

The Vertical Integration Of The Logistics Operations In The Brazilian Sugar-Energy Industry

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ABSTRACT: Make or buy is an important decision for executives when composing the growth strategy of an organization. The horizontal and vertical limits are key factors to be considered in this decision making. The aim of this study is to understand the effects of vertical integration in agribusiness, focusing on logistics operations flow of sugar production, emphasizing the process of merger between a logistics company belonging to a sugar-energy group, with the largest railway company in the country. For that, a research methodology characterized as exploratory, qualitative and case study was used. This research made it possible to conclude that Cosan applied the vertical integration strategy based on the Resource Based View; the merger process had repercussions not only on the sugar-energy sector, but also on the grain sector; Cosan has been carrying out infrastructure improvement investments in order to expand the railway network and fix bottlenecks, resulting in an increase in efficiency and a reduction in operating costs, which, in comparison with 2016, resulted in an EBITDA growth of 36%; 28% increase in total volume transported; improvement of 4% in the variable unit cost indicator; and a 9% gain in the Diesel consumption indicator.

Keywords: Growth strategy; Vertical Integration; Railroad; Logistics.

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I. INTRODUCTION

The ever-increasing market dynamics have motivated companies to seek alternatives to ensure performance improvement, becoming more competitive or becoming a benchmark in their segment. One of the ways to achieve better results is to adopt evolutionary tactics that have a competitive advantage over competitors. The business performance scenario shows that in terms of competition, only the most prepared and broad-minded are the ones who will survive. From this perspective, the growth strategy constitutes a fundamental tool for business management in the articulation of actions in a complex and volatile environment, such as the sugar-energy sector, and presents itself as an important objective, to organize the company to act in the environment critic of great difficulties (VINHAS, 2017).

Brazil, in relation to the sugar agroindustry, has a secular tradition. It is a production system that became known from the beginning of the activities in the Northeast, where it held an extensive monoculture, the estates, the use of slave labor and big capital. The characteristics of the current model used still reveals the sugarcane plantation in large areas and the significant need for financial contributions, that is, the large volume predominates due to the economy of scale related to this production system. It is worth mentioning that in the performance of the process used by the Brazilian sugar and ethanol industry, there was a need for technological development in the agricultural, industrial and logistic areas (GARCIA; LIMA; VIEIRA, 2015).

The use of ethanol as fuel in Brazil was motivated by the financial crisis that affected the sugar industry in the early twentieth century, concomitantly to the crisis of 1929 that affected the capitalist economy. This situation led to the mandatory blend of ethanol to imported gasoline, being the starting point for the consolidation of an important segment of the Brazilian economy, which shows an alternative to the harmful effects of fossil fuels on the environment (GARCIA; LIMA; VIEIRA, 2015).

However, the behavior of the domestic and foreign markets encouraged the sugar-energy sector to adopt strategic growth alternatives, causing changes in the scenario, when observed the production units and the national panorama. Extensions of agricultural and industrial production, mergers and incorporations and other alternatives may appear as growth strategies, however, the essence of this proposal needs to be in tune with the interests of the organization and the investors of the business. Thus, the purpose of the growth strategy is due to the increase in sales and market share (VINHAS, 2017).

The participation of logistics operations is fundamental to the organization's pretensions. Perform the movement of products to meet market demands contained in the agenda of actions of business management of

any productive sector. However, in many cases, the complexity of the situation brings out the important decision to "make" or "buy". At this point, feasibility analyzes are essential for the direction of decision making. Working horizontally or vertically integrating productive operations reflects significant impacts on the organization, especially its competitive priorities (MOBUS; MAÇADA, 2013).

The vertical and horizontal aspects are relevant factors to be considered in the planning, structuring and implementation decisions of the organization's strategic growth actions (FREITAS; ANDRADE; BORDEAUX-REGO, 2015). The research presented in this article analyzed the benefits that the growth strategy supported by the vertical integration could provide to the logistics operations of sugar production, emphasizing the process of merger between a logistics company, which belongs to a sugar-energy group, with the largest railway company of Brazil.

II. LITERATURE REVIEW

2.1 The importance of the sugar-energy industry to the Brazilian economy

The importance of the sugarcane sector's participation in the Brazilian economy can be confirmed by the results presented by the Sugarcane Industry Union (UNICA), which represents the largest producers of Brazilian sugar, ethanol and bioenergy. Among the final figures published in the Final Report 2016/2017 harvest, it was found that sugar production was approximately 39 million tons and alcohol around 27 million cubic meters, whereas for this were processed about 651 million tons of sugarcane, coming from an area occupied by 11 million hectares (UNICA, 2017a).

UNICA and the National Center of the Sugarcane and Biofuels Sector Industries (CEISE Br), to chart a picture of the sugar cane industry, revealed that there are more than 380 production units across the country, with opportunities for direct formal jobs for more than 950,000 workers, and about 70,000 independent sugar cane farmers, operating in more than 1,000 municipalities. In 2015, the sector generated US \$ 8.5 billion in foreign exchange, ranking fourth in the national agribusiness export agenda. It registered a Gross Domestic Product (GDP) of approximately US \$ 40 billion, corresponding to 2% of the Brazilian GDP. The study also points out that the gross annual movement of the sugarcane chain, in values, exceeds US\$ 100 billion. Brazil is the world's largest producer and exporter of sugar (accounting for 20% of production and 40% of global exports) and the second largest producer of ethanol in the world (UNICA, 2016).

Regarding the environmental benefits generated by the sector, the use of ethanol as fuel to supply a fleet of more than 26 million flex-fuel vehicles, corresponding to 70% of the total number of light vehicles circulating in Brazil. According to UNICA's tool "Carbonometer", there has been a reduction of greenhouse gas (GHG) emissions by more than 408 million tons of CO₂, a result considered since the launch of the flex fuel car in 2003 (UNICA, 2017b).

In terms of comparison, this volume is equivalent to the sum of the emissions of seven European countries in 2012, presented in Table 1. This is considered the most successful alternative fuel program ever developed in the world (UNICA, 2017b).

Table 1: CO₂ emissions

Countries	Emission (millions / tons)
Slovenia	16,00
Ireland	35,00
Portugal	51,00
Hungary	51,10
Sweden	55,00
Austria	66,70
Belgium	139,10
Total	413,90

Source: Adapted from UNICA (2017b).

Through the calculation methodology used by the non-governmental organization SOS Mata Atlântica, in order to obtain this volume of emission reduction obtained in Brazil, it would be necessary to plant and maintain almost 3 billion trees over 20 years. According to the NGO methodology, it takes 7.14 trees to absorb one ton of carbon (UNICA, 2017b).

2.2 Logistic operations in the sugar-energy sector

According to the Ministry of Agriculture, Livestock and Supply (MAPA), the agro-industrial production of transport logistics contemplates the use of different modes and infrastructure, and has established itself as a strategic element for growth and competitiveness of Brazilian agribusiness (BRASIL, 2017).

Producing units within the sugarcane industry have warehouses of sugar and ethanol, in order to keep the product for long periods of time, being strategic to regulate and organize the planning of transport and logistics distribution operations (VIAN; MARIN, 2017).

In recent years, Brazilian agribusiness has been improving productivity, however, the high logistical costs generated by infrastructure inefficiency have impacted on the loss of the competitiveness of the national product compared to the international market (SOLIANI, 2015). The Brazilian cost to move the product from the source of production to the port of shipment for export is about four times higher than in countries such as the United States or Argentina (FREITAS, 2015).

Freitas (2015) reports that in a study carried out by the Brazilian Agricultural Research Corporation (EMBRAPA), it was identified that if Brazil made investments to improve the country's logistics infrastructure, solving problems related to the disposal of agribusiness products, producers would have a gain in the range of 35% higher than the current one. This picture shows that the country is not assertive and effective in the few investments that are made in logistics. In addition, experts in the field understand that, in addition to the investments required for the better performance of transportation logistics, regulatory problems and legal uncertainty end up inhibiting financial contributions to solve infrastructure bottlenecks (FREITAS, 2015).

With regard to the actions established for sugar and ethanol to reach their final destination, the sugar-energy sector uses specialized distribution and export companies. Within the internal market, the transportation of these products is mainly carried out by road, with the characterization of a direct connection between the industry and the consumer market. The use of other sugar and ethanol transport systems, such as rail and waterway, has little application. However, these are sectors that have shown growth in Brazil for efficiency when compared to road transport for long distance operations (VIAN; MARIN, 2017).

With regard to the export process, the transportation logistics operations of the sugar and ethanol sector present a greater degree of complexity, since they can be carried out by the use of highways, railroads and, in the case of ethanol, by the use of pipelines, linking the distilleries and the mills to the ports. In order for the port to be able to export ethanol, as it is a flammable product, it is essential to have adequate infrastructure for storage and loading for ships. With regard to sugar, warehouses are needed for storage in the port, and the product can be exported in bulk or bagged (VIAN; MARIN, 2017).

2.3 Vertical Integration in agribusiness

Agribusiness is the representation of businesses related to agriculture and livestock from the economic perspective. It relates to operations and transactions that are conducted from the manufacture of agricultural supplies, the production process in properties, to the preparation and distribution of agricultural products and their derivatives as raw or processed (ARAÚJO, 2013).

The integration or joint work between companies is a model of action within the agroindustry to meet the demands, since it reflects the objective of the organizations to raise the company's business plan, within the same business environment, both in the beginning of the production chain (providing) as to the end (distribution). It is a situation that can happen totally or partially, as long as it has a positive impact on the organization's competitiveness (BERTÁGLIA, 2016).

In the scope of agribusiness, vertical integration is shaped by the conciliation of a group of activities of production and agro-industrialization of products that, in certain situations, can be extended even in stages subsequent to the production process, reaching the initial stages of commercialization (ARAÚJO, 2013).

Vertical integration in organizations can also be understood as the level of operationalization of the production process, structure and services in the supply chain. Verticalization is more or less evident depending on the number of processes that are involved and executed under the management of the company, rather than hiring service providers to perform them (RITZMAN; KRAJEWSKI, 2009).

Looking at the perspective of productive chains in agribusiness, vertical integration can take place in the following way: forward, when the organization invests more in the distribution channels, such as its own centers, warehouses, sales outlets, sometimes even acquiring client companies; (RITZMAN; KRAJEWSKI, 2009).

In general, verticalization represents the effect of institutional combinations evidenced on the basis of interests among participants in the same chain, through the sharing of technologies and information, skills / competences and infrastructure, in order to produce mutual advantages derived from vertical and horizontal integrations (CALLADO; CALLADO, 2015).

III. METHODOLOGY

This study analyzes the merger between Rumo Logística, a subsidiary of Cosan S.A., and América Latina Logística (ALL), the largest railway company in Brazil. This process started in 2014 due to disagreements arising from contracts for the transport of sugar between Rumo Logística and ALL, referring to previous years, and had authorization from the Council for Economic Defense Board (CADE) and the National Land Transport Agency (ANTT) in 2015.

In the case of an observation of a case of incorporation or merger with the purpose of associating it with a theoretical context, a research methodology with a perspective of qualitative approach was undertaken. The study has as fundamental concern the analysis of the empirical world in its natural environment, being characterized by using diverse forms of obtaining the information, as the bibliographical research and the case study. As for the type, it is classified as exploratory, since this type of research aims to provide a greater understanding of the problem, making it more explicit and forming hypotheses, characterized as a case study by the procedures, according to Prodanov and Freitas (2013).

The collection of information to carry out this study relied on scientific articles available in electronic libraries such as SPELL, SciELO, Periódicos Capes, as well as

materials available on the official websites of the respective companies, on websites of investment and coverage companies of the São Paulo Stock Exchange, magazine and newspaper sites specialized in economics and business that monitored and covered the merger negotiations between the companies.

The case chosen comes from Brazilian companies with a strong impact on the country's economy. The availability of information on the incorporation was also a preponderant factor in the choice of the case, since it was widely covered by the press and published in communication vehicles and official channels of the companies, allowing them easy access. In view of the problems presented, a description of the merger process was developed, verifying the benefits and conducting a discussion of the impacts of the transaction, reinforcing the points that benefit both organizations involved in this operation.

3.1 Sugar-energy company analyzed

Cosan's history began in 1936 with the start-up of the Costa Pinto mill, located in the municipality of Piracicaba (SP). Over the years the company has diversified its business, investing in other sectors, in addition to the sugar and ethanol industry. COSAN has been listed on the São Paulo Stock Exchange since 2005 and on the NYSE (New York Stock Exchange) since 2007.

Through its business, it is part of the Brazilian sugar and ethanol industry, producing and exporting ethanol and sugar; produces electricity from sugarcane bagasse; operates in the distribution of natural gas; and also in the distribution of fuels and lubricants.

Table 2 below shows the Cosan group portfolio (COSAN, 2018a).

Table 2: Main companies of the Cosan group

Companies	Characteristics
Raízen Fuel Distribution	The company's fuel distribution arm, manages a nationwide distribution network of more than 6,000 Shell service stations, 960 convenience stores and 67 distribution terminals. It also operates aviation fuel distribution service in 64 airports.
Raízen Energia	Annually produces over 4.1 million tons of sugar and 2.1 billion liters of ethanol for both the domestic and export markets. Its power generation assets have the capacity to generate 940 MW of energy from sugarcane bagasse.
Comgás	Brazil's largest natural gas distributor, serving 177 cities in the state of São Paulo. It connects large natural gas reserves to the country's key consumer markets: the São Paulo metropolitan area and its densely populated surrounding regions. Its portfolio of over 1,7 million residential, commercial and industrial customers is complemented by the supply of compressed natural gas (CNG) used in vehicles.
Moove	One of Brazil's largest players in its segment, Moove globally distributes and produces lubricants and base oils under the Mobil and Comma brands. In Brazil, the company is engaged in the distribution of base oils, production and distribution of Mobil brand lubricants and management of Zip lube, a franchise chain specializing in automotive services.
Rumo	Latin America's largest logistics operator with an independent railroad network. It offers a comprehensive range of services through a modern and integrated intermodal platform that can transport around 18 million tons of cargo per year.

Its 12,000 kilometers of track pass through the states of Mato Grosso, Mato Grosso do Sul, São Paulo, Paraná, Santa Catarina and Rio Grande do Sul and connect the ports of Santos, Paranaguá, São Francisco do Sul and Rio Grande.

Source: Adapted from Cosan (2018).

With a focus on innovation, competitiveness, efficiency and respect for the environment, Cosan makes investments in important sectors for the development of Brazil. Participating in the energy and logistics sectors, with qualified and committed staff, it has contributed to building the foundations of a consistent and sustainable growth of the country (COSAN, 2018a).

With the joint venture between Cosan and Shell, Raízen was created, which has a strong presence in the energy sector, being recognized as the largest individual producer of sugar and ethanol in the world and a giant in energy cogeneration in Brazil, also ranks among the country's largest fuel distributors (COSAN, 2018b).

Rumo Logística is a company resulting from the merger between Rumo and ALL, operation that is the subject of the work. It is the largest independent railroad logistics operator in Latin America. It offers a range of services options, with a modern and integrated intermodal transportation platform with potential for transportation and elevation in the Port of Santos to around 19 million tons of agricultural and industrial products per year (RUMO, 2018).

It operates with four railway concessions in Brazil and has a structure with 12.9 thousand kilometers of rail network, which passes through the territories of six states (São Paulo, Paraná, Santa Catarina, Rio Grande do Sul, Mato Grosso and Mato Grosso do Sul), making the interconnection between producing centers, consumers and seaports. It also has 1,000 locomotives, 25,000 railcars, as well as distribution centers and storage facilities and 12,000 direct and indirect employees (RUMO, 2018).

The Company has interests in six port terminals, five of them in the Port of Santos (SP) and one in the Port of Paranaguá (PR), with a capacity to store about 1.3 million tons and a cargo capacity of approximately 29 million tons per annum (RUMO, 2018).

3.2 Incorporated railway company

The railway company merged into Cosan subsidiary, Rumo Logística, was ALL, a company specializing in rail transport, with strategic resources for the claims of the verticalization process of Cosan (RUMO, 2016b).

ALL was considered as the largest independent logistics company in Latin America. Created in 1997 to carry out its rail transportation activities through the South Brazilian grid, through the concession of the Federal Railroad Network (RFFSA), it expanded its operations in the logistics sector in Brazil. Its operation was evident in regions responsible for more than 80% of the national GDP and in the four ports where the largest volume of grain produced in the country is exported (ALL, 2014).

Based in Curitiba, it worked with four concessions (ALL Malha Sul S.A., ALL Malha Oeste S.A., ALL Malha Paulista S.A. and ALL Malha Norte S.A.), totaling 12,000 kilometers of railways, corresponding to 45% of the country's total rail network. The operating structure had 12 production units, with wagon and locomotive maintenance and supply locations in six states (Paraná, Rio Grande do Sul, Santa Catarina, São Paulo, Mato Grosso and Mato Grosso do Sul). Among the main products handled by ALL are agricultural commodities (such as corn, soybeans, soybean meal and sugar) and industrialized products (ALL, 2014).

IV. RESULTS AND DISCUSSION

4.1 Cosan Group's vertical logistics integration process

The Cosan group's vertical integration process had its way in the face of setbacks and difficulties, however, strategic definitions were determinant for the directions to be consolidated and desired results could be achieved. With an organizational management focused on growth, in view of the production of sugar and ethanol from the units of the group and its distribution in the domestic and foreign markets, it was necessary to make feasible and improve the logistical process of transportation.

The need to have logistical efficiency in exports motivated Cosan to negotiate with Rezende Barbosa SA Administração e Participações (RB) and in 2008 created Novo Rumo Logística SA (Novo Rumo) and Rumo Logística SA (Rumo), which would control Cosan Portuária. At the same time, Cosan and RB agreed on a private instrument for the sale and purchase of shares and other covenants, when Cosan acquired 49% of Teçu Armazéns Gerais SA, which at the time was the owner of a sugar export port terminal located in Santos, belonging to RB (RUMO, 2016a).

Mergers and acquisitions are procedures that are part of business management in different segments. Facing a highly competitive scenario, mergers and acquisitions constitute strategic elements of growth, observing the available resources of an organization, which can be transformed into a competitive

advantage for the acquiring company. These actions are configured as mechanisms that organizations use in order to obtain resources.

The theoretical RBV (Resource Based View) proposes that the internal resources of the organization are sources of competitive advantages. The RBV's fundamental unit of analysis consists of the resources and capabilities controlled by the firm, which include all attributes (whether tangible or intangible) that enable it to define and implement strategies (ALMARRI; GARDINER, 2014).

Resources, from this perspective, are considered the assets, capacities, organizational processes, attributes, information and knowledge owned by a company that can contribute to the implementation of strategies dedicated to improving efficiency and effectiveness (LEITE; AGNOLIN; CARVALHO, 2017). In this sense, Cosan worked in its strategic articulations, seeking to increase its logistics operational resources, aiming to optimize the transportation process of its products, through the negotiation and creation of the company Rumo S. A.

By the end of 2013 there was a climate of discord and distrust between Rumo, the logistic arm of the Cosan group, and ALL, which operated the main stretches of the Brazilian rail network, characterizing a strong litigation climate. All due to a contract signed in 2009, which gave an account of an agreement evidencing the simple and lucrative idea for the parties, win/win agreement. Rumo assumed the commitment to invest R \$ 1.2 billion in ALL's rail network to ensure the transportation of its sugar through the interior of the state of São Paulo to the Port of Santos. However, things did not turn out as well as expected, and the contract was a clash between the companies, which ended in an arbitration chamber in October 2013 (RYDLEWSKI, 2014).

Given the circumstances, there was a high level of skepticism among business leaders about working together. An alternative would be a revision of the contract, editing a new wording and contemplating other agreements, but without success. Cosan did not want to lose the investments made, so it went on an offensive and ended up with 36.5% of ALL and 9 of its 17 advisers. This result was considered a prize and enabled the business control (RYDLEWSKI, 2014).

It is noteworthy that the merger between Rumo and ALL had to be approved by both the Administrative Council for Economic Defense (CADE) and the National Land Transportation Agency (ANTT). This strategy contributed to the growth of the Cosan group, which came to be highlighted in other large investments and relevance to the market, such as the purchase of the Esso operation in Brazil; formation of the joint venture with Shell, giving rise to Raízen, the largest producer of sugar and ethanol in Brazil; and the acquisition of Comgás by Britain's BG (RYDLEWSKI, 2014).

The pretensions to this negotiation were the increase of the operational performance by the expansion of its capacity, the reduction of the costs with the increase of the scale and the increase of the efficiency of the operations, obtained through the operational integration. This process made it possible to open up opportunities for other investments related to commodities, which could be integrated into this new logistic format resulting from the merger between Rumo and ALL (LEITE; AGNOLIN; CARVALHO, 2017).

The strategy with this negotiation was to establish an integrated logistics company, involving railroad, highway and port, in a business model that does not exist in Brazil, as shown in Figure 1.

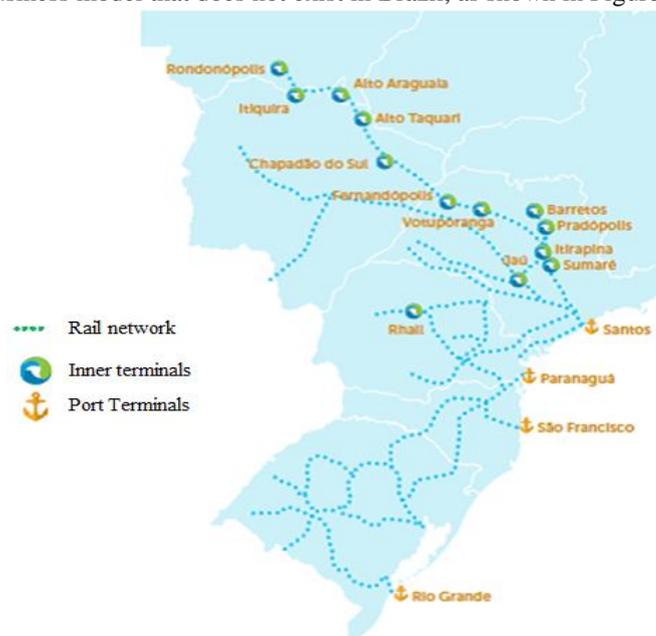


Figure 1: Rumo Logistics Operations
Source: Adapted from Cosan (2018).

However, in addition to the process of consolidation of the new company, there is a need for investments for maintenance, which requires significant financial contributions, given the volume and importance of the processes (LEITE; AGNOLIN; CARVALHO, 2017).

The result of this transaction created a logistical scenario focused on agricultural commodities supply through four concessions, enabling the transportation of products from the origin to the export ports, covering a large territorial area of the country, as can be observed in Figure 2.

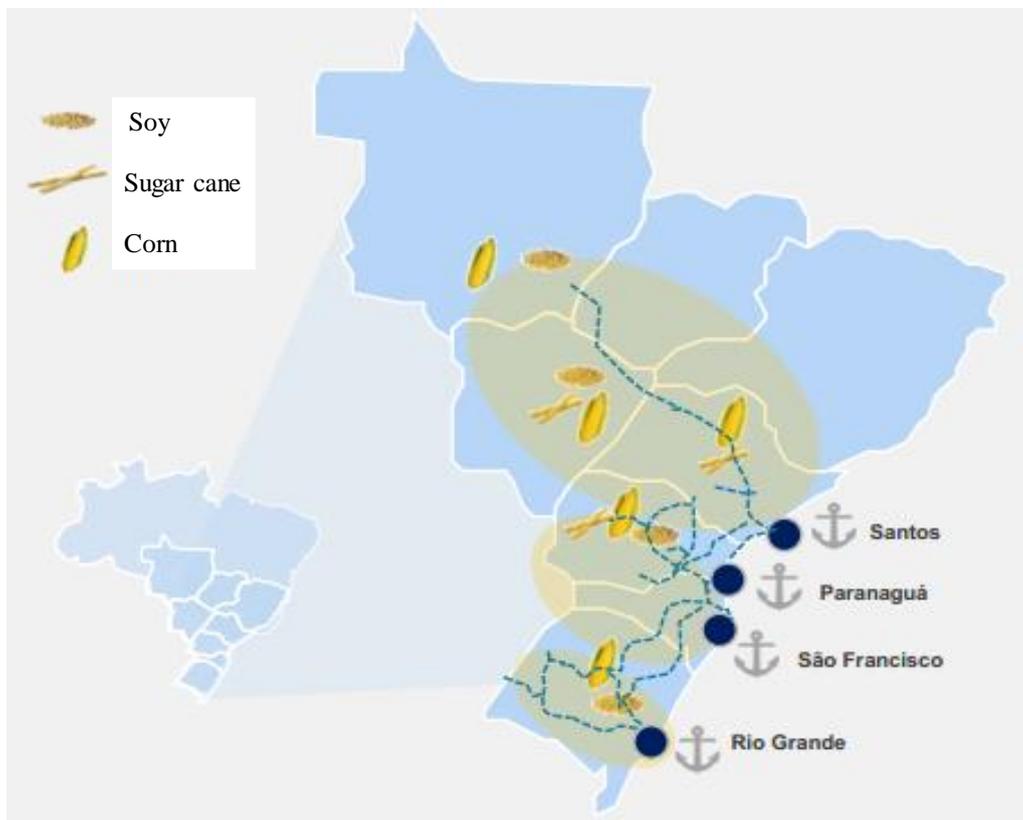


Figure 2: Rumo / ALL concessions rail network
Source: Adapted from RUMO (2016b).

This strategic operational composition of Cosan represents an expansion in the scope of operations, which was set up to meet demand, reduce operating costs, increase production capacity and raise service levels and competitiveness. The indicators of operational and financial performance presented by Rumo ALL can be checked through the 2017 Results Report (RUMO, 2017):

- EBITDA: In 2017, EBITDA (earnings before interest, taxes, depreciation and amortization) of Rumo was R \$ 2.76 billion, representing a 36% growth when compared to 2016;
- Transported volume: the total volume transported in 2017 was 49.7 billion TKU (useful tons), 28% higher compared to 2016;
- Unit variable variable cost: there was a 4% improvement in the indicator in 2017, mainly due to the greater efficiency in the diesel consumption of the new locomotives;
- Fixed Cost + General Expenses: the 21% improvement in 2017 mainly reflects the dilution of fixed costs due to the increase in volumes transported;
- Operating Ratio: The indicator, which represents the share of costs and expenses as a percentage of net revenue, showed a significant improvement when compared to 2016, mainly due to the increase in volume transported, which resulted in dilution of costs, as well as efforts company's continuous reduction of expenses;
- Diesel consumption: the indicator showed a 9% gain in 2017, reflecting greater efficiency in the unit diesel consumption of the new locomotives included in the operation. In addition, the increase in the volume of grain transported in the North operations contributed to the result, since the flow of these commodities presents a lower average fuel consumption (liters / TKB) when compared to the sugar flows from the state of São Paulo;

- Transit time: The indicator was impacted mainly by road bans to execute the scheduled investments. However, the increase in transit time did not impact the cycle time of wagons. The operation continued to show efficiency gains that were reflected in the increase in volumes transported in 2017;
 - Cycle assets: The improvement of the Rumo operation at the terminals where it operates, reducing the loading and unloading time of the compositions, compensated for the increase in transit time in the operations, and resulted in an improvement in the cycle time of the assets;
 - Average freight cars / day: The indicator reflected the increase in capacity generated, which allowed Rumo to capture larger volumes of grain. The result was achieved even with fleet renewal, in which wagons with lower capacity were replaced by wagons with a capacity of 90 tons, which allows the same volume to be transported with fewer freight cars loaded.
- Business management, focused on efficiency and growth, stimulated the undertaking of articulated and specific actions within the market opportunities that led the group not only to solve needs but to expand business.

4.2 Responsiveness of the merger by the grain sector

The merger between Rumo and ALL caused concern in the grain sector, as it was seen as a barrier to operators and entrants in the areas of logistics and agricultural commodity production, since, in the interpretation of the sector, ALL would prioritize the cargoes of Rumo Logística to the detriment of the other customers of the soybean and corn sector, generating restrictions of access to the same establishment of competitive advantages in transportation and storage coming from this new operation (LEITE; AGNOLIN; CARVALHO, 2017).

The constitution of a new company in the logistics segment, due to its size and performance, showed a reaction from the affected and interested parties. Freitas (2015) also pointed out that there are concerns about the effects of the verticalization of logistics operations. In addition to the new company, Raízen's products are preferred, the railroad would no longer be independent, with impacts on railway tariffs and renewal railway concession, which is imposed by Cosan.

This new situation has generated a concern on the part of grain producers, since ALL's transportation capacity is limited due to the lack of necessary investments. Although grain and sugar crops are seasonal and occur at different times, demand for transportation is evident throughout the year. It is a scenario where meeting one means sacrificing the other. The volume of soybeans and corn is five times higher than that of sugar, and the non-transport of grains by the railroad would direct this activity to the road modal, thus compromising the competitiveness of the product in the international market (RIOS, 2014).

V. CONCLUSIONS

Each company seeks to identify opportunities to create value to the productive and logistic process as an element of its organizational competitiveness. Therefore, they use growth strategies, highlighting key activities, which at certain times, are faced with the decision between "make" or "buy".

Vertical integration is an option for the organization to perform activities considered essential to enhance the growth process outlined in business management plans. This alternative demarcated the behavior of Cosan, when it invested in the creation of Rumo Logística for the transportation of its products, and even more now with the recent merger with ALL, originating the largest railway company in Brazil.

The merger of Rumo with ALL resulted from Cosan's perception of the difficulties that agribusiness faces when it comes to the logistics of transporting the crops. Cosan sought to articulate itself in order to ensure that its products reach the Port of Santos to meet the commitments with the international market in a competitive way. The planning includes investments in infrastructure improvement, with the aim of expanding the railway network and solving bottlenecks, with the consequence of increasing efficiency and reducing operating costs.

This process, undertaken by Cosan, seeking to set up a logistics company and to promote investments in improvements in the transportation of agribusiness products has generated expectations in the producers, both in the sugarcane and grain sectors, since the vision conceived was that there is a need for investments to meet with greater efficiency the demand of movement of its products. The efficiency in the transportation of the products can mean a reduction in costs and a consequent increase in its competitiveness.

Continuous investments (process restructuring, equipment renewal, grid investments, terminals and maneuvering yards) are providing great operational improvements and capacity expansion, which allowed Rumo to capture higher volumes, diluting costs, according to the generation strategy value of the company. Fleet renewal, together with other investment plan initiatives, led to a growth in variable cost less than volume expansion, with a notable reduction in diesel consumption (Liters / TKB: -8.6%) in 2017 when compared to 2016. The increase in transportation capacity generated productivity gains and allowed Rumo to reach operational records during 2017.

Specifically in the case of grain transportation, the company's most profitable operation, growth was 39% year-on-year. The Port of Santos (SP), the main destination of the cargo transported by Operation Norte, moved in 2017 a total of 36 million tons of grain, a sharp increase compared to 27 million tons in the previous year. Even with this significant expansion of the export market, Rumo achieved a 53% market share, 3p. p. above 2016. This result evidences the successful execution of the investment plan, with significant capacity growth (COSAN, 2017).

In 2017, CAPEX (Capital Expenditure) reached R \$ 2,153.5 million, 12% higher than the previous year. The main investments in capacity increase were: 1) acquisition of 311 HPT wagons; 2) improvement of the infrastructure, in order to eliminate restrictions and increase capacity, and revitalization of the permanent track, with replacement of rails and dormants; 3) continuity of the project to revitalize the railroad in the right bank of the Port of Santos (SP), allowing a better railway reception in the terminals; 4) progress of the improvement works in the Rondonópolis (MT) terminal; and 5) several improvements made in patios and terminals, with the purpose of reducing the time of trains permanence and increase the productivity of the operation.

In general, some agribusiness leaders see this merger as an opportunity to invest in improvements in transportation operations, increase efficiency in railway logistics, decrease the cost to the producer, contribute to solve the logistics bottleneck of the country and reduce of the Brazilian cost (generic denomination given to a series of production costs, or expenses incurred on production, which make it difficult or disadvantageous for the Brazilian exporter to place its products on the international market). They show that the positive impact of this merger must be perceived not only by the sugar-energy sector, but also by the agribusiness export chain. This is an effect that is already being observed by the improvements implemented by Rumo, reflected in the deceleration of road freight, a perspective of large investments and greater rationality in transportation planning in a wide way.

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