

NEW DIMENSIONS OF BRAZILIAN ECONOMY INTERNATIONALIZATION: PORTUGAL AS A STRATEGIC LOCATION FOR EMBRAER'S INVESTMENTS AND THEIR IMPACT ON THE REGIONAL ECONOMY

AS NOVAS DIMENSÕES DA INTERNACIONALIZAÇÃO DA ECONOMIA BRASILEIRA:
PORTUGAL COMO UMA LOCALIZAÇÃO ESTRATÉGICA PARA OS INVESTIMENTOS
DA EMBRAER S/A E SEU IMPACTO NA ECONOMIA REGIONAL

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ABSTRACT/RESUMO

The success of the Real Plan enabled an increasing number of Brazilian companies to invest abroad, particularly in the 2000s. EMBRAER, the world's third largest aircraft constructor, is one good example of this trend. This paper analyzes the motivations of EMBRAER/OGMA, and its investments in Portugal, the second in importance outside Brazil, including an interview with the local company board in 2011. First, we address the current stage of development in the aircraft industry. Second, we present FDI theories. Third, we describe the EMBRAER's global expansion. Fourth, we focus on its motivations for investing in Portugal. Finally we draw some remarks stressing the impact of these investments on the economy through, for example, the creation of clusters.

Keywords: Foreign Direct Investment; Brazil; Portugal; Regional Development

JEL Codes: F21; F23; F63; O19.

O Plano Real permitiu o aumento do número das empresas brasileiras que investem no exterior, especialmente a partir do ano 2000. A EMBRAER, uma das três maiores construtoras de aeronaves do mundo, é um exemplo disso. Este trabalho tem como objetivo analisar as motivações para investir da Embraer/OGMA em Portugal, a segunda localização em importância fora do Brasil, através de uma entrevista com a diretoria local da empresa em 2011. Primeiro, abordar-se-á a situação atual da indústria aeronáutica. Em segundo lugar, o enquadramento teórico sobre o IDE. Em terceiro lugar, descrever-se-á a expansão global da EMBRAER. Logo após, concentraremos a nossa atenção nas motivações da EMBRAER para investir em Portugal. A concluir, refletir-se-á sobre o impacto desses investimentos na economia através, por exemplo, da formação de *clusters*.

Palavras-chave: Investimento Direto Estrangeiro; Brasil; Portugal; Desenvolvimento Regional

Códigos JEL: F21; F23; F63; O19.

1. INTRODUCTION

The international business literature (Dunning & Lundan, 2008) demonstrates how the foreign direct investment (FDI) may generate relevant effects on the regional development of countries. In this context, the aviation industry, a sector characterized by high technology and therefore more likely to trigger local spillovers, stands out of its own accord. Based on an interview with the OGMA board of directors in 2011 and on secondary sources, this article aims to portray and analyze the main motivations of EMBRAER (Empresa Brasileira de Aeronáutica), and its subsidiary OGMA (Indústria Aeronáutica de Portugal) driving its investments in the Portuguese market. The rise of multinational corporations from emerging markets does indeed represent one of the most salient features of the changes occurring in the international economy since the beginning of the 21st century (Sauvant, 2008). To the best knowledge of the authors this probably provides the first case study of the foreign direct investment motivations of an aircraft company in a country with similar profile.

To reach its objectives, the article is structured as follows. Section 2 presents the core trends in the aircraft industry since the 1980s. Section 3 sets out the FDI theories and empirical studies that frame the understanding of our case study. Section 4 is focused on the history and growth of EMBRAER, most particularly its expansion throughout worldwide and up to its acquisition of OGMA. This investment in Portugal and its subsequent enlargement to new Évora located factories is described and analyzed in Section 5, and highlighting the main motivations of the Brazilian company in seeking to establish an important geographic basis in Portugal. Finally, in Section 6 we draw some concluding remarks stemming from the research undertaken.

2. AIRCRAFT INDUSTRY TRENDS SINCE THE 1980S

The commercial airline industry has always been particularly vulnerable to changes in the nationally prevailing economic and political landscapes. The sector depends heavily on the shrinkage/expansion of demand for air transportation and thus on the economic performance of different countries and its effects on income distribution. Aircraft industry production is ultimately determined by market trends, and which are not always the same in different regions across global economy. From 1984 to 2004, the airline industry has experienced two long periods of sustained growth, albeit with certain crises (such as the first Gulf War at the beginning of the 1990s): the first from 1984 to 1989 and the second from 1994 to 2000. Some of the factors responsible for the growth in both periods were the revitalization of the world's economies, broad service liberalization and deregulation, an increase in international trade and investment, an improvement to airline service provision, and the fall in travel costs. In 2000, however, with the end of a bullish stock market, indicated what was

to come: the information technology sector fell into crisis and most national economies began to slow their growth, with many teetering on recession and airlines companies beginning to feel the effects of recession. The terrorist attacks of September 11, 2001, accelerated this process, throwing the sector into the most serious period of depression in its entire history. In the midst of 2002, many of the companies previously considered solid had entered into bankruptcy.

The market for the airline industry is, in general, divided between the military and civilian categories. In the case of EMBRAER, its main market is commercial aircraft with 120 seat capacity, known as regional jets. It was in regional jet aircraft manufacturing that EMBRAER first developed its competences, and gained its market competitiveness. For jets above 120/130 passengers, in the last decades, the aircraft industry is made up of the duopoly of the American company Boeing and Europe's Airbus. There is also the market for smaller planes, the so-called corporate jets, manufactured by companies such as Gulfstream, Cessna and EMBRAER itself. In its turn, the regional aircraft market was dominated from the late 1990s to 2004, by Bombardier-EMBRAER duopoly. The two companies provided families of regional jets with recognized high technological quality and great efficiency during the 1990s. As a consequence, demand increased in the latter half of the decade, when most airlines perceived the opportunities offered by regional jets. This trend deepened following the Sept. 11 attacks, resulting in greater demand for regional jets as an effect of decreased demand for longer trading routes, with trends driving demand for commercial point-to-point services, best served by smaller planes, more economical as well as more efficient and better adapted.

The size of the aviation business chain is thus large. It encompasses not only the construction industry of aircrafts of all sizes and for all civilian, commercial and military purposes, but also the construction of all the respective components. There are thousands of systems, from the ultra-modern equipment for avionics, the fuselage of aerodynamics, landing gear to the decor and furnishings of the interiors. The industry supplies the airlines, corporate aviation and commercial air service as well as specialized cargo, mail, rescue, medical and other services. These aircraft, in turn, require maintenance, overhaul and repair, another important segment of the chain, particularly due to safety reasons. To meet all the necessary steps, there are specialized services including businesses in training personnel for the entire chain, from pilots to engineers. The aircraft on the ground need the support of airport services, air navigation services and flight security protection, hangar, maintenance, refueling and agencies providing services like on board air cargo (catering). To address all these links, there is an additional number of support services such as specialized consulting, finance, legal, insurance and specialized press services. It should be noted that we have not mentioned in detail the activities for the military aviation aerospace sector with its own specificities.

The trend towards deregulation is important because of the high degree of business internationalization of aviation companies. Aircraft manufacturers, parts and accessories, similarly to airlines, are divided by several countries, presenting the characteristics of an oligopolistic concentration of business in a few companies. Manufacturers need to maintain presence in their markets not only regarding the sale, but primarily the after-sales service, spare parts, aircraft maintenance, etcetera. The differences in sales are not only the quality of the equipment but in serving the customer with the right product for each operator and business model. There are also numerous partnerships and alliances between companies involved in this industry, which often take the form of mergers and acquisitions. Companies need to be attentive to the market and to show flexibility and quickly adapt to changes. The agreements to facilitate usage of national airspaces in view of cooperation and the elimination of legal barriers of diverse kinds are aimed at increasing the interconnectedness of firms in favor of the global aviation business, whose levels of complexity range from highly specialized education and training to the intense reliance on science and technology for the development of new products of vital importance to this industry. From the standpoint of the productive chain as well as from the perspective product consumption and the utilization of aeronautical services, this sector can be considered as one of the most global both by nature and by specificity.

Besides the drop in demand following the terrorist attacks of 2001, the airline industry had to deal with the stringent safety rules that were adopted after the incident. These difficulties added to other downward factors such as low results in an era of greater deregulation and the rising of costs of labor, the impact of e-ticket sales, the substantial and sustained increase in fuel prices (although fluctuating unpredictably, in the 2000s, there was a clear trend towards higher energy prices), climate contingencies and, furthermore, public health issues. In this sense, the market converged around the following environment:

- (I) Airlines have turned into a business 'commodity', the result of demand for low cost transportation;
- (II) Access to information for direct sale was final and unprecedented, consolidated in the ability of consumers to look for 'bargains' surfing the electronic network;
- (III) Operating costs and manpower had to be cut to ensure the company was able to respond to the new market configuration;
- (IV) The pricing system of the largest and most traditional airlines, which remained the same since the deregulation of United States companies in 1978, had to undergo revision.

In the following years, these trends continued, with the commercial aviation market struggling to recover from the crisis caused by September 11 attacks. In 2007, with low-cost airline firms gaining increasing market shares, in conjunction with the regional aviation effect, was the year when results turned positive. However, by late 2008 when the global economic crisis hit in earnest, global airlines were

awash in losses. 2009 was the worst year since World War II; the International Air Transport Association or IATA (which represents 230 airlines or 93% of scheduled air traffic) estimated losses among global airlines of about \$16.8 billion for 2008, and another \$11 billion in losses for 2009. Mergers and acquisitions made big news in 2008 through 2010, such as for example the joining up of Iberia and British Airways. In 2010 recovery did take place, with airlines finishing slightly above the traffic volumes of early 2008, but still strongly pressured by costs, especially fuel related charges.

3. THEORY AND EMPIRICAL STUDIES ON THE DETERMINANTS OF FDI

In the present section, and prior to analysis of EM-BRAER's growth and expansion until the investment in the Portuguese OGMA business and further developments of this research, we focus on FDI, particularly as concerns those theories and empirical results of relevance in order to fully understand the specificities of our case study. As referred to above this article in all likelihood represents the first case study of a FDI location applied to an aeronautical company, at least in the peculiar circumstances later developed. Therefore, we intend to relate the FDI literature with EM-BRAER's motivations to invest in Portugal. Bearing this objective in mind, in the remainder of the section, we deal with the different aspects, both theoretical and empirical, of this literature, which were selected according to their relevance to our central subject.

- *Domestic market:* This is usually measured by gross domestic product (GDP), as well as by its rate of growth or the per capita income level. A large domestic market allows for the leveraging of economies of scale. Empirical papers show the importance of the host country size as determinant to FDI. Trevisan, Daniels and Arbeláez (2002) evaluate the impact of the three dimensions to market reform (macroeconomic, microeconomic and institutional) on FDI flows in seven Latin American countries, between 1988 and 1999. The results show that only gross domestic product, privatization programs and inflation were considered significant factors in the processes leading to investment decisions. Thus, the size of the market and the degree of macroeconomic stability strongly influenced company investments in the region. Clearly, Portugal domestic market is limited from several perspectives; however, as underlined later, its membership of the European Union, and its participation in the Eurozone, means that due to free circulation and a common currency, Portugal has easy access to a much wider market.
- *Regional Integration:* In general, economic integration stimulates commercial relations between participant countries, while tariff protection inhibits imports from third party countries not integrated into the block. These effects tend to increase the FDI flows into the integrated countries (Robson, 1998). Blomstrom and

Kokko (1997) argue that widening the market is much more significant to inducing FDI than tariffs, and to a large extent, FDI depends on economic, political and social changes entailed by these agreements and, consequently, by the locational advantages of participant countries and companies in the process.

- *Bilateral trade*: Trade flows and FDI can be complementary (Cechella et al., 2009). The increase of trade between countries becomes larger when there is FDI between the source country and host countries, thus exports and imports also tend to encourage FDI. The UNCTAD report (2005) testifies the positive correlation between bilateral trade and FDI. Ekholm and Markusen (2002) find evidence of this in the context of NAFTA when there was a strong increase of FDI between U.S.A. and Mexico. Also, the rise of reciprocal trade between Brazil and Portugal since the early 1990s to a certain extent demonstrates how trade may represent a determinant of FDI (Silva, 2002, 2012b).
- *Labor costs*: Companies may reduce their costs of production through transferring of factors to countries where labor is relatively cheaper, as shows the paper of Landsbury et al. (1996), which examines the relative labor costs between countries, and testing this trend in Eastern Europe with the analytical results consistent with former study. However, in the case of the determinants of FDI, the relevance of labor costs is not conclusive. In this context, we can not only consider the relevance of labor costs, but also worker productivity. Companies pay higher wages whenever the quality of manpower is important to their results (Venables, 1996). Hence, Portugal likely provides the lowest relative labor costs within the context of Eurozone.
- *Economic distance and transport costs*: Studies have pointed out that economic distance (Dentinho, 2002; Capello, 2010; Pontes, 2012), and related factors such as transport costs, may be positively related to FDI. Collins and Rodrik (1991) demonstrate how proximity to the European market is an important aspect in the decision to export or to invest; Markusen (1995), and Buckley and Casson (1998) suggested FDI increases in relation to trade whenever tariffs and the costs of transport are high.
- *Exchange rates and inflation*: Stability in the exchange and inflation rates could be a determinant to FDI because this underpins company confidence in current and future results, as much as in directing reinvestment in the source country. McCulloch (1989) argues that, in a framework where companies evaluate their future being equal to their present, exchange rate movements do not affect FDI. Itagaki (1981) and Cushman (1985) earlier argue that the previously prevailing exchange rate volatility reduces FDI inflows, on the grounds that investors are averse to exchange rate risks.
- *Cultural affinities*: According to the Uppsala school of thought, internationalization is envisaged as a process in which companies gradually increase their international involvement, successively entering new markets, taking into consideration the psychological distance concept which is defined through various cultural differences. These variables contain information influencing the relationship between companies and markets. Companies embark on internationalization in those markets they perceive they more easily understand and where they think there are lesser risks. Johanson and Wiedersheim-Paul (1975), Johanson and Vahlne (1997), Liu et al. (1997) provide some of the works testifying to the importance of cultural aspects for many companies investing abroad. In a similar vein, other authors have shown the special role of linguistic and cultural proximity in company internationalization processes (Silva, 2005).
- *Firm context*: According to Dunning (1979), the eclectic paradigm resulted from his dissatisfaction with the existing theory of international production: the Hymer-Kindleberger approach, the product-cycle theory, and the internalization theory. Henceforth, Dunning proposed an alternative line of development seeking to integrate the existing theories into a general and 'eclectic' model. He suggests that firms engages in FDI when three conditions are satisfied: when possessing net ownership advantages vis-à-vis firms from other countries; when it is beneficial to internalize those advantages rather than to leave the market to pass them onto foreign firms; and when there are some location advantages in using the firm's ownership advantage in a foreign location rather than at home. This last component of the eclectic paradigm must be highlighted here insofar as it clearly introduces the problem of location, often neglected, into the theories of FDI (Silva, 2012a).
- *Resource dependence*: One basic network model assumption is that a single firm is dependent on resources that are controlled by other firms. To enter a network from the outside requires the other network actors be motivated to engage in interaction. Business relations and industrial networks are difficult to observe phenomena by outside observers that may be potential entrants. The actors within the network are tied to each other whether through social, administrative, legal or economic factors (Hollensen, 1998).
- *Competitive advantage*: Porter (1990) states the traditional factor endowment argument of standard trade theory is too simplistic. He argues that the most important factors to comparative advantage are not inherited, as Heckscher-Ohlin theory assumes, but are created and that the broad categories of land, labor, and capital are too general. Porter considers that sustainable competitive advantage only exists when a nation state possesses the factors necessary to compete in a particular industry, which are simultaneously advanced and specialized. The model states that factor conditions cannot be relied upon solely to generate national competitive advantage as demand conditions, related and supporting industries and firm strategy, structure and rivalry must mutually reinforce each other.

- *Regional development:* the links between FDI and regional development are attracting more and more theoretical as well as empirical attention (Capello and Dentinho, 2012). This is all the more important insofar, according to a study by Becerra and Santalo (2003), the performance of multinational firms is primarily determined by local factors, and only a very small proportion (about ten percent) is attributable to the multinational as a whole. This endows even greater emphasis to the object of this work, and related themes such as the delocalization and relocation of economic activities (Carballo-Cruz, 2012).

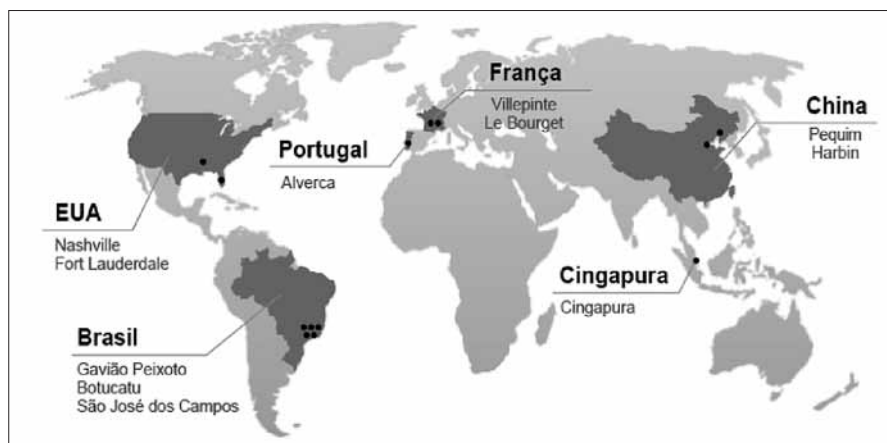
4. EMBRAER'S HISTORY: FROM ITS BEGINNINGS TO THE ADVENT OF INTERNATIONALIZATION

The link between Brazil and the aircraft industry traces its origins to Santos Dumont, a pioneer and considered by many the inventor of the airplane. The growth of the industry is however linked to the role of the military and state intervention under the aegis of 'national devel-

opment'. National security and defense, undertaken by the military (especially following the two World Wars in the first half of last century), would justify state intervention for the implementation of a national aeronautical industry¹. The role of aviation was adopted by the emerging thinking in a project designed to bring about national integration through the means of connection between inner poles of production and economic development and the political and administrative centers, located on the Brazilian coast.

The company was founded in 1969 with its headquarters in São José dos Campos (São Paulo state) as a natural result of this thinking. Its participation in international trade began in 1975, when EMBRAER significantly increased its foreign sales and in 1977 was able to sell planes to Europe and soon after to the United States. As already referred to above the company specialized mainly in mid-sized aircrafts. Structural and cyclical factors favored the rapid consolidation of the company in the 1970s and early 1980s. EMBRAER's origins are also bound up with the creation of the Aeronautics ITA (Aeronautics Technological Institute) and CTA (Aeronautics Technological Center).

FIGURE 1. EMBRAER LOCATION WORLDWIDE



Source: Embraer Annual Report, 2010

However, in the late 1980s, EMBRAER encountered serious problems of competitiveness, particularly when presenting its products whilst new companies were taking root in the international market. Moreover, the state financial crisis, a hostile political environment, the lack of government investment in science and technology, and the end of the Cold War contributed towards a worsening financial performance. Thus, in spite of strong criticism, the company was privatized in 1994, although the government retained a controlling 'Golden Share'. EMBRAER was privatized thanks to a state initiative¹ in a period when the

development of a range of skills put the company center stage of aviation industry operations worldwide and becoming a major player in the sector globally. Furthermore, EMBRAER expanded the scope of Brazilian diplomacy and the country's institutional context in some international multilateral agencies, giving rise to a plethora of representation in other relevant international forums.

Currently, EMBRAER – Empresa Brasileira de Aeronáutica S.A. is one of the world's leading aircraft manufacturers, a position reached due to the constant and determined pursuit of full customer satisfaction. Throughout more than 40 years of its history, the company has been involved in

¹ Nero Moura, former Minister of Aviation, gives to Getúlio Vargas, Brazilian president (1930-1945 and 1951-1954), the credit for encouraging the aviation industry in Brazil. It is important to note that experiments prior to the creation of EMBRAER were operated under the light of private sector initiatives, alongside the

projects of the government or military from the late nineteenth century, expanding the vision focused on teaching and research institutions. In 1927, the two main airlines in Brazil were Varig and Condor Syndicate.

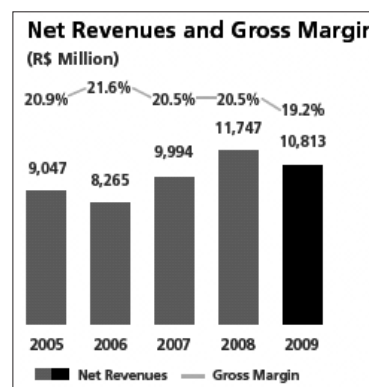
all stages of a complex process: design development, manufacturing, sales and after-sales support for aircraft in the commercial aviation, executive aviation, and defense segments. It has produced more than 5,000 aircraft that operate in 88 countries on the five continents, and it is the market leader for commercial jets with up to 120 seats. EMBRAER manufactures some of the best executive jets in operation, and is now entering a new level in the defense segment.

In Brazil, engineering, development and manufacturing activities take place in five industrial units located in the cities of São José dos Campos, São Paulo, Botucatu, and Gavião Peixoto, as well as a logistics centre in Taubaté, all located in the state of São Paulo. In 2011, the company set about establishing three new industrial units abroad: one is located in the city of Melbourne, Florida, U.S.; and other two are in the city of Évora, in the Alentejo region, in the south of Portugal, which began production in 2012.²

In order to provide after-sales support, EMBRAER has its own service centers and replacement parts sales in São José dos Campos, São Paulo, Brazil; Fort Lauderdale, Florida; Mesa, Arizona; and Nashville, Tennessee, U.S.; Villepinte (near Roissy – Charles de Gaulle Airport), France; and Singapore, as well as a specialized authorized service network located in several countries. In addition, EMBRAER maintains distribution centers for replacement parts and a trained technical staff in China for customer services in the region. For the global support of the Company's activities,

there are offices in São Paulo, São José dos Campos, Fort Lauderdale, Villepinte, Singapore, and Beijing. Figure 1 portrays the EMBRAER locations all over the world (but prior to the more recent expansion). EMBRAER also controls 65% stake in the aircraft maintenance and production company OGMA – Indústria Aeronáutica de Portugal S.A., with the remaining 35% belonging to the Portuguese state. It also holds HEAI – Harbin EMBRAER Aircraft industry, a factory in Harbin, China, in a joint venture with the Chinese state-owned company AVIC.

FIGURE 2. EVOLUTION OF NET REVENUE AND GROSS MARGIN, 2005-2009



Source: Embraer Annual Report, 2010

TABLE 1. EMBRAER DELIVERIES BY AIRCRAFT SEGMENT, 2008 AND 2009

Aircraft Deliveries per Segment		
	2008	2009
Commercial Aviation	162	122
ERJ 145	6	7
EMBRAER 170	9	22
EMBRAER 175	55	11
EMBRAER 190	78 (1)	62
EMBRAER 195	14	20
Executive Aviation	36	115
Phenom 100	2	93
Phenom 300	-	1
Legacy 600	33	18
Lineage 1000	-	3
EMBRAER 175	1	-
Defense*	6	7
ERJ 135	2	1
ERJ 145	1	-
Phenom 100	-	4
Legacy 600	3	-
EMBRAER 190	-	2
TOTAL JETS	204	244
* Includes only deliveries of executive jets configured for transport of authorities and aircraft for Government airlines Deliveries between parentheses are registered as operational leasing		

Source: Embraer Annual Report, 2010

² See interview with Luiz Fuchs, President of EMBRAER Europa in *Expresso* (September, 10, 2011).

EMBRAER closed out 2009 with 16,853 employees – 15,952 in Brazil and 901 abroad – as well as 1,775 at its partially-owned subsidiaries OGMA and HEAI. For the third

consecutive year, the company set a new aircraft delivery record, with a total of 244 jets, which is higher than the previously defined goal of 242 units, and 19.6% more than 2008, when 204 jets were delivered. The firm order backlog was US\$16.6 billion, on December 31, 2009. Figure 2 shows the evolution of Net Revenue and Gross Margin in 2005-2009, and with the Table 1 detailing the EMBRAER deliveries by aircraft segment, just for 2008 and 2009.

We would note that, in spite of the world economic crisis breaking in 2007, EMBRAER revenues have remained robust. Of the total of 244 jets delivered in 2009, 122 went to the commercial aviation market (115 from the EMBRAER 170/190 family and seven from the ERJ 145 family), and 115 were delivered to the executive aviation market, including 18 Legacy 600, three Lineage 1000, one Phenom 300, and 93 Phenom 100. Furthermore, seven transport aircraft were delivered to the defense market clients, as well as 10 modernized F-5s through the BAB Program and 20 Super Tucanos to Brazil, the Dominican Republic and Chile. All this effectively conveys the vast level of diversification in EMBRAER's production in order to meet global demand.

5. EMBRAER MOTIVATION FOR INVESTING IN PORTUGAL – OGMA

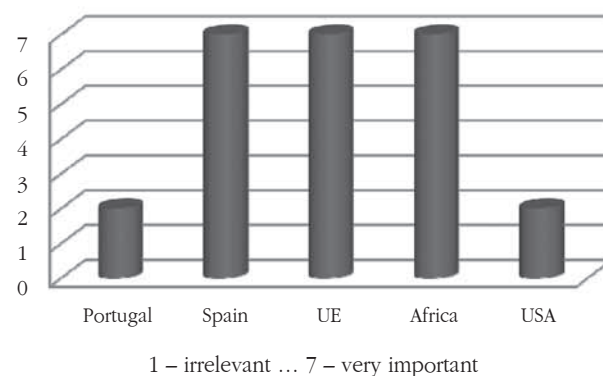
The internationalization of EMBRAER in Portugal is linked to a new stage in Brazilian investments in Portugal (Cechella, 2011), following on from the boost in reciprocal Luso-Brazilian trade and investment since the early 1990s (Silva, 2002). These developments were not possible without the successful implementation of the Brazilian Real Plan in 1994, which halted the inflationary outbreaks, and produced effects experienced throughout all productive sectors, and altering the relationships prevailing within the chains and sectors of production by generating new conditions for the composition of costs and disbursement prices. The Real Plan nurtured conditions favorable to the development of various sectors and firms and extending to their internationalization. The ability to import new machines and products, for example, was intensified. Moreover, the opening of the Brazilian economy in the 1990s and its aftermath revealed the need for domestic companies to become competitive, both internally and externally, to improve and increase their business and scale, which in turn prompted them to alliances with other companies, including foreign entities as well as establishing external installations (sales offices, technical assistance, commercial agencies, production units).

EMBRAER first invests in Portugal since March 2005 through OGMA (acronym of Oficinas Gerais de Material Aeronáutico, an enterprise founded in 1918), which was then privatized with EMBRAER acquiring 65% capital stake and, sharing control with the Portuguese State (35%). OGMA is located at Alverca, in Greater Lisbon. The main OGMA products and services are military aircraft maintenance (C-130, P-3 and F-16), engine maintenance and the manufacturing of aircraft structures. The company em-

ploy 500 employees directly and 1700 workers indirectly, with a 2009 turnover of 146,4 million of euros in 2009. Through interviewing the OGMA board of directors, we tried to identify the main motivations for the EMBRAER investments in Portugal, following a similar method to that used in Cechella (2011). Regarding the main determinants driving these investments, the research results are:

- *Importance of other markets from Portugal:* in terms of economic geography Portugal is a strategic place for the company in relation to EU markets, especially Spain. North Africa is also important. The main business is to export driven and, so the domestic market bears relatively little importance. The acquisition of OGMA meant a stronger presence in Europe for EMBRAER, where they have been located since the opening of its subsidiary in Le Bourget, France. The presence in Singapore facilitates the acquisition of high-technology products and services, besides the contacts and connections with companies from the various regions of the world not otherwise present in Brazil. The joint venture with China's Harbin ensured EMBRAER with a market share in that country and in neighboring regions and expands the presence and scope of the Brazilian regional jet brand. EMBRAER also seeks to balance its customer portfolio by reducing the weighting of any single region.

FIGURE 3. EMBRAER IN PORTUGAL: THE LOCATION IMPORTANCE



Source: OGMA interview, April 2011

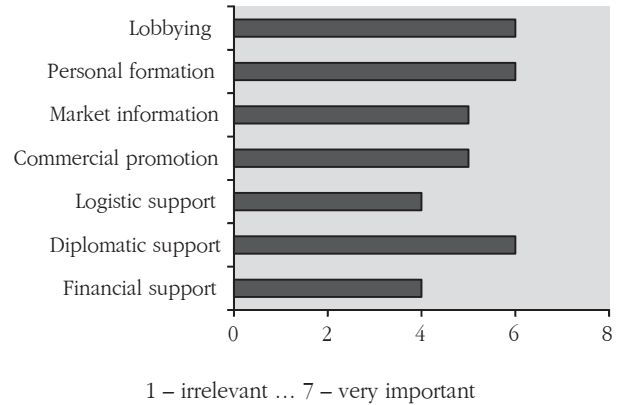
- *Regional impact:* in addition to the OGMA stake, at the time of the interview, EMBRAER was building two factories in Évora, Alentejo region, a primary intensive region, due to start production in 2012. The aviation company is investing 148 million euros over six years on the project, and expected to bring at least 570 direct jobs to the Évora region. In the metal structures unit, there is 100 million of investments with the composite materials factory accounting for the remaining, 48 million euros. Therefore, this may drive a positive major impact for the entire region. According to former Portuguese ex-Prime Minister José Sócrates, who signed the EMBRAER's investment

agreement: “The expansion of EMBRAER of Brazil represents a major boost to the economic development of both Évora and the region, demonstrating the skill of our workers and the ability of our country to participate in such a demanding and selective industry.” The government’s goal is to create an advanced technology industrial aircraft production cluster in the country. In 2011, Frederico Curado, the chairman of EMBRAER, also stressed the importance of such investments to the group: “The start of construction on the new units represents a milestone for the company in expanding its global presence. This is a strategic step towards improving the productivity and competitiveness of our company. We are honored and proud to strengthen our relationship with Portugal and, more broadly, with Europe, one of our biggest and most important markets.” The materials produced at the new plants will then be sold to the company’s airplane production units. We would emphasize the strategic scope of this project involves setting up an aerospace *cluster* in the region. Clusters are geographic concentrations of interconnected companies, specialized, interdependent and inter-related associations of suppliers, service providers and providers of ‘specialist public goods’ to promote agglomeration economies or increasing returns of scale and productivity growth (Franco, 2007). The new composite materials plant is designed according to lean manufacturing concepts. In order to maintain and further develop the skills in place at its centers of excellence, the company has maintained contacts with local organizations, including potential suppliers, research centers and universities. Aviation industry companies have already expressed intentions to set up in the city aeronautical industrial park. Indeed, they would seem to be a blur of major projects. According to EMBRAER, the location of centers of excellence in Évora resulted from careful evaluation by the company. Several factors were considered, such as potential access to skilled labor, logistical infrastructures and the existence of a technology park aeronautics dedicated to, as set out in the municipal master plan.

- *The importance of economic diplomacy:* the Portuguese ex-Prime Minister José Sócrates expressed the long term perspective of EMBRAER’s investments in Portugal: “To have in our country the best of Brazilian companies is very important, showing that the relationship between Portugal and Brazil is not just a nostalgic twist in our history, but also an affirmation of confidence for the future.” In this sense, the company ranks its participation in economic diplomacy as very important, since it is a global company and government support is highly valuable to the development of the company internationally (both were already associated in OGMA, and thus had experience together). Figure 4, details some of the items the company would like to see improved in Portugal’s foreign relations. The factors the company identifies as most important are: lobbying,

strengthening diplomatic support for the sector involved, other government-related subjects, and staff training in order to facilitate the entry of human resources into the country, and in keeping with the responses of Brazilian multinationals in general (Cechella, 2011).

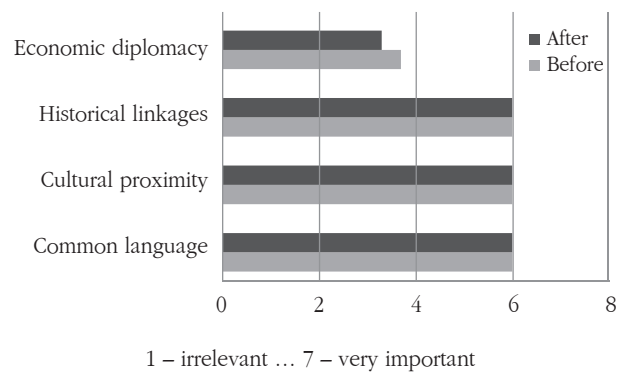
FIGURE 4. EMBRAER IN PORTUGAL: ECONOMIC DIPLOMACY RELEVANT ITEMS



Source: OGMA interview, April 2011

- *Importance of cultural affinity:* in conjunction with other factors, cultural affinity played a relevant role in the decision to install and expand EMBRAER in Portugal. The shared language, as there between different countries speaking English, French, Spanish, Chinese, among others, which, by language, history and culture thereby encounter greater ease in doing business, due to easier communication, for example. Figure 5 shows the importance of such cultural factors. EMBRAER sees diplomacy as a complement to entrepreneurship, not ceasing to be very important but less so than the three main cultural factors.

FIGURE 5. EMBRAER IN PORTUGAL: THE IMPORTANCE OF CULTURAL AFFINITY



Source: OGMA interview, April 2011

- *Alliances:* Since the 1980s the international airline and aircraft business, an inherently global industry, has been a mixture of competition and collaboration,

with virtually every major international airline regularly forming cooperative agreements with other airlines. Globalization and liberalization/deregulation have radically changed the air transport market and the rules it follows, generally upsetting the *status quo*. Airlines have had to develop innovative strategies to adapt to market change, growth and the demands of competition. They have met these challenges with the help of alliances, which have fundamentally altered the industry's structure, enabling airlines to cope with the instability inherent to the sector and reap as many benefits as possible. The airlines industry resorted to alliances because an alliance is a flexible organizati-

onal form offering rapid growth potential. It is the modern engine for growth, which for airlines takes the form of increased network coverage and entrance in to new markets. Due to the air transport industry's own peculiarities as well as the regulatory framework governing it, alliances represent the business arrangement enabling airlines industry participants from different countries to jointly serve the global market at a lesser cost.

- *Other relevant determinants:* Table 2 summarizes the other reasons that the company considers important in its choice of Portugal as a major location for foreign investment at this stage in its internationalization.

TABLE 2. EMBRAER – MAIN DETERMINANTS TO INVESTING IN PORTUGAL

Motivations to invest	Geographical distance, the country's image, infrastructure, European Union
Company benefits	Synergies with global integration, product and services improvements
Problems	Stagnating economy, lack of human resources, legal system
Competitiveness factors	Proximity to European markets, cultural affinity, product range, autonomy
Operations	Purchase, production, storage and post-sale
Why not Spain?	Cultural affinity, labor and transportation costs
Brazil impact	Other Brazilian investment companies and imports
Type of investment	Acquisition and <i>greenfield</i> site (Évora)
<i>Internationalization</i>	Great internationalization experience before Portugal
Incentives	Yes for new plants in Évora
Organizational culture	Similar, not much difference
Production	Produce locally, 94% to exports
Success factors	Leadership, shared values, market oriented
Rate of return	More than expected
Would you invest in Portugal again?	Yes

Source: OGMA interview, April 2011

The results of the OGMA executive board survey clearly demonstrate that EMBRAER investments in Portugal had a deep impact not only on the firm itself but also on the host country, across very diverse and important economic factors, at the macro, micro and local levels.

6. FINAL REMARKS

This paper analyzes a Brazilian direct investment project in a high tech sector and the main motivations of EMBRAER to investing in the Portuguese market through OGMA. Indeed, for a long time, Brazil was seen as only primary product oriented. This is probably the first *case study* worldwide of FDI motivations in a big aircraft company.

The liberalization of the European Union market in the 1990s radically changed the competitive environment and the nature of airline competition. Furthermore, the new millennium began with terrorist attacks, epidemics, trade globalization, economic crisis and the rise of oil prices, all of which combined to push the industry into a peri-

od of serious turbulence. Airline industry profitability has been an elusive goal for several decades and the recent events have only accentuated existing weaknesses. The main concern of industry observers is whether the airline business model, successful during the 1980s and 1990s, is now sustainable in a market crowded by low-cost carriers. The airlines that respond rapidly and determinedly to increased pressures to restructure, to consolidate and to segment the industry, as EMBRAER did, will likely achieve competitive advantages.

Through interviews with the OGMA Board of Directors, in Alverca, as well as secondary data, article conveys EMBRAER motivations for its investment in Portugal, particularly concerning its contribution to the development of regions where it has a presence, Greater Lisbon and more recently in the Alentejo, within the context of world aviation and company growth and expansion. Teetering on the edge bankruptcy in 1993/4, EMBRAER in 2011 was the third largest producer of regional jets in the world, and continued to expand on a sound basis. Specialized in the manufacture of robust and economical regional jets,

EMBRAER benefited from their comparative advantage in relation to big planes in a period of high sector turbulence, and has also added the characteristics necessary for its own integration into the global marketplace. Moreover, there were a series of organizational changes as regards the company focus, whose initial engineering-driven culture was transformed into a market-driven strategy.

Therefore, we correspondingly to assess the role played by the main determinants of EMBRAER's investments, at the national, regional and corporate levels, in the light of the company's decision to invest in Portugal. Beyond the importance of cultural affinity and the presence of an investment opportunity, the privatization of OGMA in 2004, there are other relevant locational factors such as the strategic location to export with synergies to global integration, a national image appropriate to the company's values, infrastructures, skilled workers and government support, economic diplomacy, the establishment of alliances and European incentives. The OGMA investment provided potential spillovers to other related aviation industry businesses and the economy as a whole. One example is EMBRAER's investment in the city of Évora through OGMA, which sees the country move on from the maintenance to the manufacture of airplanes, and was much sought after by many countries as there is high technological content and an export driven product in what creates a competitive environment. According to the Portuguese ex-Prime Minister José Sócrates, such investment "means" strength of technological know-how and the deeper integration of Portugal into the global economy, based on a sector characterized by a high level of research and development. Indeed, this investment enables the creation of an aircraft cluster in Alentejo. So, this investment is important not only for their size and job creation, but also mainly because it place Portugal onto a new stage in the aeronautics industry, since the country will produce the industry's key parts. In spite of the economic stagnation of Portugal in the last decade, the company has had a better than expected return on initial investment and continues to invest in the country through the new factories constructed in Évora. Similar to Portuguese investments in the late 1990s in some parts of Brazil, Brazilian investments in Portugal are also now impacting on the regional development.

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