Original article

Núcleo de Estudos, Pesquisas e Projetos de Reforma Agrária – NERA, Presidente Prudente/SP, Brasil.
ISSN: 1806-6755
Rev. NERA | Presidente Prudente, SP | v. 27, n. 1 | e9729 | 2024.
DOI: 10.47946/rnera.v27i1.9729

Sugar-energy sector's financialization strategies in Brazil[1]

Henrique Faria dos Santos
São Paulo State University (UNESP) – Rio Claro, São Paulo, Brasil.
e-mail: livehenriquefariasantos@hotmail.com

Abstract

This article aims to discuss the several financialization strategies used by sugarcane industry in Brazil, such as banking credit acquisitions, issuance of debt securities, IPO on the stock exchange and speculation in the commodities market. In recent years, agents of the sugarcane sector have been increasingly to access different ways of capitalization to inflate their assets and make productive and speculative investments. The context is part of the hegemony of financial capital over the political economy of the market and large firms, resulting in growing influence on corporate decisions. Thus, it is observed that globalized agribusiness is one of the economic activities that has been having narrow relations with the financial agents to expand the process of capital accumulation, increasing even more the investors' wealth levels.

Keywords: Financialization; corporate governance; competitiveness; sugarcane industry.

Estratégias de financeirização do setor sucroenergético no Brasil

Resumo

O objetivo do presente artigo é discutir as várias estratégias de financeirização do setor sucroenergético no Brasil, como a aquisição de crédito bancário, emissão de títulos de dívida, abertura de capital em bolsa de valores e especulação no mercado de *commodities*. Nos últimos anos, os agentes do setor sucroenergético tem se empenhado cada vez mais em acessar diferentes formas de capitalização para inflacionar seus ativos e realizar investimentos produtivos e especulativos. O contexto se insere na hegemonia do capital financeiro sobre a economia política do mercado e das grandes empresas, resultando em crescente influência sobre as decisões corporativas. Sendo assim, observa-se que o agronegócio globalizado é uma das atividades econômicas que vem tendo estreitas relações com os agentes financeiros para ampliar o processo de acumulação do capital, aumentando ainda mais os níveis de riqueza dos investidores.

Palavras-chave: Financeirização; governança corporativa; competitividade; setor sucroenergético

Estrategias de financiarización del sector sucroenergético en Brasil

Resumen

[1] Article derived from research funded by the São Paulo Research Foundation (FAPESP), processes no. 2017/15377-3 and no. 2022/11815-4.

El objetivo de este artículo es discutir las diversas estrategias de financiarización del sector sucroenergético en Brasil, como la adquisición de crédito bancario, la emisión de títulos de deuda, la salida a bolsa y la especulación en el mercado de commodities. En los últimos años, los agentes del sector sucroenergético han apostado cada vez más por acceder a distintas formas de capitalización para inflar sus activos y realizar inversiones productivas y especulativas. El contexto se enmarca en la hegemonía del capital financiero sobre la economía política de mercado y las grandes empresas, lo que se traduce en una creciente influencia en las decisiones empresariales. Así, se observa que la agroindustria globalizada es una de las actividades económicas que viene teniendo estrechas relaciones con los agentes financieros para ampliar el proceso de acumulación de capital, aumentando aún más los niveles de riqueza de los inversionistas.

Palabras-clave: Financiarización; gobernancia corporativa; competitividad; sector sucroenergético.

Introduction

The financialization phenomenon has made great headway in recent decades in the capitalist system, significantly changing the economic and political activities of companies and States. The huge power of financial agents has determined the ways production, distribution, commercialization and consumption of products and services are carried out in most countries absorbed into the logic of neoliberal globalization (Harvey, 2005). However, raising capital via investments in the financial market and through speculative transactions has represented rising risks and generated a situation of increasing vulnerability in the various markets, whose agents are experiencing an unprecedented degree of indebtedness.

One of the economic activities that have employed financialization strategies is that linked to agricultural and agro-industrial chains, in which rural producers, agro-industries and trading companies have appropriated sophisticated financial market instruments (i.e., interest-bearing capital) to access financial resources for their operations, thus constantly increasing both their dependence on credit and indebtedness to sustain competitive edge. The most evident implication of this process is total loss of control over the factors affecting the *commodities market* and, therefore, the conditions for profitability since stock exchanges determine, on a daily basis, the prices of the main commodities, which undergo frequent fluctuations according to several economic and political variables and speculative operations by investors. Another issue is the high degree of companies' financial leverage through bank loans, purchase of shares and issuance of debt securities, what, depending on business performance and market conditions, can make financial commitments unpayable.

The case of sugar-energy sector – agro-industrial activity that involves the production and processing of sugarcane to produce sugar (various types), ethanol (anhydrous and hydrated) and bioelectricity (burning of sugarcane bagasse) – is illustrative of how agribusiness agents have used financialization strategies to grow in the market and keep investment and competitiveness levels. In the last two decades, various aspects of financialization in the sector have been observed, such as bank loans, issuing debt securities, going public on stock exchange and speculation in the commodity futures market.

Thus, the various financialization strategies allowed the largest sugar-energy groups to increase their power in the market, enabling access to large sums of capital that allowed them to not only carry out mergers with and acquisitions of (M&A) less competitive groups, but also to appropriate the best geographical logistics networks and monopolize sugar and ethanol distribution systems in the Brazilian territory (Santos, 2022). Considering these facts, this article seeks to discuss the current financialization strategies used by agents in the Brazilian sugar-energy sector as a way of achieving competitiveness.

The research adopted two main methodological procedures: *i*) survey and literature review of books, articles, theses and dissertations on financialization of the contemporary economy, globalized agribusiness and the Brazilian sugar-energy sector; *ii*) collection and systematization of data and secondary information about the current financialization strategies of the sugar-energy sector, on company websites, Google *Finance*, B3 and in news and reports in the general press (*Valor Econômico* and *O Estado de São Paulo* newspapers) and specialized media (*Novacana* portal).

Financialization of the economy and globalized agribusiness

In the current historical period of globalization, finance has become the focus of strategic actions of numerous economic actors (Santos, 2000; Chesnais, 2005, 2019). The scope, power and intensity of the broad implications stemming from moves carried out in the sphere of finance have configured such a peculiar dynamics that it allows us to qualify the contemporary period as a bearer of financial dominance (Braga, 1997). Being a social sphere, geographic space both conditions and is conditioned by such dominance, as also are the productive organizations, governments, financial corporations, consumers and other economic agents (Martin, 1999). Supported by new information and communication technologies (NTICs) – structural elements of the technical-scientific-informational environment (Santos, 1996) –, finance has rapidly expanded, reaching all productive sectors and markets, thus characterizing the phenomenon of *financialization*.

According to Gerald Epstein (2005, p.3), financialization can be defined as “the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies.” Greta Krippner (2005, p. 174) defined financialization as “a pattern of accumulation in which profits accrue primarily through financial channels rather than through trade and commodity production.” Cavalcante *et al*. (2018, p. 197) argue that the financialization of the economy can be understood as the increased influence of the capital market (products, agents and processes) on the behavior of firms, governments and families, whose concerns become focused on efficiency and rationalization of costs and on income/revenue management.

For José Carlos Braga (1993, p. 26), financialization three aspects characterize financialization: *i*) changes in the nature of competition and in corporations' structure, muddling the division of the economy into "sectors" and the separation between "financial" and "productive"; *ii*) financial dominance as a widespread display of current ways of defining, managing and producing wealth within the capitalist system; and *iii*) financial practices become a preponderant element in all companies, including those in the industrial sector.

These definitions of financialization refer to the idea that profits of economic agents, especially large transnational corporations, have been primarily generated through investments in the financial market rather than through the factors of production and commercialization of non-financial goods and services. This means that most of the capital surplus is no longer reinvested in production, that is, in the so-called real economy, but rather directed to speculative investments in the financial market to generate money from money, without carrying out production and commercialization of goods (Lapavitsas, 2013). Such financial investment mechanisms, which Karl Marx considered to be outside the material sphere of society and to comprise a *fictitious capital*,[2] is currently predominant in the dynamics of economic growth and boosts accumulation of wealth based on speculative appreciation of assets, especially intangible ones (scientific-technological knowledge, patents, brand strength, market value, etc.).

The financialization of the international economy arouse in the 1970s in the USA, by means of gradual deregulation and liberation of financial markets concomitantly with the emergence of neoliberal governments. This new context was established in response to the economic crisis of stagflation that persisted at the time due to central countries' recovery from post-World War II after-effects and the exhaustion of the Fordist mode of production (Harvey, 1989).[3] The end of the *Bretton Woods regime* (1945-1971)[4] marked the beginning of

[2]Type of "appreciated capital" without counterpart in values of real productive activity or material assets at a given moment in time, that is, a form of wealth artificially inflated through speculation – without correlation with the real value of patrimonial ownership or goods produced in the present –, such as negotiable bills (debt securities with promise of future liquidity) and the fluctuating value of companies' stocks, which allow capital to be anticipated through confidence in a risky market (Harvey, 2011). This fictitious capital has soared with globalization, as "the use of techniques allows the installation of a fluid, relatively invisible, practically abstract money" (Santos, 2000, p. 100).

[3]In Marxist theory, this exhaustion results from the lack of mechanisms for redistributing wealth and the stagnation of wages for ordinary workers, what prevented demands of the consumer market from keeping up with the increase in production capacity of oligopolistic corporations. The reduction in capitalists' profit rates from production and commercialization activities, led to the use of surplus capital in other alternative sources of income generation, such as financial activities (Davis & Kim, 2015, p. 206).

[4]This regime was created at the end of the Second World War to stabilize the world economy. While it was in force, commercial operations were carried out based on fixed exchange rates referred to the US dollar, convertible to gold bullion. To ensure the operationalization of this regime, the International Monetary Fund (IMF)

deregulation of the financial markets and the end of control over capital movement (entry and exit across borders) on a global scale, what, among other things, was based on: *i*) *removal of legal restrictions* on free investment and financial transactions (domestic and foreign) to foreigners (including for acquisition of public debt securities); *ii*) "*decompartmentalization"* of different functions and markets (exchange, credit, stocks and bonds) and; *iii*) *disintermediation*, which allowed non-bank financial institutions to act as lenders without intermediation from banks (Chenais, 2005, p. 46).

Thus, the *flexible accumulation* regime (Harvey, 1989; Benko, 1998) and *neoliberalism* favored the expansion of the financial market, by disseminating the free-market doctrine and breaking down several regulatory barriers that restricted investors freedom and geographic mobility of capital. According to Harvey (2005, p. 76), the neoliberal State theory suggests that "the free mobility of capital between sectors, regions, and countries is regarded as crucial. All barriers to that free movement (such as tariffs, punitive taxation arrangements, planning and environmental controls, or other locational impediments) have to be removed [...]". For Kotz (2010, p. 3), neoliberalism

> […] represented a sharp break from the previous one. Its main features are the removal of barriers to free movement of goods, services, and especially capital, throughout the global economy; a withdrawal by the state from the role of guiding and regulating economic activity; privatization of state enterprises and public services; the slashing of state social programs; a shift to regressive forms of taxation; a shift from cooperation between capital and labor to a drive by capital, with aid from the state, to fully dominate labor; and the replacement of co-respective behavior among large corporations by unrestrained competition. Neoliberalism has an associated ideology of worship of the so-called "free market" along with a denial of any positive role for the state apart from its coercive functions.

Another aspect that favored financialization was the spreading of communication and information technologies (telematic networks) and their ability to collect, analyze/process and share data, simultaneously and instantaneously, thus simplifying and amplifying the conditions for capital transfers/transactions, and operationalization and commercialization of financial products and services around the world (Warf, 1989, 2017; Zook, 2018). Furthermore, the advancement of mathematical and financial sciences in creating sophisticated tools for evaluation and predictability of asset pricing and portfolio risks was fundamental to providing greater security and guarantees to investors (Paraná, 2016; Coombs & Van Der Heide, 2020). These advances refer to the technical unicity that characterize globalization (Santos, 2000), which allows carrying out the same actions in any part of the globe where these techniques are available. Also noteworthy is the role of credit rating agencies such as *Moody's, Standard & Poor's* and *Fitch*, which, armed with those

---

and the World Bank were created. With the dollar crisis in the 1970s, the exchange rates of the main currencies became flexible, favoring exchange rate speculation (Harvey, 2011).

tools, assign assessments of companies and countries, qualifying the solvency of assets and the credibility of debtors, thus becoming important security parameters for large market investments.

The financialization of the economy, enabled by the above referred favorable political and technological circumstances, becomes evident in the process of *securitization* of debts of families, companies and States. According to Davis and Kim (2015), practically any type of debt (and its supposed guarantees of payment) can be transformed into securities (*bonds*, debentures, receivables certificates, etc.) backed by tradable assets, including car loan and student loan portfolios, mortgages, bills receivables, hire-purchase receivables, companies' trade receivables and accounts payable, tax receivables agreements, insurance payments, lotteries and pensions, seizures of property, among others. These securities are sold on the market to individuals and legal entities that acquire them and receive in return, over a variable or fixed period, the amount that was paid plus interest (at variable or fixed rates), especially above or close to official rates, like Selic in Brazil. Third parties may also resell securities on the market, depending on the dynamics of speculative pricing of the investments. This instrument is a way for banks,[5] companies and even the State to obtain, in advance, capital to finance their investments and expenses, raising funds by means of issuing bonds to a relatively large number of "lenders", and thus outsourcing the risks of default to the public.

Another financial innovation that provides variable income is derivatives trading, which became widespread among agents to anticipate resources in the market through contracts that "guarantee" the payment of credit acquired in a future period. These securities may assume various types, such as futures, options, *forwards* or *swaps*, and their values derive from different market factors, including assets (prices of commodities, shares, bonds), reference rates (interests), market indices (exchange rates). Contracts always have a price and term established for a future date and can be negotiated according to variations in value over time (Davis & Kim, 2015).

Thus, financialization and its capitalization instruments, especially those related to futures markets (commodities, shares, currencies, debts), currently constitute the main factors conditioning the corporate organization of large companies, the economic growth, the actions of States and the consumption by families and companies (Davi & Kim, 2015). Accordingly, we may say that the current period is marked by the *globalization of financial dominance* in contemporary capitalism. As Milton Santos (2000, p. 44) points out,

[5]In the case of banks, when lending resources on the market, they transform borrowers' debts into securities packages and sell them on the market to quickly recover the amount of borrowed capital, thus becoming just an intermediary between the lenders (numerous third-party investors) and borrowers, who knowingly or not, have become issuers of securities in the financial market (Davis & Kim, 2015, p. 208).

> In the present conditions of the international economy, the financial sector gains a sort of autonomy. That is why the relationship between finances and production, between what is now called real economy and the world of finances, gives way to what Marx called speculative madness, which is founded in the role of money in its pure state. Money becomes the centre of the universe. Money as money alone reproduces its fetishism by way of ideology. The financial system creates imaginative formulae, forever devises new instruments, and multiplies what it calls derivatives, which are constantly renewed forms of offering this merchandise to speculators. As a result, exponential speculation, redefined in this manner, will thus become something indispensable and intrinsic to the system, thanks to the technical advances of our epoch. (Santos, Milton. *Toward an Other Globalization: From the Single Thought to Universal Conscience*. Translated by Lucas Melgaço & Tim Clarke. Series: Pioneers in Arts, Humanities, Science, Engineering, Practice. Springer Cham, 2017, p. 19).

An economic activity that recently has undergone financialization is *global agribusiness*, a productive paradigm of modern agriculture that emerged in the second half of the 20th century in central countries[6] (in 1990, in Brazil) and which has the financial logic as one of its structuring elements. The new capitalization mechanisms and the increasing participation of productive agents in the financial market, added to the occurrence of commercial operations strictly dependent on the operations of these markets, characterize what many authors have called the financialization of agriculture, of agricultural commodities market or of the agri-food system (Verdi & Aoun, 2009; Delgado, 2012; Cheng & Xiong, 2013; Balestro & Lourenço, 2014; Clapp, 2014; Isakson, 2014; Martin & Clapp, 2015; Paula, Santos & Pereira, 2015; Bernardes *et al*., 2017; Clapp & Isakson, 2018; McGill, 2018). The growing dependence of the agricultural sector on agricultural and agro-industrial credit and the control of operations of large firms in the sector by the financial system have, therefore, been central aspects of this financialization. Castillo *et al*. (2016) observe that, besides holding companies with centralized capital, especially with publicly traded shares on stock exchange, agribusiness activities have recently shown the presence of international financial capital representatives, such as "pension funds, private equity companies, foundations and banking institutions, by means of equity participation in agricultural companies and of direct and indirect control of land and other resources".

These agents, who invest in production chains around the world and become shareholders (often majority) of large corporations in the agri-food and retail segments, hold enormous power to dictate issues such as who should produce what, where, how, how much and when, and store, distribute and sell the produce. Such decisions bring about massive

[6]The term agribusiness had its origins in the work of John Davis and Ray Goldeberg (1957) at *Harvard Business School*, entitled *A Concept of Agribusiness*. The work aimed to analyze the technological transformations in agriculture at the time and its interdependence with other economic sectors. The authors then defined *agribusiness* as being "the sum total of all operations involved in the manufacture and distribution of farm supplies; production operations on the farm; and the storage, processing and distribution of farm commodities and items made from them" (Davis & Goldberg, 1957, p. 2). [Davis, John H.; Goldberg, Ray A. *A concept of agribusiness*. Harvad University, 1957]

volumes of goods that are converted into market value and which can produce, depending on the strategies adopted by the agents, huge profits or losses associated with the pricing of shares in the financial market. This logic is inherent to the speculative fluctuations carried out by other investors in these markets, who contribute capital to profit from trading shares, bonds, derivatives and other financial remuneration instruments (Clapp & Isakson, 2018).

Ariovaldo Umbelino de Oliveira (2016) distinguishes three conditions that define the monopolistic and financial character of global capitalist agriculture: *i*) the production of commodities; *ii*) commodity and futures exchanges; *iii*) global monopolies (large transnational corporations). The first condition concerns the fact that several agricultural, livestock and mineral products have become commodities, that is, qualitatively standardized goods that are marketed throughout the world and traded on stock exchanges, such as corn, wheat, rice, soybeans, cotton, cocoa, coffee, sugar, orange juice, soybean meal and oil, petroleum, iron ore, among others. In Brazil, ethanol and beef cattle are also added, which, although not being commodities, are traded on the futures market. The second factor refers to the fact that commodity and futures exchanges have become the regulatory center for global commodity prices, standardizing prices and imposing the search for increasingly competitive production methods in terms of quality and costs. The third factor is related to the monopolistic control of production, logistics and marketing of *commodities* by global companies, such as Bunge, Cargill, Archer Daniels Midland (ADM), Louis Dreyfus Company (LDC), Tereos and Cofco, all of which (apart from Cargill) are publicly traded in stock exchange and, therefore, respond to economic strategies for *maximizing shareholder value* (Aglietta, 2000; Lazonick & O'llisulivan, 2000; Jensen, 2002).

Investigating the financialization of agricultural commodities in the Chinese market, Ouyang and Zhang (2020) found a structure of dependency between commodities and stock markets due to the positive correlation between agricultural commodities and the stock market at a global level. The authors also pointed out that such dependency is growing and became stronger after the latter global financial crisis, what also highlights the frenetic process of contemporary financialization in most territories with agricultural activities.

The financialization of the Brazilian sugar-energy sector

The concentration and centralization of capital, the growing debt of companies and the intense association with speculative capital are events that highlight mounting financialization of the Brazilian sugar-energy sector (Boechat, 2020). The reason is that, among corporate groups whose main business still lies in production, those that are financialized have greater capacity to obtain large amounts of capital to carry out investments such as mergers and acquisitions (M&A), modernization of operations, purchase and sale of assets, speculation in the commodity futures market, etc.

Financialization has become essential to increasing the competitiveness of the sugar-energy sector since, as pointed by Pitta *et al*. (2014), the high costs of agricultural and agro-industrial operations and new investments in the implementation, expansion and/or technical-administrative modernization of plants demand huge resources[7] and a high level of medium and long-term debt. Financialization, thus, became the main way for corporate groups to finance market expansion and market share growth in sugar, ethanol and bioelectricity markets.

Consequently, for expanding its market, the sugar-energy sector has increasingly depended on a sort of permanent debt system, called by Pitta (2016) the *fictitious reproduction of sugarcane capital* (or "debt rollover" scheme). In this model, new loans are systematically contracted to pay previous debts, by means of speculation in assets (machinery, land, crops, sugar and ethanol futures, etc.) and in shares on the stock exchange. According to the author, for "fictionally inflating" assets, companies get loans to boost their expansion and appreciation in the financial market.[8] This appreciation allows access to more credit, fostering a new promise of expansion and appreciation which, in turn, feeds back into a cycle of speculation with possibilities of attracting more credit. In other words, it is the mechanisms of financial speculation and the supposed returns they provide that assume the control of the companies' pace of investment and growth.

The creation of this systemic financial artificiality means that the pace of investments and the growth of most companies in the sector are controlled by instruments of speculation and their expected returns. Paradoxically, it is through this constant system of renewing or extending debts that sugar-energy groups ensured their agro-industrial operations, especially in the recent period of crisis (Pitta, 2016). The companies generally secure the loans by pawning goods, that is, the future delivery of sugar and ethanol in a volume corresponding to the value contracted with creditors (at prices prevailing on repayment date), or through fiduciary sale of sugarcane and/or mortgage of company assets, such as land, machinery, equipment, industrial facilities, etc. Therefore, the need to get more finance to continue operating and growing in the market entails the need for greater concentration of capital (increase and accumulation of assets).

[7] For example, estimates by Milanez, Souza and Mancuso (2017, p. 111) indicated that the installation of a plant with a processing capacity of 3.5 million tons of sugarcane per harvest would require an investment of almost R$1 billion.

[8] The amount of credit and, therefore, the level of debt of a company is stipulated, for example, according to the price of its shares on the stock exchange, production capacity, the value of the company's assets and the future price of sugar.

Among side effects of this uncontrolled debt system, as addressed by Pitta (2016), is the fact that expected results in terms of production and/or profitability do not always become reality, what triggers excessive leverage that often ends up shaking the financial and operational mainstay of the group, even leading to requests for judicial recovery, bankruptcy or subordination to M&A, as occurred with great intensity in the sugar-energy sector between 2008 and 2019 (Santos, 2022). Sudden crop failures, reduced agricultural productivity, a substantial increase in the dollar value, a drop in sugar international price and/or in the domestic price of ethanol, for example, are events that can compromise the ability of productive agents to repay their debts, making it impossible to access new credits and, therefore, to maintain its operations. However, most of the groups that operate as conglomerates, notably Raízen, Tereos, Bunge and Cofco, are able to absorb part of these losses as they have a more robust and diversified business structure, offsetting the losses with profits obtained in other products/branches they operate.

This is why most sugar-energy groups are classified by some credit rating agencies, such as *Moody's*, *Standard & Poor's (S&P)* and *Fitch Ratings*, with a grade (or credit *rating)* that indicates to investors the financial health and the company's ability to meet its obligations. The rating is an important instrument for the market, as it provides potential investors with an independent analysis of the credit risk of the analyzed entity, which can be a company, an operation or a country. The rating analysis seeks to measure the probability of delays and/or default on loans repayments.[9]

Rating grades range from AAA to D, representing, respectively, the lowest and highest risk of default (Figure 1). The grades awarded are not static, they change depending on the improvement or worsening of the agent's economic situation. Among the best-rated sugar-energy groups[10] are some of the largest in the sector, such as Raízen, São Martinho, Adecoagro and Companhia Mineira de Açúcar e Álcool (CMAA). The poorly evaluated groups are those that are highly indebted and/or are in judicial recovery.

[9]Companies currently pay to have their debts classified in terms of credit risk. This is because many investors resist or have legal limitations to investing or purchasing securities without knowing the risks.

[10] For establishing the rating of sugar-energy companies, credit ranking agencies use a series of information such as: revenue, profit from the activity, level of debt and leverage, quality of assets, agricultural and industrial efficiency (productivity and costs), scale of production, use of installed grinding capacity, product diversification, degree of operational flexibility, ethanol and sugar storage capacity, proportion of use of owned and leased land, proportion of raw material origin, management and trade strategies, capital structure, heritage, geographic location, among others.

Figure 1: Brazil: sugar-energy companies classified by S&P, July 2020.

Source: Novacana (2020). Available at: https://bit.ly/2NysdAI .

Financialization strategies

From the perspective of financialization, we observe four main ways for companies to finance their operations in the sugar-energy sector:

1) bank loans (public and private);
2) issuance of institutionalized financial securities, such as derivatives, dividends, Agribusiness Receivables Certificates (CRAs), *Cédulas de Produto Rural* (CPRs) (rural product certificate), *Letras de Crédito do Agronegócio* (LCAs), *Certificados de Direitos Creditórios do Agronegócio* (CDCAs), debentures, *bonds*, CBIOs (carbon credits), etc;
3) going public on the stock exchange (getting money by trading shares and receiving dividends based on equity participation in other companies' share capital);
4) *commodity* futures market (getting finance through advance sale of production, gains from undervalued sugar and ethanol contracts at times of rising prices).

Access to bank loans is one of the most common forms of capitalization carried out by agents in the sugar-energy sector. This involves negotiations with commercial and investment banks requiring the approval of projects to be implemented by companies and different contractual instruments that establish the destination of resources, the values, deadlines and fees embedded in the operation. One of the sector's main banking financing channels during its recent expansion phase was the National Bank for Economic and Social Development (BNDES) (Fonseca, 2017; Silva & Pereira, 2019), which disbursed almost R$60 billion between 2002 and 2019 in several credit lines (Novacana, 2020). However, as Silva and Pereira (2019) discuss, access to resources has been extremely unequal. According to a survey carried out by the authors, only eight companies, which are generally among the largest in the sector, concentrated more than half of BNDES financing between 2002 and 2015 (Table 1).

Table 1: Brazil: companies in the sugar-energy sector that were awarded most financing from BNDES, 2002-2015.

Empresa	Valor (R$)	%
Raízen	4.494.466.039	13,2
Atvos (ex-Odebrecht)	4.291.461.207	12,6
São Martinho	1.944.086.199	5,7
Logum	1.758.600.000	5,1
Rumo Logística	1.633.832.432	4,8
Brenco	1.390.653.206	4,1
Cocal	1.302.553.000	3,8
Copersucar	1.266.600.000	3,7
Total	**18.082.252.083**	**53,0**

Source: Silva and Pereira (2019, p. 290).

In addition to credit lines, BNDES has also participated, through its investment subsidiary BNDESPar, in shareholding composition of some companies in the sugar-energy sector such as Atvos (formerly Odebrecht Agroindustrial), Centro de Tecnologia Canavieira (CTC), Cosan, GranBio and São Martinho. However, due to the divestiture policy adopted by the institution during the 2010s, these investments and participations ended up being withdrawn.

As a result of the recent scarcity of BNDES resources due to the federal government's fiscal crisis occurring since 2014, as well as the inability of groups to access such credit lines (given their conditions of financial and fiscal default) and the reduction in the basic interest rate SELIC[11] (from 14.2% in 2016 to 2% in 2020), other capitalization mechanisms have been adopted by sugar-energy groups to sustain the pace of production and other necessary investments, mainly resorting to fixed income capital markets.[12] The

[11]To obtain financing linked to special public lines of credit (lower interest rates and longer payment terms), companies are required to present the Negative Debt Certificate (CND), a document that certifies that the company has no outstanding financial, fiscal and tax obligations to the State.

[12]Novacana (10/20/2017): **Busca por dinheiro: Setor sucroenergético vive tendência de mudanças nas fontes de financiamento**.[Search for money: The sugar-energy sector is experiencing a trend of changes in financing sources**]**. Available at: https://bit.ly/2MIKmaz .; Valor Econômico (04/19/2019): **Usinas recorrem mais à emissão de CRA** [Sugar Plants use more CRA issues]**.** Available at: https://glo.bo/33Dv3XL ; Novacana (07/08/2019): **Empresas de biocombustível fazem fila para emitir debêntures incentivadas** [Biofuel companies line up to issue incentivized debentures]. Available at: https://bit.ly/2pnyqTJ ; Novacana (06/22/2020):

preferred instruments has been the issuance of debentures, agribusiness receivables certificates (CRAs), rural product certificates (CPRs), agribusiness credit rights certificates (CDCAs) and agribusiness receivables letters (LCAs), private debt securities plus interest and monetary adjustment that the companies issue on the market to acquire loans from third parties.

Most of these instruments constitute ways of advancing receivables from, for example, sales of sugar, ethanol and bioelectricity in the futures market. Furthermore, they are ways of securitizing debts, that is, incurring debts through selling securities to many third-party investors, especially individuals, thus dispersing the risks of default. Instruments negotiations are carried out by contracted securitization financial institutions, which beyond being remunerated for intermediating the operations, are exempt from any delay or default in repayment of securities to investors by issuers.

Derivatives play the same financial function. They are contracts that derive their values from assets, such as sugar, ethanol and bioelectricity. They are also widely used as advances on export receivables, basically in US dollars for sugar, through trade finance[13] mechanisms such as Export Prepayment (PPE), Advances on Foreign Exchange Contracts (ACCs) and Advances on Delivered Foreign Exchange Contracts (ACEs).

Recently, another strategy that has been contributing to financialization of agents in the sugar-energy sector by means of issuance of bonds is the commercialization of Biofuel Decarbonization Credits (CBios) on B3. Institutionalized by Law No. 13,576 (Brasil, 2017) that regulated the RenovaBio government program, CBios is considered a financial asset that has generated enormous expectations of profitability on the part of the country's sugarcane plants and fuel distributors.[14] The quantity of securities available to be traded is defined according to the volume of ethanol offered on the market and to the Energy-Environmental Efficiency Rating (Nota de Eficiência Energética-Ambiental -NEEA) obtained by each agent that produce and/or sell the product. Thus, the more ethanol produced at low CO_2 levels, the more the company receives CBios bonds to be traded on the stock exchange, generating remuneration and extra capital. The creation of this mechanism encourages the “carbon market” and contributes, according to the sector's view, to implement

Empresas do agronegócio devem substituir crédito oficial por CPR e CRAs [Agribusiness companies must replace official credit with CPR and CRAs]**.** Available at: https://bit.ly/3byHxFD . Both accessed in: Oct./2020.

[13] An instance of this kind of operation is the negotiation of a loan in dollars between a sugar plant and a *trading company* on a future sugar delivery contract, which must be paid in volume of the product proportional to the current price on the date of delivery. Thus, the sugar-energy company advances resources to produce what will be delivered in the future, committing production in advance.

[14] Novacana (11/17/2017): **RenovaBio representa o início do mercado de carbono brasileiro – CBio, um novo produto das usinas** [RenovaBio represents the beginning of Brazilian carbon market – CBio, a new product of sugarcane plants]. Available at: https://bit.ly/3jEOJSU ; Novacana (05/17/2018): **Quanto sua usina pode lucrar com o RenovaBio?** [How much can your plant profit from RenovaBio?]. Available at: https://bit.ly/3lJ0A4k ; Novacana (07/08/2018): **Mais dinheiro em caixa: O impacto do RenovaBio na receita das usinas** [More cash: RenovaBio’s impact on sugarcane plants revenue]. Available at: https://bit.ly/2EPRyBX , both accessed in: Oct./2020.

a “green fund” for investments, similar to the “green bonds” and green CRAs[15] – emerging instruments for capitalizing these companies. This context is part of what Guttmann (2017) calls “ecological financial capitalism”.

Another recurrent strategy used by agents for financialization is going public on the stock exchange, as discussed by Lavinas (2017). When examining this topic, Ribeiro (2011) observed that sugar and energy companies essentially pursued two strategic objectives when converting into publicly traded corporations: 1) to capitalize through the issuance of shares and securities, thus attracting new investor-shareholders; 2) to increase capital concentration and market participation through mergers and acquisition of shares in other companies. Thus, the opening of the company's capital on the stock exchange becomes one of the most effective ways to achieve these two objectives, since it enhances its ability to trade bonds and shares and, effectively, generates capitalization. For this reason, Pitta et al. (2014, p. 9) emphasize that

> A company's IPO also works as a capitalization, that is, as a promise of future production of goods, which feeds back into the rise in the company's share prices and encourages a new promise of expansion. It is not only the financial capital invested in company shares that allows expansion, but the financial capital from loans or the so-called capital market. A company with capital on the stock exchange accesses credits on the value of its shares, which fosters its expansion.

Seeking such advantages, in 2005 Cosan S/A was the first Brazilian agribusiness company to go public on B3, which allowed it to become, following the joint venture with Shell, the largest producer in the Brazilian sugarcane industry.[16] In 2007, Cosan also went public on the New York Stock Exchange. Other companies in the sector have also followed the same path, going public on B3: São Martinho S/A (2007), Tereos Internacional (2010), Biosev S/A (2013), Raízen Energia S/A (2013), Centro de Tecnologia Canavieira – CTC (2016) and Jalles Machado (2020).

CTC’s case is very interesting because financialization is not only taking place in the production and logistics segments of the sector, but also in the Research, Development and Innovation (RD&I). Having a large shareholding in CTC, the sector's production leaders[17] start to finance and depend on the new technologies developed by this institution, expecting

---

[15]Debt securities of state or private companies that operate in activities considered environmentally sustainable and/or that contribute to the reduction of Greenhouse Gases (GHG). Among encompassed activities is bioenergy, which includes the sugar-energy sector since it produces ethanol and bioelectricity.

[16]As Pitta (2016, p. 127) puts it, “the need for continuing expansion to access new loans, after the 2007/2008 crisis, with the fall in sugar price in dollars and the rise of the dollar against the real, led to its [Cosan S/A] merger with Shell. Because of this, that is, for managing to access new loans and roll over previous ones, Raízen S/A did not appear to the market as one of the groups to go bankrupt, but rather as one of the few that seems to be reproducing.”

[17] CTC's main shareholding companies are: Raízen Energia S/A (19.0%), BNDES Participações S/A (18.9%), Copersucar S/A (16.9%), São Martinho Inova S/A (5.4%), Odebrecht Agroindustrial Participações S/A (4.3%), Guarani S/A (Tereos Internacional) (3.8%) and Coruripe (3.0%) (B3, 2020).

high returns from increased agricultural productivity, lower costs and, obviously, dividends.[18] This, in a way, feeds back into the appreciation of these companies' assets and their debt and investment capacities.

In addition to the companies mentioned above, other transnationals operating in the sector are also listed on stock exchanges around the world, such as Bunge, British Petroleum, Cofco, Wilmar, Adecoagro, Renuka, Abengoa and Sojitz.[19] Recently, some other groups have shown interest in going public on the stock exchange, with plans for an Initial Public Offering (IPO),[20] such as GrandBio, FS Agrisolutions and Raízen, which in the case of the latter, after reformulating its capital structure (it ceased to be Raízen Energia), opened the capital of the new company and led to one of the largest fundraisings in B3's history.[21]

For Pitta *et al*. (2014, p. 11), "going public is a qualitatively different level of financialization for a company. In this market, its shares can be traded independently of its production of goods". As such, publicly traded companies have a great capacity to become more professional, to raise funds to finance their activities, to adapt to the demands of the market (especially regarding technical and scientific modernization and fluctuations in international prices) and, consequently, to remain more competitive (Ribeiro, 2011).

Another point worth mentioning is that going public on the stock exchange favors the participation of various types of financial investors (investment funds, pension funds, mutual funds, insurance companies, etc.) in the shareholding structure, which then exert a strong influence on corporate governance out of purely financial interest in maximizing shareholder value (Aglietta, 2000; Lazonick & O'llisulivan, 2000; Jensen, 2002). Among governance requirements are those that refer to new investments and businesses that reduce costs, increase both competitiveness and the corporation's profits, favoring expansion and the raising of shares and bonds. The search for opportunities in new branches/sectors and M&A operations involving less efficient companies on the market (given the possibilities for growth) is an example of actions that allow company's assets to appreciate, especially in sectors with more centralized capital. The sale of undervalued assets or inefficient production units is also part of the strategy, especially in times of economic crisis.

[18] Valor Econômico (19/06/2019): **CTC vai distribuir dividendos pela primeira vez na história** [CTC to distribute dividends for the first time in history]. Available at: https://glo.bo/2Mxmubg. Accessed in: Aug./2019.
[19]Query at *Google Finance:* https://www.google.com/finance . Accessed in: Sept./2019.
[20]An IPO is an operation in which a company goes public for the first time, offering shares to the public in a new stock issuance aiming to raise equity capital from investors (individuals and legal entities).
[21]Estado de São Paulo (03/08/2021): **Raízen faz o maior IPO do ano na Bolsa e levanta R$ 6,9 bilhões** [Raízen makes the year's biggest IPO on the Stock Exchange and raises R$6.9 billion]. Available at: https://bit.ly/3lp2msK Accessed in: Oct./2021.

The presence of investment funds[22] involved either directly or indirectly in mills' production becomes another sign of financialization of the sugar-energy sector. Between 2006 and 2008, some funds entered the sector through M&A, joint ventures and/or construction of new plants, such as Clean Energy Brazil (CEB), Comanche Clean Energy (CCE), Companhia Nacional de Açúcar e Álcool (CNAA), Infinity Bioenergy, Brazilian Renewable Energy Company (BRENCO) and Vital Renewable Energy (VREC). However, the consequences of the international economic crisis of 2007/2008, such as skyrocketing debts and falling sugar and ethanol prices, led them all to make huge losses, becoming targets for M&A or bankruptcy (Pinto, 2011). Yet, other financial funds entered to invest during the sector's recent crisis, such as Amerra Capital Management, Proterra Investment Partners, FIP Terra Viva, JFLim Participações, Black River, Lone Star, Castlelake, Brasif Fundo de Investimentos e Participações, among others (Novacana, 2020). The aim of many of these funds was to diversify their agribusiness investment portfolios by granting credit and acquiring depreciated assets on the market, such as mills on the verge of bankruptcy.

Finally, in order to meet shareholders' remuneration interests, companies in the sugar-energy sector must also develop mechanisms to adapt to the constant instability of the financial commodities market, becoming flexible and agile, especially when it comes to changing the production mix to minimize the losses caused by sudden changes in international sugar and oil prices. The prices of VHP (Very High Polarization) sugar and of WTI (West Texas Intermediate) oil are quoted on the New York Stock Exchange (NYSE/ICE), while those of crystal sugar and Brent oil, on the London Stock Exchange (London International Financial Futures and Options Exchange – LIFFE). Especially for trading companies, operating in commodity futures markets has become a very strategic and profitable activity, carried out through investments in speculative operations using derivatives, another form of fictitious capital. As discussed by Pitta *et al*. (2014, p. 14):

> Speculation, both on the price of agricultural commodities and on currencies, causes their prices to suffer strong impacts and fluctuations, depending on the movements of these futures markets. The prices of certain commodities today may express mere future bets by speculators, who raise or decrease them according to the best prospects for their financial gains. Such variations can even impact exchange and interest rates, which mobilize investments in these derivatives markets, feeding back into price instability. Thus, the characteristics of financial capital's "bets" have become part of the earnings of companies that previously invested only in the direct production of goods.

[22]As Ribeiro (2011) explains, investment funds are made up of capital from various investors (individuals and legal entities) that are organized under the administration of one or more managers, whose job is to invest the resources in profitable investments in the market. In addition to the financial contribution, the funds can also help manage the businesses in which they invest or directly manage the ventures, measuring growth and profits in activities.

In this scheme, the companies act as speculators to profit from bets on the rise or fall of commodity prices on the stock exchange, as well as using some mechanisms to manage the risks of their trading operations, such as fixing the price of sugar on the futures market (hedge) to avoid losses on the spot market. This mechanism is widely used by mills when the price of the product and/or the dollar reaches an interesting level, encouraging them to sell in advance to trading companies through contracts that define the price and volume to be paid and delivered in the future. Thus, the mills protect themselves from possible unfavorable variations in exchange rates and sugar prices that may occur, by selling a large part of their production, in advance, at a predetermined price, which guarantees greater predictability and stability of the company's operations in the short and medium terms.

Final remarks

Financialization has undoubtedly become a structuring and disruptive element of economic and political dynamics of contemporary neoliberal capitalism. The logic of finance has been responsible for conditioning the actions of agents and the corporate governance of large companies and markets, to the point of shaping the patterns of supply and prices of goods and services. The multifaceted process of financialization of the economy can be defined as the growing influence of the capital market (products, agents and processes) on the behavior of firms, governments and families, whose concerns become more focused on the efficiency and rationalization of costs and the management of income/revenue, thus encompassing the geographic space and the territory as a whole (Cavalcante *et al*., 2018; Contel, 2020).

As we have seen, one of the economic activities that has become quite intensely financialized in recent years is global agribusiness, as it depends significantly on the mechanisms of financial market to increase profitability levels, negotiate on international markets and boost profits of agrifood corporations' shareholders. The excessive acquisition of credit on the capital markets, an increasingly common practice for agro-industrial companies and agricultural trading companies, while boosting the expansion of operations, generates financial leverage with a high degree of indebtedness associated with serious risks in terms of payment capacity.

The sugar-energy sector has been one of those activities of Brazilian agribusiness that has adopted several financialization strategies to increase its operating capacity and profitability, such as getting bank credit, issuing debt securities, going public on the stock exchange and speculating on the commodities futures market. Thus, institutional financial investors have played a large part in the decisions and strategies of corporations in the sector, even interfering in the way sugar and ethanol are produced, marketed, distributed and priced on the national and international markets.

However, from a more critical perspective, we need to bear in mind that the financialization of the economy and the conditioning of the corporate governance of large companies to the logic of financial remuneration for shareholders has led to several conflicts of interest with other market players who have less economic power, such as consumers, workers and local communities. As short-term financial results are based strictly on maximizing income, often through reducing costs (including by violating tax, environmental and labor regulations and reducing the quality of products or services) and/or raising prices (such as food, fuel, electricity, etc.), this creates contexts for recurring practices of capital accumulation by dispossession (Harvey, 2005). These, on the one hand, give large companies greater levels of competitiveness and a greater capacity for corporate use of the territory (Santos, 2000), though, on the other hand, exacerbating problems that have undermined the decent living standards of a large part of the population and the places in underdeveloped countries like Brazil, especially low income and more socially and environmentally vulnerable ones.

References

AGLIETTA, Michel. Shareholder value corporate governance: some tricky questions. **Economy and Society**, v. 29, n. 1, p. 146-159, 2000. https://doi.org/10.1080/030851400360596

BALESTRO, Moisés V.; LOURENÇO, Luiz C. de B. Notas para uma análise da financeirização do agronegócio: além da volatilidade dos preços das commodities. In: BUAINAIN, Antônio M. et al. **O mundo rural no Brasil do século 21:** a formação de um novo padrão agrário e agrícola. Brasília/DF: Embrapa, 2014, p. 241-265.

BENKO, George. **Economia, espaço e globalização na aurora do século XXI**. São Paulo: Hucitec, 2002.

BERNARDES, Júlia Adão et al. **Globalização do agronegócio e *land grabbing:*** a atuação das megaempresas argentinas no Brasil. Rio de Janeiro: Lamparina, 2017.

BOECHAT, C. A. (Org.) **Geografia da crise do setor sucroenergético:** land grabbing e flex crops na financeirização recente do campo brasileiro. Rio de Janeiro: Consequência, 2020.

BRAGA, José Carlos. Financeirização Global. In: TAVARES, M. C.; FIORI, J. L. (Orgs.). **Poder e Dinheiro**. Rio de Janeiro: Vozes, 1997, p. 212-242.

BRAGA, José Carlos. A financeirização da riqueza: a macroestrutura financeira e a nova dinâmica dos capitalismos centrais. **Economia & Sociedade**, v. 2, n. 1, p. 25-57, 1993.

BRASIL. **Decreto nº 13.576**, de 26 de dezembro de 2017a. Dispõe sobre a Política Nacional de Biocombustíveis (RenovaBio) e dá outras providências. Brasília: DOU, 27/12/2017.

CASTILLO, Ricardo; ELIAS, Denise; PEIXINHO, Dimas; BUHLER, Eve; PEQUENO, Renato. Regiões do agronegócio, novas relações campo-cidade e reestruturação urbana. **Revista da Anpege**, v. 12, n. 18, p. 265-288, 2016. https://doi.org/10.5418/RA2016.1218.0014

CAVALCANTE, Anderson; CROCCO, Marco Aurélio; SANTOS, Fabiana Borges dos. Financialization and Space: theoretical and empirical contributions. **Revista Brasileira Estudos Urbanos e Regionais**, v. 20, n. 2, p. 193-220, 2018. https://doi.org/10.22296/2317-1529.2018v20n2p193

CHENG, Ing-Haw; XIONG, Wei. **The financialization of Commodity Markets**. Working Paper. Massachusetts: National Bureau of Economic Research, 2013.

CHESNAIS, François. Financialization and the impasse of capitalism. **The Japanese Political Economy**, v. 45, 1-2, p. 81-103, 2019.

CHESNAIS, François. (Org.) **A finança mundializada**. São Paulo: Boitempo, 2005.

CLAPP, Jennifer. Financialization, distance and global food politics. **The Journal of Peasant Studies**, v. 41, n. 5, p. 797-814, 2014. https://doi.org/10.1080/03066150.2013.875536

CLAPP, Jennider; ISAKSON, Ryan. **Speculative Harvests:** financialization, food, and agriculture. Halifax: Fernwood Publishing, 2018.

CLAPP, Jennider; ISAKSON, Ryan; VISSER, Omae. The complex dynamics of agriculture as a financial asset: introduction to symposium. **Agriculture and Human Values**, v. 34, p. 179-183, 2017.

CONTEL, Fabio Betioli. **The Financialization of the Brazilian Territory:** From Global Forces to Local Dynamism. Cham, Switzerland: Springer, 2020. https://doi.org/10.1007/978-3-030-40293-8

COOMBS, Nathan; VAN DER HEIDE, Arjen. Financialization as Mathematization: the calculative and regulatory consequences of risk management. In: MADER, P.; MERTENS, D.; ZWAN, N. **The Routledge International Handbook of Financialization**. London: Routledge, 2020, p. 358-368.

DAVIS, Gerald; KIM, Suntae. Financialization of the Economy. **The Annual Review of Sociology**, v. 41, p. 203-221, 2015. https://doi.org/10.1146/annurev-soc-073014-112402

DELGADO, Guilherme Costa. **Do capital financeiro na agricultura à economia do agronegócio:** mudanças cíclicas em meio século (1965-2012). Porto Alegre: Editora da UFRGS, 2012.

DOWBOR, Ladislau. **A era do capital improdutivo**: por que oito famílias têm mais riqueza do que a metade da população do mundo? São Paulo: Autonomia Literária, 2017.

EPSTEIN, Gerald. Introduction: financialization and the world economy. In: EPSTEIN, Gerald. **Financialization and the world economy**. Northampton: Edward Elgar, 2005.

FONSECA, Roberto Oliveira da. Os aportes e financiamentos do Banco Nacional de Desenvolvimento Econômico e Social (BNDES) e outras instituições financeiras direcionadas ao setor sucroenergético. **Geofronter**, v. 2, n. 1, p. 30-44, 2017.

GUTTMANN, Robert. Uma introdução ao capitalismo dirigido pelas finanças. Trad. De Hélio Mellho Filho. **Novos Estudos**, v. 82, p. 11-23, 2008. https://doi.org/10.1590/S0101-33002008000300001

HARVEY, David. **O enigma do capital:** e as crises do capitalismo. Trad. João Alexandre Peschanski. São Paulo: Boitempo, 2011.

HARVEY, David. (1989). **Condição Pós-Moderna**. 20 ed. São Paulo: Edições Loyola, 2010.

ISAKSON, Ryan. Food and finance: the financial transformation of agro-food supply chains. **The Journal of Peasant Studies**, v. 41, n. 5, p. 749-775, 2014. https://doi.org/10.1080/03066150.2013.874340

JENSEN, Michael. Value maximization, stakeholder theory, and the corporate objective function. **Business Ethics Quaterly**, v. 12, n. 2. P. 235-256, 2002. https://dx.doi.org/10.2139/ssrn.220671

KOTZ, David. Financialization and Neoliberalism. In: TEEPLE, G.; MCBRIDE, S. (eds) **Relations of Global Power:** Neoliberal Order and Disorder. Toronto: University of Toronto Press, p. 1–18, 2010.

KRIPPNER, Greta R. The financialization of the American economy. *Socio-Economic Review*, v. 3, p. 173-208, 2005. https://doi.org/10.1093/SER/mwi008

LAVINAS, L. **The takeover of social policy by financialization:** the Brazilian paradox. New York: Palgrave Macmillan; 2017.

LAPAVITSAS, Costas. The financialization of capitalism: 'profiting without producing'. **City,** v. 17, n. 6, p. 792-805, 2013. https://doi.org/10.1080/13604813.2013.853865

LAZONICK, William; O'SULLIVAN, Mary. Maximizin shareholder value: a new ideology for corporate governance. **Economy and Society**, vol. 29, n.1, 2000, p. 13-35. https://doi.org/10.1080/030851400360541

MARTIN, Sarah; CLAPP, Jennifer. Finance for Agriculture or Agriculture for Finance? **Journal of Agrarian Change**, v. 15, n. 4, p. 549-559, 2015. https://doi.org/10.1111/joac.12110

MARTIN, Ron. The new economic geography of money. In: MARTIN, R. (ed.). **Money and the Space Economy**. New York: Wiley and Sons. 1999. p. 1-27.

MENDONÇA, Maria Luisa. **Modo Capitalista de Produção e Agricultura: a construção do conceito de Agronegócio.** Tese (Doutorado em Geografia). 217f. Universidade de São Paulo. São Paulo: FFLECH/USP, 2013.

MCGILL, Sarah. The Financialization Thesis Revisited: Commodities as an Asset Class. In: CLARK, G. L. et al. **The New Oxford Handbook of Economic Geography**. Oxford, 2018.

MILANEZ, Artur Yabe; SOUZA, José Antônio; MANCUSO, Rafael. Panoramas Setoriais 2030: sucroenergético. In: BNDES. **Panoramas Setoriais 2030:** desafios e oportunidades para o Brasil. Rio de Janeiro: BNDES, 2017, p. 107-121.

NOVACANA. **Portal de Notícias e Dados Estatísticos Sobre o Setor Sucroenergético**, 2020. Disponível em: https://www.novacana.com. Acesso em: ago.-dez./2020.

OLIVEIRA, Ariovaldo Umbelino de. **A Mundialização da Agricultura Brasileira**. São Paulo: Iãnde Editorial, 2016.

OUYANG, R.; ZHANG, X. Financialization of agricultural commodities: Evidence from China. **Economic Modelling**, Elsevier, vol. 85(C), p. 381-389, 2020.

PAULA, Nilson Maciel de; SANTOS, Valéria Faria; PEREIRA, Wellington Silva. A financeirização das *commodities* agrícolas e o sistema agroalimentar. **Estudos Sociedade e Agricultura**, v. 23, n. 2, p. 294-314, 2015.

PARANÁ, Edimilson. **A finança digitalizada**: capitalismo financeiro e revolução informacional. Florianópolis: Insular, 2016.

PINTO, Mairun Junqueira Alves. **Investimentos diretos estrangeiros no setor sucroenergético**. Dissertação (Mestrado em Administração de Organizações). 171f. Universidade de São Paulo. Ribeirão Preto: FEAC/USP, 2011.

PITTA, Fabio Teixeira. **As transformações na reprodução fictícia do capital na agroindústria canavieira paulista:** do Proálcool à crise de 2008. Tese (Doutorado em Geografia). 420f. São Paulo: FFLECH/USP, 2016.

PITTA, Fábio Teixeira et al. **Empresas Transnacionais e Produção de Agrocombustíveis no Brasil.** São Paulo: Outras Expressões, 2014.

RIBEIRO, Júlio César de Lima. **Abertura de capital como estratégia de gestão jurídica e financeira de empresas do setor sucroalcooleiro**. Dissertação (Mestrado em Direito). 187 f. Universidade Estadual Paulista. Franca: FCHS/UNESP, 2011.

SANTOS, Henrique Faria dos. **Especialização regional produtiva e vulnerabilidade territorial no agronegócio globalizado:** implicações locais da expansão e crise do setor sucroenergético no Brasil. Tese (Doutorado em Geografia). 465 f. Universidade Estadual de Campinas. Campinas: IG/UNICAMP, 2022.

SANTOS, Milton. (2000) **Por uma outra globalização:** do pensamento único à consciência universal. 19 ed. Rio de Janeiro: Record, 2010.

SANTOS, Milton. (1996) **A natureza do Espaço**. Técnica e tempo. Razão e emoção. 4 ed. São Paulo: Edusp, 2012.

SILVA, Laís Ribeiro; PEREIRA, Mirlei Fachini Vicente. O BNDES e a sustentação recente do setor sucroenergético brasileiro (2002-2015). **Geosul**, v. 34, n. 71, p. 276-300, 2019. https://doi.org/10.5007/1982-5153.2019v34n71p276

SIQUEIRA, Paulo Henrique de Lima; CASTRO JUNIOR, Luiz Gonzaga de. Fusões e aquisições das unidades produtivas e da agroindústria de cana-de-açúcar no Brasil e nas distribuidoras de álcool hidratado etílico. **RESR**, v. 48, p. 709-785, out./dez. 2010. https://doi.org/10.1590/S0103-20032010000400009

VERDI, Adriana Renata; AOUN, Samira. O agronegócio brasileiro na globalização financeira: estratégias e dinâmicas dos principais grupos. **Revista de Economia Agrícola**, v. 56, n. 1, p. 1-122, 2009.

ZOOK, Mathew. Information Flows, Global Finance, and New Digital Spaces. In: CLARK, Gordon et al. (Eds). **The New Oxford Handbook of Economic Geography**. Oxford University Press, 2018. https://doi.org/10.1093/oxfordhb/9780198755609.013.35

WARF, Barney. Digitalização, globalização e capital financeiro hipermóvel. **GEOUSP – Espaço e Tempo**, v. 21, n. 2, p. 397-406, 2017. http://orcid.org/0000-0002-4681-5286

WARF, Barney. Telecommunications and the globalization of financial services. **Professional Geographer**, v. 41, n. 3, p. 257-271, 1989. https://doi.org/10.1111/j.0033-0124.1989.00257.x

Sobre os autores

Henrique Faria dos Santos – PhD and master in Geography from the State University of Campinas (UNICAMP). Post-doctorate in Geography at the Universidade Estadual Paulista (UNESP) Rio Claro campus. Bachelor's degree (2011) and bachelor's degree (2014) in Geography from the Federal University of Alfenas (UNIFAL-MG). He carried out a PhD research internship at Cardiff University, in Cardiff, Wales (United Kingdom) under the supervision of Prof. Dr. Antônio Ioris. He is a research member of the research group Logistics, Agriculture and Uses of Brazilian Territory (LAUTER / UNICAMP) and the Research Network on Agricultural Regions (REAGRI). He develops research in the area of Agrarian, Economic and Regional Geography with an emphasis on the following themes: globalized agribusiness, financialization of agribusiness, regional agricultural production specialization, sugar-energy sector and globalization of space. **OrcID** – https://orcid.org/0000-0002-5376-3429.

Como citar este artigo

SANTOS, Henrique Faria dos. Sugar-energy sector's financialization strategies in Brazil. **Revista NERA**, v. 27, n. 1, e9729, jan.-mar., 2024.

Received for publication on January 13, 2023.
Returned for review on August 7, 2023.
Accept publication on December 8, 2023.

The editing process of this article was carried out by Lorena Izá Pereira and Camila Ferracini Origuela.