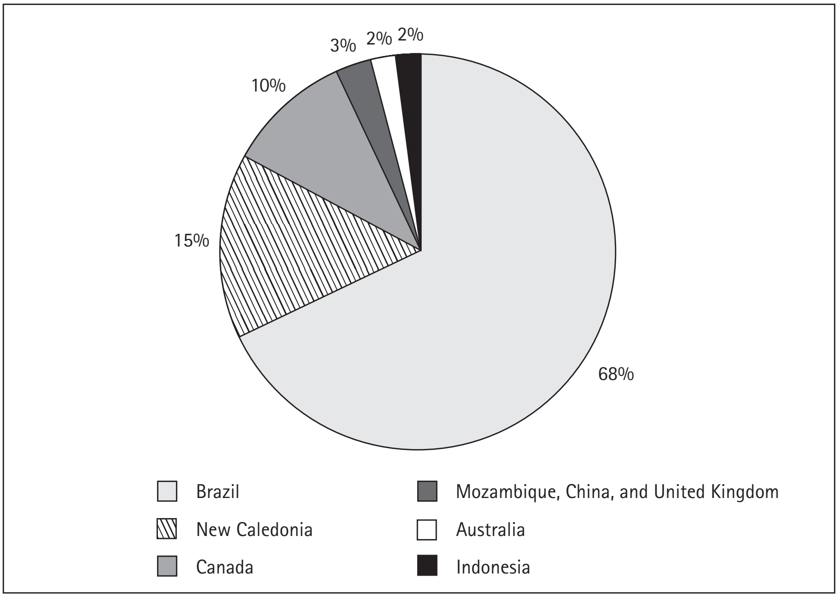
A. Vale and its process of internationalization

Vale is the world's largest producer of iron ore and iron ore pellets and the world's second largest producer of nickel. It also produces manganese ore, ferroalloys, coal, copper, metals from the platinum group, gold, silver, cobalt, and potassium, in addition to phosphates and other fertilizers. To sustain its growth strategy, it exploits minerals in fifteen countries worldwide and operates a logistics system in Brazil and in other regions of the globe, encompassing railroads, maritime terminals, and ports that are integrated into its mining operations. In 2012, Vale had net operating revenues of US$ 47,694 million and a net profit of US$ 5,254 million (Vale 2012: 13-15).

Vale was incorporated on January 11, 1943, as one of the state enterprises responsible for ensuring basic raw materials for the then "incipient" Brazilian industrialization as well as to meet war needs. Following a long period of industrialization through import substitution, Vale grew in both domestic and foreign markets as a state company. But the biggest event in its history was its privatization, which occurred on May 7, 1997, in the context of the privatizations mentioned above. The Brazil Consortium (Consorcio Brasil), led by the CSN, won the bidding held in the Rio de Janeiro Stock Exchange, acquiring 41.73% of the common shares belonging to the Federal Government for US$ 3.338 billion.

Vale has an unusual background related to its internationalization. When it was founded, its entire production was destined for the British market to meet the demand generated by WWII. After the war, its production remained wholly designated for export to a variety of countries, mainly in Europe. Vale also began to operate in the domestic market as domestic demand increased as a result of the industrialization of the 1950s, and by 2014 only 30% of its sales were linked to its international operations.[9] After its privatization, Vale purchased various competing Brazilian and foreign companies, investing to become a global company, as can be seen from the data on its investments in 2007 (see Figure 2).

Figure 2
Total amount of investment by Vale in 2007, by country (percentages)



Source: Vale (2007); compiled by authors.

9. For a detailed explanation of Vale's growth process in the domestic market and its internationalization process, see Dalla Costa (2011).

This distribution remained basically the same in subsequent years. In 2012, for example, "a large part of the investment budget was invested in Brazil (63.1%) and in Canada (14.4%). The rest was allocated to investments in Australia, China, Indonesia, Malaysia, Malawi, Mozambique, New Caledonia, and Peru, among other countries."[10] (Vale 2012: 72).

Vale is typical of Brazilian companies that benefited from CSAs as a result of Brazil's large reserves of high quality minerals. In addition to this, the company invests to create "its own assets" or specific advantages, especially in R&D+I. As it states in its report:

> [...] The investment budget for 2013 approved by our Board of Directors is US$ 10,126 million for the implementation of projects, US$ 5,117 million for the maintenance of current operations and **US$ 1,053 million for I+D,** distributed into US$ 382 million for mineral exploration, US$ 465 million for prefeasibility and feasibility studies and US$ 206 million to be invested in new processes, innovation and technological adaptation.[11, 12] (Vale 2012: 72)

In addition, Vale was one of the companies that received benefits from BNDES, which, in 2008, granted it a loan of BRL 7.3 billion (Lage 2008).

B. JBS-Friboi and its process of internationalization

The JBS-Friboi group is a global platform for the production and distribution of meat, with operations in Brazil, the United States, Australia, Mexico, Italy, Paraguay, Uruguay, and Argentina. According to company data (JBS-Friboi 2011: 7) its operations also extend to Europe, Asia, and Africa through sales offices and distribution centers. In total, its 286 production facilities employ more than 135,000 people on five continents. Also relevant is the company's slaughter capacity which, in 2012, comprised 81,400 head of cattle, 18,300 head of sheep, 7.2 million chickens, and 50,100 pigs per day.

According to its annual report, in 2012, JBS-Friboi's net revenues were BRL 75.7 billion with a net profit of BRL 1.26 billion (2013: 12).[13] In the animal protein sector, JBS-Friboi stands out in the production of beef (64%), followed by chicken (20%), pork (10%), and others (6%).

10. Translation by *Apuntes*.
11. Our emphasis.
12. Translation by *Apuntes*.
13. Source, retrieved 06/06/2014: http://relatorioanual.jbs.com.br/port/index.htm

JBS-Friboi started out originally as a small slaughterhouse in Anápolis (Goiás) in 1953. It did not expand significantly until the early 1990s. Then, between 1993 and 1997, it acquired sixteen industrial plants and consolidated its presence in the domestic market. In 2005, it began its international expansion through various acquisitions (Table 4).

Table 4
JBS-Friboi – major acquisitions of international plants by country, 2005-2012

Year	Company	Country
1953	Casa de Carne Mineira	Anápolis, Goiás (Brasil)
2005	Swift	Rosario (Argentina)
2005	Swift	San José (Argentina)
2006	Swift	Pontevedra (Argentina)
2006	Swift	Venado Tuerto (Argentina)
2007	Inalca	Italy (plants and distribution centers in Russia and Africa)
2007	Swift Foods Co.	Unided States and Australia
2007	Swift	Berazategui (Argentina)
2007	SB Holdings	Unided States
2007	JV Beef Jerky	Unided States
2008	Smithfield Beef	Unided States
2008	Five Rivers	United States (ten cattle stables)
2008	Tasman	Australia (fifteen centers for slaughtering cattle, sheep and calves)
2009	Pilgrim's Pride	United States (the country's second largest chicken company, with thirty plants for slaughtering and industrialization)
2010	Tatiana Meets and Rockdale Beef	Australia
	Grupo Toledo	Belgium
	Mc Elhaney	United States (cattle stables)

Source: JBS-Friboi (2012); compiled by authors.

In addition to other sources of financing, JBS-Friboi has been supported by the BNDES, which lent it US$ 80 million in 2005 for the purchase of Swift Argentina. In 2007, the bank again lent the group money for the acquisition of an international competitor, Pilgrim's Pride, valued at BRL 3,475 billion. With these and other loans, the bank came to hold 20% of the shares of the company (Rodrigues 2009).

The JBS-Friboi group used country-specific advantages in the area of animal production: large grazing areas (cattle); a favorable climate with abundant sunshine and water; disease free environment (for example, no “mad cow disease”); ranchers and farmers with a long tradition of animal husbandry (cattle, pigs, poultry); and fertile and abundant soil. These factors have been combined with investment by Embrapa in both the development and improvement of food production (soy, corn, pastures) and the genetic improvement of animals (cattle, pigs, and poultry).

C. BRF-Brasil Foods and its internationalization process

BRF-Brasil Foods is a conglomerate created through the merger of the shares of Sadia and Perdigão in 2009. It operates in the following sectors: meat (poultry, pigs, cattle), processed meat, milk products, margarine, pasta, pizza, and frozen vegetables. In 2012, it had net revenues of BRL 28.5 billion and net profits of BRL 813 million (BRF-Brasil Foods 2012: 10). It is one of the largest global food companies and accounts for 9% of the world's exports of animal protein. Its 110,000 employees work in 50 factories and 33 distribution centers in Brazil.

To understand the history of BRF-Brasil Foods, it is necessary to go back to the origin of the two companies that merged to create it. Perdigão began as commercial house in 1934, “when the Brandalize family partnered with Ponzoni to create Ponzoni, Brandalize & Cia. with a capital of BRL 160,000 in Videira-SC”[14] (Tassara and Scapin 1996: 154). For its part, Sadia began its operations nearly a decade later. It was founded by Attilio Fontana, who explains: “In 1944, I took the first two letters of the name S.A. Industria y Comercio Concordia and put them together with the last syllable of Concordia to create the name Sadia”[15] (Fontana 1980: 127). From then on, the two companies followed a similar trajectory, competing with each other, until they merged at the end of the first decade of the new millennium.

While they remained separate firms, they operated during the main stages of development of the Brazilian economy – at first, they were typical of companies during the import substitution stage. Later, they benefited from the Brazilian miracle and continued to grow during the crisis of the 1980s and 1990s, improving their performance even more with the return of economic growth and the strengthening of the domestic market that began in the 2000s.

14. Translation by *Apuntes.*
15. Translation by *Apuntes.*

On the international stage, "Sadia's first export contracts were signed in 1967"[16] (Dalla Costa 2000: 381). Later in the 1980s, through Sadia S.A. Exportação e Importação "its representatives toured the five continents, sold 70 types of products to 40 countries and signed contracts in English, Spanish, French, German, Arabic, Japanese, and Russian"[17] (Teixeira 1994: 109). Perdigão followed a similar path outside Brazil and its sales in the international market made up 40.8% of their net revenue in 2012 (BRF-Brasil Foods 2012). Currently, in addition to exports, BRF-Brasil Foods has nine manufacturing plants in Argentina, two in Europe (Plusfood England and the Netherlands) and one in Abu Dhabi (United Arab Emirates). In 2012, it formed a joint venture with Dah Chong Hong Ltd. for the distribution of products in China. It has nineteen offices on five continents to ensure distribution and service to more than 120 countries.

During its internationalization process,[18] BRF-Brasil Foods used country-specific advantages similar to those of JBS-Friboi. However, BRF-Brasil Foods excels in taking advantage of corn and soybean production in Brazil, which is essential in the production of animal feed; the experience accumulated by small farmers in the production of poultry and pigs; the strength of the domestic market in a country with a population of 200 million people; and the significant contribution of Embrapa, both in the development of new breeds of poultry and pigs and in constant improvements in the quality of fodder and the process of animal husbandry.

Linked to the country's advantages are the skills developed by the company itself, which has accumulated vast experience through contacts and a physical presence in the international market and is continuously updating and launching new products. In 2012, it launched 454 products on domestic and foreign markets (BRF-Brasil Foods 2013: 10). The introduction of so many new products is the result of the innovation and technology developed in the SP-BRF Innovation Center in Jundiaí, in which the company invested BRL 106 million in 2012. In this center, 250 people work in physical-chemical, microbiological, sensory analysis, and materials and packaging laboratories, which have eight experimental kitchens where innovations are tested. As a result of this work, "BRF was recognized among the hundred most innovative companies in the world by *Forbes* magazine in its 2012 rankings"[19] (BRF-Brasil Foods 2013: 41).

16. Translation by *Apuntes*.
17. Translation by *Apuntes*.
18. Like other companies that entered the international market, BRF received money from BNDES, which granted it a BRL 2.52 billion loan (*Exame* 2012).
19. Translation by *Apuntes*.

5.2 Petrobras, Gerdau and Odebrecht and the FSAs

A. Petrobras and its process of internationalization

In September 2010, Petrobras received US$ 69.97 billion in what was the largest sale of shares held on the global capital market. After this offering, its market value stood at US$ 270 billion and it became the second largest oil company in the world, behind Exxon (US$ 313 billion) and ahead of Petro China (US$ 266 billion) (Sciarretta 2010).

According to Petrobras, these resources will be used primarily to enable the exploration of Pré-Sal. For this purpose, its board approved the company's 2010-2014 Business Plan with total investments of US$ 224 billion (Petrobras 2014), an average of US$ 44.8 billion per year. The goal of Petrobras is to reach 3.9 million BOE per day in 2014, with projects totaling 5.4 million BOE per day by 2020.

In 2011, investments by Petrobras totaled BRL 87.5 billion and its net profit reached BRL 33.3 billion (UOL News Economia 2012). The company has an industrial infrastructure that includes 09 drilling rigs, 13,174 producing wells (gas and oil), 112 platforms, 15 refineries (in Brazil and abroad), 189 ships (including its own fleet and other ships), 5,998 sales points and 3 fertilizer plants (Petrobras 2008). Its daily production is 2 million barrels of oil and 421,000 barrels of natural gas (domestic and foreign production).

When it was founded on October 3, 1953, not even the most optimistic observer could have predicted that Petrobras would reach its current size and become the largest Brazilian transnational, allowing the country to become self-sufficient in oil extraction and refining. On the international level, Petrobras started out by looking for raw materials, prompted by Brazil's lack of large onshore reserves. Now, after developing its own exploration technology in deep and ultra-deep waters, it sells its technological know-how in the foreign market. Its operations on various continents are summarized in the data presented below. First, it has been engaged in exploration, production, and marketing activities in the Americas since 1972 (Table 5).

Table 5
Petrobras operations in the Americas, by country (1972-2007)

Country	Year operations began	Activities
Colombia	1972	Oil exploration in shallow and deep waters (since 2004)
United States	1987	Exploration, production, and marketing of oil and oil derivatives; deep water exploration (since 2004)
Argentina	1993	Exploration, production, and marketing of oil, gas, and derivatives
Bolivia	1995	Exploration, production, and marketing of oil and gas
Ecuador	1996	Oil exploration and production
Venezuela	2003	Oil exploration and production onshore and offshore
Peru	2003	Oil and gas exploration and production onshore
Mexico	2003	Exploration and production of natural gas; technological cooperation agreements for deep water oil exploration
Uruguay	2004	Marketing of oil derivatives and gas
Chile	2005	Commercial office; acquisition of a network of distribution centers (since 2008)
Paraguay	2006	Marketing of fuels
Cuba	2008	Deep water oil exploration

Sources: Petrobras (2007, 2012); compiled by authors.

Similarly, Petrobras has had a presence in Africa since 1979, where it engages in exploration and production activities (Table 6).

Table 6
Petrobras operations in Africa, by country (1979-2007)

Country	Year operations began	Activities
Angola	1979	Oil exploration and production in shallow and deep waters
Nigeria	1998	Deep water oil exploration and production
Tanzania	2004	Deep water oil exploration and production
Libia	2005	Gas and oil exploration in shallow and deep waters
Ecuatorial Guinea	2006	Deep water oil exploration
Mozambique	2006	Oil and natural gas exploration; agreements for local production of biofuels
Senegal	2007	Oil exploration

Sources: Petrobras (2007, 2010a); compiled by authors.

Finally, Petrobras has been operating in Europe and Asia since 1997 with commercial and financial representatives, offices, and oil refining and exploration activities (Table 7).

Table 7
Petrobras operations in Eurasia, by country (1997-2007)

Country	Year operations began	Activities
United kingdom	1997	Commercial and financial representation; agreements for future commercialization of biofuels
Japan	2000	Commercial and financial representation; oil refining (since November 2007); sale of ethanol (since 2008 [Orelana and Neto 2006]); technological cooperation agreement with the Japanese state enterprise JOGMEC (since 2005)
The Netherlands	2001	Commercial and financial representation; office subsequently closed
China	2004	Commercial and financial representation, partnership agreements with Sinopec (China's state oil company) for offshore oil exploration in China and Brazil
Iran	2004	Representational office; implementation of contract for offshore oil exploration
Turkey	2006	Deep water oil exploration
Pakistan	2007	Deep water oil exploration
India	2007	Deep water oil and gas exploration
Portugal	2007	Deep water oil exploration; agreements for future commercialization of biofuels
Norway	2007	Cooperation in research and new technologies

Source: Petrobras (2007); compiled by authors.

Another way to illustrate the internationalization of Petrobras is by type of activity, i.e. exploration and production, refining and petrochemicals, distribution and marketing, gas and energy, and representation.

Table 8
Petrobras activities by countries, 2011

Activities	Number of countries	Countries
Exploration and production	20	Brazil, Argentina, Uruguay, Bolivia, Peru, Venezuela, Colombia, Mexico, United States, Portugal, Turkey, Libya, Benin, Nigeria, Gabon, Angola, Namibia, Tanzania, Australia, New Zealand
Refining and petrochemicals	4	Brazil, Argentina, United States, Japan
Distribution and marketing	8	Brazil, Argentina, Uruguay, Paraguay, Chile, Colombia, Curacao, The Netherlands
Gas and energy	4	Brazil, Argentina, Uruguay, Bolivia
Representation	6	United States, England, China, Singapore, Japan

Source: Petrobras (2011: 8); compiled by authors.

Unlike the firms discussed above, since the late 20th century, Petrobras' internationalization process has benefited from the firm-specific advantages developed by Cenpes, its center for research, innovation, patent registration, and launching of new products and processes used in oil prospecting and exploration in deep and ultra-deep waters. As a result of its research, in 2010, Petrobras reached a record two thousand patents registered in Brazil and abroad; it is followed by Unicamp (Universidade Estadual de Campinas), with 629 patents, which constitutes less than a third of the total registered by its state-owned counterpart (Onaga 2010).

B. Gerdau and its international presence

Gerdau's operations began in 1901, when German immigrant Johann Gerdau bought an old nail factory founded in 1891: the Pontas de Paris factory, in Porto Alegre. Diversification of operations took place in 1948, when the company entered the steel industry with the purchase of Usina Riograndense to ensure a supply of raw material for the production of nails.

In the following decades, Gerdau expanded its steel production operations in Brazil through the construction and acquisition of facilities close to main consumer centers, in addition to expanding its distribution network.

The first step in the process of the enterprise's internationalization took place in Uruguay, with the acquisition of Laisa in 1980. This was quickly followed by the acquisition of industrial plants in other countries, as shown in Table 9.

Table 9
Companies acquired by the Gerdau Group outside Brazil, 1980–2010

Year	Company	Location	Type of Process
1980	Siderúrgica Laisa	Montevideo (Uruguay)	Acquisition
1989	Courtice Steel Incorporation	Cambridge, ON (Canada)	Acquisition
1992	Siderúrgica Aza	Santiago (Chile)	Acquisition
1992	Indaq	Santiago (Chile)	Acquisition
1995	Manitoba Rolling Mills (MRM)	Selkirk, MB (Canada)	Acquisition
1997	Sociedad Puntana S. A. (Sipsa)	Villa Mercedes (Argentina)	Acquisition
1997	Sipar	Pérez (Argentina)	Acquisition
1999	AmeriSteel	United States	Acquisition
2001	Georgia Steel Mill	Cartersville, GA (United States)	Acquisition
2002	Co-Steel	United States	Merger
2004	Potter Form & Tie	Belvidere, IL (United States)	Acquisition
2004	North Star Steel	United States	Acquisition
2004	Gate City Steel Inc/RJ Rebar Inc.	Indianapolis, IN (United States)	Acquisition
2004	Cargill Inc.	United States	Acquisition (partial)
2006	Callaway Building Products	Knoxville, TN (United States)	Acquisition
2006	Fargo Iron & Metal Co.	Fargo, ND (United States)	Acquisition
2006	Sheffield Steel Corporation	United States	Acquisition
2006	Empresa Siderúrgica del Perú	Peru	Acquisición (partial)
2006	Pacific Coast Steel	United States	Joint venture
2006	GSB Acero	Guipúzcoa (Spain)	Acquisition
2007	Siderúrgica Tultitlan	Mexico City (Mexico)	Acquisition
2007	Industrias Nacionales C.p.A. (Inca)	Dominican Republic	Joint venture
2007	Valley Placers Inc.	Las Vegas, NV (United States)	Acquisition
2007	Kaylani	Asia	Joint venture
2007	Sizuca	Venezuela	Acquisition
2007	Chaparral Steel	United States	Acquisition
2008	Century Steel	Las Vegas, NV (United States)	Acquisition
2008	Corporación Centroamericana del Acero	Guatemala and Honduras	Acquisition (partial)
2010	Tamco	California (United States)	Acquisition

Source: Gerdau (2012a); compiled by authors.

By 2001, following its growth in domestic and foreign markets, the Gerdau Group possessed the following global infrastructure: 61 production facilities for steel and rolled steel products, 143 processing facilities, 4 iron ore facilities, 48 raw material facilities, four power generating plants, 126 commercial facilities, and 3 proprietary port terminals. Gerdau's net revenues in 2011 were BRL 35.4 billion and its net profit was BRL 2.1 billion (Gerdau 2012a: 5). These revenues came from Brazil (35.9%), North America (30.5%), Latin America (12.4%) and from specialty steel operations in Brazil, Spain, and the United States (21.2%) (Gerdau 2012a: 28). Apart from its own resources, the company received financing from BNDES, which extended Gerdau a loan of BRL 1.5 billion in 2007 (BNDES 2009).

Gerdau's competitiveness on the international market is based on both CSA and FSA advantages. In terms of CSA, it has the required quality and quantity of raw materials available in Brazil. Its FSAs includes the company's emphasis on innovation and its continuous focus on managing and updating its industrial facilities, which has enabled the company to successfully incorporate the various competitors it has acquired, both on the domestic and international markets.

C. Odebrecht on the national and international markets

In the 1980s, Odebrecht incorporated several domestic competitors, most importantly the Companhia Brasileira de Projetos e Obras, one of the country's largest construction companies. Moreover, it diversified its activities into the areas of petrochemicals and propylene. On the international level, it evaluated markets in developed countries and then went on to purchase competing companies abroad.

In the 1990s, its entry into the U.S. market is noteworthy. It engaged in a variety of activities, including the construction of the semi-submersible platform Petrobras 18, thereby solving a new technological challenge. Already in the 2000s, the growth of Odebrecht organizations led to the diversification of the business and the creation of six companies: Odebrecht Energia, Odebrecht Engenharia Industrial, Odebrecht Infrastructure - Brazil, Odebrecht Infrastructure - Latin America, Odebrecht Venezuela, and Odebrecht Africa, Emirates and Portugal, which were established on the basis of geographical criteria or sectoral markets.

Today, after a process of internationalization which began in 1979, Odebrecht is present in 13 countries in the Americas, eight in Africa, six in Asia, and four in Europe. In each region and country, it carries out a variety of activities in the construction of infrastructure and in partnership with local companies.

In 2011, the Odebrecht enterprises had gross revenues of US$ 37.8 billion and net profits of US$ 24 million. Brazil accounted for the majority (60.47%) of revenues, followed by Latin America and the Caribbean (19.41%), the United States, Europe, Asia, and the Middle East (16.62%), and Africa (3.50%). To achieve these results, the company employed 110,431 people in Brazil, 31,842 in other countries of Latin America, 15,068 in Africa, 845 in the United States, 447 in Europe, and 403 in Asia and the Middle East, for a total of 159,036 employees (Odebrecht 2012).

According to Dom Cabral Foundation (2014) rankings, Odebrecht is the second largest Brazilian company with subsidiaries abroad, with a presence in twenty-eight countries. Its international competitiveness is based on the FSAs developed throughout its history, mainly the combination of know-how in building large projects and research, innovation, and the introduction of new products and process management. Braskem (owned by Odebrecht in partnership with Petrobras) has registered more than 650 patents and every month, it sends ten new projects for analysis and registration. Braskem has an innovation and technology center with branches in Brazil and the United States, where 300 specialized professionals work on the development of new products and applications (Braskem n.d.).

6. CONCLUSION

The internationalization of Brazilian companies occurred at different times and for different reasons. In their initial years of operation outside of Brazil, these enterprises sold the raw materials that are abundant in Brazil – Vale is an example of this strategy. In this case, one can say that the firm "was born internationalized" since all its production went to meet external demand created by World War II. Another motive for internationalization was exactly the opposite: the search for raw materials. An example of this is Petrobras, which turned to foreign countries to find the oil that did not exist in Brazil.

Later on, another group of companies began international operations as a result of the Brazilian economic crisis in the 1980s and 1990s. This was the case of contractors that later, during the Brazilian miracle, developed the capacity to meet the demand during the long-term annual GDP growth of 7%. In order not to lose the know-how they had developed and to avoid having to dismantle their structure and dismiss their skilled labor, such enterprises moved into international markets. This group includes Odebrecht, Camargo Corrêa, Andrade Gutierrez (on the list of the most internationalized Brazilian companies in 2014), along with other groups such as the construction company OAS and Queiroz Galvão.[20]

20. For an analysis of construction companies and their insertion into the international market, see: Nemitz and Dalla Costa (2014).

A variety of strategies were employed during the first decade of the new millennium. Some companies took advantage of the growing domestic market and, starting at home, learned how to enter international markets and to strengthen their foreign presence, as was the case of Gerdau, Vale, and Petrobras. Others, such as JBS-Friboi, Marfrig, and Minerva Foods seized the opportunity to grow by gaining official support from BNDES. Some undertook mergers and/or acquisitions and formed groups with a strong international presence; such was the case of AmBev/Imbev (fusion of Brahma and Antárctica) in the beverage industry and BRF-Brasil Foods (merger of Perdigão and Sadia) in the food industry.

There was - especially during the Lula administrations (2003-2010) - a clear decision to form conglomerates with the potential for international operations. This new strategy involved the controversial support of BNDES provided to a select group of companies. This led, on the one hand, to the effective formation of a set of "national and international champions" and, on the other hand, to a debate about public resources being provided to select private groups, signifying the provision of privileges as well as concentration of income.

With the increase in the number of Brazilian firms operating internationally - in 2011, there were 20,141 exporters (MDIC 2011) - there is a clear presence of Brazilian groups operating abroad in different sectors: steel and metallurgy (Gerdau), aviation (Embraer), foodstuffs (JBS-Friboi, Marfrig, BRF-Brasil foods), beverages (AmBev/Imbev), mineral raw materials (Vale), petroleum products (Petrobras), market research (IBOPE), infrastructure projects (Odebrecht, Camargo Corrêa, Andrade Gutierrez), coachbuilders (Marcopolo), equipment for trucks (Randon), auto parts (Sabó), building materials (Tigre), and paper and cellulose (Suzano, Klabin) (Fundación Dom Cabral 2014).

However, there are "significant absences" – sectors in which there was no formation of national conglomerates and, consequently, no internationalization. Perhaps the most significant challenges are those faced by the automotive industry, in which those Brazilian firms that emerged since the 1940s were systematically acquired by competing foreign companies and failed to break the "barrier to entry" and establish themselves in the Brazilian market. This is one of the issues that requires further study as well as the elaboration of concrete proposals, since Brazil has one of the largest markets in the world for cars, trucks, and buses.

Another industry in which Brazil has been the world's largest producer and exporter for centuries is coffee. Like the automotive industry, this industry is dominated by multinationals, and local entrepreneurs have failed to become established and add value to the product. The country sells a great deal of raw coffee, which is roasted and ground abroad by economic groups that appropriate most of the value generated in this production chain.

If Brazil seeks to have a large group of companies with a strong presence in the global market in the medium and long term, it must maintain the policies adopted in the last decade and intensify this process in order to keep up with what other G-20 countries are doing in their process of internationalization. For now, Brazilian firms lag behind those of China and India and are in an intermediate position if compared with those of Russia and Mexico. The challenge of internationalization for Brazilian companies is difficult and will be ongoing, despite some recent examples of success.

To summarize Brazil's CSAs for the internationalization of enterprises: it is one of the biggest countries in the world; it has a tropical climate that is very favorable in terms of rainfall, sunshine, fresh water, and fertile soil; it is among the largest economies in the world; it has a population of over 200 million people, 84% living in cities; poverty and extreme poverty have decreased noticeably over the last decade; and income distribution has improved, which has helped to create a strong domestic market.

These CSAs were important for a group of companies, some of which are discussed in this paper: Vale, JBS-Friboi, and BRF-Brasil Foods. Vale benefited especially from vast nature reserves and the quality of the iron ore. The other two companies were able to count on the production of corn and soybeans (for animal feed); extensive cattle raising and raising of poultry and pigs by small farmers and ranchers that have long experience in farming; and, in addition, benefited from strong public investment in research, innovation, and new technologies through Embrapa, which rendered Brazil the country with the best tropical-climate agriculture and livestock technology.

With respect to the FSAs, this article examines Petrobras, Gerdau, and Odebrecht, which have subsidiaries in 14, 19, and 28 countries, respectively. Petrobras has become famous for its research center, Cenpes, which began operations on December 4, 1963, in Rio de Janeiro and now, with a total area of 300,000 m², is one of the world's leading applied research complexes, with advanced laboratories and rooms for simulation and immersion in energy industry processes. The technology for prospecting and exploration in deep and ultra-deep water originated in research done by Cenpes. This technology enables Petrobras to conduct joint ventures with the major international companies in the industry.

Gerdau has two research centers in Brazil (in Sao Paulo and Rio Grande do Sul), one in the United States, and one in Spain. The latter center has 73 projects underway in Europe that seek to improve the quality of steel, reduce the costs of the manufacturing process, and optimize product characteristics. The Gerdau Research and Development Center in Spain has 76 professionals working continuously on the development of special steels used in the automotive, energy, naval, and construction industries. To drive these projects, the company currently has partnerships with 30 companies in the steel industry and with 24 European research centers and universities, including the Sviluppo Materiali Center in Italy, the Swedish Institute for Metals Research, Fraunhofer University in Germany, and the University of Technology in Helsinki, Finland (Gerdau 2012b). The competencies developed over the years by these and other Brazilian multinationals have prepared them for their international activities.

Other companies also developed their own competencies, including JBS-Friboi, which, through growth, acquisitions, mergers, and joint ventures, became the world's largest animal protein production company. In addition to Brazil, it maintains a presence in the United States, Australia, Argentina, and the European Union – countries that, according to data from the USDA (2012a), are the world's largest exporters of animal protein. Friboi accounts for 9% of these exports, which makes it one of the world's most active players in this industry.

Petrobras' greatest competitive advantage lies in its research and development of new technologies, as we saw above. Other companies that are highly industrialized employ a similar strategy, including Embraer, which in 2002 established a partnership with the ITA, an institution that has trained aeronautical engineers since 1953 and has a Professional Master's Program in Aeronautical Engineering. By 2008, this program had admitted thirteen sets of students, with a total of 805 enrolled. Once they have graduated, Embraer hires these engineers to work in the company, and this highly skilled workforce ensures the international competitiveness of the aircraft the company produces.

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