

**COMMODITY TRADERS  
AND SUSTAINABLE SOY SUPPLY CHAINS IN BRAZIL**

**COMERCIANTES DE COMMODITIES  
E CADEIAS DE FORNECIMENTO DE SOJA SUSTENTÁVEIS NO BRASIL**

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**Abstract**

Global commodity traders play a key role in the purchase-sale, handling, and distribution of many of the world's commodities. Yet, they are often criticized for adversely affecting local producers, displacing local communities, and engaging in or encouraging un-sustainable practices and outcomes. Using the case of soy supply chains in Brazil, this article describes the operations used by these companies to make profit and their efforts to become more sustainable through zero-deforestation commitments. The article shows how risk assessments surrounding local supply considerations can at times encourage or dissuade trading companies from establishing direct, traceable links to soy producers that would allow to better monitor and sanction farms cultivating on deforested land. These choices help provide the context to the “spaces” where global chains touch down, these in turn having important consequences for local development, incomes, jobs and welfare and the social impacts, forms of resistance and regulation which often emerge. The article makes an important, albeit initial and exploratory contribution to understand under what conditions might the logic of the chain governance and sustainability debate actually meet.

**Keywords:** Global production networks. Soybean supply chains. Commodity trading. Sustainability.

**Resumo**

Os comerciantes globais de commodities desempenham um papel fundamental na compra e venda, manuseio e distribuição de muitas das commodities do mundo. No entanto, eles são frequentemente criticados por afetar adversamente os produtores locais, deslocando comunidades locais e engajando-se ou incentivando práticas e resultados não sustentáveis. Usando o caso das cadeias produtivas da soja no Brasil, este artigo descreve as operações usadas por essas empresas para obter lucro e seus esforços para se tornarem mais sustentáveis por meio de compromissos de desmatamento zero. O artigo mostra como as avaliações de risco em torno das considerações de abastecimento local podem às vezes encorajar ou dissuadir as empresas comerciais de estabelecer links diretos e rastreáveis com produtores de soja que permitiriam monitorar e sancionar melhor as fazendas que cultivam em terras desmatadas. Essas escolhas ajudam a contextualizar os “espaços” onde as cadeias globais aterrissam, tendo estas, por sua vez, consequências importantes para o desenvolvimento local, renda, empregos e bem-estar e os impactos sociais, formas de resistência e regulamentação que muitas vezes emergem. O artigo traz uma contribuição importante, ainda que inicial e exploratória, para entender em que condições a lógica do debate sobre governança da cadeia e sustentabilidade pode realmente se encontrar.

**Palavras-chave:** Redes globais de produção. Cadeias produtivas da soja. Comercialização de commodities. Sustentabilidade.

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## Introduction

Every year large volumes of agri-commodities are traded internationally by four major transnational corporations, colloquially known as the ABCDs - Archer Daniels Midland (ADM), Bunge, Cargill and Louis Dreyfus Company (MURPHY; BURCH; CLAPP, 2012). These companies trade everything from raw to semi-processed cereals, oilseeds, pulses, and fruits, to coffee, cacao, cotton, and meat. They buy from local commodity producers and wholesalers and sell to global food manufacturers and retailers.

The global circulation of agri-commodities across continents is enabled by global finance, national and international transport infrastructure, quality grades and standards, and the multi-billion dollar assets these companies own and operate, whether it is transport fleets, storage units, mills and/or refineries. Located in the most important producing and consuming regions of the world, these assets offer commodity trading companies different space, time, quality, and logistic options to choose from in order to globally link supply and demand and maximize profits in the process (JOHANSEN; WILSON, 2018).

Although they hardly operate in secret, their operations are often shrouded in mystery. One reason for this is the importance of information asymmetry in making profitable trade deals (JACOBS, 2019; FREIDBERG, 2017; SALERNO, 2017). Related to this is their business-to-business (B2B) trading model, which means that details of their trades are not open to public scrutiny. Another reason for this mysteriousness is related to their family-based ownership, although the importance of the latter in creating their mystical aura has diminished since Morgan's (1979) groundbreaking inquiry, with ADM and Bunge publicly listed on major stock exchanges since the 2000s. Yet because of their mode of operation and ownership structure final consumers and the public at large have been mostly unaware of, or misunderstood, commodity traders' role in the performance of markets and in the supply of raw materials.

Scholars have not necessarily contributed to the demystification of commodity trading. In fact, commodity trade operations in globalized production networks and the role that commodity traders play are barely touched upon beyond the realm of financial economics and certain niche areas of study. In the global commodity chains, global value chains, and global production networks literatures, traders have been less studied than producers, manufacturers, and retailers (SERDIJ; KOLK; FRANSEN, 2021), although in primary commodities markets traders have been identified as those who organize and control the chain (GIBBON, 2001). In the available research on global agri-commodity trading companies, a considerable amount of work has been put into identifying what determines the sector's vertical integration and concentration and what are the consequences (CAVES, 1977; CLAPP, 2015; MORGAN, 1979; MURPHY; BURCH; CLAPP, 2012; SCOPPOLA, 2007; WILSON; DAHL, 1999), and less attention has been given to trade operations themselves or the trade offices' organization (CHALMIN, 1987; CALISKAN, 2010; LANDER, 2018). More recently, the focus has been on trading companies'

role in the financialization of the agricultural sector (BAINES, 2017; CLAPP, 2014; SALERNO, 2017) and to a lesser extent to their interaction with commodity producers (MISHRA; DEY, 2018; WESZ JR., 2016, 2019).

The mystery surrounding these companies has led to an image of commodity trading companies as secretive agents speculating the imperfections of markets. While to a certain extent this is true, it is part of their business model, it only tells part of the story. Another part of the story is that markets reward risk-bearing entrepreneurs that are willing to explore new lines of distribution and procurement linking customers and suppliers, create access to financialized instruments and liquidity to mitigate risks, and have the capability to synthesize knowledge into actions and supply chain operations. This is not to say that commodity trading companies are not seeking profits, nor that within certain commodity trades bad practice does not occur and that commodity traders are off the hook when it comes to the demands for sustainable practices and reporting. Together with more fundamental and interrelated changes, such as digitization, climate change, and new financial regulations, the investors', final customers', and shareholders' demand for sustainability is forcing trading companies to reconsider their business model altogether.

But, can trading companies become key actors in the sustainable governance of supply chains, as Grabs and Carodenuto (2021) have suggested? One of the biggest challenges for the ABCDs has been to make more sustainable the Brazilian soy supply chain. Soy has become one of the main sources of vegetal protein for animal feed use and agrofuels. Its cultivation has expanded since the 1970s and most of this expansion occurred in Brazil, which is now the biggest soy producer in the world. However, this led to increased rates of deforestation in the Amazon rainforest as large scale soy farmers converted forests, either directly or indirectly by converting pasture land and pushing cattle farmers to clear forested land. Moreover, this expansion of soy farming displaced indigenous populations and smallholding farmers from their land and threatened their mode of existence.

The trading companies driving the soy supply chain have been repeatedly pressured into adopting sustainable practices and eventually agreed to sign a voluntary soy moratorium in 2008, committing to sourcing only soy cultivated on land that was not deforested. The moratorium was hailed as a success (GIBBS *et al.*, 2015), but after an initial drop, the deforestation rate increased again (FEARNSIDE, 2017). At the same time, soybean cultivation expanded rapidly in the Northeastern cerrado savannahs, an area which is not covered by the moratorium (ARAÚJO *et al.*, 2019).

Confronted with the failure to stop soy related deforestation, trading companies have argued that they are unable to always trace the source of the soy they buy, suggesting that this would require a radical change in how they operate. We build on the existing literature and explore the impact sustainability demands have on commodity trade operations. Susanne Freidberg's work (2017) has played an important role in opening this line of inquiry. She

suggests that the commercial infrastructure which makes grain commodities fungible, that is interchangeable regardless of who produces the commodity and where it is produced, also makes commodities untraceable. This commercial infrastructure, developed since the 19<sup>th</sup> century, allows grains of individual producers to mix and blend in the storage units of wholesalers and gives way to a faster circulation of the exchange value of the crop. At the same time, it severs the link between producer and the physical crop sold. Current sustainability demands asking for increased transparency and traceability in the supply chain (GARDNER *et al.* 2019; GUPTA; BOAS; OOSTERVEER, 2020), especially in zero-deforestation commitments such as the soy moratorium (LAMBIN; FURUMO, 2023), pose a set of challenges to this infrastructure and to the traders' operations which rely on it: reduced fungibility, but also reduced information asymmetry, and, consequently, less options to switch between supply sources and seize profits.

However, Freidberg (2017) overestimates the extent to which fungibility is dependent on ABCDs sourcing crops from local wholesalers and one-off transactions with farmers, making traders ignorant of the crop producers' activities. We show that the limited impact of the moratorium on soy supplied from deforested areas is not the result of an absolute ignorance of supply sources, inherent in trading operations, but the ABCDs choice of a *strategic ignorance* (BRICE; DONALDSON; MIDGLEY, 2020). We show that asset rich trading companies like the ABCDs may even seek a direct and long-term relationship producers, as it is from the originating side of the supply chain that they are likely to capture more profits. Even though reduced transaction costs can be a reason for choosing to source from wholesalers, rather than directly from producers (ZU ERMGASSEN *et al.*, 2022), we argue that indirect sourcing is a manner of mitigating systematic operational risks. As Coe and Yeung (YEUNG; COE, 2015; COE; YEUNG, 2019) have pointed out, firm strategies in global production networks are determined by competitive dynamics in risk environments. We contribute to the literature by focusing on the underdeveloped relation between the risk environment and firm strategies (see BRYSON; VANCHAN, 2020; YEUNG, 2021). To manage operational risks that could lead to reduced profitability, the ABCDs opt for inter-firm partnership which take the form of joint-ventures, but also intermediation, which implies a strategic ignorance of their supply sources. While nonetheless actively seeking to invest or lobby for changes that could reduce or eliminate these risks, increased competition and the growth of intermediaries pose further challenges to establish traceability and consequently to improving sustainability.

In the first section (1.0) of this paper we will talk about the characteristics of agri-commodities in general and the Brazilian soy in particular. The second section (2.0) is dedicated to unraveling the mechanics of trade operations. This demonstrates how combine space, time, and quality information to identify profitable trades and the extent to which fungibility is determined by sourcing from wholesalers. We further show in the third section (3.0) how local and global public infrastructures and traders' assets put these mechanics into gear, yet at the same time expose traders to a series of operational risks. It will become clear that the local

intermediaries between Brazilian farmers and global traders are a contingent solution to reduce some systematic operational risks, but also increase costs and diminish the potential profits they can make. In the fourth, and final, section (4.0) we outline the conclusion and highlight the directions in which further research is required.

### **Agri-Commodities, Territorial Expansion, and Sustainability**

Grains (cereals, oilseeds, and pulses) are the most traded agricultural commodities in the world. Wheat, maize, and soy, together account for almost  $\frac{3}{4}$  of the traded commodities grains in terms of quantities exported.<sup>1</sup> These crops have seen an expansion in their harvested area in the past decades, especially soybeans, driven by higher prices and the increased demand from different sectors of the economy. Several authors point to an increased demand for meat, which is produced by feeding livestock with high protein soymeal, as the result of a growing global population. China's dietary 'modernization', aimed at increasing meat consumption amongst urban middle and upper classes, also played an important part in the increase of global demand for soy (OLIVEIRA; SCHNEIDER, 2016), with China being the biggest importer and consumer of soy in the world. The rising demand for soy, maize, or sugarcane to produce agrofuels is also seen as a factor contributing to a price inflation and the further expansion of the area planted with these crops (MCMICHAEL, 2009; BORRAS JR.; MCMICHAEL; SCOONES, 2010). Some authors even argue that financial funds adding derivatives of these commodities to their portfolios play an increasing role in inflating commodity prices by signaling a fictitious increase in demand of supply/cultivated areas (CLAPP, 2014; BAINES, 2017).

#### **The Brazilian Soy Supply Chain**

Much of the expansion of the cultivated area for soy has occurred in South America, predominately in Brazil. Since the 1970s Brazil's harvested area constantly grew and the country became a major producer of soybeans. In recent years it has been challenging the domination of the US as the world's #1 soybean producer (GALE; VALDES; ASH, 2019). The production of soy in Brazil grew as the area under cultivation expanded from the southern states of Parana and Rio Grande do Sul towards the Center and Center-west, particularly in Mato Grosso, which is currently the major producing state in Brazil. More recently the crop frontier has expanded into the Northeast region of the *cerrado* savannahs, the so called MATOPIBA (ARAÚJO *et al.*, 2019; FEARNside, 2001, 2017; MORTON *et al.*, 2006; ZALLES *et al.*, 2019).

The boom of soy production and consumption, and the ensuing growing trading distances, has been unsustainable. Although there are many aspects that make it unsustainable, from CO<sub>2</sub> emissions caused by transportation and agricultural machinery use, to soil and water

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<sup>1</sup> Calculations based on FAOSTAT database.

pollution generated by petro-farming, and biodiversity loss caused by monocultures, in this article we focus on the effects of land use changes and the role played by trading companies in the process. The expansion of soybean has led to alarming direct and indirect land use changes as the Amazon's forested areas and the cerrado savannahs are being transformed into pasture lands by cattle farmers displaced by crop farmers or directly transformed by the latter into crop land (BROWN *et al.*, 2005; ARIMA *et al.*, 2011; GOLLNOW; LAKES, 2014; COHN *et al.*, 2016; ZALLES *et al.*, 2019). The infrastructure put in place to transport these crops from producers to end users has also contributed directly to land use change, or indirectly in that it has facilitated the expansion of the soybean frontier (FEARNSIDE, 2001; NEVES *et al.*, 2021). Of particular importance has been the development of the soybean transportation corridor along the BR-163 highway and the Tapajos river, to better cater for export trade from the new frontiers, reducing some of the transportation cost incurred by the traditional routes towards the southern ports of Santos or Paranaguá (DA SILVA; TOBIAS; DA ROCHA, 2022).

Besides the environmental impact of this conversion of land, the expansion of the area cultivated with soybeans has a direct and indirect social impact, displacing indigenous people and smallholders (FIAN INTERNATIONAL, 2018; PEGLER; WIDMARCK, 2020; PEGLER *et al.*, forthcoming; VECCHIONE, 2018).

### Looking for sustainability

In 2006 Greenpeace drew attention to these issue by launching a report on the impact of soy trade on the Amazon, signaling the centrality of the ABCDs in the destruction of this environment (GREENPEACE, 2006). The international coverage of this problem made global food retailers like McDonalds to form the European Soy Customer group, which includes many of the main clients of the ABCDs, and start putting pressure on the trading companies to make changes and incorporate these sustainability demands in their Corporate Social Responsibility (CSR) strategy. It eventually led in 2008 to the signing of a soy moratorium. By voluntarily signing the moratorium, the ABCDs committed to not trade or finance soy produced in farms that cultivate deforested areas.

The moratorium was considered a success by some (GIBBS *et al.*, 2015), as the monitoring of deforestation in the Amazon showed a considerable decrease of the rate of forest loss in the years following its adoption. Other researchers have emphasized the existence of a conjunction of other factors that might have contributed equally, or more than the moratoria, to the decline in deforestation: already available cleared land, low soybean prices on the international market, increased cattle yields and the decrease of cattle herds because of the foot-and-mouth disease outbreak (NEPSTAD *et al.*, 2014). In fact, some data shows that deforestation rates increased again in the Amazon since 2012 as a result of recovering markets, relaxation of environmental legislation, and political change (FEARNSIDE, 2017).

At the same time the expansion of areas cultivated with soy moved into other regions, mainly the so-called MATOPIBA region, resulting in the conversion of native vegetation into cropland (GIBBS *et al.*, 2015; NEPSTAD *et al.*, 2019; ARAÚJO *et al.*, 2019; SOTERRONI *et al.*, 2019). The threat posed by soybean and cattle expansion in the MATOPIBA cerrados has led to a Cerrado Manifesto launched by a coalition of NGOs in 2017, amongst them WWF and Greenpeace. The Manifesto suggested the Amazon soy moratorium is a precedent and should inspire a more substantial solution for the cerrado. Yet, although several retailing corporations such as McDonalds, Walmart, Unilever, Delhaize, etc. signed the manifesto up to 2018, the global trading companies refused to do so.<sup>2</sup>

Unfortunately, despite its promising effects, the Amazon soy moratorium and an eventual Cerrado moratorium are likely to still be insufficient. What sustainability requires is full transparency and traceability of the sources of traded soy (GARDNER *et al.*, 2019; GUPTA; BOAS; OOSTERVEER, 2020; LAMBIN; FURUMO, 2023). However, this is hard to achieve. Partly because this goal would require the involvement of all supply chain stakeholders – from farmers, to intermediaries, to the state, the global traders and the entire agribusiness sector – who might have divergent or contradictory interests. Some farmers might desire the bargaining power conferred by selling through a market cooperative or owning a storage facilities. Likewise, depending on the politicians at the helm of the state, the latter might be interested in promoting the growth of local corporate agribusinesses capable of competing with the global enterprises. But, most importantly, because it requires a complete change of trading companies' risk management strategies. To understand why, the next sections of the article describes the grain trading operations and corporate risk management strategies of the ABCDs in reference to the Brazilian soy supply chain.

### **Grain trading operations and the challenge of traceable sourcing**

The market for grains is usually depicted in the form of supply and demand tables, graphs and price charts. According to these, most of the soybean production in Brazil is exported and makes up for 1/3 of the world's soybean exports, with the largest quantity exported to China and a smaller percent to Europe, especially to the Netherlands and Spain, where it is used in the feed industry or is re-exported.

However, this market exists if grains are concretely taken from producers, or *origin*, in Brazil and delivered to the end user, or *destination*, in China or Europe. A major role in this supply chain is played by trading companies who mediate between the two parties and whose goal it is to make profits from this mediation. The ABCDs control trade at local, national, and the global level, often covering the entire supply chain and linking farmers to industry with the help of money, transport devices, storage facilities and processing units they own,

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<sup>2</sup> (YAFFE-BELLANY, 2019).

and following a set of formal and informal procedures and protocols. Sometimes though these trades are done through a chain of intermediation formed by farmers, marketing cooperatives, inputs supplying companies, trading companies, warehouses, ports, rail, road, river and ocean transport companies, and crop processors.

In order to understand their business model and the environment of risk they face, it is necessary to have a grasp of their trading operations.

### Space

Traders cover multiple spatial scales and long distances because one way of making profits is to *arbitrage*, that is seize price difference, called *spread*, between origin and destination. Part of this spread are costs incurred by the transpiration, handling, surveying, and insuring of the crop. But between origin and destination there are several intermediary logistic points at which opportunities appear for creating profits or incurring costs. Most of the time, the global trading companies buy directly from Brazilian farmers and sell to European or Chinese customers. These companies have the financial capacity to cover the costs and achieve economies of scale, lowering the costs of these services and thus capturing the ensuing cost spread.

Sometimes, though, intermediaries, such as local traders, marketing cooperatives, production input suppliers or large-scale farmers and agribusinesses (who aggregate crops from various farmers) have the capacity to cover some of these costs. When this happens, the link between the global traders and local farmers is severed and makes it much harder to trace the soybeans to their farm source. Intermediaries aggregate and mix the crops from several producers into a larger quantity of soybean of the same quality, now owned by a single entity, making segregation of the physical commodity based on source impossible. It is only its exchange value that can be traced to previous owners based on the quantities they have provided.

### Time

Global traders also arbitrage between different time spreads. They trade *spot*, which Brazilians might refer to as *a vista*, meaning that the delivery of the commodities is done as soon as the contract is signed or in maximum a few days. Yet they also trade *forward*, or *o termo* in Brazilian, when delivery occurs at a later point in time in respect to the trade.

Combining these two traders can perform a *cash and carry arbitrage*, which means they buy soybeans spot but deliver them at a later date. In this case the price difference covers not only all the transportation, handling, etc. costs as in the previous example, but also the storage of the soybeans until delivery. Alternatively, the trading company can buy forward from the soybean producer, before the harvest, and sell it spot, in which case the difference covers a *risk premium* on top of the other costs. The procedure is called *reverse cash and carry arbitrage*, or simply *reverse*.



## Quality and flexibility

Traders also arbitrage with different quality grades of the same commodity, for which different prices exist. Crops are aggregated from different producers and then segregated in elevator bins based on industry approved standards and grades, defined by specifications such as protein content, weight, humidity, number of broken seeds, foreign matters, etc. Internally Brazil has its own quality spreads determined by differences in protein, but also by the cleaning and drying operations performed in storage facilities. Similarly, the local market differentiates *soja balcao*, which is sold without being cleaned and dried, and *soja disponivel*, which usually passes through a storage unit that performs these two operations.

Another quality spread is given by the genetically modified (GMO) vs non-GMO soybean seeds, with the latter receiving a price premium from customers, or due to sustainability and organic certifications accompanying the crops.

There are also spreads created based on crop flexibility, that is the multiple uses and interchangeability of crops (BORRAS JR. *et al.*, 2016). Flexibility allows for the creation of price spreads between interchangeable crops like soybean and maize, but also between the raw crop and products derived from it (like soybean to soy meal to soy oil - the so-called soy complex) and between the products derived from interchangeable raw crops, for example maize meal and soy meal. A spread which is often traded using this strategy is called the *soy crush spread*, and is reflected in the price difference between soybean seeds, meal, and oil.

## Information

However, these spreads are often unstable, or *volatile* (in more technical jargon). Market information is used to manage price volatilities, whether it is the price of the crop, of transportation, quality premiums, flexibility, or of the currency. For example, statistical data on past and current supply and demand of soybeans allows traders and market analysts to make future projections based on which the future spreads can be estimated, thus enabling them to identify origins and destinations that can be best paired in order to arbitrage the most profitable spreads.

Some of the data is free and public, usually made available by national state agriculture departments or boards of trade. Nonetheless, global traders, unlike most farmers and end users, also benefit from their own internal information platforms. Their global outreach allows them to gain more information, faster than producers, end users, or national agriculture departments, increasing their chances to seize price differences. They make their own satellite and field crop assessments and exchange this information between offices. This creates an informational asymmetry in the market that allows traders to manage volatility better than farmers or domestic processors (MURPHY; BURCH; CLAPP, 2012; BAINES, 2017; SALERNO, 2017).

Salerno (2017) has shown how Cargill benefits from its Corporate Platform, a network of units with access to different agricultural actors and privileged information, which “acts as a conduit for information transmission from farm gate to the market” (SALERNO, 2017). Cargill does not use information it gathers through this platform only to manage volatilities, but also sells it as a consultancy to farmers, processors or financial investors wishing to understand or capitalize on agri-commodity flows.

In fact, traders thrive in periods of high volatility (MURPHY; BURCH; CLAPP, 2012; BAINES, 2017; SALERNO, 2017). As Gert-Jan Van den Akker, Cargill’s supply chain manager argued in 2018 at Financial Times’s Commodities Global Summit in 2018: “[W]e are starting to get some volatility come back, which generally is very good for trading companies, because we want volatility.” Volatility creates spreads which the big trading companies can manage using information and commodity derivative markets, but also capitalize on their information by selling it to other parties.

Yet some think that this situation is gradually changing. As Gary McGuigan, global trade president at ADM, said in 2018 at the same Financial Times Commodities Global Summit: “The day of 20 years ago when ADM or Cargill or whoever did a crop tour in Argentina and realized that things are not looking good out there, and we have the information we can trade on the back of that – those days are over.” Behind this change is the development and democratization of ITC technology that uproots the knowledge monopoly held by the global traders (MURPHY; BURCH; CLAPP, 2012; FREIDBERG, 2017).

### **ABCD and C and G**

Agri-commodity traders thus constantly monitor market prices and supply and demand at each spatial scale, as well as estimations and projections of the supply and demand and of prices into the future, in order to identify differences that could be turned into profit. They combine space, time, quality, flexibility, and risk variables in order to seize profits from trade.

As previously shown, transport, storage, processing, and finance are integral to trading agri-commodities. The ownership or long-term lease of these assets can give traders an advantage over competitors by reducing the costs of trading and enhancing their knowledge of and control over the entire supply chain (HENDRICKSON; HEFFERNAN, 2002; MURPHY; BURCH; CLAPP, 2012). As Stefano Rettore, President of Origination, Trading and Operations at ADM, put it in 2019 at the Financial Times’ Commodities Global Summit, covering the entire chain allows traders to “maximize profitability as profits move up and down the chain” and “anticipate if there are weather problems, work around disruptions, anticipate quality issues and come up to the customer with solutions”<sup>3</sup>

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<sup>3</sup> (FT COMMODITIES GLOBAL SUMMIT, 2019).

Although some global trading companies continue to be “asset-light”, buying from other traders who own port terminals in Brazil and sell to traders with port terminals in Europe or China, there is a belief amongst the ABCDs that this sort of trading will not continue to exist for long because profits can be made only by capturing value at each point in the supply chain. Gary McGuigan, global trade president at ADM said in 2018: “the traditional trading business of buying FOB on one side and selling C&F on the other (...) is over. I just don’t see how that sort of business will survive. If you don’t have a long value chain starting at the origin through your assets at destination, it’s very, very difficult to make money.”<sup>4</sup>

But assets can also bring a set of operational risks.

### Port terminals and ocean freight

Having access to an ocean freight fleet and sea-port terminal allows a company to directly export or import crops without having to pay more to another company for handling and transport services from one country to another or having to wait in line and incur extra costs during supply chain bottlenecks. It also allows them to make profits from selling this service to other companies. However, in places where there is a risk of low turnover caused by frequent crop failures, labor conflicts, political intervention, or lack of governmental support to compensate losses, some traders prefer joint ventures through which they can share the risks and from which they can withdraw when long-term prospects are turning sour. For example, in Barcarena, ADM entered a joint venture with Glencore to improve returns on invested capital. “One of the ways we’re doing this”, stated ADM’s CEO, “is by taking an asset-light approach where it makes sense. This agreement will both quadruple the capacity and increase the utilization of this strategically located port facility, enhancing our ability to serve the expanding Brazilian agricultural sector. And by sharing the investment with a partner, we are able to do all of this in a cost- and capital-efficient way.”<sup>5</sup>

The joint ventures are also motivated by the need to tap into the already established local footprint of the partners. The CEO of LDC back in 2009 Kenneth Gold declared after establishing the joint venture with Amaggi in the port of Itaquí that “Dreyfus and Amaggi are consolidated in other regions of the country, but we have detected a great potential of synergy in the Northeast. Louis Dreyfus Commodities has a trading profile, acting in more than 50 countries. Amaggi, on the other hand, has expertise in production, origination, logistics and fomenting farmers. Dreyfus becomes more ‘Brazilian’ and Amaggi more international” in this case.<sup>6</sup>

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4 <https://live.ft.com/Events/2018/FT-Commodities-Global-Summit-2018?=&v=5781906928001>

5 (ADM TO SELL 50, 2015).

6 (LOUIS DREYFUS, Amaggi Group sell stake in JV to Japan’s ZEN-NOH, 2017).

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## Storage units and land freight

Likewise, an internal network of storage facilities connected to rail, road, and river infrastructure, as well as a transport fleet, can offer advantages. Storage facilities placed in important production regions allow traders to buy crops directly from farmers. They buy the harvest straight from the field and usually price it as a low-quality grade crop. Then, in the warehouses, they clean and dry the crop using special ventilation systems which also sort the grain according to quality grades. This allows the traders to market the better-quality grade at a better price, but also to blend the higher quality crop with a lower quality crop to obtain the demanded standard quality. In the case of Brazilian soy, warehouses only clean and dry the crop to take it from soja balcao to soja disponivel grade to profit from the quality spread.

Truck, rail car, and barge ownership or long-term lease of these assets also play an important role in the management of the supply chain. However, these assets can become a burden for the same reasons outlined above in the case of the port terminals. Low turnover, as well as systemic operational risks resulting from poor transport infrastructure, such as the BR-163 highway, or weak contractual law enforcement, might make these ventures and the sourcing of crops directly from farms unprofitable.

Take for instance road transportations. According to Fliehr (2013), at the national level 70% of road transport is done by self-employed truck drivers and the remaining 30% by transport agencies that bring together these individual drivers and trading companies. The fact that trading companies do not control the truck transport sector, in a context in which more than half of the crops are being taken to the export ports by road, gives truckers leverage, as seen during the 2018 strike that paralyzed the country's flow of commodities.<sup>7</sup> Commenting on the freight rate when the government decided to meet the truckers' demands, Cargill's Latin America's regional office head said that this would lead to more vertical integration, pushing trading companies to consider expanding their truck fleet.<sup>8</sup>

Although it has been argued that the symbolic outcomes of the strike prove the limited power of truck drivers (NOWAK, 2021), the disruptions they caused to the trade flow did generate losses to these companies and made them ponder solutions which would help them avoid this risk in the future. In that sense, to facilitate the aggregation and control of these self-employed truck drivers, ADM, Ammangi, Cargill, and LDC launched a freight application in 2019, while Bunge and Cofco partnered to launch their own application in 2020 (NOWAK; ROLF; WEI, 2022). While these apps help them increase their control over the road transport sector, without taking the risks of investing in their own fleets, the partnership approach helps them further reduce any other risks by sharing them among each other.

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7 (LEAHY, 2018).

8 New Brazil freight policy will harm grains trade, boost costs – Cargill (2018).

### Managing systematic operational risks

Besides engaging in joint ventures, the mitigation of these systematic operational risks is done by avoiding investments in assets altogether and source soy from intermediaries. However, once soybeans reach a warehouse of an intermediary, crops from different origins have been pooled together and their source cannot be identified with the farm where it was grown. Hence, trading companies sourcing from these intermediaries are ignorant of the farms from where these intermediaries source their soy. Like Cargill's CEO, David MacLennan, said in 2017: "Let's say that we are trading or buying and selling soybean meal. Where did the soybeans come from? And did they come from deforested land? Maybe we weren't buying the soybeans directly. I don't know."<sup>9</sup>

But, instead of an absolute ignorance of their sources, inherent in trading operations, like Friedberg suggests (2017), this situation can be characterized as strategic ignorance required for managing risks. Based on their research of the 2013 European horsemeat scandal, Brice, Donaldson and Midgley (2020, p. 623) have showed that business from the food sector in Britain avoided the risk of being made accountable and liable for the adulteration of beef meat products with horseflesh by "cultivating a strategic ignorance about the identities and conduct of – and thus about the risks posed by – firms within their extended supply chains." The same occurs in the case of the soybean supply chains.

Global trading companies engage in joint ventures and source soy from intermediaries to reduce systematic risks, such as the risk of low turnover, producers' default on forward contracts, extra transport costs from delays or due to quality alteration resulting from poor infrastructure. It is only through the elimination of these risks that traders can rely exclusively on direct links with farmers and achieve full traceability of the crops they trade.

This does not mean they prefer sourcing from intermediaries, although when having to deal with multiple small scale producers intermediaries could reduce transaction costs (ZU ERMGASSEN, *et al.*, 2022). Trading companies actually capture more profits from originating soy directly from the farm and because of that they are actively engage in eliminating these systematic risk. They rely on intermediaries in conjunction with lobbying governments to engage in large infrastructure projects, like rail roads, highways or river canals, which contribute to lowering the operational risks faced by traders and thus facilitate their access to regions they previously did not see as opportunities for their investing in assets and originate directly from farmers. According to news agencies, at one point the ABCDs even considered establishing a consortium to bid on the right to construct and operate the Ferragrao railway and the BR-163 highway linking Mato Grosso to the port of Miritituba<sup>10</sup> (see also Abel, 2021). Yet, while it diminishes the traders' reliance on intermediaries, these investments further contribute to land use changes, by deforesting to make way for rail and road routes and to open new farming frontiers.

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9 (TABUCHI; RIGBY; WHITE, 2017).

10 (MANO, 2019a; CARGILL MAY PARTNER, 2017).

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## Rising competition

This increased competition between traders and the growth of intermediaries complicates even more the establishment of direct links with farmers. Although for several decades the ABCDs have dominated the global trade of grains (CLAPP, 2015; MURPHY; BURCH; CLAPP, 2012), more recently their dominance has been challenged by companies like Glencore and COFCO (see also Wesz Jr. *et al.*, 2021), but also by smaller ones in Brazil, such as Marubeni, Olam, and CHS, or Brazilian agribusinesses Amaggi, AFG Brasil, COAMO, and Cantagalo General Grains (CGG).

The corporate strategies these companies adopt in order to win this competition vary from global expansion, to horizontal consolidation and vertical integration. The ABCDs expand globally by opening offices around the world to capture market share, reduce informational asymmetries, and create optionality (JOHANSEN; WILSON, 2018). They consolidate by acquiring and merging with competing local and global businesses to extend their market share. They vertically integrate, through acquisitions, joint ventures, and strategic alliances, to control the entire value process of the commodities they trade and reduce risks, and they also diversify their portfolio of assets, especially in sectors that use the commodities they trade as production inputs.

However, the rise of traders such as COFCO, a Chinese state-owned traders who is less pressured by financiers and customers to comply to sustainability agendas, and of local agribusiness, supported by growing soy prices, but also their instrumentalization in the traders' risk management strategies, have been gaining power to by-pass ABCDs facilities. Local agribusinesses with sufficient funds can start building their own storage facilities, supported by the state, bank credit or because of increased earnings, and own or lease their own transport means to distribute their crops to the nearest seaport terminal or to the nearest processing plant. They can thus cash in some profit from what would otherwise be a transportation cost factored into the crop price. These agribusinesses act as the intermediaries that eventually sell to the global traders who export them, or even export themselves, like in the case of Amaggi.

The power given to intermediaries by the use of storage facilities was seen in 2017 when low soybean prices led Brazilian farmers to reduce the pace of their sales and store the crop in the hope of better prices in the following months, putting global trading companies in the difficulty of delivering crops to their clients<sup>11</sup>. As Gert-Jan van den Akker, Cargill's supply chain manager, declared in 2018 at the Financial Times Commodities Global Summit: "We've seen a change already a few years back that started in Argentina with the famous silo bags where farmers themselves started storing goods on farms. Now we've seen this basically everywhere in the world, in all the regions, including in Ukraine and Russia, US, Canada, Brazil, where farmers are storing themselves. They get support from banks and low interest rates. They are

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<sup>11</sup> Brazilian farmers 'hope for a miracle' hoard soybeans (2017).

more sophisticated, they understand markets better, creating this space and their storing their goods, so they're not allowing you to create those margins. Apart from the glut, that's part of the issue we've been facing in the ag supply chains. So that doesn't work."

The same occurred gain in 2019.<sup>12</sup> Even though, in 2013 Fliehr (2013) estimated these intermediaries do not have a strong market position, further research about their market power and dependence on global or local financial leverage is needed.

## Conclusion

Commodity trading companies have gained a reputation as enigmatic entities that profit from exploiting market imperfections. The substantial assets owned and managed by these companies, such as transportation fleets, storage facilities, mills, and refineries, situated in key regions of production and consumption, allow them to connect global supply and demand, ultimately maximizing their profits. However, the increasing demands for sustainability from investors, end customers, and shareholders, coupled with significant changes such as digitization, climate change, and new financial regulations, are compelling trading companies to reevaluate their entire business model.

Sustainability for these global traders must rely on a number of conditions and is managed by them (and others) by a balancing act determined by risks. We contributed to the global production networks literature exploration of how company strategies are influenced by the competitive dynamics in a global environment of risk by showing how for these traders, moving in and out of supportive services such as transport and storage bring gains but also possible losses. We should that instead of an absolute ignorance of their supply sources, inherent in their trading operations, these companies want to establish direct links to farmers to improve margins. However, this would require investments in assets placed in locations where social conflicts, poor infrastructure, and regulatory uncertainties might make these investment unprofitable. Instead they engage in a strategic ignorance by relying on intermediaries which, nonetheless, hinder the traceability of the product they trade, and diminish returns, but help manage these systematic operational risks. Growing competition from traders and the growth of these intermediaries poses further challenges to the restructuring of the supply chain in order to improve transparency, traceability and hence sustainability.

The power of intermediaries should be further inquired, together with and in relation to the effect of these strategies (and the somewhat footloose movement of global traders in and out of chain segments) have on local communities and labor/small scale farmers, fisherpeople etc., which remains even more uncertain (PEGLER *et al.*, forthcoming; PEGLER; WIDMARCK, 2020; VECCHIONE, 2018; FIAN INTERNATIONAL *et al.*, 2018).

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12 (MANO, 2019b).

To compare the risks of commercial operations with the uncertainties created for the livelihoods of workers, small scale farmers, fisher people, local businesses and communities seems a hefty balance sheet to wear. Yet, perhaps the social costs of not taking a more regulated, environmental and human development focus to global operations may only be obvious after these harms have been suffered.

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