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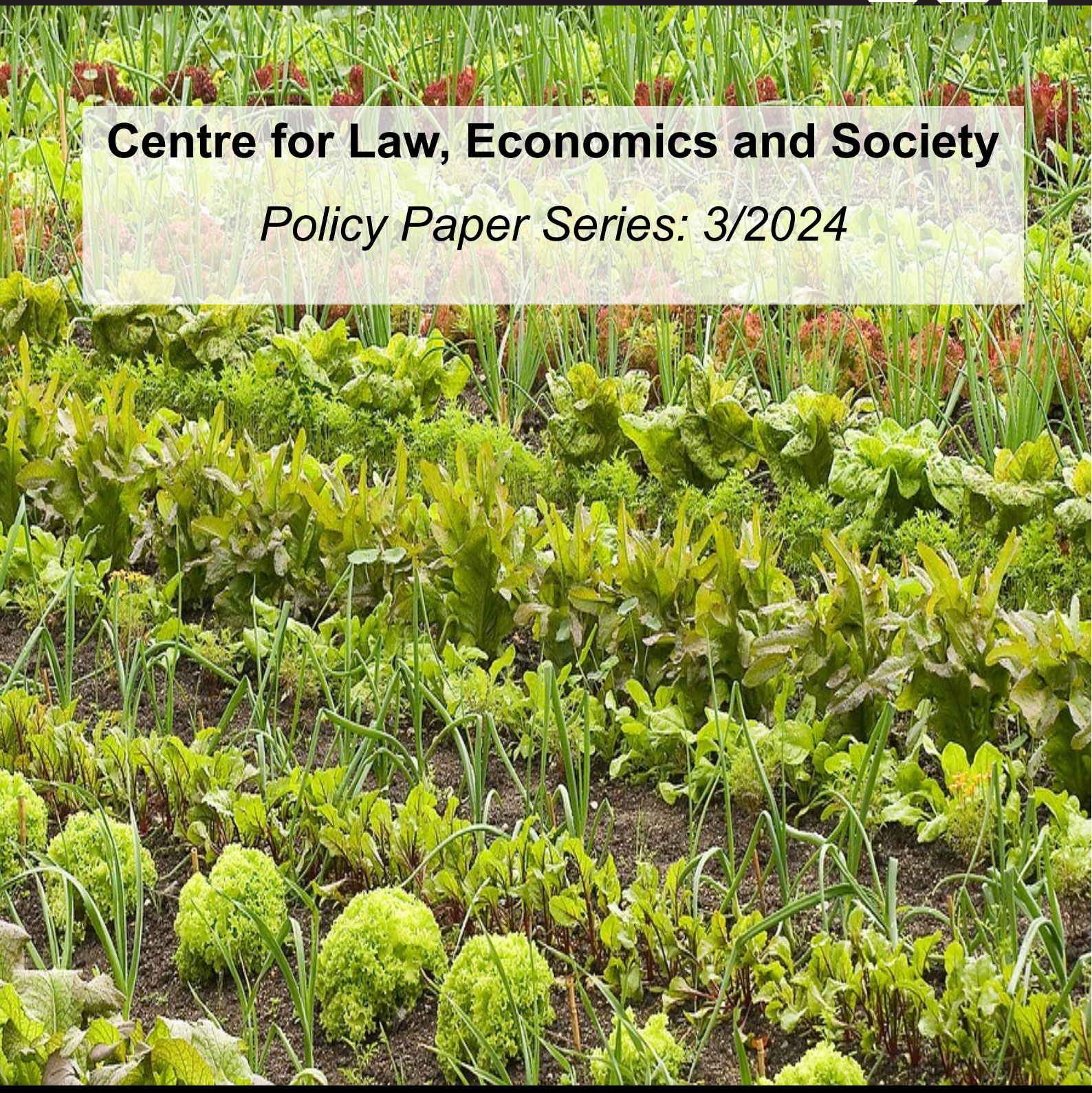

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Mergers and Concentration in the Agri-Food Value Chain

Ioannis Lianos, Stavros Makris, Athanassios Stavrakoudis, Jean-Benoit Maisin, Alina Velias, Harry Shaw

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Some Reflections on the Bunge Viterra merger

Ioannis Lianos, Stavros Makris, Athanassios Stavrakoudis, Jean-Benoit Maisin, Alina Velias, Harry Shaw

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Faculty of Laws, UCL London,
WC1H 0EG

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Centre for Law, Economics and Society
Faculty of Laws, UCL
London, WC1H 0EG
United Kingdom

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Some reflections on the Bunge/Viterra merger

Ioannis Lianos, Stavros Makris, Athanassios Stavrakoudis, Jean-Benoit Maisin,

with contributions from Alina Velias and Harry Shaw[*]

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[*] Ioannis Lianos is Professor of Global Competition Law and Public Policy, founding co-director of the Centre for Law, Economics and Society (CLES) at UCL Faculty of Laws and a Member of the UK Competition Appeal Tribunal. He was formerly the President of the Hellenic Competition Commission (2019-2023) and a member of the Board of the OECD Competition Committee (2021-2023). Any opinions expressed are personal. Stavros Makris is Lecturer in Law at the University College London (S.makris@ucl.ac.uk). Athanassios Stavrakoudis is Professor in Computer Simulation, Department of Economics, University of Ioannina (astavrak@uoi.gr). He has contributed to part II.iii. Jean Benoit Maisin is a senior researcher at the Inclusive Competition Forum (ICF) and Policy Advisor (ACV). Alina Velias is fellow at LSE and the AUEB. The opinions expressed in this paper by all authors are personal and do not engage the institutions they are affiliated with. Harry Shaw is a Research Assistant, Centre for Law, Economics and Society (CELS), UCL Faculty of Laws. He has contributed to part IV. The report was commissioned to the Inclusive Competition Forum (ICF) and funded by SOMO. Pursuant to the ASCOLA Transparency and Disclosure Declaration the authors declare not to have any conflicts of interests to disclose. The authors would like to thank Claire Debucquois, (FNRS research fellow) for her insightful and substantial comments at an earlier version of this Report and Julian Nowag (Lund & Oxford University and Senior Fellow, ICF), for his suggestions. Corresponding author: i.lianos@ucl.ac.uk

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Executive Summary

The report explores the recent merger wave in the agri-food value chain from a competition law and policy perspective. It focuses on the recent merger between Bunge and Viterra, which creates a global grain giant to rival Cargill and Archer Daniels Midland, further contributing to the consolidation of the crucial commodity trading and logistics segment of the global food value chain. Merger waves in a concentrated sector of the economy may raise serious concerns regarding potential negative effects vis-à-vis farmers, downstream customers and consumers.

Bunge, headquartered in the US, is the world's fifth-largest grain company operating in 40 countries with over $USD 57 billion in annual revenues, and the world's largest oilseed processor, globally dominant in soybeans, canola and corn. Bunge also sells grains (e.g., corn, wheat and barley) and milled products (e.g., wheat flour), as well as unprocessed oilseeds, sugar and other agricultural products.

Viterra, headquartered in the Netherlands, is an agribusiness company owned by global mining giant Glencore, with investments in Canada, Australia, the U.S., Brazil and Argentina, among other countries. Viterra now operates in 38 countries with revenues of $USD 53 billion in 2023. Viterra trades agricultural commodities including grains, oilseeds and oilseed-based meals, and oils. Viterra also sells other unprocessed products (e.g., cotton) and milled products (e.g., wheat flour). Both companies operate in the already highly concentrated global grain market and are part of the ABCCD group of companies — including Archer Daniels Midland, Bunge, Cargill, COFCO, and Louis Dreyfus — fulfilling a key function in connecting surplus and shortage countries and linking farmers with consumers. Both companies are vertically integrated global agribusinesses, active in the origination, trading and processing of agricultural products, with significant overlaps in the sector of oilseeds (i.e., rapeseed, soybean and sunflower seed).

The report follows first a 'simple economics' approach and explores the competitive impact of the *Bunge/Viterra* on consumer welfare. Then, it adopts a complexity perspective to provide the "big picture" of the broader impact of *Bunge/Viterra*, by examining all the social costs resulting from the restriction of competition.

Bunge/Viterra occurs against a backdrop of significant changes and challenges in the global food value chain. These include rising global hunger (e.g. compared to 2021, in 2022 the absolute number of people with hunger increased by 40 million), technological advancements (e.g. 'smart and precision agriculture', GMO development, genome editing), shifts in consumer preferences towards healthy and organic foods, and

geopolitical tensions impacting food security. The COVID-19 pandemic and the war in Ukraine have further highlighted vulnerabilities in the global food system, emphasizing the need for resilient and decentralized networks.

In addition, the agribusiness industry has been experiencing massive consolidation waves in the last decades (e.g. in 2016 three mega-deals between *Dow/Dupont*, *ChemChina/Syngenta*, and *Bayer/Monsanto* further consolidated the input segment of the global food value chains). High economic concentration in the agribusiness sector may allow firms to collude and/or enable dominant firms to control large segments of the market, potentially leading to higher prices and reduced competition. High economic concentration can also lead to less resilient and sustainable food systems. Centralized networks and ecosystems, where a few firms dominate entire segments of the value chain, are particularly vulnerable to disruptions.

Agricultural commodity traders play a crucial role in the operation of the food system and significantly influence global price formation. The consolidation of these traders can lead to increased market power, pose risks to market stability, and result in higher prices for consumers; it can also lower returns for farmers and make it more difficult for smaller firms to compete. Simultaneously, such consolidation can hinder innovation and sustainability efforts, and adversely affect food security and the resilience of our food systems. Therefore, a more pro-active merger control is necessary to secure consumers' well-being, ensure fair distribution of value across the food value chain to incentivize and diffuse innovation, and address issues related to economic democracy, food security and sovereignty.

It should also be noted that institutional investors in the agribusiness sector have significant implications for sustainability and market stability. These investors often prioritize short-term profits over long-term sustainability, leading to adverse effects on the farming industry. It is crucial, therefore, to incorporate environmental, social, and governance (ESG) considerations into investment decisions and to enforce regulatory measures that promote ESGs. Merger control could steer investors towards such decisions or further entrench the shareholder value maximisation principle.

In our view *Bunge/Viterra* can have far-reaching implications for the global agribusiness sector. It significantly contributes to the consolidation of the global agribusiness sector by creating the world's largest grain trader, and poses significant risks to market competition, innovation, and sustainability. While it may offer potential benefits in terms of operational efficiency and market reach, it also poses substantial risks to competition, innovation, and sustainability, and may undermine the resilience of food supply chains, economic democracy, and food security and sovereignty.

In our view, *Bunge/Viterra* might (i) generate non-coordinated, unilateral effects such as higher prices, lower quality and lesser choice, and limit the merged entity's incentives for innovation and product diversification; (ii) generate coordinated effects, facilitating tacit collusion and coordinated input foreclosure through joint projects and industry initiatives, (iii) facilitate tacit collusion through the cross-shareholdings between the merging parties, (iv) reduce merging parties' innovation incentives and efforts in areas where their R&D activities and products overlap; (iv) diminish innovation diversity, and, thereby, harm the environment and biodiversity by further entrenching the existing agro-chem model of agricultural production; (v) generate ecosystemic effects; and (vi) affect negatively various vulnerable stakeholders at different levels.

Competition authorities should assess in detail these effects and investigate in detail how the reduction of competition resulting from the merger may impact on innovation diversity and sustainability, the well-being of small and medium-sized farmers and rural communities, as well as any possible implications for food security and the resilience of food systems. There is a need for a fair distribution of value across the food value chain to ensure market access for all stakeholders and adequate incentives to innovate for all. Issues of food security and sovereignty are also crucial in the current geopolitical climate. *Bunge/Viterra* could undermine these goals and exacerbate structural inequalities. Ensuring fair competition, promoting innovation, and supporting sustainable practices are essential for the long-term stability and resilience of our food systems.

Introduction

The agribusiness industry has experienced consolidation waves in the last decades. Two merger waves in the 1980s and 2000s significantly diminished the number of producers in the pesticides, seeds, traits and fertilizer industries and triggered the emergence of large, integrated players active on various levels of the relevant value chains.[1]

Looking at the input segment, before 2016, the agrochemical industry was dominated by the so-called 'big six' players: Syngenta, Bayer, Monsanto, Dow, Dupont and BASF. All six players were vertically integrated and benefited from large economies of scale. Apart from BASF, all players were also active in all stages of the relevant value chains (i.e. discovery, development, and commercialisation of crop protection products or seeds).[2] The big six offered one-stop-shop solutions which would allow farmers to source seeds, crop protection products, fertilisers and technology from the same firm; promoted the use of genetically modified (GM) crops with traits that are resistant to specific crop protection products (often developed and sold by the same integrated firm); [3] and increasingly engaged with 'big data' collection and analytics for farming developing 'precision farming solutions'.[4]

In 2016 three mega-deals between *Dow/Dupont*, [5] *ChemChina/Syngenta* [6] and *Bayer/Monsanto*[7] further reduced the number of industry players, thereby concentrating the control over the agrochemical market in the hands of three fully integrated players. Numerous competition experts and NGOs warned that all three deals may lead to substantial price increases in agricultural and food products.[8] They were also worried that industry consolidation could further dampen the already sluggish rate of R&D investments and output in the sector, and centralise the industry leaders' control over a large number of patents, inventions and data.[9] The tight oligopoly in the global food value

[1] See for a discussion of the consolidation waves I. Lianos, 'The Interaction of Competition, Regulation and IP Rights in Agriculture: Towards a Dynamic Equilibrium?' in G. Muscolo and M. Tavassi (eds), *The interplay between competition law and intellectual property: An international perspective* (International competition law series v. 77. Wolters Kluwer 2019) 343–345.
[2] European Commission, Case No COMP/M.7932 Dow/DuPont, para. 222.
[3] ibid para. 248-249. Recent advances in biotechnology, most notably with respect to RNA sequencing and gene editing, are likely to reinforce this move towards the use of genetically modified or so-called 'optimised' crops.
[4] ibid para. 246. All large integrated players invested in the development of digital farming services analysing vast amounts of data to predict the specific needs of plants and soils and to optimise the use of crop protection products and fertilisers.
[5] Commission Decision in Case M.7932 – Dow/DuPont (2017)
[6] Commission Decision in Case M.7962 – ChemChina/Syngenta (2017)
[7] Commission Decision in Case M.8084 – Bayer / Monsanto (2017).
[8] Case No COMP/M.7932 Dow/DuPont (n 15) para. 222, 243.
[9] D. Moss, 'AAI Says Monsanto-Bayer Merger is Too Big to Fix – Enforcers Should Reject Proposed Remedies and "Just Say No"' (2018) <http://www.antitrustinstitute.org/content/aai-says-monsanto-bayer-merger-too-big-fix-–-enforcers-should-reject-proposed-remedies-and-> accessed 22 February 2018; I. Lianos and

chains created by these three mega-corporations could also entrench the market power of the dominant players for decades and freeze the innovative efforts to R&D compatible with the business model of the incumbents.[10] More broadly, increasing consolidation through merger activity, as opposed to organic growth, could exclude or deter new players who could have entered the market, taking advantage of new agricultural technologies, business models and data analytics capabilities, and marginalise a more cooperative approach with the farming segment of the value chain.[11] It was further noted that these mergers could curtail innovation diversity and opportunities for alternative agriculture models, and negatively impact the environment and biodiversity. [12] Furthermore, given the steady trend towards integrated farming solutions and digital agriculture, various stakeholders warned that horizontal and vertical integration combined with the accumulation of large amounts of data would further increase the economic and technological dependence of farmers on single platform solutions offered by a few agrochemical giants.[13] Yet, these mergers were cleared after the merging parties agreed to make certain commitments (e.g. divestitures).

The next episode in this merger wave seems to be the further consolidation of the crucial commodity-trading and logistics segment of the global food value chain, with the emergence, following several M&A transactions, of a tight oligopolistic structure dominated by four agricultural commodity traders, the ABCDs (ADM, Bunge, Cargill and Louis-Dreyfuss), to which the state-owned COFCO was recently added, signalling the shift of the core of the global economic activity to Asian markets. Although these major grain trading giants were first established as "family-owned merchant companies with specific geographical specialties", they have since evolved to "complex companies" operating "more like cross-sectoral value chain managers on a truly global scale".[14]

Agricultural commodity traders play a crucial role in the operation of the food system and significantly influence global price formation. The consolidation of the trading segment of the food value chain will likely lead to increased market power, pose risks to market

D. Katalevsky, 'Merger Activity in the Factors of Production Segments of the Food Value Chain: - A Critical Assessment of the Bayer/Monsanto merger' (2017). CLES Policy Paper Series 2017/! 19–23.

[10] I. Lianos and D. Katalevsky, 'Merger Activity in the Factors of Production Segments of the Food Value Chain: - A Critical Assessment of the Bayer/Monsanto merger' (2017). CLES Policy Paper Series 2017/! 19–23; Deutscher and Makris.

[11] See, McKinsey, Agtech: Breaking down the farmer adoption dilemma, (February 7th, 2023), available at https://www.mckinsey.com/industries/agriculture/our-insights/agtech-breaking-down-the-farmer-adoption-dilemma#/

[12] I. Lianos and D. Katalevsky, 'Merger Activity in the Factors of Production Segments of the Food Value Chain: - A Critical Assessment of the Bayer/Monsanto merger' (2017). CLES Policy Paper Series 2017/! 19–23.

[13] Ibid., 23–28; P. Woodall and T. L. Shannon, 'Monopoly Power Corrodes Choice and Resiliency in the Food System' (2018) 63(2) The Antitrust Bulletin 198 206–216.

[14] J. Clapp, ABCD and beyond: From grain merchants to agricultural value chain managers, (Sept. 2015) Canadian Food Studies 126, 126.

stability, and result in higher prices for consumers. Simultaneously lower returns for farmers are to be expected and it will be harder for new entrants (and particularly smaller firms) to compete (reduction of potential competition). Simultaneously, such consolidation can hinder innovation and sustainability efforts, and adversely affect food security and the resilience of our food systems.

In the current circumstances where global hunger is on the rise (e.g. compared to 2021, in 2022 the absolute number of people with hunger increased by 40 million), technological advancements are swift and sweeping (e.g. 'smart and precision agriculture', GMO development, genome editing), consumers are rethinking their conduct and choices (e.g. more consumers are looking for healthy and organic foods or sensitive to fair trading compliance), and geopolitical tensions and emergencies impact food security, further consolidation raises numerous concerns. High economic concentration in the agribusiness sector can allow dominant firms to control large segments of the market, potentially leading to higher prices and reduced competition. High economic concentration can also lead to less resilient and sustainable food systems. Centralized networks and ecosystems, where a few firms dominate entire segments of the value chain, are particularly vulnerable to disruptions.

This is the broader context within which *Bunge/Viterra* is taking place. This merger **can have far-reaching implications for the global agribusiness sector**. It will significantly contribute to the consolidation of the global agribusiness sector by creating the world's largest grain trader. While it may offer potential benefits in terms of operational efficiency and market reach, it also poses substantial risks to competition, innovation, and sustainability, and may undermine the resilience of food supply chains, economic democracy, and food security and sovereignty.

The present report adopts a 'simple economics' approach and explores the competitive impact of *Bunge/Viterra*. Simultaneously, it embraces a complexity perspective to provide the "big picture" of the broader impact (and social costs) the *Bunge/Viterra*. After setting out our methodology in section I, we explore the broader context within which the merger is taking place in section II. In sections III and IV we analyse the potential anticompetitive effects and the broader implications *Bunge/Viterra* may have. In our assessment, *Bunge/Viterra* might generate (i) **non-coordinated, unilateral effects** such as higher prices, lower quality and lesser choice, and limit the merged entity's incentives for innovation and product diversification; and (ii) **coordinated effects**, facilitating tacit collusion and coordinated input foreclosure through joint projects and industry initiatives; it could also (iii) facilitate **tacit collusion** through the cross-shareholdings between the merging parties; (iv) reduce merging parties' **innovation incentives and efforts** in areas where their R&D activities and products overlap; (iv) diminish **innovation diversity**, and, thereby, harm the environment and biodiversity by further entrenching the

existing agro-chem model of agricultural production; (v) engender **ecosystemic effects**; and (vi) affect negatively various **vulnerable** stakeholders at different levels.

Taking into account the "mega-merger" characteristics of the transaction, and the likelihood that it might generate a new merger wave in the food value chain, we believe that all competent authorities should assess in detail not only the non-coordinated or coordinated effects that the transaction might have but also its impact on innovation diversity and sustainability, the well-being of small and medium size farmers and rural communities, and its possible implications for food security and the resilience of food systems. A **pro-active merger control regime** can secure consumers' well-being, ensure fair distribution of value across the food value chain with the aim to promote innovation, and address issues related to economic democracy, food security and sovereignty. In our view, the EU merger control regime should have played such a complex-system engineering role. Ensuring fair competition, promoting innovation, and supporting sustainable practices are essential for the long-term stability and resilience of our food systems. It is necessary to ensure, therefore, that the proposed merger does not undermine these goals.

I. Methodology

Taking a *"simple economics" perspective*, competition authorities traditionally assess the effect of mergers in the relevant product and geographic markets, on which the merging parties are active. This assessment is generally based on the estimated price substitutability between different product options[15]. The anticompetitive effects of a merger are then assessed following the classic 'ability and incentives to harm competition' framework, mostly focusing on horizontal overlaps between the merging parties in relevant markets. It is quite common in all merger control systems to consider when assessing some merger activity the following issue:

- Will a concentration lead to anti-competitive effects by significantly increasing the market power of the new entity in specific relevant markets, without compensatory efficiency effects,[16] taking into account the evolution of the market without the specific M&A (counterfactual scenario)?

If the answer to this question is negative the authority will approve the merger. Otherwise, the merging parties will be asked to submit certain undertakings (remedies) to reduce the projected increase in the market power. If they are unwilling to submit satisfactory undertakings or there are no possible undertakings, the authority will prohibit the merger.

In the EU context, but it is quite similar in other jurisdictions inspired by the EU model, the key question is whether the concentration will 'significantly impede effective competition in the [internal] market or in a substantial part of it, in particular as a result of the creation or strengthening of a dominant position' (the so-called SIEC test).[17] As the Court stressed in *CK Telekoms "[T]he Commission may declare a concentration incompatible with the internal market* ***only*** *if the* ***significant impediment to effective competition is the direct and immediate effect of the concentration***.[18]

According to Art. 3 EUMR a concentration shall be deemed to arise where a change of control on a lasting basis results from: (a) the merger of two or more previously independent undertakings or parts of undertakings, or (b) the acquisition, by one or more persons already controlling at least one undertaking, or by one or more undertakings, whether by purchase of securities or assets, by contract or by any other means, of direct or indirect control of the whole or part of one or more other undertakings, (c) a fully functioning JV (functioning as an autonomous economic entity). According to Art. 3(2)

[15] For detailed analysis, see I. Lianos, V. Korah, P. Siciliani, *Competition Law: Analysis, Cases and Materials* (OUP, 2019), Chapter 12.
[16] In some jurisdictions (e.g. South Africa) there is also an analysis as to whether the merger leads to negative effects to broader public interest (according to the relevant substantive test for merger control).
[17] Article 2, Council Regulation (EC) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings (EUMR).
[18] Case C-376/20, Commission v CK Telecoms UK Investments , ECLI:EU:C:2023:561 [114].

EUMR, control includes any transfer of rights, contracts or other means through which an undertaking can exercise decisive influence on strategic commercial decisions. Control can be exercised positively (e.g., through determinant influence over strategic decisions) or negatively (e.g. veto rights), *de jure* (e.g. via shares or assets) or *de facto* (e.g. via minority stake but dispersed shareholders).

For a concentration to be examined under EUMR it needs to have a 'Union dimension'. According to Art. 1(2) EUMR, union dimension exists if the aggregate worldwide turnover of undertakings concerned is greater than €5 billion; *and* at least 2 merging parties each has aggregate EU turnover above €250 million. According to Art. 1(3) EUMR, a union dimension exist where (a) the combined aggregate worldwide turnover of all the undertakings concerned is more than EUR 2 500 million; (b) in each of at least three Member States, the combined aggregate turnover of all the undertakings concerned is more than EUR 100 million; (c) in each of at least three Member States included for the purpose of point (b), the aggregate turnover of each of at least two of the undertakings concerned is more than EUR 25 million; and (d) the aggregate Community-wide turnover of each of at least two of the undertakings concerned is more than EUR 100 million, unless each of the undertakings concerned achieves more than two-thirds of its aggregate Community-wide turnover within one and the same Member State.

In performing the substantive assessment of mergers, the EC relies on market shares and concentration levels, all evaluated in the context of specific relevant markets, which provide "useful first indications of the market structure and of the competitive importance of both the merging parties and their competitors", which are "adjusted to reflect reasonably certain future changes, for instance in the light of exit, entry or expansion". The EC calculates post- merger market shares on the assumption that the post-merger combined market share of the merging parties is the sum of their pre-merger market shares.[19]

In terms of theories of harm, under the current EU regime mergers or acquisitions may be problematic a) in case of horizontal mergers, if the merger increases the market share of the merged entity and thus increases market power, by creating a position of dominance; b) in case of both horizontal and vertical mergers, if the merger alters the existing market structures making coordination between the merged entity and its competitors more likely, whether by cartel or by oligopolistic behaviour; c) in case of vertical mergers, if the merger may result in input or customer foreclosure, particularly where the merged entity has market power at one or more levels; d) in case of conglomerate mergers, if the

[19] Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings (HMG), *OJ C 31, 5.2.2004, p. 5*, para. 14.

merged entity may be able to leverage its power from one (distinct, though complementary) market to another, e.g. through tying or predation.

Consequently, under the SIEC test mergers might have coordinated or non-coordinated anticompetitive effects. Non-coordinated effects involve the elimination of important competitive constraints on one or more firms leading to increased market power (even dominance) or to the emergence of a non-collusive oligopoly in case of horizontal mergers, and to input or customer foreclosure or portfolio effects in case of a non-horizontal merger. [20] In both horizontal and non-horizontal mergers the coordinated effects consist in a structural change in the nature of competition in a way that makes tacit collusion more likely, easier and more effective.[21]

In applying the SIEC test, the Commission adopts a counterfactual analysis. "In assessing the competitive effects of a merger, the Commission compares the competitive conditions that would result from the notified merger with the conditions that would have prevailed without the merger".[22] "Such an analysis makes it necessary to envisage various chains of cause and effect with a view to ascertaining which of them are the most likely".[23] In most cases "the competitive conditions existing at the time of the merger constitute the relevant comparison for evaluating the effects of a merger". However, "in some circumstances the Commission may take into account future changes to the market that can reasonably be predicted", such as "the likely entry or exit of firms if the merger did not take place when considering what constitutes the relevant comparison".[24]

Competitive constraints outside the specific relevant markets are only addressed to the extent they impact on potential competition. However, the EU competition authorities have often taken a relatively narrow time scale for considering potential competition. To be an effective threat, potential competitors should be able to enter within two years and on a sufficient scale.[25] This may ignore the possibility of potential entry into a market if the time scale of this entry may be longer than two years. There has nevertheless been some evolution in the way potential competition has been considered in the context of

[20] Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings (HMG); Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings (NHMG), *OJ C 265, 18.10.2008, p. 6.*
[21] HMG; NHMG.
[22] HMG, para.9
[23] *CK Telekoms*, para.108.
[24] HMG, para. 9. The analysis of the counterfactual is also relevant for non-horizontal mergers although the EU non-horizontal merger guidelines do not mention it. According to the EU non-horizontal merger guidelines, para, 11 "Non-horizontal mergers are generally less likely to significantly impede effective competition than horizontal mergers".
[25] HMG, para. 74 and 75.

merger control, in particular with the recent turn of focusing on innovation effects.[26] This approach seems to expand both the locus and the time-period that is usually considered in assessing actual or potential competition, as well as the usual scope of the analysis on relevant markets, as the Commission has examined the overlaps between the parties, not only at the level of innovation spaces, by looking to "early pipeline projects" and "lines of research," but also at the level of the industry.

Recently, the EC has made some timid steps beyond the pigeonhole of market definition, as it recognizes in its recent Market Definition Notice published in 2024 that "the Commission may take into account expected transitions in the structure of a market when the case calls for a forward-looking assessment", these differing from considerations relating to market entry by potential competitors (potential competition) "in that they affect the *general dynamics* of supply and demand in a market and therefore the general reactions to changes in relative supply conditions. Such structural market transitions are also "distinguished from changes that only affect individual undertakings or customers offering or demanding products in the relevant markets"[27]. However, the EC still links this assessment to the concept of market definition as it mostly acknowledges that these structural market transitions "can affect the definition of the relevant product market, for example where there is sufficient probability that new types of products are about to emerge on the market, or the definition of the relevant geographic market, for example where there are impending technological changes or impending changes in the regulatory framework".[28]

One may question the adequacy of this simple economics approach in the presence of merger waves that significantly **affect the dynamics of an industry and have spillover and systemic effects on other segments of the value chain**. The tension between the apparent simplicity of the competition analysis performed and repeated in the context of distinct product markets and the complexity of the business operations of the firms emerging out of these M&A waves is striking. There is a high risk that by ignoring the **systemic effects** and by not adopting a **complex economics perspective** that would engage not just with the effect of the specific merger on the position of the new entity in the specific parts (product markets) of the business affected by the merger, but also its positioning as a whole in the relevant value chains, the competition authorities will lose sight of the **real competitive impact** of the merger, both in the short/medium term and in the long run. Indeed, quite often the value of the new entity (the core functions and

[26] See for instance, the approach of the European Commission in Dow/DuPont: European Commission, Case M.7932 Dow/DuPont (2017). For an analysis of this more dynamic/innovation-focused approach see, G. Federico, F. Scott Morton, C. Shapiro, Antitrust and Innovation: Welcoming and Protecting Disruption, (2020) 20(1) Innovation Policy and the Economy 125.
[27] Communication from the Commission – Commission Notice on the definition of the relevant market for the purposes of Union competition law, *OJ C, C/2024/1645,* para. 21 (emphasis added).
[28] Ibid.

complements) is greater than the sum of the values of its different parts (each merging entity's presence in distinct product markets or capabilities) (see subsection II.vi below).

There is also some apparent contradiction in the emphasis put by the recent Commission's Market Definition Notice on the "resilience of supply chains" as an important parameter[29] (or even goal) of competition law and a "key consideration in assessing mergers",[30] and the analysis performed only at a relevant market level, as resilience is something that needs to be assessed overall and at a more global scale[31]. Considering resilience will require a more careful analysis of the propagation of changes and feedback loops, with a specific emphasis on the presence of chokepoints and bottlenecks in the food value chain,[32] particularly as such M&A transactions reinforce the panopticon and architectural power of the incumbents (see our analysis in Section IIv)

The increasing role of the non-price parameters of competition in merger analysis as well as EC's concerns [33] about the impact of mergers on sustainability, innovation and resilience suggest that a simple economics approach might fall short of fully accounting for the competitive significance of a merger.

On the basis of the publicly available information this Report following first a 'simple economics' approach explores the competitive impact *Bunge/Viterra* might have. It also embraces a complexity perspective to provide the "big picture" of the impact and social costs that *Bunge/Viterra* may have. Competition authorities have increasingly engaged with environmental and social sustainability goals,[34] departing from the price and output-

[29] Ibid., para. 15.

[30] See the recent Political Guidelines for the European Commission of the President of the Commission von der Leyen in her speech to the European Parliament on July 18, 2024, available at e6cd4328-673c-4e7a-8683-f63ffb2cf648_en (europa.eu) .

[31] See, E. Deutscher, =Competition Law and Supply Chain Resilience (June 22, 2022). Available at SSRN: https://ssrn.com/abstract=4142856 .

[32] I. Lianos, A. Ivanov, D. Davis (eds.), *Global Food Value Chains and Competition Law* (CUP, 2022); R. Bailey & L. Wellesley, Chokepoints and Vulnerabilities in Global Food Trade, Chatham House Report (May 18th, 2023), available at https://www.chathamhouse.org/2017/06/chokepoints-and-vulnerabilities-global-food-trade .

[33] EC, Competition Policy Brief, Non-Price Competition: EU Merger Control Framework and Case Practice, available at https://competition-policy.ec.europa.eu/publications/competition-policy-briefs_en

[34] On environmental sustainability goals, see, for instance, the positions expressed in the OECD, Sustainability and Competition debate, Sustainability and competition - OECD (December 2020) ; HCC, Draft Staff Discussion Paper on Sustainability Issues and Competition Law (July 2020), available at Staff_Discussion_paper.pdf (epant.gr); ACM, Guidelines on Sustainability Agreements (January 2021) Guidelines on sustainability agreements are ready for further European coordination | ACM.nl ; HCC & ACM, Technical Report on Sustainability and Competition (January 2021), available at Technical Report on Sustainability and Competition (epant.gr); M. Vestager (European Commission), Competition Policy in Support of the Green Deal, available at Competition policy in support of the Green Deal | European Commission (europa.eu) . On social sustainability goals, see, among others, European Commission, Collective Bargaining for Self-Employed (October 2020), available at Competition: Collective bargaining for the self-employed (europa.eu). For a discussion, see N. Countouris, V. De Stefano, and I. Lianos, The EU,

centric “more economic approach” followed by competition law enforcement over the last thirty years, and embracing a more “polycentric competition law” approach[35] that better integrates sustainability and resilience concerns and more generally the role of competition law in achieving the Agenda 2030 Sustainable Development Goals’ (SDGs).[36] In this context, merger analysis should include a discussion as to how the possible restrictions of competition resulting from the merger may impact on sustainability, innovation, quality and market resilience.

We do not consider, due to information constraints, the possible efficiency gains that the parties may claim for this transaction resulting from synergies and other economies of scale and scope. However, we note that these should be analysed in depth, to better understand the underlying rationales for this merger and the broader competition risks of a new merger wave in the global food value chain.

Takeaway

For the EC to assess the proposed merger the jurisdiction has first to be established: the transaction should constitute a concentration with Union dimension. In the present case the satisfaction of this legal criterion is uncontroversial. In its substantive assessment the EC has to assess the horizontal and non-horizontal aspects of the proposed merger and evaluate the potential non-coordinated or coordinated effects a merger might have against a counterfactual test. Even though a ‘simple economics’ approach constitutes the dominant orthodoxy, the EC increasingly opens its analysis to consider the impact of a merger on the non-price parameters of competition and its broader implications especially in innovation, sustainability and resilience. Such a “methodological update” requires refinements in the market definition and in the competitive assessment stages of merger analysis. This methodological update will allow the EC to fully take into consideration the competitive implications and the broader implications of the proposed merger.

Competition Law and Workers’ Rights (March 25, 2021). Available at SSRN: https://ssrn.com/abstract=3812153 or http://dx.doi.org/10.2139/ssrn.3812153 .

[35] I. Lianos, Polycentric Competition Law, (2018) 71 Current Legal Probs. 161.

[36] European Commission, ‘Proposal towards a sustainable Europe by 2030’ (February 2019) <https://ec.europa.eu/info/publications/towards-sustainable-europe-2030_en .

II. The Broader Context of the Merger

i. The merging parties

Bunge was founded in 1818 in the Netherlands, divested almost all its retail foods interests in favour of a greater role in international agribusiness and commodity markets in 1998, and ultimately went public on the New York Stock Exchange in 2001, becoming Bunge Limited, headquartered in St. Louis, Missouri. Through three businesses – agribusiness, fertilizer, and food products – Bunge has established a leading global presence in the farm-to-consumer food chain. Bunge is mainly active in the sale of key commodities such as soybeans, canola, corn, wheat, palm oil, shea, sunflower seeds, coconut and olives. Bunge is the world's fifth-largest grain company operating in 40 countries with over $USD 57 billion in annual revenues, and the world's largest oilseed processor, globally dominant in soybeans, canola and corn.

Bunge serves several markets such as animal feed and pet food markets, numerous food processing markets (e.g. the company has a broad portfolio of bakery fats, lecithins, plant proteins and milled grains, shortenings, margarines, coating fats, emulsifiers, milled grains and proteins, and a together with our team of bakery experts), beverages (e.g sport drinks, medical foods, diet shakes, smoothies, milled corn for beer brewing), biofuels (e.g. all grades of vegetable oils feedstocks – both crude and refined –, low carbon oils such as used cooking oil (UCO), distillers' corn oil (DCO), and animal fat), confectionery, culinary snacks, dairy, meat, nutritional and plant based meals**.**

Bunge has over 35,000 employees working across approximately 400 facilities (such as grain elevators, port terminals, oilseed processing plants and oil refineries) located in more than 40 countries. Bunge stores its commodities in 115 facilities across the globe with a storage capacity of 14 million metric tons. The company owns a total of 52 oilseed processing plants globally, more than 80 grain elevators globally and 3 fertilizer processing and blending plants in Argentina. In 2021, Bunge was ranked 18th on FoodTalks' Global Top 40 Plant Protein Producers list,[37] and was described as a pivotal player in food science.[38]

Viterra is an agribusiness company headquartered in Rotterdam, the Netherlands with a network of agricultural storage, processing and transport assets in Canada, the United States, Australia, New Zealand and China. Viterra is currently owned by the Swiss mining

[37] See, https://en.wikipedia.org/wiki/Bunge_Globalj.
[38] Veloso Ribeiro, Tarso; Almeida, Isis (5 April 2023). "A Two-Century-Old Grain Trader Turns to Food Science". Bloomberg Businessweek. Retrieved 11 April 2023

giant Glencore, CPP Investments, BCI, and the VEBT. Viterra now operates in 38 countries with revenues of $USD 53 billion in 2023.

Viterra focuses on the purchase and sale of unprocessed commodity crops, in particular grains and oilseeds. Viterra also sells other unprocessed products like cotton and sugar, as well as milled products (e.g., wheat flour) and oilseed-based products (e.g., meal and oil). Viterra describes itself as 'a fully integrated global agriculture network'. Viterra operates 13 oilseed crushing plants among its more than 30 processing and refining facilities in 11 countries; it has more than 17,500 employees working in 37 countries. Viterra is the dominant grain handler in South Australia, with 55 receival sites in South Australia and western Victoria, and six port terminals at Port Adelaide's Outer Harbour and Inner Harbour, Port Giles, Thevanard, Port Lincoln and Wallaroo. In 2009 Viterra bought ABB Grains which at the time was one of Australia's largest agribusinesses. Viterra was launched in 2007 when Agricore United became a wholly owned subsidiary of the Saskatchewan Wheat Pool, ending the age of farmers' co-operatives on the prairies.[39] In 2012 the Swiss-based global commodities giant Glencore bought a 49.99 per cent stake in Viterra, rebranding its Glencore Agriculture brand to Viterra. Its other owners are the Canada Pension Plan Investment Board and British Columbia Investment Management Corporation, whose role in pushing the M&A agenda may be understood under the prism of financialisation (see subsection II.iv)[40].

Both companies operate in the already highly concentrated global grain market, and are part of the ABCCD group of companies — including Archer Daniels Midland, Bunge, Cargill, COFCO, and Louis Dreyfus — which connect farmers with customers.[41] These agricultural commodity traders focus on grains (wheat, maze, rice, and corn), oilseeds (palm kernel and soybean), and other produce (sugar, juice, cocoa, coffee and cotton), connecting countries as they link surplus production markets with countries that fall short in domestic food production.[42]

Takeaway

Bunge is the world's fifth-largest grain company operating in 40 countries with over $USD 57 billion annual revenues, and the world's largest oilseed processor, globally dominant in soybeans, canola and corn. Viterra is an agribusiness company owned by global mining giant Glencore, with investments in Canada, Australia, the U.S., Brazil

[39] See, https://www.thecanadianencyclopedia.ca/en/article/saskatchewan-wheat-pool.
[40] Javier Blas, Your Daily Bread Will Now Come From Fewer Hands, Bloomberg, 13 June 2023; Paula Sambo, Viterra-Bunge Merger Plan Backed by Canadian Pension Funds, Bloomberg, 13 June 2023
[41] "Forging a better food system, together," Louis Dreyfus Company, October 12, 2022, https://www.ldc.com/stories-insights/forging-a-better-food-system-together/.
[42] Jonathan C. Kingsman, Commodity conversations: an introduction to trading in agricultural commodities (California, US: CreateSpace, 2017), 3.

and Argentina, among other countries. Viterra now operates in 38 countries with revenues of $USD 53 billion in 2023. Both companies operate in the already highly concentrated global grain market and are part of the ABCCD group of companies — including Archer Daniels Midland, Bunge, Cargill, COFCO, and Louis Dreyfus — fulfilling a key function in connecting surplus and shortage countries and linking farmers with consumers.

ii. Competition law and global food value chains in times of change

The implementation of competition law in agriculture and more broadly in the food sector, has been at the forefront of competition law and policy recently, given its societal importance and the significant changes in the industry over recent years.[43]

First, the food supply chain connects four economically important sectors: the agricultural sector, the commodities trading and logistics segment ("the segment that is responsible for connecting producers and consumers on a global scale"),[44] the food processing industry, and the distribution (wholesale and retail) sectors (see Figure 1). As the commodities trading and logistics sector, the food processing industry and the distribution sectors have many interactions with other sectors. Market malfunctioning along the food supply chain can have significant repercussions.

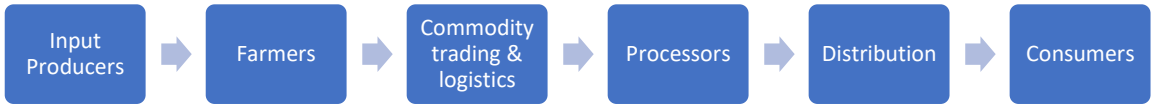


Figure 1: The Food value Chain (FVC)

Second, important mutations characterize this industry, in particular technological development in food production, processing and distribution, as well as important changes in consumer preferences, but also more general societal trends (e.g. healthy

[43] For a thorough discussion, see I. Lianos, A. Ivanov, D. Davis (eds.) *Global Food Value Chains and Competition Law* (CUP, 2022); Ph. Howard, *Concentration and Power in the Food System* (Bloomsbury, 2016); OECD, *Concentration in Seed Markets - Potential Effects and Policy Responses* (2018).
[44] A. Ivanov & M. Orlov, The Global Grain Trade - From a Ferrymen Oligopoly to the Sustainable Bridge Solution, in I. Lianos, A. Ivanov, D. Davis (eds.) *Global Food Value Chains and Competition Law* (CUP, 2022), 590, 594

food, organic food, e-and m-commerce, sustainable development). These have inevitably affected the structure of the industry and the strategies of the various actors.

Third, the recent impact of the pandemic and geopolitical tensions brought into the picture the broader macro-perspective of "food regimes"[45] with important challenges to the global food system. The food system is currently organized through global food value chains, mostly of private nature, and thus constituting a "corporate food regime". [46] Following recent multiple crises, however, the quest for "food sovereignty" may require action by various national public authorities involved in the regulation of economic activities in the food sector.[47]

Fourth, the rise of food inflation and recent discussions over the causes of this phenomenon including the so called "greedflation" debate have established some connection between the recent rising prices of food commodities in recent years and that of corporate profits of the food oligopolies that have come to dominate the global food value chains, particularly through different waves of M&A activity.[48] As the FAO Food Price Index (FFPI) averaged 159.7 points in March 2022, the highest level it has ever reached (with the food prices being almost 30% higher than during the same period in the previous year), high food prices have become a major economic and social concern on a global scale.[49]

The rise of food prices is only one of the key challenges our economies and populations will face in the near future. The UN Secretary General warned in 2022 of an unprecedented global hunger crisis.[50] Janet Yellen, the US Treasury secretary stated in

[45] This term denotes a rule-governed structure of production and consumption of food on a world scale: H. Friedmann, 'The political economy of food: a global crisis'. (1993) 197 New Left Review 29. On "food regimes" see also, H. Friedman, International regimes of food and agriculture since 1870. In: T. Shanin, (ed.) *Peasants and peasant societies* (Oxford: Basil Blackwell, 1987), p. 258; H. Friedman, From colonialism to green capitalism: social movements and the emergence of food regimes. In: F.H. Buttel & P. McMichael, (eds.) *New directions in the sociology of global development. Research in rural sociology and development* (Vol. 11, Oxford: Elsevier, 2005), p. 229; Ph. McMichael, 'A food regime genealogy',(2009) 36(1) Journal of Peasant Studies 139. For a critical review, see H. Bernstein, 'Agrarian political economy and modern world capitalism: The contributions of food regime analysis'. (2016) 43 Journal of Peasant Studies 3

[46] Ph. McMichael, Global Development and the Corporate Food regime, in F.H. Buttel and P. McMichael (eds). *New directions in the sociology of global development* (Oxford: Elsevier Press, Volume 11, 2005), 269.

[47] On "food sovereignty" see*, inter alia*, Ph. McMichael, 'Historicizing food sovereignty' (2014) 41 The Journal of Peasant Studies', 933 .

[48] Isabella M Weber, Jesus Lara Jauregui, Lucas Teixeira, Luiza Nassif Pires (2024). Inflation in times of overlapping emergencies: Systemically significant prices from an input–output perspective. *Industrial and Corporate Change*, 33(2) 297–341.

[49] Note however that the index declined to 138.0 points in August 2022, still 10.1 points (7.9 percent) above its value in 2021.

[50] See, https://press.un.org/en/2022/sgsm21350.doc.htm

2022, the world is facing "an extremely difficult time for global food security".[51] The problem is particularly acute for edible oils and grains (wheat and maize), which are considerably affected by the situation in Ukraine. An UNCTAD report on the global impact of the war in Ukraine on food, energy and finance system, observed that more than 1.2 billion people face severe or significant exposure to the food, energy and finance shocks resulting from the war in Ukraine[52].

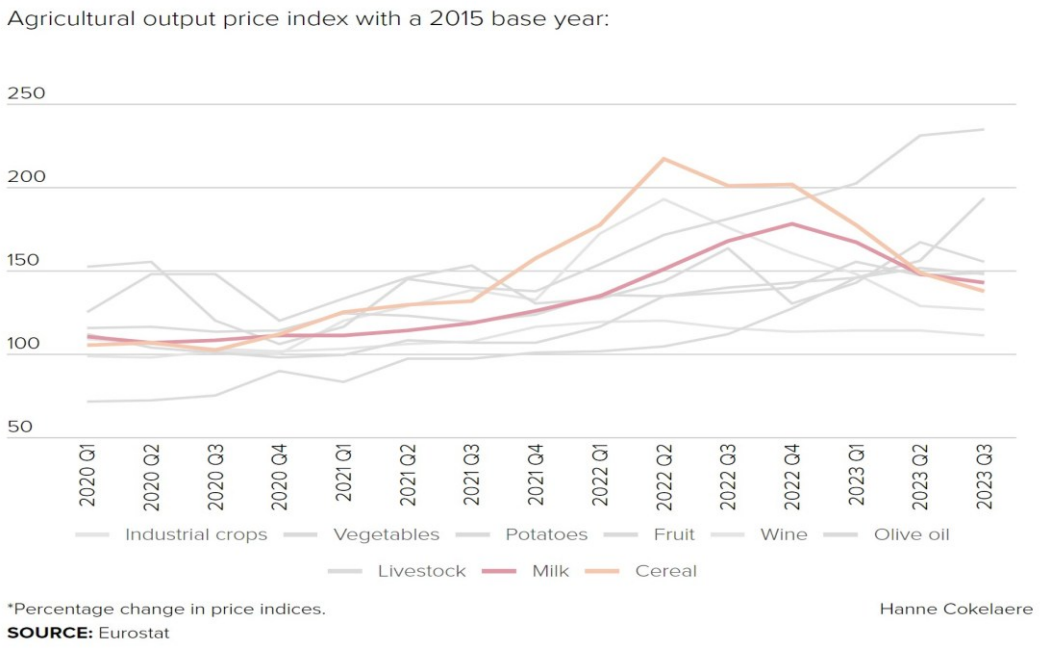


Figure 2: Agricultural output price index with a 2015 base year

The geopolitical turmoil and climate change have led output to decrease in several crops (Figure 2). At the same time, farm-gate prices – the base price farmers receive for their produce – dropped by almost 9% on average between the third quarter of 2022 and the same period in 2021.[53]

Extreme weather events due to climate change are increasingly affecting production. For example, several water reservoirs in southern Spain stand at only 4% capacity, while wildfires "wiped out about 20% of Greek annual farm revenue in 2021 and 2022".[54] In addition, the number of farms in the EU has fallen by more than a third since 2005, –

[51] See, https://www.reuters.com/world/yellen-says-g20-must-act-address-short-term-food-insecurity-crisis-2022-07-15/

[52] UNCTAD, Global Impact of war in Ukraine on food, energy and finance systems, Brief no 1 (April 13, 2022), available at https://unctad.org/system/files/official-document/un-gcrg-ukraine-brief-no-1_en.pdf .

[53] See, https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20231220-2 .

[54] See, https://www.theguardian.com/environment/2024/feb/02/why-are-farmers-protesting-across-the-eu-and-what-can-the-bloc-do-about-it#:~:text=Extreme%20weather%20events%20due%20to,annual%20farm%20revenue%20last%20year.

leaving many larger farms with high levels of debt in a low-margin business and smaller ones increasingly uncompetitive.[55] In this context, regulatory targets to halve the use of pesticides, cut by 20% the use of fertilizers, and to double organic production to 25% of all EU farmland, were met by farmers' protests who complained about already shrinking margins.[56]

At the same time, there has been a significant increase in the net profit margins of agricultural corporations, in particular those active in the agricultural commodities trade and logistics segment of the value chain, affected by the projected merger.

Increase Net Profit Margins

Net Margin (%)	2016	2017	2018	2019	2020	2021	2022
ADM	2.1%	2.0%	2.8%	2.2%	2.8%	3.2%	4.3%
Bunge	1.8%	0.5%	0.5%	-3.2%	2.8%	3.7%	2.5%
Cargill[121]	2.2%	2.6%	2.8%	2.3%	2.6%	3.7%	4.1%
COFCO	0.8%	1.5%	1.9%	1.7%	2.9%	2.4%	2.2%
LDC	0.8%	0.8%	1.0%	0.7%	1.1%	1.4%	1.7%
Average	1.50%	1.44%	1.78%	1.74%[122]	2.44%	2.88%	2.96%

Source: SOMO (2024)

Figure 3: Increase Net Profit Margins (ABCD)

These outcomes have attracted attention to the important economic concentration, particularly of the agricultural commodities and logistics segment of the food value chain, and the related phenomena of speculation and financialisation of the food value chains.

[55] Ibid.
[56] Ibid.

Takeaway

Applying competition law in the agri-food sector is of paramount importance given that (a) the food supply chain connects four economically important sectors (the agricultural sector, the commodities trading and logistics segment, the food processing industry, and the distribution sectors); (b) technological changes and shifts in consumer preferences characterize the industry; (c) market resilience, food sovereignty and food security are important desiderata especially in light of the various crises and emergencies (extreme weather conditions, Covid-19, geopolitical turmoil) our societies and food systems are facing; (d) food inflation suggests that there should be a link between recent rising prices of food commodities and increasing corporate profits. Hence, high economic concentration and weakened competition in the agri-food sector can have paramount importance. In this context the effective implementation of competition law becomes an absolute necessity.

iii. Concentration in the food value chain (the emergence of Big Food): a review of the economic literature

Issues of economic concentration have recently attracted the attention of policymakers, mainly in the US.[57]. In 2019, the European Central Bank (ECB) published a report about concentration and market power in EU area,[58], focusing on four big EU economies, namely Germany, France, Italy and Spain. The report utilizes both aggregated macroeconomic data and firm level data as well. The analysis focuses on three main indicators of market power: concentration ratios, markups, and economic dynamism, observing trends primarily from 2006 onwards. It also offers a comparison with the US market.

According to this report, market concentration in the euro area remains broadly stable in recent years, with the top four firms accounting for approximately 10% to 20% of aggregate sales in most sectors. In the manufacturing sector, concentration levels are generally higher, ranging from 16% to 30%, largely due to the sector's reliance on economies of scale and high fixed costs, which limit market entry and intensify consolidation. Notably, the study finds concentration more prominent within individual euro area countries compared to the Single Market level, suggesting that while market

[57] See, for the first one of a series now of reports, White House CEA, 'Benefits of Competition and Indicators of Market Power' (April 2016), available at https:// obamawhitehouse.archives.gov/ sites/ default/ files/ page/ files/ 20160414_ cea_ competition_ issue_ brief. pdf. .

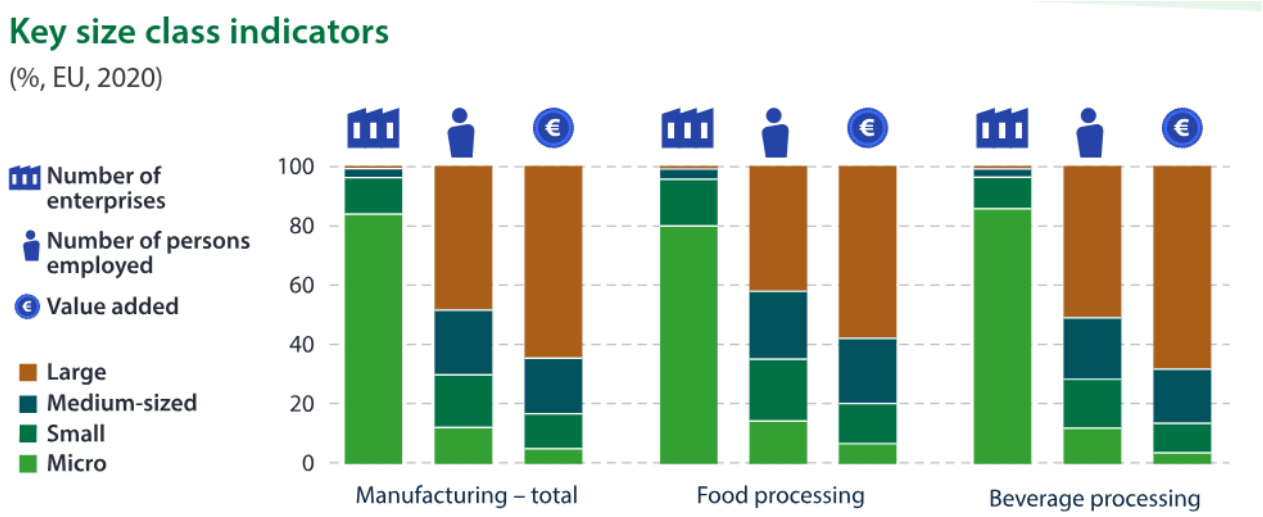
58 European Central Bank, Cavalleri, M., Eliet, A., McAdam, P., Petroulakis, F., Soares, A., & Vansteenkiste, I. (2019). *Concentration, market power and dynamism in the euro area*, European Central Bank. https://data.europa.eu/doi/10.2866/379250

power may be significant domestically, firms face greater competition when viewed across the euro area as a whole. This broader competition within the Single Market likely diminishes overall market power on an EU-wide basis.

In assessing markups as a measure of market power, the study finds that average euro area markups have remained steady at around 10% to 15% since the early 2000s, with minor reductions noted in recent years. Within the manufacturing sector, markups are typically lower, averaging around 5%, potentially reflecting the higher substitutability of goods in these markets and competitive pressures that keep prices close to marginal costs. This stability in markups, contrasting with rising trends in U.S. markups over the same period, suggests that euro area firms have not generally increased market power. The analysis highlights that while the U.S. has experienced rising market power, particularly within sectors dominated by large "superstar" firms, mostly in the digital economy, the euro area's market structure has remained more competitive and less susceptible to concentration-driven market power.

The findings imply that the euro area's stable market structure may be supported by EU-wide policies fostering trade and monetary integration, thereby enhancing competitive intensity. The study concludes that structural reforms, particularly in product markets, combined with a robust antitrust framework, could further strengthen competition. Such a framework may help sustain the euro area's relatively stable market power trends, contrasting with the U.S. experience where increasing market concentration has raised concerns over declining competition and reduced economic dynamism.[59]

[59] G. Gutiérrez & T. Philippon, Declining Competition and Investment in the U.S., 2017, NBER working paper 23583, http://www.nber.org/papers/w23583



Particularly in the food sector, the report notes that large companies in food processing have approximately 42% of employees, while the whole manufacturing sector has 48% of employees. At the same time the value added from the large companies in the food processing sector is approximately 58% in comparison with ~63% in manufacturing sector.

According to the ECB report, characterized as a low-technology sector, food manufacturing displays moderate concentration ratios with minor variations across the largest euro area economies. Despite concentrated market structures in some sub-sectors, the competitive environment limits firms' pricing power, resulting in stable markups. This stability suggests that food manufacturing does not contribute significantly to overall market power or inflationary pressures. In contrast to high-tech industries, where markups have risen, the food sector's low product differentiation and high substitutability constrain its market power. Although Germany has slightly higher concentration in food production, the differences are marginal.

The report emphasizes how crucial it is to comprehend markup and concentration dynamics in the food supply chain. Although there is some degree of concentration in the food industry, the existence of many small businesses and a competitive wholesale environment limit corporations' ability to mark up prices greatly. The necessary character of food products makes this arrangement advantageous in preventing excessive price inflation caused by market forces. Regulatory initiatives that raise openness and lower obstacles for new competitors may help to boost competition in the food supply chain. By improving efficiency and consumer welfare, these policies could guarantee that consumers receive the advantages of a competitive market system. Competition in the food production and distribution industries could be further stimulated by structural reforms, especially those that lower obstacles to entry for SMEs. It seems that the current degree of competition strikes a balance between enabling effective manufacturing and denying larger companies undue pricing power. In addition to preserving industry stability

and customer welfare, this balanced structure acts as a safeguard against possible welfare losses brought on by excessive market dominance.

Another recent work about market power in the food sector in EU comes from the EU Joint Research Centre (JRC).[60] Using data from the Orbis database, the study investigates market power indicators like the concentration ratio of the top four firms (CR4), the Herfindahl–Hirschman Index (HHI), and firm markups, with a specific focus on the retail, wholesale, and manufacturing sectors in ten EU countries, including France, Italy, and Sweden.

The report's findings highlight distinct patterns of concentration and market power across the food supply chain. In the retail sector, concentration is particularly pronounced, with large firms accounting for 30% to 70% of total turnover, though specific ratios vary by country. This high concentration suggests potential limitations in competitive intensity, which could affect consumer prices and contract terms with suppliers. However, the wholesale and manufacturing sectors exhibit more moderate levels of concentration. While smaller firms are dominant in number, it is the larger firms that capture the majority of turnover, especially in the retail sector, which is organized into fewer but much larger entities. This concentrated structure raises concerns about buyer power over suppliers, as these firms often have leverage to set lower procurement prices.

Subsector-level analysis within food manufacturing reveals significant variability in concentration and market power. For example, the manufacturing of certain commodities, like sugar and tobacco, shows high concentration levels across all selected countries. These sectors are considered "highly concentrated" based on HHI scores, suggesting limited competition and higher market power among the top firms. In contrast, other food manufacturing subsectors, such as bakery products and animal feed, are generally unconcentrated, reflecting a more competitive environment with numerous smaller producers and less pricing power.

The report also finds that markups—an indicator of firms' ability to set prices above marginal costs—vary across the food supply chain. The retail sector's markups range from 6% to 17%, while markups in manufacturing are significantly higher, from 15% to 42%, indicating greater pricing power in manufacturing compared to retail. The heterogeneity in markup levels within manufacturing suggests differences in market

60 European Commission: Joint Research Centre, Nes, K., Colen, L., & Ciaian, P. (2021). *Market power in food industry in selected EU Member States*, Publications Office. https://data.europa.eu/doi/10.2760/63613

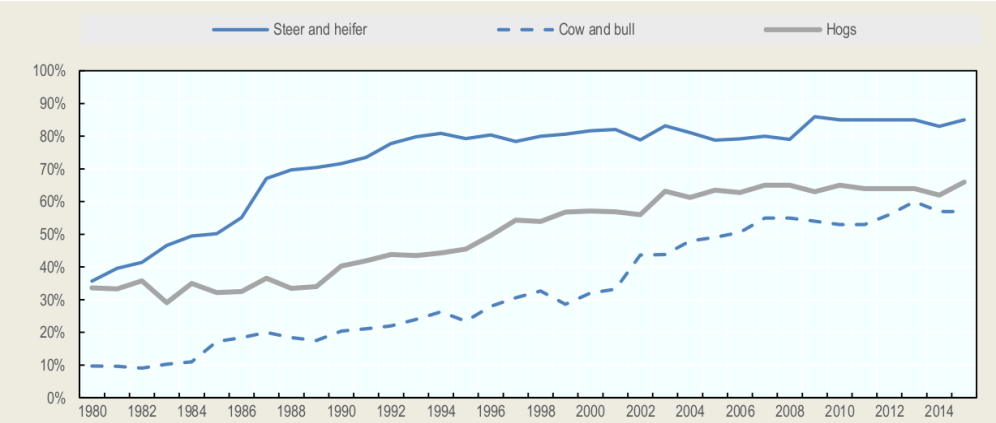
power across subsectors, with some products like dairy and processed foods having higher markups due to lower price elasticity and less competition.

The report addresses the implications of these findings for EU policy, particularly regarding the Directive on Unfair Trading Practices (UTP), which aims to protect smaller suppliers and farmers from practices such as delayed payments and unilateral contract changes. The UTP Directive's focus on turnover as an indicator of buyer power suggests that firms with high market share and turnover might possess considerable bargaining power, potentially imposing unfair terms on smaller suppliers. The report discusses the need for tailored approaches to address market power in each segment of the food supply chain, as concentration levels and the resulting impact on market competition vary widely.

Ultimately, the report suggests that while concentration in certain food supply chain sectors could justify policy interventions, generic approaches may not be effective. Policies should account for specific market structures within each subsector. For example, in highly concentrated subsectors, stricter antitrust policies and increased oversight on contract terms may help to alleviate imbalances. In less concentrated markets, fostering entry and competition among smaller firms might be more beneficial. This sector-specific policy approach would support competition and ensure fairer practices across the EU food industry, benefiting both suppliers and consumers.

OECD also published a relevant report about the food sector in 2021, this time including the US.[61] The report examines the dynamics of market concentration, buyer power, and market competition within the agri-food sector. Key areas explored include the relationship between farmers and other actors in the food chain, evidence on profit margins, buyer power, unfair trading practices, and structural challenges within the food system.

61 Deconinck, K. (2021), "Concentration and market power in the food chain", *OECD Food, Agriculture and Fisheries Papers*, No. 151, OECD Publishing, https://doi.org/10.1787/3151e4ca-en.



Note: Four-firm concentration ratio based on commercial slaughter in the United States.
Source: USDA Grain Inspection, Packers and Stockyards Administration, Statistical Report (various years) and Annual Report 2016.

The report finds that concentration is typically higher in the downstream segments of the food chain (e.g., processing, wholesale, and retail) than at the farm level. This concentration has led to what is commonly described as an "hourglass" structure, where a large number of farmers supply a few dominant processors and retailers, who in turn serve a broad consumer base. Indicators of concentration, such as the Herfindahl-Hirschman Index (HHI) and the combined market share of the top firms, reveal significant market concentration in certain sectors. For instance, in the U.S. meatpacking industry, the four largest firms control a substantial share of the cattle and hog markets, raising concerns about buyer power.

However, the report points out that market concentration alone is not a definitive indicator of competition issues. High concentration does not necessarily lead to market power abuse, as even in highly concentrated sectors, firms might engage in competitive practices due to the threat of new entrants or other factors. Additionally, evidence on buyer power and its impact on farm prices is mixed. A comprehensive review of empirical studies found little evidence that buyers systematically exercise market power to suppress prices paid to farmers. Some sectors show signs of limited buyer power, but these tend to be specific cases rather than widespread issues. The overall market power impact is often moderate, with studies suggesting that while buyer power may reduce farm prices slightly, it does not necessarily amount to large-scale or consistent harm to farmers.

Another layer of analysis within the report is on profit margins and pricing behavior along the food chain. In general, profit margins for food processors and retailers are found to be low, with pre-tax profits often between 1-5%. This implies that even if market power exists, the scope for significant price increases to benefit farmers is limited without raising

prices for consumers or causing losses elsewhere in the chain. Observatories in France and Spain, for instance, track detailed profit margins in their food sectors and find that low profit margins are a recurring theme across various food chains, including meat, dairy, and produce.

The report also discusses the importance of unfair trading practices (UTPs), which often stem from power imbalances in the food chain. UTPs can include practices like delayed payments, unilateral changes to contract terms, and abrupt terminations of contracts, which create uncertainties for smaller suppliers. UTPs do not always stem from market power in a traditional sense but rather from bargaining power that enables one party to impose unfavorable terms on another. The EU has adopted policies targeting UTPs to improve fairness in the food supply chain, recognizing that these practices can erode the stability and efficiency of market relationships, particularly for smaller suppliers and farmers.

The report concludes that while market concentration is a valid concern in some agri-food sectors, systematic abuse of market power is not widespread. Structural issues in agriculture, like declining real prices over time and productivity-driven cost reductions, can sometimes be misinterpreted as competition problems. Addressing competition concerns in the food chain requires a nuanced understanding of market structures, price transmission, and the specific organizational aspects of each value chain. Although downstream concentration can pose risks, sector-specific studies are crucial for accurately assessing competition and guiding effective policy interventions.

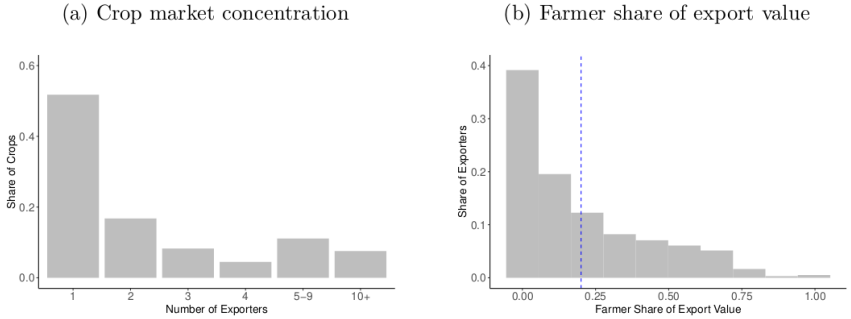
Moving to the issue of buyer power that may affect upstream farmers in their interaction with global commodity traders, in *Unfair Trade Monopsony Power in Agricultural Value Chains*, Lucas Zavala [62] explored the effects of monopsony power within Ecuador's agricultural export sector, focusing on how high levels of exporter concentration impact farmers' incomes. The study examines the structure of agricultural markets in Ecuador, where exporters, acting as intermediaries, often control substantial shares of the market across various crops. This market dominance allows exporters to exert significant control over farm-gate prices, limiting the income that smallholder farmers, who typically lack bargaining power, can secure from their produce.

To quantify the degree of monopsony power, Zavala introduces the concept of "farmer share," defined as the proportion of export revenues received by farmers. His findings indicate that farmers receive only a small portion of the export value of their crops, with

62 Zavala, Lucas. "Unfair trade? Monopsony power in agricultural value chains." The World Bank (2022). URL: https://steg.cepr.org/sites/default/files/2022-01/Full%206%20Paper%20Zavala.pdf
Hernandez, Manuel A.; Espinoza, Alvaro; Berrospi, Maria Lucia; Deconinck, Koen; Swinnen, Johan; and Vos, Rob. 2023. The role of market concentration in the agrifood industry. IFPRI Discussion Paper 2168. Washington, DC: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/p15738coll2.136567

shares as low as 24% on average. Larger exporters, who hold greater market power, tend to pay lower prices to farmers, reflecting a direct link between market concentration and diminished farmer income.

The analysis is based on a structural model incorporating elasticities related to farmers' costs in switching both crops and exporters. Results show that, due to monopsony power, farmgate prices are marked down by an average of 51%, meaning that farmers receive approximately half of the value of their marginal revenue product. A counterfactual analysis further suggests that eliminating exporter monopsony power could increase farmer income by up to 64%, with the majority of this improvement arising from redistributive effects that shift income from exporters to farmers. Additionally, policy simulations indicate that interventions such as Fair Trade programs or universal price floors have the potential to significantly enhance farmer income by reducing exporter dominance, thereby allowing smallholders to capture a fairer share of the value within global agricultural value chains.Structural causal models may be particularly important to provide a static perspective on the link between market concentration and performance. They capture the key economic elements of the real world, abstracting from those elements that are not crucial, the choice of the key elements being dependent on the model specification. The model is thus partly based on data and partly on assumptions. However, such models cannot generally take into account dynamic aspects of competition, either predictable, such as the repositioning of products by competitors, or unpredictable, such as disruptions due to geopolitical shocks, new market entry because of drastic innovation or non-price competition that may play an important role in turbulent periods (e.g. resilience and security of supply).



Notes: Panel A plots the distribution of the effective number of exporters across 157 exported crops. "Effective number of exporters" is defined as the minimum number of exporters required to reach 90% market share in the domestic market for crop purchases. Bars indicate the proportion of crops with 1, 2, 3, 4, 5-9, and 10 or more exporters. Panel B plots the distribution of the farmer share across exporters. "Farmer share" is defined as an exporter's purchases of a crop from farmers divided by his sales of the same crop on international markets. The dashed blue lines indicates that the average farmer share is 0.24.

Figure 1: taken from Zavala 2023

Jennifer Clapp examines[63] the increasing concentration in the global food system and commodities trade, particularly the grain trade, and the associated competition risks due to disruptions of trade and ensuing market volatility. Her work discusses how the global food system has become highly vulnerable to crises due to a concentration of production at multiple levels: from field practices to national distribution, to global trade dominated by a few firms. This concentration not only contributes to price volatility but also exacerbates food insecurity, especially for low-income, food-import-dependent countries.

The analysis identifies three major components of concentration in the global food system: reliance on a few staple crops, dominance by a small group of grain-producing countries, and control over the global grain trade by a limited number of large agribusiness corporations. These factors collectively increase the risk of disruption in food supply chains and amplify price fluctuations when shocks occur, such as the COVID-19 pandemic and the Russia-Ukraine conflict.

At the field level, production is highly industrialized and reliant on fossil fuels and chemical inputs, which make it susceptible to shocks in energy prices and environmental changes. Only a few staple crops, like wheat, maize, and rice, dominate global food production and trade. This lack of crop diversity makes the system inflexible and

63 Clapp, Jennifer. 2022. "Concentration and Crises: Exploring the Deep Roots of Vulnerability in the Global Industrial Food System." The Journal of Peasant Studies 50 (1): 1–25. doi:10.1080/03066150.2022.2129013.

vulnerable to disruptions. Additionally, the concentration of staple crop production within a few countries means that any crisis affecting these regions can lead to global repercussions. For instance, figures showing the concentration of wheat exports among just seven countries illustrate this vulnerability, as shown in recent FAO data.

At the global market level, the article highlights how a small group of agribusiness firms, often referred to as the "ABCD" companies (Archer Daniels Midland, Bunge, Cargill, and Louis Dreyfus), control a significant portion of the grain trade. These firms are heavily involved in financial markets, including futures trading, where speculative activities can lead to sharp price increases during crises. This concentration of market power enables these corporations to influence prices, which often benefits them financially in times of food crises, sometimes at the expense of consumers and small producers. Financial speculation has played a critical role in exacerbating past food crises, with figures showing sharp price spikes during these periods.

In conclusion, Clapp suggests that addressing these vulnerabilities requires a move toward a more diversified and resilient food system. This could involve reducing the reliance on a few crops, encouraging local and regional food systems, and promoting agroecological practices that reduce dependence on fossil fuels and industrial inputs. The historical analysis reveals that these concentration trends are rooted in centuries-old economic and political processes, suggesting that reversing them will require long-term, coordinated efforts across multiple levels of the food system.

Following this need for a more holistic approach to the broader environment to which economic agents strive to adapt, the USDA published recently a report[64] on grain markets which provides a comprehensive analysis of global trends in major grains, focusing on wheat, rice, and corn. The report highlights significant developments in international markets, noting both record highs and declines in exports, as well as price changes influenced by geopolitical, environmental, and economic factors.

For wheat, production forecasts have been raised due to increased output in Kazakhstan, offsetting lower production in Argentina, Brazil, and Russia. However, wheat exports from Turkey and Argentina have decreased, with China, Kazakhstan, and Turkey reducing imports, leading to a slight decline in global wheat trade. Competitive pressures have also driven down U.S. wheat prices, aligning them with the global market.

In the rice sector, India’s re-entry into the global rice market after lifting its export ban has intensified competition, causing a reduction in global rice prices. Vietnam has managed to maintain high export levels, largely due to increased imports of raw rice from

64 United States Department of Agriculture, Grain: World Markets and Trade, https://downloads.usda.library.cornell.edu/usda-esmis/files/zs25x844t/g445f771h/707972145/grain.pdf, published 8-Nov-2024

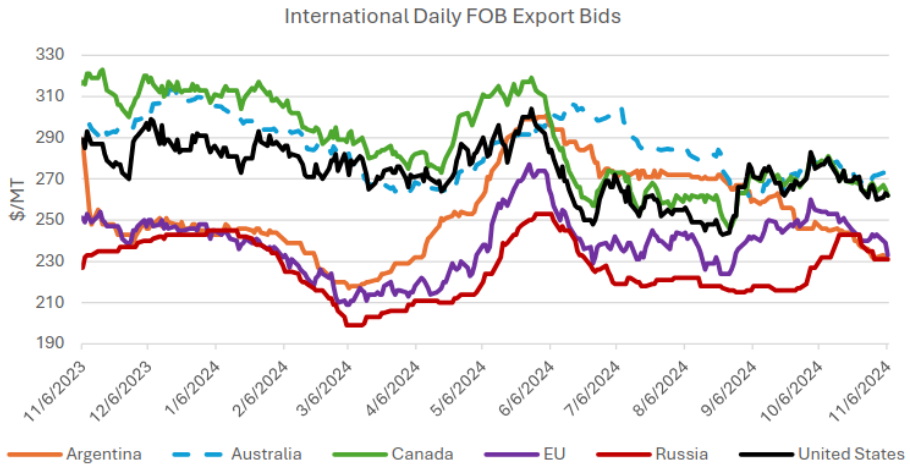
Cambodia, which helps sustain its supply chain and meet strong demand from nations such as the Philippines. Indian, Thai, and Vietnamese rice exports are expected to reach record levels, particularly as the Philippines has increased imports.

Corn production globally has also seen growth, particularly in Uganda, Malawi, and Mozambique, despite reductions in U.S., Mexican, and Turkish output. The Philippines has increased its imports following the reduction of tariffs on corn imports, prompting a notable rise in demand to support livestock feed and industrial sectors. This tariff reduction has allowed for diverse sourcing, with Brazil, Argentina, and other ASEAN nations taking on larger shares of Philippine corn imports.

Overall, this report underlines the increasing interconnectedness and competitive dynamics of global grain markets, where policy shifts and international partnerships significantly impact trade flows and pricing. The USDA projects that global grain consumption and stock levels will maintain stability, with moderate growth across key commodities as market pressures and production adjustments balance supply and demand.

Argentina	Australia	Canada	EU	Russia	United States
$231	$276	$262	$233	$231	$262

iv.



v.

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vii.

viii.

ix.

x.

Note: Prices as of November 6, 2024

xi.

Source: International Grains Council
*Note on FOB prices: Argentina- 12.0%, up river; Australia- average of APW; Kwinana, Newcastle, and Port Adelaide; Russia - Black Sea- milling; EU- France grade 1, Rouen; US- HRW 11.5% Gulf; Canada- CWRS (13.5%), Vancouver.

xii.

A recent McKinsey Global Institute (MGI) report further explores these trends, focusing on concentrated trade patterns in the agricultural sector, which pose significant risks to food security.[65]

Agriculture ranks among the most concentrated sectors globally, with food-producing countries relying heavily on a few key trade partners. Although staple crops like wheat, rice, and maize are cultivated in diverse regions, many economies depend on three or fewer suppliers for these essential imports. For instance, the Philippines sources nearly 90% of its rice from Vietnam, while Saudi Arabia secures 75% of its rice from IndiaSuch concentrated supply chains become fragile when disruptions, such as geopolitical conflicts or natural disasters, affect key producers.

Soybeans provide an example of global concentration, where Brazil and the United States account for 90% of exports, meeting the demands of major importers like China, Japan, and Thailand. Wheat, by contrast, shows what MGI terms "economy-specific concentration." Although there are 15 primary exporters worldwide, individual countries often source from a narrow selection within this group due to historical trade relationships or geographic proximity.

Fertilizers are another crucial input with concentrated trade dynamics. Potash and nitrogen-based fertilizers, primarily produced in Canada, Russia, and China, are essential for high crop yields globally. Events like Russia’s invasion of Ukraine in 2022 disrupted fertilizer supply chains, leading to significant price increases and revealing the risks of dependency on concentrated sources for such inputs. The MGI report notes that when countries depend on few fertilizer suppliers, price spikes can directly affect agricultural productivity and, consequently, food prices.

One of the critical impacts of concentrated trade in food and agriculture is on price stability. When a small number of suppliers dominate exports, they wield substantial influence over global prices. For example, when large economies like China depend on Brazil and the U.S. for nearly all soybean imports, minor disruptions in supply can lead to sharp price increases, with downstream effects on livestock feed costs and meat prices.

The reliance on fertilizers from a few exporting countries exacerbates these challenges. Price volatility in fertilizers often translates directly into higher production costs for staple crops, driving up food prices. This situation is particularly precarious for lower-income nations that are already food-import dependent. MGI's analysis reveals that price increases in concentrated agricultural inputs are often steep and prolonged, as

65 O. White, J. Woetzel, S. Smit, J. Seong & T. Devesa, The complication of concentration in global trade, https://www.mckinsey.com/mgi/our-research/the-complication-of-concentration-in-global-trade, accessed 12-Nov-2024

the limited number of alternative suppliers struggles to fill gaps left by disrupted suppliers.

The report underscores the importance of diversification to mitigate concentration risks. Countries that diversify their sources of essential agricultural goods and inputs are better positioned to weather supply chain shocks. However, MGI also notes that diversification is not always feasible, as some countries may lack the infrastructure or trade relationships necessary to expand their import base. Policy interventions, such as stockpiling critical inputs like fertilizers or forming regional trade agreements, are potential strategies to manage concentration risks. For instance, Asian countries, recognizing their dependency on imported rice and soy, could explore regional collaborations to improve food security through shared reserves or coordinated agricultural investments.

The authors of the report highlight that while concentrated trade relationships in the food and agriculture sectors can drive efficiency, they also pose substantial risks to food security and economic stability. The reliance on a few suppliers for staple crops, fertilizers, and seeds leaves countries vulnerable to global disruptions, whether due to political conflicts, economic sanctions, or climate-related events. Informed policy and strategic diversification are essential to building resilience in the food system, ensuring that shocks do not disproportionately affect access to food and essential agricultural inputs.

The global fertilizer industry, comprising products like ammonia, urea, ammonium nitrate, and potash, is dominated by a few major players concentrated in specific high-production regions such as Canada, Russia, and China. Key companies like Yara International (Norway) and The Mosaic Company (U.S.) hold substantial market shares, facilitated by capital-intensive operations and economies of scale. This concentration trend was further consolidated with major mergers, such as PotashCorp's merger with Agrium, to establish Nutrien, which holds a prominent position in the global potash and nitrogen fertilizer market.).

Such high levels of concentration create challenges for smaller entrants in the industry, effectively barring them due to the significant financial and operational demands of production. This concentration also extends into fertilizer distribution, where collaborations, like Canpotex for PotashCorp and Agrium, contribute to potential market power in export channels. Additionally, the 2021–2022 spike in fertilizer prices, fueled by supply chain disruptions and geopolitical tensions, highlighted the market’s vulnerability and its dependence on these dominant producers. Rising input costs, driven by natural gas prices (a critical raw material for nitrogen fertilizer production), compound these challenges, impacting global food prices and food security, particularly in developing countries highly dependent on imported fertilizers.

The correlation between concentration and price markups is evident, as limited competition enables producers to maintain higher price margins. For instance, studies in Kenya found a direct relationship between concentration in fertilizer distribution and elevated wholesale and retail prices. A more competitive market, as suggested by simulations, could substantially increase fertilizer use in sub-Saharan Africa, raising rural incomes and enhancing agricultural productivity

The seed industry exhibits a similarly high concentration, with a few companies controlling significant portions of the market for major crops. The “Big Six” companies—Syngenta, Bayer, BASF, DuPont, Monsanto, and Dow—have played a dominant role, controlling approximately 60% of the global proprietary seed market. Mergers and acquisitions within this sector, particularly Bayer's acquisition of Monsanto, have further consolidated market control. These companies’ dominance extends across multiple sectors, including pesticides, which compounds their influence over input prices and agricultural technology. The overlapping influence across regions and product types has raised concerns about potential market power abuses.

Concentration metrics like the four-firm concentration ratio (CR4) and the Herfindahl-Hirschman Index (HHI) underscore this trend. For example, in the U.S. maize and soybean seed markets, Monsanto and DuPont Pioneer alone controlled over two-thirds of the market pre-merger, with the CR4 reaching 83% and 76% respectively. This high degree of market share concentration, coupled with limited competition, has implications for seed prices and availability.

The seed industry’s structure may discourage innovation. While larger market size is positively correlated with innovation in plant breeding, evidence suggests that higher concentration does not significantly increase the rate of new market entries. This lack of a clear relationship between concentration and innovation raises concerns about the competitive landscape and the ability of smaller firms to challenge incumbents or introduce new technologies.

In summary, the fertilizer and seed markets are characterized by high concentration ratios, with the top firms wielding significant control over production, pricing, and distribution. In conclusion, market volatilities because of disruptions of trade and geopolitical crises, may exacerbate the negative competition effects of market concentration of the food sector, impacting input prices, and ultimately influencing food security globally. Enhanced competition, facilitated by policy interventions, could help mitigate these risks, fostering a more resilient agricultural supply chain and benefiting farmers and consumers alike.

Takeaway

The international grain market is primarily controlled by a limited number of major agribusiness corporations, including ADM, Bunge, Cargill, and Louis Dreyfus, collectively referred to as the ABCD companies. These firms hold substantial market shares, which heightens the risks associated with food security. Disruptions in critical agricultural areas, such as Ukraine and Russia, which are significant producers of wheat, can result in global price fluctuations and shortages. The production of fertilizers is also highly centralized, with essential components like potash and nitrogen being dominated by leading manufacturers in Canada, Russia, and China. This concentrated market structure, exacerbated by geopolitical conflicts, has led to significant price surges in recent years, adversely affecting food production expenses and accessibility, particularly in developing nations. Furthermore, a small number of companies, including Syngenta, Bayer, BASF, and Monsanto, control around 60% of the global seed market, which limits competition, drives up prices, and restricts options for farmers, raising concerns regarding innovation and accessibility within the industry. The retail and food processing sectors exhibit similar levels of concentration, with large firms commanding a considerable portion of revenue. This dominance allows these companies to exert buyer power, often imposing lower procurement prices on suppliers, which adversely affects small producers and farmers. The concentration of agricultural inputs such as grains, fertilizers, and seeds renders global supply chains susceptible to disruptions. Incidents like supply chain interruptions or export limitations can lead to disproportionate price hikes, further intensifying food insecurity in regions reliant on imports.

iv. Economic concentration in agricultural commodities and logistics

The global market for agricultural commodities and logistics is dominated by a handful of multinational corporations. This tight oligopoly is formed by public companies, Archer Daniels Midland (ADM) and its smaller competitor Bunge and private companies agricultural giants Cargill and Louis Dreyfus, which along with the state-owned COFCO, control international grain trade (ABCCD). The ABCCD dominate the global trade in food stuffs. For instance, they collectively control between 75 and 90 per cent of the global grain trade. Several countries depend on imported food, and, therefore, heavily rely on agricultural commodity traders. For example, Somalia sourced more than 90 per cent of its grants from Ukraine and Russia before the war. Several African and Arab countries almost entirely depend on food imports while surplus countries are situated in Latin America, Eastern Europe, South-East Asia, Oceania and Canada. The agricultural commodity traders connect global supply and demand.[66] The ABCCD companies move

[66] Most agricultural products are traded within the domestic market. For example, about 17% of cereal production is traded internationally, with shares for single commodities ranging from 9% for rice to 25% for

around 73 per cent of the total global trade in grains and oilseeds.[67] In Brazil, Argentina and Paraguay (the largest soybean exporting Latin America countries) over half of all soy exports are routed via the ABCCDs. In Brazil Bunge occupies a dominant position in the soybean production chain. The ABCD (excluding COFCO) control 47 per cent of export and 37 per cent of import trade value of Brazilian-Chinese soy trade.[68] Both Bunge and Viterra are significant buyers of Australian grain, by volume.[69] Bunge and Cargill are responsible for more than 30 per cent of all Brazil-EU soy exports and dominate the French soybean meal markets.[70] Bunge is the main supplier of soy for the meat industry in the European Union and responsible for more than one fourth of all soybean meal and crude soybean oil sales in the European Economic Area. In Portugal, Bunge is responsible for 90-100 per cent of crude soybean oil sales.[71] An Oxfam report published in 2012 indicated that this group controlled "all but 10% of the world's grain supplies".[72]

There are other commodity traders – such as Agrocorp, Goldern Agi-Resources, Musim Mas, Amaggi, Olam and Wilmart – yet due to their size, diversification, focus on specific commodities, lack of global presence and lack of vertical integration, these traders are unlikely to pose any serious competitive threats to the Big Five who are vertically integrated, globally active, have a strongly diversified business model (focusing both on grains, oilseeds and other key commodities such as coffee and palm oil), and whose supplier networks dominate the main agricultural export markets.[73]

Importantly, these global traders, which connect (bridge) the various segments of the global food value chains, play a crucial gatekeeping role. As Ivanov and Orlov observe

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wheat. OECD-FAO Agricultural Outlook 2021-2030, Chapter 3 – Cereals, 2021, https://www.oecd-ilibrary.org/sites/d494ca9a-en/index.html?itemId=/content/component/d494ca9a-en.

[67] Cassio Gusson, "Agriculture giants team up on blockchain platform to track grains in Brazil," CoinTelegraph, October 16, 2020, https://cointelegraph.com/news/agriculture-giants-teamup-on-blockchain-platform-to-track-grains-in-brazil; Maria Afonso, "World Grains & Oilseeds Map 2021: New Demand Drivers, Political Tensions, and Weather Volatility," Rabobank, May, 2021, https://research.rabobank.com/far/en/documents/100762_Rabobank_Grains-and-Oilseeds-Map-2021_Apr2021_DIGITAL.pdf

[68] Parecer N° 3/2024/CGAA1/SG/CADE, paras 269, 464, 691, 892; Brazil-China supply chain findings in Ernst Langthaler, "Great accelerations: soy and its global trade network,1950–2020," in The Age of the Soybean, edited by Clayton Marcio Da Silva, and Claudio de Majo, (Cambridgeshire: The White Horse Press, 2022), 65-90, https://www.jstor.org/stable/j.ctv309h1fx.10.

[69] See, https://www.abc.net.au/news/rural/2023-06-14/global-grain-giants-bunge-and-viterra-agree-to-merger/102461984 .

[70] «Report links Bunge to soy-related deforestation», June 23, 2023, https://www.feedandgrain.com/sustainability/news/15541156/report-links-bunge-to-soyrelated-deforestation.

[71] Case M.8199 - BUNGE / EUROPEAN OILSEED PROCESSING FACILITIES, European Commission, February 6, 2017, https://ec.europa.eu/competition/mergers/cases/decisions/m8199_596_7.pdf .

[72] N. Morris, "Monopoly of Grain Trade has Forced Millions into Starvation, Say Charities", (*independent.co.uk*, 23 January 2013), <https://www.independent.co.uk/news/uk/home-news/monopoly-of-grain-trade-has-forced-millions-into-starvation-say-charities-8462260.html>.

[73] Hungry for Profits, p 6.

> "(their activity) goes far beyond simply finding an appropriate buyer and/or seller. If buyers and sellers were located in relatively proximity to each other then there would be no need for any form of intermediary to conduct trades, however, the distance between the commercial parties requires the solving of numerous logistical issues, ranging from organising transport, to arranging on- and off-loading, to overseeing quality and quantity control, and, possibly, to ensuring the smooth cross-border flow of products. The trader needs to have proprietary or agreed capacities in ports, the shipping of products by sea needs to be fully co-ordinated with these port slots and railway logistics, etc. Long-haul shipping is more cost efficient with larger boats, but such boats require a certain water depth, which is not available in all ports. International trade faces numerous, diverse administrative and phytosanitary issues that can differ from one jurisdiction to another"[74].

Storage is a critical bottleneck, as it constitutes the most "capital-intensive" part of the value chain.[75] Ivanov and Orlov report that until the mid-1980s, farmers had an important stake in this trading and logistics infrastructure in the most important grain-exporting countries of that time, specifically the US, Canada and Australia.[76] Farmer cooperatives played an important role with Far-Mar-Co, "the largest grain marketing co-operative in the nation, [if] not the world" bringing together 250,000 farmers and owning 604 grain elevators. [77] However, in the mid-1980s occurred a shift, with Cargill and ADM aggressively buying storage infrastructure and grain marketing enterprises in the US, followed in the 1980s and 1990s by an M&A wave, the most significant ones being the merger, in November 1998, of Cargill and Continental Grain, the two largest grain exporters in the US.[78]

Competition authorities did not challenge most of these mergers and as Ivanov and Orlov observe, they "did not consider either the accumulation of market power by trading houses along the global value chain, especially vis-à-vis other segments of the chain, or

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[74] A. Ivanov & M. Orlov, The Global Grain Trade- From a Ferrymen Oligopoly to the Sustainable Bridge Solution, op. cit., 596.
[75] Ibid., 595.
[76] W. Wilson and B. Dahl, "Transnational Grain Firms: Evolution and Strategies in North America", (1999), Agricultural Economics Report No. 412, 38, cited by A. Ivanov & M. Orlov, The Global Grain Trade- From a Ferrymen Oligopoly to the Sustainable Bridge Solution, op. cit., 603.
[77] H. Maidenberg, "The Making of an Agribusiness Giant", (*nytimes.com*, 12 September 1976), <https://www.nytimes.com/1976/09/12/archives/the-making-of-an-agribusiness-giant-farmarco-wants-growth-but-not.html>. cited by A. Ivanov & M Orlov, The Global Grain Trade From a Ferrymen Oligopoly to the Sustainable Bridge Solution, op. cit., 603.
[78] A. Myerson, "Cargill Set to Buy Main Unit of Continental Grain, Its Chief Rival", (*nytimes.com*, 11 November 1998), https://www.nytimes.com/1998/11/11/business/cargill-set-to-buy-main-unit-of-continental-grain-its-chief-rival.html, cited by A. Ivanov & M. Orlov, A. Ivanov & M. Orlov, The Global Grain Trade- From a Ferrymen Oligopoly to the Sustainable Bridge Solution, op. cit., 604.

the collection of unrivalled market insights for the purposes of financial speculation, to be issues".[79]

New entry in this market is also particularly difficult. New players, mainly from Asia, have joined the global grain trading market in recent years, such as Noble Agri (Hong Kong), Olam (Singapore) and Wilmar International (Singapore), which, according to Ivanov and Orlov "are emerging as primary competitors to the ABCD group". A key player in these markets is also the Chinese state-owned company COFCO International Limited, which has also proceeded to a series of M&As taking a controlling stake in 2014 in Dutch Nidera Holdings and in late 2015, in Noble Agri, before reaching the "first tier" of global grain trading by 2017, and becoming one of the six dominant agricultural commodity traders, with ABCD, followed by Wilmar International and Glencore's Viterra.[80] As explained by Howard, the ABCD firms responded to this competitive challenge "by acquiring minority stakes and/or forming joint ventures with some of these new competitors".[81] For instance, as noted by Ivanov and Orlov, "ADM owns 16% of Wilmar International and the two companies have engaged in joint ventures related to oil processing, fertilisers and shipping".[82]

Global corporate concentration is not the only option for achieving economies of scale and scope. As Ivanov and Orlov remind us, "agricultural democracy in Canada in the 1920s was marked by the establishing of three so-called 'wheat pools': the Alberta Wheat Pool, the Manitoba Pool Elevators and the Saskatchewan Wheat Pool" which "operated local and terminal elevators and were either buying grain outright from their respective members or trading grain on commission, acting on a non-share, non-profit basis".[83]

Access to financial resources and lower interest rates may also confer an advantage to global grain traders and limit the competitive constraints that may be exercised by local or smaller players. As Ivanov and Orlov observe, "it is likely to make it more difficult for smaller traders who lack access to global capital markets to sustain their business and compete with the ABCD-like trading houses [...] this shift in activities may serve to weaken the positions of both producers and importing countries in the global food value chain by rendering them more vulnerable to middlemen who control the trading segment".[84]

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[79] Ibid., 608.
[80] Ibid., 610.
[81] P. Howard, *Concentration and Power in the Food System* (Bloomsbury, 2016).
[82] ADM, "ADM to Acquire Shares In Wilmar International Ltd.", (*adm.com*, 14 December 2006), <https://www.adm.com/news/news-releases/adm-to-acquire-shares-in-wilmar-international-ltd>
[83] C. Fay, "The Canadian Wheat Pools", (1925) 35(137) *The Economic Journal*, 26-29.
[84] A. Ivanov & M. Orlov, A. Ivanov & M. Orlov, The Global Grain Trade- From a Ferrymen Oligopoly to the Sustainable Bridge Solution, op. cit., 604

This visible economic concentration goes together with the "stealth" concentration resulting from the presence of some common investors and shareholders, as well as cooperation between the members of the oligopoly. As Ivanov and Orlov note, "in 2018, the four major grain trading houses: ADM, Bunge, Cargill and Louis Dreyfus (henceforth, the 'ABCD') announced the launch of their joint digital platform in order to ensure their collective survival through those challenging times of food abundance".[85] As they further explain, "(i)n 2018, ABCD agreed to work together to standardise and digitise international grain trades using technologies, such as blockchain and artificial intelligence",[86] and in 2019, "two members of the ABCD quartet, ADM and Cargill, announced their intention to pursue a much more structured, joint technology venture in the digital sphere through the establishment of a joint venture Grainbridge LLC (henceforth, 'Grainbridge')",[87] with the aim to provide support for grain marketing decisions, e-commerce and account management software for North American farmers. ADM and Cargill are also developing digital tools are capable of "help[ing] farmers across the US and Canada consolidate information on production economics and grain marketing activities into a single digital platform, at no cost to them" by giving farmers access to the combined ADM and Cargill transactions, including contracts and payment information,[88] a joint-venture that went unchallenged by competition authorities. Ivanov and Orlov note add that "ADM and Cargill have also actively engaged in the practice of periodically swapping their assets and exchanging their infrastructure facilities, such as grain elevators".[89]

In response, governments have failed to take measures that would limit the power of commodity traders, such as increasing their strategic stocks of grains used as a mechanism of "buffer stock stabilisation" that would bring the prices down in the

[85] A. Ivanov & M. Orlov, A. Ivanov & M. Orlov, The Global Grain Trade- From a Ferrymen Oligopoly to the Sustainable Bridge Solution, op. cit., 593, citing A. Donley, "A Revolutionary Development for Grain Trading", (*world-grain.com*, 12 December 2018), <https://www.world-grain.com/articles/11397-from-the-editor-a-revolutionary-development-for-grain-trading>.

[86] A. Ivanov & M. Orlov, A. Ivanov & M. Orlov, The Global Grain Trade- From a Ferrymen Oligopoly to the Sustainable Bridge Solution, op. cit., 610 citing K. Plume, "ABCD Quartet of Grain Traders Partner to Digitise Global Traders", (*reuters.com*, 25 October 2018), <https://www.reuters.com/article/us-global-grains-traders-idUSKCN1MZ2E8>.

[87] A. Ivanov & M. Orlov, A. Ivanov & M. Orlov, The Global Grain Trade- From a Ferrymen Oligopoly to the Sustainable Bridge Solution, op. cit., 610-611 citing ADM, "ADM and Cargill to Help Farmers Achieve Greater Profitability with Grainbridge Technology Joint Venture", (*adm.com*, 29 October 2018), <https://www.adm.com/news/news-releases/adm-and-cargill-to-help-farmers-achieve-greater-profitability-with-grainbridge-technology-joint-venture>.

[88] A. Ivanov & M. Orlov, A. Ivanov & M. Orlov, The Global Grain Trade- From a Ferrymen Oligopoly to the Sustainable Bridge Solution, op. cit., 611.

[89] A. Ivanov & M. Orlov, A. Ivanov & M. Orlov, The Global Grain Trade- From a Ferrymen Oligopoly to the Sustainable Bridge Solution, op. cit., 612, citing K. Plume, "ADM, Cargill Reach Deal to Swap U.S. Midwest Grain Elevators", (*reuters.com*, 11 July 2019), https://www.reuters.com/article/us-archer-daniels-carg-elevators/adm-cargill-reach-deal-to-swap-u-s-midwest-grain-elevators-idUSKCN1U62ZB .

presence of speculation and "price spikes" as suggested by some scholars.[90] Such measures may be combined with more active efforts in competition and pro-competition industrial policy to decentralise commodity trading. However, it is not clear that this will be sufficient to counteract the negative spiral of financialization and speculation that are increasingly affecting prices in food markets.

Takeaway

The global market for agricultural commodities and logistics is dominated by a handful of multinational corporations. This tight oligopoly is formed by public companies, Archer Daniels Midland (ADM), Bunge, and the agricultural giants Cargill and Louis Dreyfus, along with the state-owned COFCO, control international grain trade (ABCCD or the Big Five). Other commodity traders due to their size, diversification, focus on specific commodities, lack of global presence and lack of vertical integration, are unlikely to pose any serious competitive threats to the Big Five. The Big Five connect the various segments of the global food value chains, and thereby play a crucial gatekeeping role. The Big Five have been engaging in significant M&A activities, yet competition authorities have not challenged most of these transactions. As a result, new entry is particularly difficult. Smaller traders, therefore, cannot easily sustain their businesses or access markets given Big Five's access to financial resources and lower interest rates. Cross-shareholdings, common investors, interconnectedness and structural links between the Big Five exacerbate the problem. So far, governments have failed to take measures that would limit the power of commodity traders.

v. Financialisation and speculation in the food value chain[91]

The 'financialisation' of the global economy has been described as "a recurrent trend affecting a number of markets"[92] and has been on the rise since the 1970s. This period

[90] See, Economist suggests storing grain to prepare for next global emergency | Agriculture | The Guardian ; I. Weber, M. Schulken, L. Bassermann, L. Luig, J. Urhahn, Buffer Stocks Against Inflation (Heinrich-Böll-Stiftung, Policy paper, June 2024), available at policy-paper-buffer-stocks-against-inflation.pdf (boell.de) .

[91] Part of this Section draws on I. Lianos, A. Velias, D. Katalevsky, D. Ovchinikov, Financialization of the food value chain, common ownership and competition law, (2020) 16(1) European Competition Journal 149, I. Lianos, Chapter 2: The Transformations of the Global Food Value Chains: Technology and Societal changes, in I. Lianos (ed.), Global Food Value Chains and Competition Law - BRICS Draft Report (January 1, 2018). Available at SSRN: https://ssrn.com/abstract=3076160.

[92] More generally, see G. Epstein, *Financialization and the World Economy*, (Edward Elgar, 2005); R. Shiller, *The New Financial Order. Risk in the 21st Century*, (Princeton University Press, 2003),; J. Montgomerie and K. Williams, "Financialised Capitalism: After the Crisis and Beyond Neoliberalism", (2009) 13 *Competition and Change*, 99-107; E. Engelen, "The Case for Financialization", (2008) 12 *Competition and Change*, 111-119; N. van der Zwan, "Making Sense of Financialization", (2014) 12(1) Socio-Economic Review ,99-129;

coincides with the prevalence of the 'shareholder value' or 'shareholder primacy' principle, [93] which, since the 1970s, has dominated, mostly in the US, corporate governance discourse and its subsequent focus on short-term share price. [94] This principle has changed managerial priorities from those of maximising growth by re-investing corporate savings in the long-term, productive potential of the corporation (i.e. the 'retain and re-invest' principle) to maximising stock value through extensive buybacks of corporate stocks (i.e. 'share repurchase') to inflate stock prices as the resulting artificial scarcity of shares boosts their value.[95]

Financialisation is particularly visible in the structure of the food value chain ('FVC') during the last few decades. [96] Trade in agricultural commodities provides a useful illustration of the ongoing process of financialisation in the FVC. An important step in this process was the creation of a tradable commodity price index. The first such index was established in the United States in the early 1940s and was known as the Bureau of Labour Statistics Spot Commodity Index. In 1991, this was replaced by the Goldman Sachs Commodity Index ('SP-GSCI'). This enabled investors to bet on commodities, by simply buying a swap contract from Goldman Sachs, "without having to participate in formal futures markets with their position limit restrictions". [97] The next step in this process of financial innovation was the creation of Exchange Traded Funds ('ETFs'). These enabled institutional and retail investors to add commodities to their portfolios, thereby transforming commodities to a new asset class.[98]

The financialisation of commodity markets culminated with the passage of the Commodity Futures Modernization Act ('CFMA') of 2000, which, in turn, led to a phenomenal increase of the swaps market. In order to avoid price manipulation, the CFMA required that all agricultural futures be traded on a Commodity Futures Trading Commission (CFTC)-regulated exchange. However, it also allowed for the possibility of an exemption if such "would be consistent with the public interest".[99] Premised on the

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R. Solow, "How to Save American Finance from Itself – Has Financialization Gone Too Far?", (*newrepublic.com*, 8 April 2013), <http://www.newrepublic.com/article/112679/how-save-american-finance-itself>.

[93] W. Lazonick and M. O' Sullivan, "Maximizing Shareholder Value: A New Ideology for Corporate Governance", (2000) 29(1) *Economy and Society*, 13.

[94] L. Davis, "The Financialization of the Non-Financial Corporation in the Post-1970s U.S. Economy", (2014) Doctoral Dissertations, 175. In most European countries 50 to 60 % of the economy was under state control, at least until the privatizations that occurred in the 1980s and 1990s. As to EU member states' private companies, the shareholder value maximization principle has been (re) introduced in the 1990s in most countries, hence financialisaton is a more recent phenomenon in the EU.

[95] See W. Lazonick, "Profits Without Prosperity", (2014) *Harvard Business Review,* available at https://hbr.org/2014/09/profits-without-prosperity; L. Palladino, "Stock Buybacks: Driving a High-Profit, Low-Wage Economy", (2018) Report of the Roosevelt Institute.

[96] L. Russi, *Hungry Capital: The Financialization of Food* (John Hunt Publishing, 2013).

[97] T. Schmidt, *The Political Economy of Food and Finance* (Routledge, 2016), 60.

[98] *Ibid*, 63.

[99] *Ibid*, 65.

understanding that financial investments would not influence spot prices, this provision was loosely interpreted and led to a "tremendous flow of funds" into commodities.[100] Essentially, the CFMA led to a deregulation of futures trading for agricultural commodities, financial interests now dominating futures trading and accounting for 70%-80% of open interest in many markets.[101]

Following the 2008 commodity price bubble, the CFTC proposed to establish limits on speculative position limits for a number of previously exempted agricultural commodity futures and option contracts. In October 2011, it adopted these new position limit rules, but these were then successfully challenged in court. The courts interpreted the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 ('Dodd-Frank Act'), the statutory legal basis for action being taken by the CFTC, as requiring the CFTC, when establishing new position limits, to prove that speculative limits were *necessary* to avoid excessive speculative positions that could lead to higher prices in interstate commerce. Consequently, the CFTC had to propose new limits, and it did so in 2013.

Financial speculation on agricultural commodities has been facilitated by the creation of these new financial devices. The aim of such devices has been to establish private insurance markets through forward trading, which could replace the existing, public, price-control mechanisms that seek to protect farmers from market-price fluctuations. For instance, the Food Corporation of India, a public body established in 1964, seeks to act as a cross between a marketing board, a food bank and a subsidy scheme. When it intervenes, it does so with the aim of protecting farmers from the volatility of market prices, thereby acting as a public insurance mechanism.[102] Yet the development of such commodity futures trade triggers, through self-reinforcing speculation, price fluctuations and, thus, puts farmers at the mercy of big market actors, such as one-stop-shop corporations which provide farmers with insurance with regard to their yields.

As Ghosh states in relation to commodity futures trading, "the declared purpose of forward trading and of futures markets is to allow for hedging against price fluctuations, whereby the selling of futures contracts would exceed the demand for them. This implies that futures prices would be lower than spot prices, or what is known as 'backwardation'. However, throughout much of the period from January 2007 to June 2008, the markets were actually in *contango*, in which futures prices were higher than spot prices. This cannot reflect the hedging function and must imply the involvement of speculators who are expecting to profit from rising prices".[103]

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[100] *Ibid*.
[101] *Ibid*.
[102] L. Russi and T. Ferrando, "Capitalism a Nuh' Wi Frien'. The Formatting of Farming into an Asset, From Financial Speculation to International Aid", (2015) 6(1) *Catalyst – A Social Justice Forum*, 3.
[103] J. Ghosh, "The Unnatural Coupling: Food and Global Finance" (2010) 10(1) *Journal of Agrarian Change*, 78-79.

The development of the commodity futures market challenged another tenet of neoclassical price theory. It separated the formation of prices from the standard supply and demand interaction. The latter reflects the preferences of the consumers based on the choices they make in the marketplace (i.e. their "revealed preferences"). However, the development of the commodity futures market has resulted in the price, rather than being linked to consumers' revealed preferences, being linked to the views/predictions of financial investors about the *future* evolution of demand, which may prove to be irrational. It is hard to imagine how a competition law that ignores the formation of commodity prices could operate if it fails to integrate into the analysis the contango-inducing dynamics of commodities future trading and the externalities that such pseudo-market configurations may produce on the different economic actors involved, such as farmers, final consumers, processors etc. This dimension of financialization is an important part of competition as one of the main purposes of competition law is to protect the process of signalling preferences and the diffusion of information resulting from the price system.

Another second illustration of the increasingly important role of financialization is the growing role of institutional investors and private equity in the food industry.[104] Schmidt reports that of the 281 deals reported in the food and beverage industry in 2013, investment firms and banks were involved in 47 of these deals (i.e. in 15%).[105] A number of the largest companies operating in and across various segments of the value chain are privately held corporations, most notably grain companies, while several companies at the retail level have a mixed ownership structure.[106] Moreover, a number of institutional investors, including but not limited to sovereign wealth funds and privately held corporations, are investing in agricultural land, in particular global farmland. For the time being, this is limited, as the farming segment of the FVCs constitutes, in relative terms, the market that looks, at least on a global scale, closer to atomistic competition. This has led to a backlash from some quarters, which have raised the problem of global farmland grab as a major public policy concern.[107]

Broadening the capabilities of competition authorities to envision tools and frameworks that respond to the increasing financialization of the FVC constitutes a serious challenge, particularly in light of the rapidly increasing economic concentration of some of the segments of the FVC and the phenomenon of 'stealth concentration' or 'common ownership'.

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[104] For a discussion see I. Lianos, A. Velias, D. Katalevsky & G. Ovchinnikov (2020) Financialization of the food value chain, common ownership and competition law, (2020) 16(1) European Competition Journal, 149.
[105] T.P. Schmidt, *The Political Economy of Food and Finance* (Routledge, 2015), 111.
[106] *Ibid*, 114.
[107] P. McMichael, "The Land Grab and Corporate Food Regime Restructuring", (2012) 39(3) and 39(4) *The Journal of Peasant Studies*, 681.

Murphy, Burch and Clapp highlight how food retailers are increasingly engaged in a variety of financial activities in which they can leverage their first-hand knowledge of market conditions in order to drive up profits for their clients.[108] They provide the example of the world's four largest grain traders – Archer Daniels Midland (ADM), Bunge, Cargill and Louis Dreyfus (or, as they are collectively referred to, the 'ABCDs') – and discuss how these established investment vehicles to their external investors that permit them to speculate on agricultural commodities and other dimensions of food production. They state that "due to their [the ABCDs'] dominance of agricultural trade and their direct contact with food suppliers, the ABCDs are among the first to know about supply conditions, making their financial products particularly attractive to investors wishing to speculate on agricultural derivatives markets. Indeed, Louis Dreyfus' hedge fund, the Alpha Fund, which operates under the slogan 'monetise our expertise', has expanded rapidly, growing some 20-fold within its first two years and, ultimately, refusing to accept new investors because the fund had grown so large after a mere three years of operation". Given how profitable such hedge funds have proven to be, Meyer argues that the incentives in the market are currently shifting from the actual products to catering to speculators' interest in price movements.[109]

In our view, the above evidence offers a strong case for investigating how M&A activity may intensify the role of financialization in the food markets and, specifically, the extent to which price-cost squeezes are enabled by the presence of the same institutional investors in all segments of the value chain. Furthermore, most, if not all, of the aforementioned processes can be considered as efficiency gains that have been enabled by the development of the market. However, this raises questions as to whether such efficiency gains, which have emerged at the expense of agriculture, are (i) sustainable, and (ii) normatively appropriate.

Takeaway

Financialisation has been shaping the structure of the food value chain during the last few decades.[110] An important step in this process was the creation of a tradable commodity price index. The commodity futures trading was aimed at enabling hedging and protecting farmers from market-price fluctuations. Futures prices were expected to be lower than spot prices but in the period from January 2007 to June 2008 futures prices were higher than spot prices. This does not reflect the hedging function and must imply the involvement of speculators who are expecting to profit from rising

[108] S. Murphy, D. Burch and J. Clapp, "Cereal Secrets: The World's Largest Grain Traders and Global Agriculture", (2012) Oxfam Research Reports.
[109] J. Mayer, 'The Growing Interdependence Between Financial and Commodity Markets", (2009) United Nations Trade and Development Conference ('UNCTAD') Discussion Paper No. 195.
[110] L. Russi, *Hungry Capital: The Financialization of Food* (John Hunt Publishing, 2013).

prices. The development of the commodity futures also separated the formation of prices from the standard supply and demand interaction. It also enhanced the role of institutional investors and private equity in the food industry. It is therefore of paramount importance that competition authorities address the competitive challenges raised by the increasing financialization of the FVC and take the phenomenon of 'stealth concentration' or 'common ownership' seriously. In that regard, competition authorities should investigate how M&As may intensify the role of financialization in the food markets and, specifically, the extent to which price-cost squeezes are enabled by the presence of the same institutional investors in all segments of the value chain.

vi. The role of agricultural commodity traders to global price formation[111]

Research focusing on market institutions explores the way ''prices are culturally constructed within relations of power in socially and politically embedded markets'' and argues that "instead of focusing narrowly on price-setting, policy-makers and researchers should attend to the conditions of price realization", as prices are being realized "in multiple forms, each form having gone through a complex, yet identifiable process".[112] Price realisation is not the same as price-setting. In his insightful research on the realisation of world prices in the cotton commodity, Çalişkan explores the importance of 'prosthetic prices', which, in contrast to the linear relation of causality between the abstractions of supply and demand, as imagined by neoclassical price theory (and Alfred Marshall's dominant representation of the market), depend on and result from "a set of technical devices and artificial equipment, which is almost never described in economic theory".[113] Prosthetic prices are produced by a diverse universe of collective human and non-human agents, helping the realization of the actual price of the cotton commodity in global markets with a combination of spot prices, options, and futures. This underscores the social construction of the concept of demand which does not always relate to the price of a specific quantity and variety of cotton in the context of

[111] This Section draws upon I. Lianos, Minding Competition in Complex Adaptive Social Systems: The Sociological Approach to Competition Law (May 19, 2024). Available at SSRN: https://ssrn.com/abstract=4851966 .

[112] K. Çalişkan, *Market Threads – How Cotton Farmers and Traders Create a Global Commodity* (Princeton University Press, 2010), 22-23; See also in the same vein, P. Di Maggio & H. Louch, Socially Embedded Consumer Transactions: For What kind of Purchases Do People Most Often Use Networks?, (1998) 63 American Sociological Review 619; B. Uzzi & R. Lancaster, Embeddednesss and Price Formation in the Corporate Law Market, (2004) 69 American Sociological Review 26; O. Velthuis, *Talking Prices* (Princeton University Press, 2005), 10 (noting that prices emerge from the 'established rules of the game' to which producers obey).

[113] K. Çalışkan, *Market Threads – How Cotton Farmers and Traders Create a Global Commodity* (Princeton University Press 2010) 23.

an actual spot market, but increasingly so, accounts for the "right to own cotton at a future date", cotton becoming a commodity in the context of futures markets.[114] With such hedging and other risk management techniques, firms are trading money for future reductions in risk (i.e. commensurating the monetary and temporal axes of competition) forming strategies to 'stabilise and routinise competition'[115].

In futures markets, parties agree to buy or sell an agreed quantity of an asset (commodity) at a future date for a pre-determined price. This allows them to trade expectations on supply and demand patterns and to trade the commodity without owning it. These sophisticated markets offer risk transfer hedging against potential changes in inventory levels over a period, allowing market players to adjust their positions in the spot market to the futures market. They also provide an avenue for speculation, with certain economic agents (speculators) making monetary gains by predicting the future value of the commodity.[116] Speculators make profits by trading not commodities but risk. As Çallşkan notes, 'futures markets serve as bridges between different moments of price realization', the future price being 'the basis for making a price real': it is a prosthetic price to the extent that it 'enables market actors to negotiate once it is used during trading on the ground': helping them as a prosthetic limb to realise the actual price of the commodity.[117] As the market does not trade on reality but on perceptions, the research question becomes if 'factors determining how we perceive markets have an actual effect' on global market prices.[118]

This brings attention to the role market reports, rumours spread by the news, or indexes, play to the extent that "the quest for price in global markets is an engagement with the future, not with the past".[119] The role of commodity traders, such as ABCCD, as the indispensable intermediaries "realising" the "market price", may therefore be crucial. As Ivanov and Orlov note, "(t)o a certain degree, traders also have the power to set prices with international commodity quotes giving trading benchmarks" and their pressure is felt by upstream producers, "who will usually have little choice when it comes to responding to the pressure – they need to sell their crops in order to generate the funds that enable them to finance the next growing season".[120] The same authors provide as an illustration of this risk of deceptive practices a notable case reported in 2009, "when

[114] Ibid., 27.
[115] N. Fligstein, *The Architetcure of Markets: An Economic Sociology of Twenty-First Century Capitalist Societies* (Princeton University Press 2001), 5.
[116] K. Çallşkan, *Market Threads – How Cotton Farmers and Traders Create a Global Commodity*, op.cit., 28-29.
[117] Ibid, 33.
[118] Ibid, 34.
[119] Ibid., 43.
[120] A. Ivanov & M. Orlov, op. cit. 596

Bunge Global Markets tried to manipulate the indicative opening price of the CME[121]" by placing and cancelling buy and sell orders "with no actual intention of executing these orders".[122] They also remark that, "according to UNCTAD's comparative calculations, the absolute correlation between price and position changes for selected agricultural commodities is less than this figure is for oil. However, when it comes to the relative difference in the behaviour patterns of sustainable ('index') and speculative ('money makers') investors, wheat seriously "outperforms" oil contracts – in the oil market. Correlation coefficients differ by a multiple of 4.5 in oil contracts, whereas, in wheat they differ by a multiple of 6.2.[123] This means that "grain markets are more susceptible to sudden changes rather than relatively stable speculative price fluctuations".[124]

It is essential for competition law to delve into the social dynamics behind price determination, in order to comprehend the power dynamics that influence pricing. Three key aspects are worth noting. Firstly, understanding the role of indices and other market mechanisms in shaping prices is crucial. In the case of commodity prices, competition authorities must grasp how the selection of specific indices, by market participants, can impact price levels and trends. Therefore, it is critical to reveal how pricing systems are established and selected by industry players, often at the industry's inception. [125] Second, in a financialized economy to a larger extent the combined effect of spot markets, forward markets and futures markets determines price formation in international commodities markets. As a result, the ratio of benchmark futures contracts volumes over equivalent physical production exchanged in spot markets may eventually have impact on the process of price formation. The exact level of this ratio is an empirical exercise that may produce different results in each market, but it may for some commodities exceed 10%.[126] If this level is important, it may raise questions, and this is the third point, as to the role in the process of price formation for international commodities of speculators, such as commodity index traders[127]. We need approaches

[121] The CME Group, which is comprised of the Chicago Mercantile Exchange, the Chicago Board of Trade, the New York Mercantile Exchange and the Commodity Exchange, is a global markets company and is the largest financial derivatives exchange in the world.
[122] A. Ivanov & M. Orlov, op. cit., 600. Commodities Futures Trading Commission, *In the Matter of Bunge Global Markets, Inc.*, CFTC Docket No. 11-10, Order Instituting Proceedings Pursuant to Sections 6(c) and (d) of the Commodity Exchange Act and Making Findings and Imposing Remedial Sanctions.
[123] UNCTAD and Arbeiterkammer Wein, "Price Formation in Financialised Commodity Markets: The Role of Information", (2011), Study, 27-28 cited by A. Ivanov & M. Orlov, op. cit., 601.
[124] A. Ivanov & M. Orlov, op. cit., 601.
[125] See as an example the interesting work of V. Yakubovich, M. Granovetter & P. McGuire, Electric Charges: The Social Construction of Rate Systems, (2005) 34 Theory and Society 579.
[126] I. Goldstein & L. Yang, Commodity Financialization and Information Transmission, (2022) 77(5) The Journal of Finance 2613.
[127] As noted in UNCTAD, Trade Development Report 2023, p. 77 "(u)nder certain conditions, excessive speculation can become an independent driver of those price fluctuations". The report further adds (p. 91) "profiteering is not limited to a specific sector but is specific to individual firms. There are concerns that excess profits may be linked to market concentration, benefiting only a few global players in the commodity trading community. This reinforces the need to consider group membership and the evolving

to price formation that explicitly account for the presence of these intermediaries (in particular index traders as passive investors in commodity futures markets), and explore their role and (market) power, individually or jointly.[128] Recent research suggests that while the prevailing assumption is that the futures price of a commodity only follows the spot price, a more nuanced approach should be considered. An updated view of competition law should investigate the interplay between the spot and futures markets, as these markets attract different groups of participants and can have mutual feedback effects.[129] This is particularly important for global commodity oligopolies, such as global seed or grains trade, fuels refineries etc, with some of the major firms operating as spot market players but also as non-bank financial institutions investing in the futures and derivatives markets,[130] and which may try to take advantage of periods of market volatility to corporate profiteer through the use of financial instruments.[131]

Over the past decade, a large inflow of investment capital came from a class of investors, so-called commodity index traders (CITs), also known as index speculators. These seek exposure to commodity prices as part of a broader portfolio strategy, treating commodity futures as an asset class just like stocks and bonds and often investing in instruments linked to broad-based indices. These developments have led to a concern that

behaviour of major international players in the sector". The Asset Dominance Ration aims "to capture financial (as opposed to "real") economic activity carried out inside a corporate structure".

[128] Note for instance I. Lianos, A. Velias, D. Katalevsky & G. Ovchinnikov (2020) Financialization of the food value chain, common ownership and competition law, (2020) 16(1) European Competition Journal, 149.

[129] See, for instance, H.B. Ameur, Z. Ftiti, & W. Louhichi, Revisiting the relationship between spot and futures markets: evidence from commodity markets and NARDL framework, (2022) 313 Annals of Operations Research , 171–189 (showing a "bidirectional relationship between both markets over the short and long run, with a greater lead for the futures market" and confirming the future market's dominant contribution to price discovery in commodities).

[130] The process of financialisation englobes situations in which not just regulated financial institutions but also situations in which non-financial firms have an increasingly important financial activity. More generally, see G Epstein, *Financialization and the World Economy* (Edward Elgar 2005); R Shiller, *The New Financial Order. Risk in the 21st Century* (Princeton University Press 2003); J Montgomerie and K Williams, 'Financialised Capitalism: After the Crisis and Beyond Neoliberalism' (2009) 13 Competition and Change 99; E Engelen, 'The Case for Financialization' (2008) 12 Compet Chang 111; N van der Zwan, 'Making Sense of Financialization' (2014) 12(1) Socio-Economic Review 99. For the large grain companies see, S. Murphy, D. Burch and J. Clapp, Cereal Secrets. The world's largest grain traders and global agriculture. (Oxfam Research Reports, 2012).

[131] See, for instance, UNCTAD, Trade Development Report 2023, p. 77 ('there is ample evidence that banks, asset managers, hedge funds and other financial institutions continue to profit from the most recent bout of commodity market volatility [...] Second, by actively managing risk, commodity trading firms have assumed many financing, insurance and investment functions typically associated with the activity of banks. In this context, very large international trading firms, or ABCD-type companies [the grain oligopolies] have come to occupy a privileged position in terms of setting prices, accessing funding, and participating directly in the financial markets. This not only enables speculative trades in organized market platforms, but a growing volume of transactions between individuals, or over-the-counter trades, over which most governments in the advanced countries have no authority or control". UNCTAD's report also draws attention to the "relationship between companies' profits and price volatility'). See also, A. Ivanov & M. Orlof, The Global Grain Trade, in I. Lianos, A. Ivanov, D. Davis (eds.), *Global Food Value Chains and Competition Law* (CUP, 2022), 590.

financialization in the form of index speculation contributed to the dramatic run-up in commodity prices. We need approaches to price formation that explicitly account for the presence of these intermediaries. Since physical and futures markets host different groups of market participants, the futures price may not be simply a shadow of the spot price or vice versa, but dynamics in both markets and their feedback effects must be considered.

There is increasing concern that excessive speculation may become an independent driver of those price fluctuations. The source of these speculative trends may be the US Commodity Futures Modernization Act, passed in 2000, which allowed global grain traders to commence financial activity and become speculators. Private equity funds, asset management companies, institutional investors, banks, and other financial institutions invest in "alternative assets" such as commodity futures, agricultural land and the crops it produces, which had hitherto been avoided by most investors as too high-risk. Deregulation of the agricultural derivatives market in the US may have thus resulted in the profits of the trading houses (the so called ABCD firms) which have steadily increased after the year 2000, but also quite significantly in 2021 and 2022.

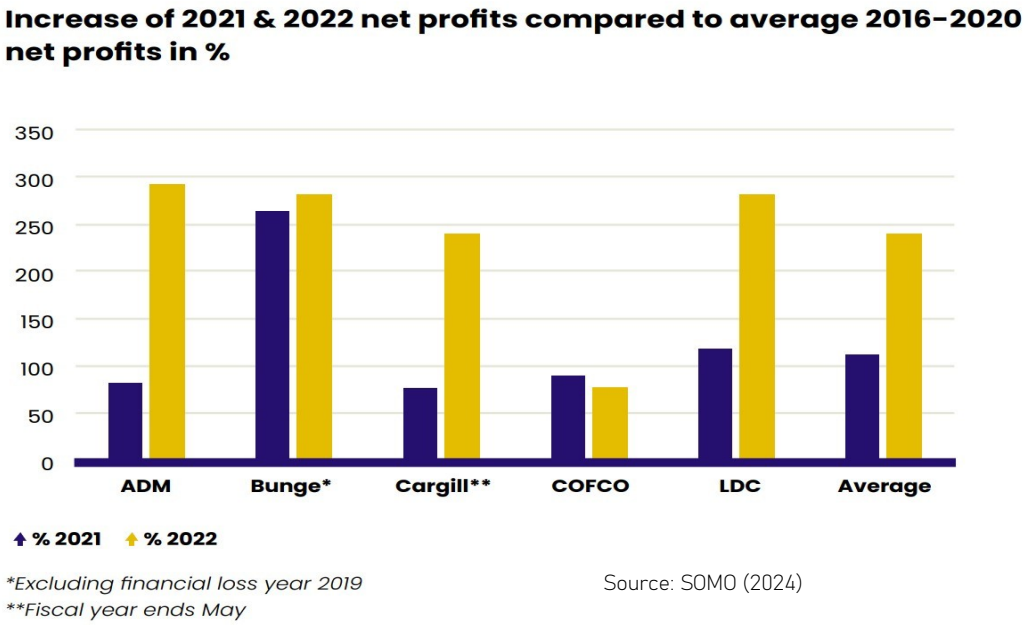

Figure 3: Increase of 2021 & 2022 net profits compared to average 2016-2020 net profits in %

A recent UNCTAD Trade and Development Report 2023 notes:

> "by actively managing risk, commodity trading firms have assumed many financing, insurance and investment functions typically associated with the activity of banks. In this context, very large international trading firms, or ABCD-type companies have come to occupy a privileged position in terms of setting prices, accessing funding, and participating directly in the financial markets. This

> not only enables speculative trades in organized market platforms, but a growing volume of transactions between individuals, or over-the-counter trades, over which most governments in the advanced countries have no authority or control".[132]

The report also brings attention to the fact that "(d)ata from the Bank of International Settlements (BIS, 2023) shows that outstanding over-the-counter commodity derivatives relating to energy, food and non-precious metals experienced a sharp increase after 2020, with their gross market value increasing from less than $200 billion to $386 billion at the end of 2021 and peaking at $886 billion by mid-2022. This represents more than a fourfold increase compared to their 2015–2020 average. During the second half of 2022, this indicator declined by 45 per cent. Yet it still yielded a year-end value of $486 billion in 2022". [133] According to the report, notional principal values of these outstanding derivatives remained above $1.5 trillion at the end of 2022 and reached an all-time-high of more than $2 trillion in mid-2022.[134] The report continues by noting that "(t)he stark contrast between the surging profits of commodity trading giants and the widespread food insecurity of millions underscores a troubling reality: unregulated activity within the commodities sector contributes to speculative price increases and market instability, exacerbating the global food crisis".[135] Most troublingly, the UNCTAD report finds that profits in financial markets appear to be rising during periods of heightened price volatility. The Report suggests that there is "a strong link between corporate profiteering through the use of financial instruments and the current period of market volatility, noting the relationship between the (net) profits of the 'ABCD' companies and food price volatility during the last decade, the profits of four major food traders rising during periods of market volatility and during crises".

[132] See, https://unctad.org/system/files/official-document/tdr2023_en.pdf , 77.
[133] Ibid, 78.
[134] Ibid, 75.
[135] Ibid, 72.

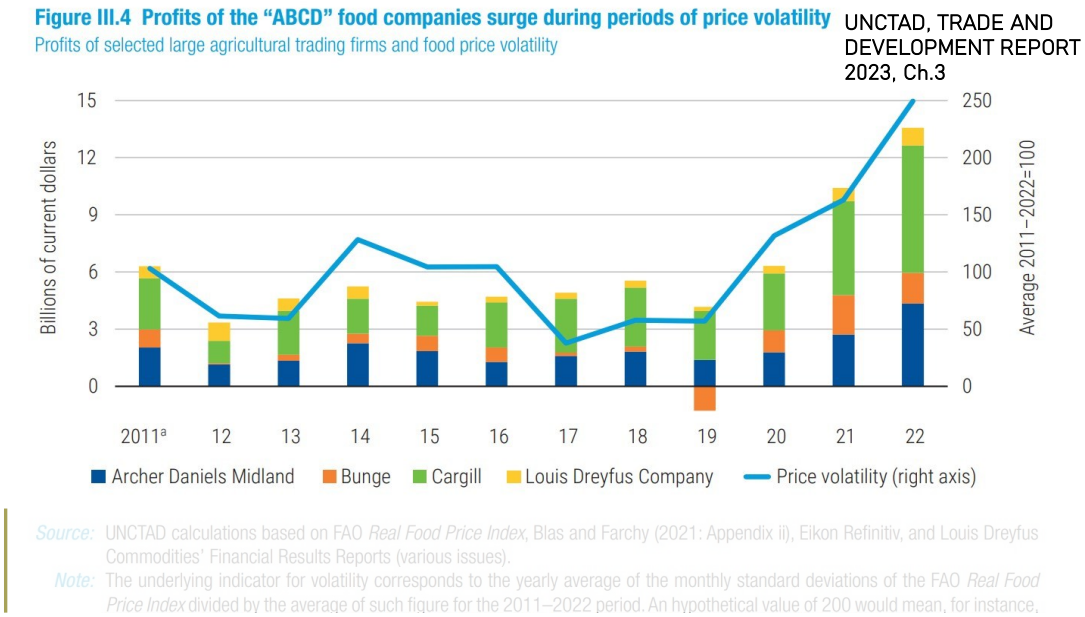

Figure 4: Profits of the ABCD food companies

Source: UNCTAD Trade and Development Report 2023

The positioning of these companies at the centre of the global food system provides them with "panopticon power"[136] which ultimately leads to significant benefits as volatile prices are advantageous for knowledgeable speculators. This reality of financialization is not sufficiently taken into account by competition policy makers.

In addition, to these recent events one may have important effects that climate change may have on the production of food and its availability in different parts of the world, as the rise of temperature can harm livestock and crops, with, according to some predictions, one-third of global food production "at risk from climate crisis".[137]

Takeaway

Price-realisation is not the same as price-setting. Prices are realized in multiple forms, each form having gone through a complex, yet identifiable process. In futures markets, parties agree to buy or sell an agreed quantity of an asset (commodity) at a future date for a pre-determined price. This allows them to trade expectations on supply and demand patterns and to trade the commodity without owning it. These sophisticated markets offer risk transfer hedging against potential changes in inventory levels over a

[136] I. Lianos & B. Carballa-Schmichowski, A Coat of Many Colours—New Concepts and Metrics of Economic Power in Competition Law and Economics, (2022) 18(4) *Journal of Competition Law & Economics,* 795.

[137] F. Harvey, Third of global food production at risk from climate crisis (May 14th, 2021), available at https://www.theguardian.com/environment/2021/may/14/third-of-global-food-production-at-risk-from-climate-crisis.

period, allowing market players to adjust their positions in the spot market to the futures market. They also provide an avenue for speculation. It is essential for competition law to delve into the social dynamics behind price determination, in order to comprehend the power dynamics that influence pricing. Understanding the role of indices and other market mechanisms, powered by commodity trading intermediaries such as the Big Five, in shaping prices is crucial, since (a) these mechanisms can impact price levels and trends, and (b) the combined effect of spot markets, forward markets and futures markets on price formation in international commodities markets. Physical and futures markets host different groups of market participants, the futures price may not be simply a shadow of the spot price or vice versa. The dynamics in both markets and their feedback effects must be considered. Competition authorities should investigate the interplay between the spot and futures markets, as these markets attract different groups of participants and can have mutual feedback effects, and excessive speculation may become an independent driver of those price fluctuations. The Big Five have panopticon power and may be able to heavily affect price-realisation and excessive profits given the increasing financialisation of the sector.

vii. Beyond the simple relevant market effects: Different dimensions of economic power and technological transformation

The "consumer welfare" rhetoric employed by competition authorities usually focuses on direct harmful effects to final consumers. However, harm to final consumers may also result from effects on the competitive process and the weakening of trade partners whose innovation, investments incentives, and market participation are crucial for the markets.[138] Final consumers may reap the long-run advantages of free markets only when the latter are resilient. Recently, economists have taken a more expansive view of consumer welfare which includes the consideration of the impact of firms conduct not only on 'consumer welfare' but also on the welfare of their trading partners. In other words, modern approaches to competition law combine the 'consumer welfare' and the 'trading party (or counter party) welfare' and focus on the impact of practices on effective competitive constraints.[139] The trading partners can include, depending on the conduct

[138] I. Lianos & C. Milliou, Advantages and Disadvantages of Competition Policy Standards (January 2023), Policy Paper Series 1/2024, available at https://www.ucl.ac.uk/cles/sites/cles/files/cles_policy_paper_1_2024.pdf .

[139] See e.g., C. Shapiro, Breathing New Life into Consumer Welfare Standard: The Protecting Competition Standard, (November, 2018), FTC Hearings on Competition and Consumer Protection in the 21st Century, available at https://faculty.haas.berkeley.edu/shapiro/protectingcompetitionstandard.pdf; See also, L. Samuel and F. Scott Morton, (February 16, 2022), What Economists Mean When They Say 'Consumer Welfare Standard', *Pro-Market*, available at https://www.promarket.org/2022/02/16/consumer-welfare-

under analysis, (upstream) input suppliers, (upstream) workers, and (downstream) business customers.

While this standard continues to place emphasis on the welfare of consumers, it also recognizes that it is important to consider the impact on other market participants, trading partners in particular not competitors, to capture additional dimensions of competition. Applying this standard in competition law enforcement would mean that a firm's practice (in this context, a merger transaction) will be judged to be anticompetitive if it disrupts the competitive process and harms trading parties on the other side of the market. According to its supporters, this approach would mean that, in case there is harm from competitive restraints directed at other upstream trading partners, such as farmers, firms' claims that this harm is justified by out-of-market benefits will not be accepted.[140]

There is evidence that the examined merger will produce harmful effects to farmers (e.g. see the analysis in subsection III.vii). It may be inferred from the atomistic nature of agricultural markets and the consolidation of the processing and retailing part of the food value chain that the bargaining power of farmers is very limited. Traditionally, competition law has dealt with such power imbalances by reinforcing the bargaining power of farmers to counter-balance that of participants in other segments of the food value chain, both downstream and upstream, by enabling farmers to form agricultural cooperatives.[141] However, these specific exceptions/regimes have recently come under attack and their scope has been limited due to the rise of a specific view of the consumer welfare paradigm in competition law[142].

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standard-antitrust-economists/; I. Lianos & C. Milliou, Advantages and Disadvantages of Competition Policy Standards (January 2023), Policy Paper Series 1/2024, available at https://www.ucl.ac.uk/cles/sites/cles/files/cles_policy_paper_1_2024.pdf; Stavros Makris, The Effective Competitive Constraints Standard, available at https://www.promarket.org/2023/04/12/the-effective-competitive-constraint-standard/.

[140] As Laura Alexander and Steven Salop argue, this standard is "broad enough to encompass harms to workers (and other input suppliers) as cognizable competition harms, even if downstream purchasers are not harmed", see L. Alexander and S. Salop, Antitrust Worker Protections: The Rule of Reason Does Not Allow Counting of Out-of-Market Benefits, (December 4, 2022) available https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4094046 cited by I. Lianos & C. Milliou, Advantages and Disadvantages of Competition Policy Standards (January 2023), Policy Paper Series 1/2024, available at https://www.ucl.ac.uk/cles/sites/cles/files/cles_policy_paper_1_2024.pdf .

[141] Article 210a of the CMO Regulation exempts restrictions of competition in agreements in the agriculture sector that are indispensable to achieving sustainability standards higher than EU or national mandatory standards. See Regulation (EU) No 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organisation of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007, OJ L 347, 20.12.2013. See also Kati Cseres, '"Acceptable" Cartels at the Crossroads of EU Competition Law and the Common Agricultural Policy: A Legal Inquiry into the Political, Economic, and Social Dimensions of (Strengthening Farmers') Bargaining Power' (2020) 65(3) Antitrust Bulletin 401.

[142] See the analysis above.

Furthermore, dealing with a more competitive commodity and logistics value chain segment presents less challenges than dealing with a segment with four (or three) major integrated global "agricultural networks" present in more than 40 countries and operating in a variety of products. One may argue that the exclusion and marginalisation of competitors through practices of input or customer foreclosure as a possible anti-competitive strategy, may lead to the exploitation of farmers. This may also make switching to other (new) types of crops (when the location and quality of the soil and climate allow) particularly difficult, as farmers depend at this stage of the food value chain from their continuous commercial relation with these large global players for their produce to reach the national or global commodities' markets.

As a result of this merger, as well as of the previous agrochemical merger wave, the farming segment of the FVC will become increasingly commoditised. This means that farmers are likely to find themselves outsourcing more and more decisions over their economic activity, such as critical inputs (seeds, pesticides), production processes (IT decision-support systems) and trading/transportation, to global agriculture solutions providers. The farmers' only value-added would be their labour, i.e. their actual efforts spent on growing the harvest. Farmers are, therefore, increasingly losing control on most decisions and, very soon, they will outsource the lion's share of their decision-making capabilities.

However, the effects of this merger are not limited to increasing the economic dependence of farmers. More importantly, the central positioning of the new entity at a crucial interface between the farming and the processing/distribution segments may reinforce other dimensions of the economic power of the big agri-trade platforms, such as *Bunge/Viterra*.

As Lianos and Carballa note, the power of a specific economic actor does not always result from the dependency on the other nodes in the network of which it is part, for instance, because of the large market share of farmers that do business with the merging entities. [143] Their influence may stem from their strategic position in the broader (agriculture) network. For instance, this position may enable them to extract an information advantage vis-à-vis potential adversaries, what Farrell and Newman call the 'panopticon effect' in reference to the institutional building and a system of control designed by English philosopher Jeremy Bentham.[144] This panopticon effect may become a source of (economic) power (or *panopticon power* as put forward by Lianos and Carballa). This power emerges in situations where there is significant and growing learning-by-doing asymmetry between the actor benefitting from this position in the

[143] I. Lianos & B. Carballa-Smichowski, A Coat of Many Colours – New Concepts and Metrics of Economic Power in Competition Law and Economics, (2022) 18(4) *Journal of Competition Law & Economics* 795-831
[144] H. Farrell & A. L. Newman, Weaponized Interdependence: How Global Economic Networks Shape State Coercion, (2019) 44(1) International Security 42, 46.

network and the other nodes in the network, something that is obvious in the context of the relation between farmers and the ABCCD agri-trade giants.

In view of the importance of these agri-trade hubs in a decentralised communications structure, central actors such as the merged entity may leverage their positioning in the network to tap into the information-gathering and generating activities of the whole agricultural network, well beyond the nodes with which they have direct, or even indirect, relations. Hence, despite the function of such actors as simple intermediaries who provide an infrastructure of communication, their influence can become quite significant and often this panopticon power is under-represented if one focuses only on market shares in specific relevant markets. It is possible that the different actors in a network voluntarily agree to share information through the hub, for instance, because they trust it better than directly communicating between them, or because it is more convenient to do so. As each of these nodes is not dependent on the hub, in the context of a dyadic relation, the hub cannot be considered as holding power over them. However, this conclusion changes if one takes into account the fact that the actor also serves as a hub for several other interactions which provide that actor with superior and more complete information on the strategies of the other members of the network, including its adversaries, if the latter enter into communication interactions with some of the nodes also communicating with the hub (see subsection III.ii below). Hence, it is important to explore how the specific merger may enhance the strategic positioning of the new entity in the broader agricultural network and reinforce its panopticon power.

Also, according to Lianos and Carballa,[145] a firm may also acquire a durable competitive advantage if it holds a position that enables it to reshape the 'industry architecture' to its own advantage (*architectural power)*.[146] Industry architecture is framed by the various economic actors at the birth of a new industry, and the new players that define the interfaces (technological, institutional or social) that allow different entities to co-specialize and divide labour.[147] As the industry progressively matures, we observe the emergence of 'winners' who strive to frame the industry architecture to their own advantage by developing complex strategies. The objective of these strategies is to capture a disproportionate amount of the surplus value created by the collective production or innovation effort. In some circumstances, firms may opt for integration, taking full control over the rents generated by the complementarities brought by the

[145] I. Lianos & B. Carballa-Smichowski, A Coat of Many Colours – New Concepts and Metrics of Economic Power in Competition Law and Economics, (2022) 18(4) *Journal of Competition Law & Economics* 795-831.
[146] See also, D. Teece, "Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy", (1986) 15(6) Research Policy, 285; M. Jacobides, T. Knudsen & M. Augier, "Benefiting from Innovation: Value Creation, Value Appropriation and the Role of Industry Architectures", (2006) 35 Research Policy, 1201; M. Jacobides, "Industry Architecture" in The Palgrave Encyclopaedia of Strategic Management (edited by Mie Augier and David Teece, Palgrave Macmillan, London, 2016).
[147] *Ibid*.

collective production effort and innovation whilst maintaining the possibility to exclude or marginalize any new entrant, for instance, by denying access to some indispensable interfaces.

Although industry architectures are not meant to last forever, they tend to be relatively stable for some time and may have important effects in steering technological development and the direction of innovation towards business models that "fit" those of the dominant players in the market, thus blocking any other economic alternative. As consumers' expectations are framed according to the industry architect's quality standards and contractual compass, this path dependence also leads the legal and regulatory framework to accommodate the needs of the industry architect. The ability of the ABCCD companies to actively engage in shaping the regulatory context is well documented.[148] Hence, the shift to broader industry-wide networks of relationships explains why the competitive game is more complex and wider than the usual focus of competition law on the impact of a merger on a relevant market.

Finally, path dependence and 'lock-in' may result from intentional strategies seeking to manipulate the industry architecture to create bottlenecks and to maintain them by suppressing actual or potential competitors through various forms of exclusionary or exploitative conduct. This is quite difficult to deal with ex post (the merger) tools as there are few opportunities for trading partners and/or consumers to break their lock-in within the specific economic relation.

In conclusion, being in a position to influence the way the industry is organized or structured and the value allocation between the industry (or ecosystem) actors, provides 'architectural advantage',[149] which may become an important source of longstanding abnormal profits and may play a crucial role in periods of profound technological transformation.[150] This is particularly important in the context of the green revolution, but also in the rise of the bioeconomy,[151] an economy accounting for more than a 1/3 of the global output, and a share under $30 trillion in terms of value[152], in which the merged

[148] S. Murphy, D. Burch and J. Clapp, "Cereal Secrets: The World's Largest Grain Traders and Global Agriculture", (2012) Oxfam Research Reports, 14-15.
[149] M. Jacobides, T. Knudsen & M. Augier, "Benefiting from Innovation: Value Creation, Value Appropriation and the Role of Industry Architectures", (2006) 35 Research Policy, 1201.
[150] C. Ferguson & C. Morris, "How Architecture Wins Technology Wars", (1993) 71(2) Harvard Business Review, 86.
[151] According to the Commission, "Bioeconomy [...] encompasses the production of renewable biological resources and the conversion of these resources and waste streams into value added products, such as food, feed, bio-based products and bioenergy. Its sectors and industries have strong innovation potential due to their use of a wide range of sciences, enabling and industrial technologies, along with local and tacit knowledge": European Commission. (2012). Innovating for sustainable growth: A bioeconomy for Europe. Publications Office of the European Union, p. 3.
[152] See, https://www.bcg.com/publications/2022/synthetic-biology-is-about-to-disrupt-your-industry (2022).

entity will be among the key players.[153] It is also clear that commodity traders' investments in biofuels (in particular corn and soybean oil) and the bioeconomy may have implications to food price volatility and food prices.[154] Hence, as this source of economic power may be ignored if one looks only to market shares in specific relevant markets, it becomes important for competition authorities to explore the capability of the new entity to exercise architectural power in the industry.

Hence, contrary to traditional (industrial) economics, which assumes that "(f)irms compete only within a market, and it is their performance, within that market, relative to other firms, that determines their profitability", the architectural advantage perspective focuses on the role of vertical competition and the way it affects the relative proportion of value (i.e. the 'NPV of future profits') that each segment captures, which may lead to important value shifts from one part of the value chain to another. The firms acquiring such an absolute competitive advantage (the 'kingpins') gain a central role in the overall industry architecture and/or ecosystem, influencing not only the segment to which they belong but also multiple segments within a single industry or sector of the economy.

Takeaway

Firms in a position to influence the way the industry is organized or structured and the value allocation between the industry (or ecosystem) actors, have an 'architectural advantage' ensuing from their strategic position in a broader (agriculture) network. Such an advantage can give them control in the overall industry architecture – e.g. shape technological development and the direction of innovation –, and become an important source of longstanding abnormal profits. This power emerges in situations where there is significant and growing learning-by-doing asymmetry between the actor benefiting from this position in the network and the other nodes in the network, something that is obvious in the context of the relation between farmers and the ABCCD agri-trade giants. Central actors such as the merged entity may leverage their

[153] See, for instance, among others, Bunge's investments in bioefuels (https://www.bunge.com/Markets-We-Serve/Biofuels) or in industrially processed Biofeedstocks (chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://content.presspage.com/uploads/2544/4f7314e2-c45e-4e26-86be-70580565812b/economicimpactofu.s.industrialbioeconomy.v6.6.pdf) in addition to their role in offering sustainability-oriented solutions as agricultural value chain managers. Note that regarding investments in bio-economy, such as bio-fuels, only a few companies currently have infrastructure that enables them to reach production scale (more than 100000 liters), this being "relatively inaccessible to small and medium enterprises" and that, as it is reported, "achieving pilot scale would cost in excess of $1 billion to build a dozen pilot facilities to fuel US infrastructure alone": Undheim TA. The whack-a-mole governance challenge for AI-enabled synthetic biology: literature review and emerging frameworks. Front Bioeng Biotechnol. 2024 Feb 28;12:1359768. doi: 10.3389/fbioe.2024.1359768. PMID: 38481570; PMCID: PMC10933118 .

[154] See, C. Alexander & C.Hurt, Biofuels and T heir impact on Food Prices, available at id-346-w.pdf (purdue.edu) ; S. Murphy, D. Burch and J. Clapp, "Cereal Secrets: The World's Largest Grain Traders and Global Agriculture", (2012) Oxfam Research Reports.

positioning in the network to tap into the information-gathering and information-generating activities of the whole agricultural network. Hence, despite the function of such actors as simple intermediaries who provide an infrastructure of communication, the influence of the Big Five can become quite significant. Competition authorities may turn a blind eye to the implications of their panopticon or architectural power by focusing on product competition within specific relevant markets. In that context going beyond the consumer welfare standard and examining the actual or potential impact of a practice on the welfare of their trading partners as well as the impact of exercising architectural power is crucial.

III. Theories of harm

Given that Bunge and Viterra are close rivals in several markets, their merger can have horizontal, vertical and conglomerate effects. We note that this merger is taking place within an already highly concentrated sector witnessing increasing prices of food staples, and will likely increase the profit margins for all large agrifood conglomerates, and decrease income for farmers. Hence, *Bunge/Viterra* might significantly impede effective competition either by generating non-coordinated, unilateral effects (i.e. by increasing market power or leading to a non-collusive oligopoly) or coordinated effects (i.e. tacit collusion) due to the horizontal overlaps between the merging parties.[155] The non-horizontal dimension of the merger refers to the fact that the merging entity may have the ability and the incentive to foreclose competitors in upstream or downstream markets, and produce exclusionary portfolio effects from the combination of complementary businesses.

In particular, *Bunge/Viterra* might (i) generate non-coordinated, unilateral effects such as higher prices, lower quality and lesser choice; (ii) generate coordinated effects, facilitating tacit collusion and coordinated input foreclosure through joint projects and industry initiatives; (iii) facilitate tacit collusion through the cross-shareholdings between the merging parties (iv) reduce merging parties' innovation incentives and efforts in areas where their R&D activities and products overlap; (iv) diminish innovation diversity, and, thereby, harm the environment and biodiversity by further entrenching the existing agro-chem model of agricultural production; (v) generate ecosystemic effects; and (vi) affect negatively various vulnerable stakeholders at different levels.

.The European Commission approved the acquisition of Viterra by Bunge on August 1, 2024. The EC initially found that the merger, valued at $8.2 billion, will create one of the

[155] HMG (n **Error! Bookmark not defined.**) 24-57.

world's largest agribusiness companies and thereby could reduce competition in EU markets for oilseeds and related products, particularly in Central Europe. The EC also found that it could affect supply chains of rapeseed and sunflower seed in Central Europe, with potential consequences for food, feed, and biofuel industries. The parties offered to sell Glencore-backed Viterra's crush and refining plants for oilseeds in Hungary and Poland. An independent trustee was appointed to monitor the divestiture process. The complete text of the decision is not publicly available at this time. However, based on our present analysis we have serious concerns that such a targeted remedy will be able to address the various competition and broader implications that this mega-merger might have.

In light of the far-reaching concerns that *Bunge/Viterra* is raising, the authors of this Report are of the view that competition authorities should block the transactionsince, at first sight, no structural remedy seems capable of effectively addressing all the concerns identified here. Even structural remedies are unlikely to address the exclusionary portfolio effects, the possible effects on innovation, and the effects on vulnerable stakeholders that may result from *Bunge/Viterra*.

i. Unilateral effects: higher prices, lesser choice and quality

Bunge/Viterra is likely to lead to higher concentration in all relevant markets, and thereby increase prices for consumers, reduce choice and negatively affect quality.

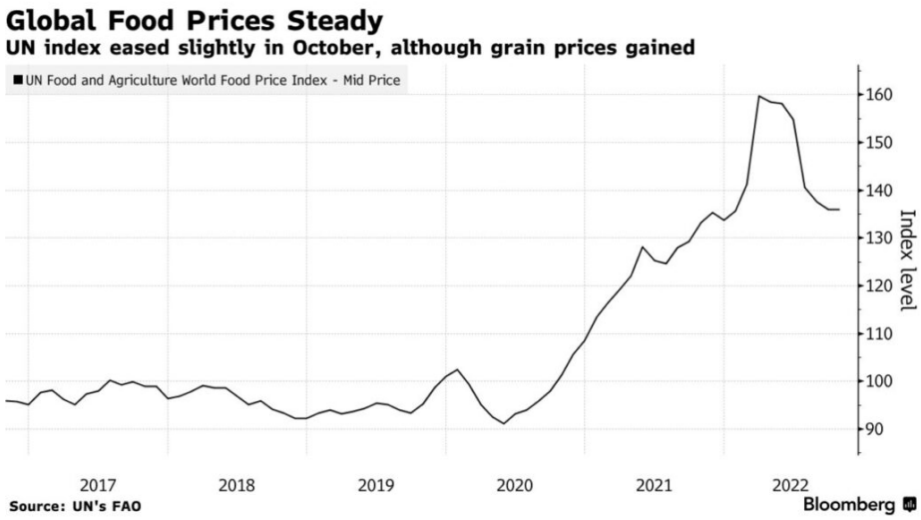
Even though we rely on limited data, we estimate that the combined market shares of the merging parties and the post-merger HHI levels and Δ suggest that *Bunge/Viterra* raises serious competition concerns.[156] Agriculture commodity markets are dominated by the ADM, Bunge, Cargill, COFCO and Louis Dreyfuss Company (ABCCD). Together, these companies control between 70 and 90 per cent of the global trade in commercial grains. Indicatively, in Brazil the soybean production chain has become far more concentrated since 1995, due to the acquisition of 12 large national companies by Bunge, Louis Dreyfus Commodities, Archer Daniels Midland ('ADM') and Cargill.[157]

As already mentioned, the agribusiness sector has been witnessing several waves of consolidation in different segments of the value chain. For instance, in 2002, Bunge acquired Cereol, parent of oilseed companies Central Soya and CanAmera Foods. In this context, in 2008, Bunge acquired Walter Rau, a margarine company, from Germany; in 2009, it acquired the margarine business from Raisio Group, maker of functional food ingredients; and in 2017, it announced its intention to acquire a 70% stake in IOI Loders Croklaan for $946 million from Malaysian palm oil producer IOI Corp Berhad. Viterra,

[156] HMG (n **Error! Bookmark not defined.**) [14-21]
[157] Sylvia Saes, Beatriz Saes and Rodrigo Lanna F. da Silveira, New Forms of Financing the Agricultural Sector in Brazil The Experience of the Soybean Chain.

formerly known as Saskatchewan Wheat Pool, was acquired by multinational commodities giant Glencore in 2012, 'one the world's largest globally diversified natural resource companies' for $6.2B.[158] Since 2012, Glencore has completed 7 acquisitions (Northernorion for $475M; Poly Met Mining, Noranda Income Fund, Recylex, ALE for an undisclosed acquisition price, and Caracal Energy for $1.6B) with an average acquisition amount of $2.76B. Its most active year was 2023, with 3 acquisitions, and it has averaged 1 acquisition per year over the past three years. These acquisitions took place over 4 countries, with most of them being in the Canada and United States, and pertain to companies active in mining and field crops.

This wave of consolidation in the commodities sector has led to higher degrees of market power as the agricultural commodity traders were able to exploit farmer's and consumers' dependence on them and amplify the food crisis. Compared to 2021 in 2022 the absolute number of people suffering from hunger increased by 40 million.[159] According to the UN, the main drivers for this increase were the Russian-Ukraine war and the related disruption of global food supply chains and food price shocks.[160]



"Global Food Prices Hold at Nine-Month Low, Easing Strain on Households," by Megan Durisin. Bloomberg News (November 4, 2022).

Figure 5: Global Food Prices Steady

Unsurprisingly, concentrated markets enable dominant companies to charge high prices without the fear of losing business to competitors. The food sector is not an exception,

[158] https://www.glencore.com/

[159] "Why do more than 800 million people live in hunger?", Al Jazeera, May 28, 2023, https://www.aljazeera.com/
news/2023/5/28/why-is-global-hunger-on-the-rise-2.

[160] Global Network Against Food Crises and Food Security Information Network, rep., World Food Programme, May 4, 2022, 6, https://www.wfp.org/publications/global-report-food-crises-2022.

and the problem has been aggravated due to the recent geopolitical context. All of the five agricultural commodity traders notified their stakeholders that 2021 had been the most profitable year in the agricultural commodity traders' history.[161]

(in million US$)	ADM[106]	Bunge[107]	Cargill[108]	COFCO	LDC[109]	Total
2016	1,288	776	2,380	865[110]	306	5,615
2017	1,223	207	2,840	1,746[111]	316	6,332
2018	1,782	236	3,186	1,800[112]	366	7,340
2019	1,418	-1,302	2,560	1,823[113]	228	4,727
2020	1,774	1,165	3,000	3,233[114]	383	9,555
2021	2,731	2,167	4,920	3,600[115]	697	14,115
2022	4,365	1,678	6,690	3,384[116]	1,007	17,123

Figure 1.. Development of ABCCDs net profits for the period 2016-2022.

Figure 6: Development of ABCCDs net profits for the period 2016-2022.

Source: SOMO

Hence, there are clear indications that the rising concentration and market power of the ABCCD group and the food inflation challenges experienced globally are correlated since a small number of companies dominate the global market in seeds, traits, and crop protection.[162] For instance, in 2021-2022 all agricultural commodity traders realized a much higher net profit margin compared to the preceding years. Their increased profitability has not been derived from expanding their business but through either

[161] "ADM Announces 8% Dividend Increase in Wake of Outstanding 2021 Results, Favorable 2022 Outlook," ADM, January 25, 2022, https://investors.adm.com/news/news-details/2022/ADM-Announces-8-Dividend-Increase-in-Wake-of-Outstanding-2021-Results-Favorable-2022-Outlook/default.aspx; "Bunge Reports Fourth Quarter and Full-Year 2021 Results," Bunge, September 2, 2022, https://investors.bunge.com/investors/news-andevents/ press-releases/year/2022/02-09-2022; Rupert Neate, "Soaring food prices push more Cargill family members on to world's richest 500 list," The Guardian, April 17, 2022, https://www.theguardian.com/news/2022/apr/17/soaring-foodprices-push-more-cargill-family-members-on-to-worldrichest-500-list.; COFCO International (@COFCOINTL). 2022. "#COFCO Corporation, our majority shareholder, announced record performance for 2021. Operating income exceeded USD 103.8 billion, up from USD 83 billion in 2020. Total profits exceeded USD 3.6 billion, up USD 377 million compared to 2020." Twitter, January 17, 2022, 10:04 a.m. https://twitter.com/COFCOINTL/status/1483017357454983169?ref_src=twsrc%5Etfw%7Ctwcamp%5Etweetembed%7Ctwterm%5E1483017357454983169%7Ctwgr%5Ef3d66345963b79db2a04d40861cdaf-1815d45641%7Ctwcon%5Es1_c10&ref_url=https%3A%2F%2Fpublish.twitter.com%2F%3Fquery%3Dhttps3A2F2Ftwitter.com2FCOFCOINTL2Fstatus2F1483017357454983169widget%3DTweet; "Louis Dreyfus Company Reports Strong 2021 Financial Results," Louis Dreyfus Company, March 22, 2022, https://www.ldc.com/press-releases/louis-dreyfus-company-reports-strong-2021-financial-results/.

[162] https://www.somo.nl/hungry-for-profits/ European; DG Comp, Case M.8084 – _BAYER / MONSANTO, para 192.

decreasing their costs or increasing the prices of their agricultural commodities, or by a combination of both.

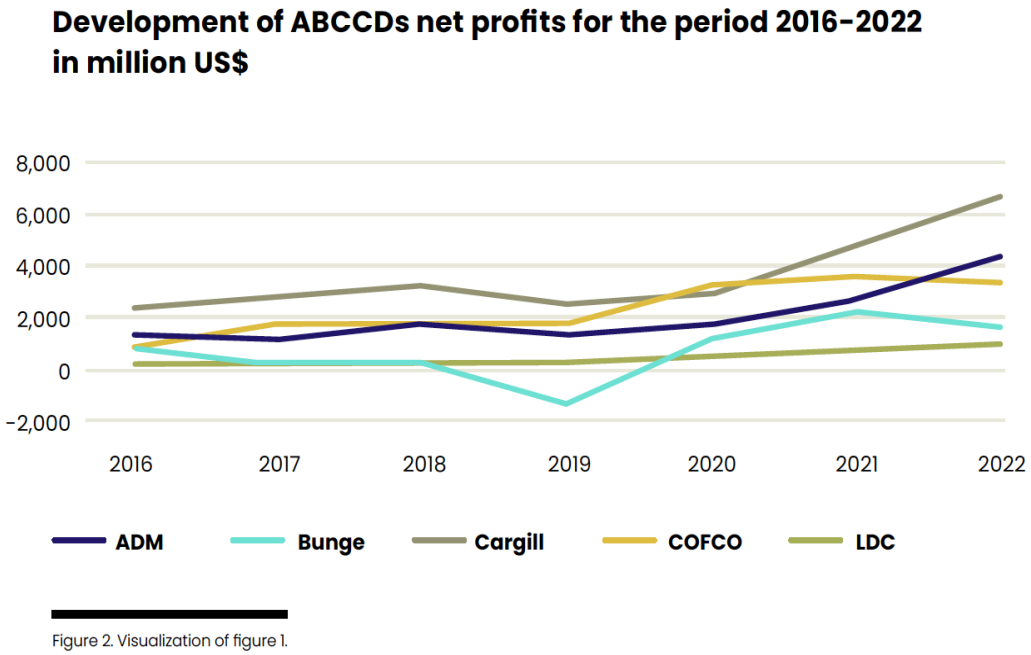


Figure 6: ABCCD's net profits (2016-2022)

Source: SOMO

As noted by SOMO, in the 2016-2020 period, food prices were relatively stable, yet net profits in 2021 rose between 75% and 260% for all agricultural commodity traders compared to the benchmark period 2016-2020. [163] In 2022, net profits were 200% to 300% higher compared to the benchmark period.[164] During the same period 2021-2022, we observe increasing prices in agricultural commodities. [165] Based on the publicly available quarterly finance reports, the net profits of the agricultural commodity traders

[163] Hungry for Profits, p 4.
[164] Hungry for Profits 12.
[165] In 2021 the price of wheat rose close to 50 per cent, the price of palm oil rose by 25 per cent, the price of corn by 10 per cent and the price of soybean by 10 per cent. See Olam, 2021 Annual Report, Singapore: Olam, 2021, 11, https://www.olamgroup.com/content/dam/olamgroup/investor-relations/ir-library/annual-reports/annual-reports-pdfs/2021/olam_annual_report_2021.pdf

remained extremely high during the first 9 months of 2023.[166] Simultaneously consumers have been facing significant challenges in affording basic food stuffs.[167]

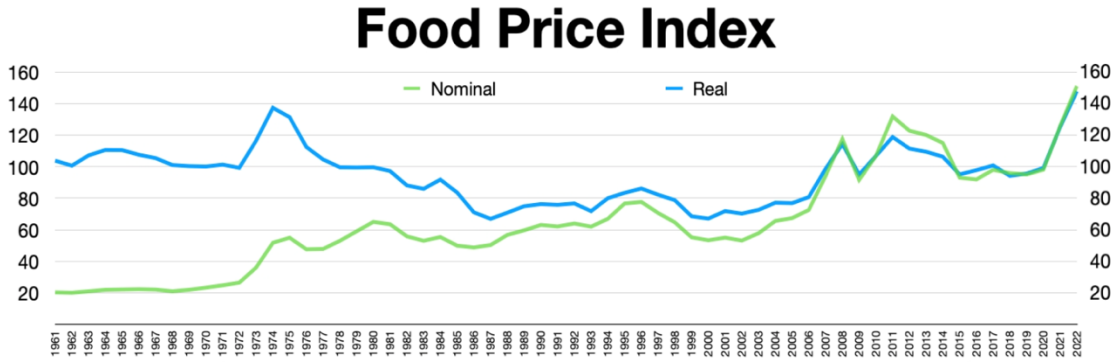


Figure 7: Food Price Index

Source: Food and Agriculture Organisation

As mentioned above (in subsection II.iii), the ABCCD have been able to benefit from higher food prices without suffering from an equivalent rise in in input/production prices on the cost side and without incurring any losses of customers switching to alternative traders.

ABCCD's increasing net profits went hand in hand with rising food prices. Food prices and the average net profits of the agricultural commodity traders rose in tandem.

[166] For Bunge the first nine months of 2023 net profits were slightly above the historically high 2021/2022 net profits. "Bunge Reports Third Quarter 2023 Results", Bunge, May 29, 2023, https://investors.bunge.com/financial-information/quarterly-results/2023. For ADM the first nine months of 2023 net profits were slightly below the historically high 2021/2022 net profits. ADM Reports Third Quarter Earnings per Share of $1.52, $1.63 on an Adjusted Basis", ADM, October 24, 2023, https://investors.adm.com/news/news-details/2023/ADM-Reports-Third-Quarter-Earnings-per-Share-of-1.52-1.63-on-an-Adjusted-Basis/default.aspx.

[167] Within developing countries, the poorest 20 percent spend over half of their income on food. In general 10 million people are pushed into extreme poverty for every percentage point increase in food prices. "Global impact of the war in Ukraine: Billions of people face the greatest cost-of-living crisis in a generation", UN Global Crisis Response Group on Food, Energy and Finance, June 8, 2022, https://unctad.org/system/files/official-document/un-gcrgukraine-brief-no-2_en.pdf, 10 & 12.

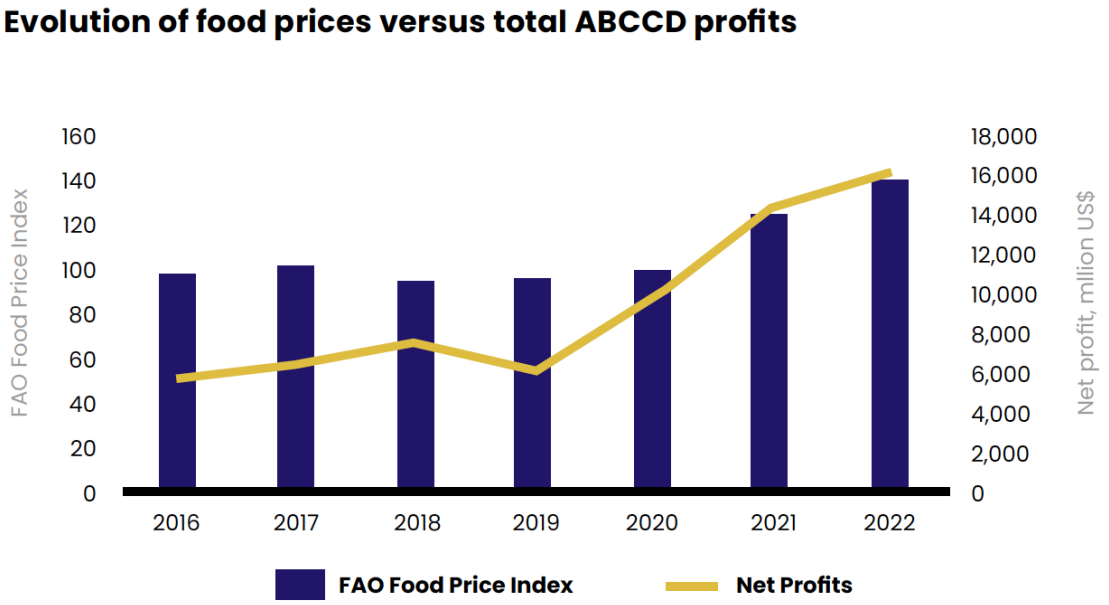


Figure 8: Evolution of prices versus total ABCCD profits

Source: SOMO

These findings suggest the existence of a tight oligopoly where the Big Five may under certain circumstances collectively exercise market power to the detriment of farmers and consumers. In addition, such high levels of concentration make food systems vulnerable to supply chain disruptions and market volatility. The ABCCD have been able to achieve extraordinarily high profits from increased food prices and food price volatility, as well as by securing dominant market positions in oligopolistic market structures and engaging in aggressive M&A strategies. The Big Five control between 70 and 90 per cent of the global trade in commercial grans and exert a high level of control on the main export markets of soy in Brazil, US, Paraguay and Argentina (e.g. 53 per cent of all soy exported from Argentina, Brazil and Paraguay is traded by ABCCD).[168] As noted by UNCTAD 'food markets are complex, highly concentrated and prone to anticompetitive practices such as abuse of market power by dominant firms or oligopolistic price fixing, which can cause higher prices and lower service.'[169] The European competition

[168] Fiona Harvey, "Record profits for grain firms amid food crisis prompt calls for windfall tax," The Guardian, August 23, 2022, https://www.theguardian.com/environment/2022/aug/23/record-profits-grain-firms-food-crisis-calls-windfall-tax. Wáng Shàoguāng, "In a Soybean Game Dominated by Capital, No One Wins," Read China, November 14, 2022, https://mronline.org/2022/11/21/in-a-soybean-game-dominated-by-capital-noone-wins/.

[169] "Trade and Development Update: Global Trends and Prospects," UNCTAD, accessed June 4, 2023, 20-23, https://unctad.org/system/files/official-document/gdsinf2023d1_en.pdf.

authorities have assessed a total of 60 M&A cases related to ABCCDs since 1990, and all but one have been approved unconditionally.[170]

In this context, in markets where Bunge and Viterra are close competitors the merger will likely reduce competitive pressure and lead to price increases either by leading to a merged entity with increased market power or by removing important competitive constraints.[171] For example, Viterra markets itself as 'a major supplier of oilseeds and oilseed products' while Bunge is considering itself a 'global leader in oilseed processing'. Viterra is one of the few companies that can compete with Bunge in various tightly oligopolistic markets. Further, DG COMP listed Bunge as one of the credible competitors to Viterra regarding the rye market in Spain. Therefore, in the product markets where the merging parties present horizontal overlaps and are close rivals, unilateral effects (e.g. higher prices, lower quality and lesser choice) are likely to result from the merger.

Post-merger the new entity will have an appreciably larger market share than the next competitor in a significant number of markets.[172] Even though the merging parties compete with global giants such as Archer-Daniels-Midland and Cargill, they are close rivals operating in oligopolistic markets. Thus, the elimination of the effective competitive constraints that the merging parties previously exerted upon each other, together with a reduction of competitive pressure on the remaining competitors, may result in a significant impediment to competition, even where there is little likelihood of coordination between the members of the oligopoly.[173]

Several additional factors suggest that such unilateral effects are likely to result from the proposed merger.

First, both Bunge and Viterra have large market shares in numerous markets. An economic analysis of Bunge/Viterra's post-merger increase in the sales base and profit margins is necessary to identify the precise magnitude of the unilateral effects. It should be noted though that the higher the margins are after a price increase, the more likely it is that the merging firms will find such a price increase profitable (despite the accompanying reduction in output).[174]

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[170] Joseph Baines & Sandy Brian Hager, "Commodity Traders in a Storm: Financialization: Corporate Power and Ecological Crisis", Allianz Trade, April 14, 2023, https://www.econstor.eu/bitstream/10419/229186/1/commodity-traders-in-a-storm-preprint.pdf, 28; ADM 22; Bunge 10; Cargill 25; COFCO 2; LDC; https://competition- cases.ec.europa.eu/search; "CARGILL / ADM CHOCOLATE BUSINESS", April 14, 2018, European Commission, https://competition-cases.ec.europa.eu/cases/M.7408.

[171] European Commission, Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, (HMG) OJ C 31, 5.2.2004, p. 5–18 [24].

[172] HMG [25].

[173] HMG [25].

[174] HMG [27].

Second, Bunge and Viterra are close competitors in numerous markets.[175] As evidenced by the Manitoba Canola Growers Association the majority of respondents to its survey have sold canola to Bunge (74%), Viterra (79%) and G3 (38%) and consider these three companies the biggest players in canola purchasing in Manitoba (Bunge 86.10%, Viterra, 57.80%, G3 22.80%).[176] When asked if there is any area in Manitoba where a loss of the competition between Viterra and Bunge, or Viterra and G3 would pose problems for canola producers, the vast majority of respondents in each region replied affirmatively, and the most common comment was that it would affect the whole province. Price was found to be the key parameter of competition in this market. Furthermore, 66% of respondents agreed that a merger between Bunge and Viterra would affect their business, while 10% said no and 24% were unsure. However, 80.7% of the farmers said that they compare prices between potential buyers for canola and other grains on every transaction, and 78.3% of the farmers said that they would change buyers for their canola or other grains at any time if the services/price differs.

An economic analysis should be conducted to reveal the degree of substitutability between the merging firms' products, since the higher the degree of substitutability the more likely it is that the merging firms will raise prices significantly.[177] High pre-merger margins may also make significant price increases more likely. Data shows that in 2022 the profits of the ABCCDs tripled compared to the 2016-2020 period and their net profit margins have been much higher in 2021-2022 compared to preceding years.[178] Hence following Covid-19 and the Russia-Ukraine war, ABCCD not only boosted their profits but also significantly increased their net profit margins. For example, Bunge managed to increase its net profit margin from 1.8% to 3.7% in 2021 and to 2.5% in 2022.[179] In that regard, it should be considered whether *Bunge/Viterra*'s incentive to raise prices is likely to be constrained by their rivals' substitutes.[180] Given the tightly oligopolistic market structures and the various price-fixing practices that have been pursued by the ABCCD,[181] such a competition effect is unlikely to counter the likely post-merger price

[175] HMG [28].
[176] MCGA Member Survey: Bunge-Viterra Merger - What we heard (2023), https://canolagrowers.com/wp-content/uploads/2023/12/Bunge-Viterra-potential-merger-survey-What-we-heard.pdf
[177] HMG [28].
[178] Hungry for Profits pg.11.
[179] Hungry for Profits pg.13.
[180] HMG [28]
[181] ADM, for example, was accused of price-fixing in the peanuts sector, and paid a settlement of US$ 5 million in 2021. Bunge has been under investigation since March 2023 by the Romanian authorities concerning possible
collusion on the sunflower oil market. Cargill was also accused, in 2022, of violating antitrust law by improperly communicating with other companies in the poultry sector about worker wages and benefits. Cargill, together with the other two companies, negotiated with the US Justice Department and ultimately settled to pay US$ 84.4 million to resolve the allegations. Louis Dreyfus Company is currently facing, along with Citrosuco and Cutrale, a 12.7 billion Brazilian Real (US$ 2.5 billion) class action lawsuit in Brazil over an alleged orange juice price-fixing scheme. Mike Scarcella, "JBS to pay $25 mln in latest beef price-fixing

increases. Yet, an economic analysis of the substitutability patterns between the products of the merging firms and those supplied by rival producers will shed light on this issue.[182]

Third, the customers of *Bunge/Viterra* may have difficulties switching to other suppliers because there are few alternative suppliers and because they face substantial switching costs.[183] In that regard, customers' vulnerability (see below section VI) is a key factor that needs to be assessed to flesh out the unilateral effects *Bunge/Viterra* might have. Many farmers are likely to be vulnerable to price increases and *Bunge/Viterra* may affect their customers' ability to protect themselves against these price hikes. In that regard, it should be examined if farmers use dual sourcing from the Bunge and Viterra as a means of obtaining competitive prices.

Fourth, the merged entity may hinder the expansion of its rivals, by gaining the ability and incentive to eliminate or restrict the capacity of smaller rival firms to compete.[184] In that regard, it should be examined whether the non-merging parties, either individually or in the aggregate, are in a position to effectively constrain the merged entity to such a degree that it would not increase prices or take other actions detrimental to competition. By acquiring a high degree of control, or influence over the supply of inputs and distribution possibilities, *Bunge/Viterra* might be able to make expansion or entry by rival firms more costly. *Bunge/Viterra*'s patent portfolio and other intellectual property rights might also make expansion or entry by rivals more difficult. The financial strength of the merged entity relative to its rivals is a factor that should be considered in that assessment.

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settlement in US court," Mike Leonard, "Approval of $45 Million ADM Deal Ends Peanut Cartel Class Action," Bloomberg Law, July 28, 2021, https://news.
bloomberglaw.com/antitrust/approval-of-45-million-admdeal-ends-peanut-cartel-class-action; Iulian Ernst, "Romania's competition body investigates possible collusion on sunflower oil, sugar and butter markets," Romania Insider, March 31, 2023, https://www.romania-insider.com/possible-collusion-oil-sugar-butter-romania-investigation; Dan Papscun, "Cargill, Sanderson, Wayne to Pay $85 Million in DOJ Settlement (2)," Bloomberg Law, July 25, 2022, https://news.bloomberglaw.com/antitrust/cargill-wayne-farms-sued-bydoj-for-sharing-wage-benefits-data; Jonathan Stempel, "Lawsuit says Tyson, Cargill, JBS conspired to suppress beef prices paid to U.S. ranchers," Reuters, April 23, 2019, https://www.reuters.com/article/us-cattle-lawsuit-idUSKCN1RZ2AO.Reuters, April 17, 2023, https://www.reuters.com/legal/litigation/jbs-pay-25-mln-latest-beef-pricefixing-settlement-us-court-2023-04-17/; Alison Grant, "Cargill, Morton agree to $11.5 million settlement in road salt price-fixing case," Cleveland, June 3, 2015, https://www.cleveland.com/metro/2015/06/cargill_morton_agree_to_115_se.html; Kurt Eichenwald, "Archer Daniels Settles Suit Accusing It of Price Fixing," The New York Times, June 18, 2004, https://www.nytimes.com/2004/06/18/business/archer-daniels-settles-suit-accusing-it-of-price-fixing.html.

[182] The degree of substitutability may be evaluated through customer preference surveys, analysis of purchasing patterns, estimation of the cross-price elasticities of the products involved, or diversion ratios. HMG [29].

[183] HMG [31].

[184] HMG [36].

Further research is needed to reach definitive conclusions, yet the current analysis suggests that *Bunge/Viterra* may have significant unilateral effects. If *Bunge/Viterra* is cleared, the new entity will be the top grain trader in the world, joining a small — and further shrinking — number of global, vertically integrated companies with growing market power in numerous food markets, and will have the ability to raise prices and shift the risks of the market onto producers.

In a similar vein, in product markets where the merging parties present significant overlaps, *Bunge/Viterra* is likely to reduce merging and non-merging parties' incentives to improve product quality or enhance choice. Moreover, by leading to an entity with increased market power and by further consolidating the sector,[185] *Bunge/Viterra* is likely to enable the merging parties to reduce their efforts to improve the quality of their products or increase and diversify their product portfolios compared to what they would do in the absence of the proposed merger. Furthermore, a merger of this scale may not only have negative effects on price, choice and quality; it may also adversely affect innovation, increase the dependence of consumers and farmers on ABCCD, and damage the resilience of food systems.

Takeaway

A tight oligopoly exists in agricultural commodity trading enabling the Big Five to collectively exercise market power to the detriment of farmers and consumers. In addition, the existing high levels of concentration make our food systems vulnerable to supply chain disruptions and market volatility. The Big Five have been able to achieve extraordinarily high profits from increased food prices, food price volatility, by securing dominant market positions in oligopolistic market structures and by engaging in aggressive M&A strategies. The Big Five currently control between 70 and 90 per cent of the global trade in commercial grans and exert a high level of control on the main export markets of soy in several countries. In this context, a merger between two close rivals such as Bunge and Viterra can have significant non-coordinated effects (e.g. higher prices) by leading to a merged entity with increased market power and/or by removing important competitive constraints. To establish the magnitude and likelihood of such effects the EC (and other competition authorities) will have to consider the pre- and post-merger market shares and the post-merger increase in the sales base and profit margins of Bunge and Viterra; the degree of substitutability between the merging firms' products; Bunge's and Viterra's customers' capabilities of switching; whether farmers have used dual sourcing from the Bunge and Viterra as a means of obtaining competitive prices; non-merging parties' possibilities of expansion. Further research is

[185] As already mentioned, the top five companies already control 90 per cent of the global grain trade. Six of them sell 70 per cent of all agrochemicals and four of those also sell 60 per cent of all the seed.

needed to reach definitive conclusions, yet the current analysis suggests that *Bunge/Viterra* may have significant unilateral effects.

ii. Coordinated effects and foreclosure

The ABCCD work closely together in developing Covantis, an industry initiative powered by blockchain technology.[186] The aim of this platform is to improve efficiency, enhance transparency, and facilitate information-exchange to address food-related problems. In this platform the ABCCD can exchange information about logistics and global trade operations in general. The platform is also aimed at helping its members to overcome complexities in global commodity trade through AI and collaboration. As already mentioned, the Big Five are vertically integrated and operate in tightly oligopolistic markets with high barriers to entry. Moreover, they have forged various structural links among them. There are many joint ventures between ADM, Bunge, Cargill and LDC. For instance, ADM has two major joint ventures with Cargill (SoyVenTM, Grainbridge LLC), and Bunge and LDC have stakes in the joint venture Complejo Agroindustrial Angostura S.A active in oilseed processing in Paraguay.[187] Cargil and LDC also have joint ventures in port terminals for grain export and sugar export.[188] In addition, ADM and Cargill have jointly invested in the French biotechnology company InnovaFeed SAS and are currently developing joint projects.[189]

On these grounds, a platform such as Covantis obviously raises concerns related to tacit collusion. *Bunge/Viterra* may make tacit collusion easier, more stable and more effective, since it will become relatively simpler for the remaining players to reach, post-merger, a common understanding on the terms of coordination, to monitor each other and easily spot deviators, and to retaliate or credibly threaten to retaliate against deviators, while outsiders remain unable to jeopardise the results of the said coordination.[190] *Bunge/Viterra* may facilitate tacit collusion by allowing an additional market participant, Viterra (who could play a distabilising role premerger) to join

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[186] "Covantis: Accelerate the transformation of global trade," Covantis, accessed June 4, 2023, https://covantis.io/. Ironically, the name of its technology partner is ConsensSys.

[187] "Soyven," Soyven, accessed June 4, 2023, https://www.soyven.com/. Jennifer Marston, "Bushel acquires Cargill & ADM's GrainBridge,"AFN, October 12, 2021, https://agfundernews.com/grainbridge-bushel-acquires-cargill-adm.

[188] Louis Dreyfus Company, 2022 Annual Report, Rotterdam: Louis Dreyfus Company, 2022, 56, https://www.ldc.com/annual-report-2022/; "Serviços Portuários," Cargill, accessed June 4, 2023, https://www.cargill.com.br/pt_BR/servi%C3%A7os-portu%C3%A1rios. Original in Portuguese: "A companhia possui ainda joint venture com Louis Dreyfus Commodities para operação de grãos no Terminal Exportador de Santos (TES), em Santos (SP) e no Terminal Exportador do Guarujá (TEG), no Guarujá (SP), além do Terminal de Exportação de Açúcar do Guarujá (TEAG), também no Guarujá (SP), para exportação de açúcar."

[189] John Reidy, "Innovafeed secures $250 million in financing," World Grain, September 21, 2022, https://www.world-grain.com/articles/17493-innovafeed-secures-250-million-in-financing.

[190] HMG [39-57]; Case T-342/99 *Airtours v Commission* ECLI:EU:T:2002:146, [62].

Covantis. In other words, through Covantis the ABCCD can coordinate their activities, exchange commercially sensitive information and train their algorithms to tacitly collude. Viterra by not participating so far was posing an effective competitive constraint to possible tacit coordination. Yet, post-merger this constraint may be eliminated.

Furthermore, Viterra is the only non-ABCCD member of the Covantis platform. In case the platform facilitates procompetitive outcomes – and not tacit collusion – (e.g. provides information, data, services of critical importance for commodities trading) the new entity will have the ability and the incentives to foreclose other smaller agricultural traders from accessing the platform and as a result erect informational barriers to entry. By foreclosing such rivals the merger would likely harm competition and consumers.

In addition, the ABCCDs dominate large parts of the value chain from supplying farmers with loans, seeds, fertilizers and pesticides to storing, processing and transporting food commodities.[191] They are active in the up-, mid- and downstream activities pertaining to several commodities. This vertical integration gives the agricultural commodity traders a strong advantage with regard to access to important market data and expands their influence in and control of every segment of the value chain. The Covantis platform is likely to create further structural links between the Big Five.

In this context, *Bunge/Viterra* can not only facilitate tacit collusion but also enable the merging parties to foreclose their rivals from access to a critical input, the Covantis platform. In general, input foreclosure may occur when the merged entity has an ability and an incentive to foreclose access to a critical input.[192] For instance, the new company may raise the costs of downstream rivals by restricting their access to Covantis.[193] This outcome is likely to occur if the new entity post-merger has (i) the ability to substantially foreclose access to inputs; (ii) the incentive to do so; and (iii) the foreclosure strategy can have a significant detrimental effect on competition downstream (e.g. upward pricing pressure in the downstream market).[194] Such detrimental effect is likely when barriers to entry are high, downstream competitors do not pose any credible and sufficient threats, countervailing factors (e.g. buyer power or entry) are unable to discipline the merged entity, and there are no merger-specific and consumer-relevant verifiable efficiencies.[195] Further research is required, to reach definitive conclusions on whether *Bunge/Viterra* will have the ability and incentives to foreclose newcomers from access to Covantis.

[191] Craig Pirrong, "The Economics of Commodity Trading Firms," Trafigura, accessed June 4, 2023, 11, https://www.trafigura.com/media/1488/2014_trafigura_the_economics_of_commodity_trading_firms_section_v_english.pdf.
[192] NHMG.
[193] Ibid, [30].
[194] Ibid, [31-57] (input foreclosure), [58-77] (customer foreclosure).
[195] Ibid, [47-57, 72-77].

Takeaway

The ABCCD work closely together in developing Covantis, an industry initiative powered by blockchain technology, and they have established structural links. In this setting, *Bunge/Viterra* may make tacit collusion between the Big Five easier, more stable and more effective. Given that Viterra is the only non-ABCCD member of the Covantis platform, the merger eliminates a competitive constraint that could undermine or destabilize potential tacit collusion. Furthermore, in case Covantis facilitates procompetitive outcomes – and not tacit collusion – the new entity may have the ability and the incentives to foreclose other smaller agricultural traders from accessing the platform and as a result erect informational barriers to entry. Such foreclosure could harm competition and consumers.

iii. Reduced innovation incentives and efforts

In *Bayer/Monsanto* and *Dow/Dupont* the EC examined the impact of the mergers on innovation competition.[196] In doing so, the EC was able to factor in in its analysis a subset of competition-relevant sustainability concerns – e.g. issues related to the impact of the mergers on environmental protection, biodiversity, food safety and food-security – to the extent that they were related to innovation, understood as output maximization and maximisation of innovation efforts.[197] In particular, the EC (i) forged a link between sustainability and innovation and (ii) articulated a theory of harm aimed at assessing how the said mergers might affect price and non-price innovation effects. While the EC had examined in the past how a merger might affect dynamic competition, it did so without carrying out a stand-alone, fully-fledged analysis of these innovation effects. In that sense, the theory of harm developed in these cases, which focused on the impact of the mergers on innovation incentives, efforts and output constituted a novelty.

This theory of harm is also relevant in the context of *Bunge/Viterra* since *Bunge/Viterra* could also diminish innovation competition by reducing the R&D incentives and efforts between two close rivals by eliminating important competitive constraints in markets that are already concentrated. In the agrifood sector innovation is key. According to the EC, innovation is a key parameter of competition when it leads to a competitive

[196] European Commission, Case No COMP/M.8084 Bayer/Monsanto, para. 3011.

[197] The Commission's analysis relied on the premise that a high level of post-transaction innovation would alleviate any competition-relevant sustainability issues. See Elias Deutcher and Stavros Makris, Sustainability Concerns in EU merger control: from output-maximising to polycentric innovation competition (2023) 11 *Journal of Antitrust Enforcement* 350; P. Regibeau & C. Rockett, Mergers and Product Innovation, in I. Lianos, A. Ivanov & D. Davis, *Global Food Value Chains and Competition Law* (CUP, 2022). Chapter 20, 504-589; I. Lianos, Agro-Chemical Mega-Mergers and Innovation – Between Competition Law, Regulation and IP Rights in G. Muscolo & M. Tavassi (eds.) *The Interplay between Competition Law and IP: An International Perspective* (Kluwer, 2019), Chapter 21.

advantage (e.g. when there are horizontal overlaps between the merging parties and the merger can allow the new entity to internalise the negative externalities that each of the merging parties was posing to each other before the merger);[198] when the industry players significantly invest in R&D;[199] when the markets are rapidly growing or evolving fast;[200] when there is need for innovation;[201] when IP protection is important.[202]

When innovation is crucial, the EC will take it into account in market definition – i.e. it will examine innovation areas and spaces, identify the relevant markets – so as to overcome the limitations of market definition and incorporate the uncertainty element associated with innovation.[203] This means that the EC will look at an early stage before a relevant market can be identified; because innovation activities may not target specific existing/future products. Innovation spaces may differ form product markets and pipeline products; and in any case the essential question is where market players apply their research efforts.

When innovation is crucial the EC will look at the impact of the merger on innovation as a stand alone consideration and examine the effects of the merger on innovation competition. Less competition typically reduces market-wide innovation, particularly in concentrated markets. A merger may adversely affect innovation competition by (a) reducing innovation rivalry (e.g. when patent races and rivalry are key in introducing innovation, a reduction in the number of firms racing to be the first to patent a new product may lead to a delay in the expected arrival data of a new invention); (b) eliminates an important competitive force (e.g. if two important innovators merge, the merger might lead to the elimination of pipeline products); (c) allows the new entity to reducees R&D input[204] or R&D output[205] (d) product discontinuation.[206] In this assessment the reaction

[198] European Commission, Policy Brief, EU merger control and innovation (2016), available at https://op.europa.eu/en/publication-detail/-/publication/764b96c6-9a82-11e6-9bca-01aa75ed71a1/language-en/format-PDF/source-195709315 .

[199] For example, in *Dow/Dupont*, the parties incurred high costs of discovery and development for new AIs; in General Electric/Alstom: the parties were developing heavy-duty gas turbines; pharma mergers.

[200] Illumina/GRAIL.

[201] In *Dow/Dupont* and *Bayer/Monsanto* the companies had to develop pesticide and herbicide due to adaptation and regulatory standards; in *Hyundai/Daewoo*: reduced fuel consumption and CO2 emissions of LNG carriers was a key issue.

[202] European Commission, Case No COMP/M.7932 Dow/DuPont..

[203] Ibid.

[204] GE/Alstom.

[205] Dow/Dupont, §387: the EC found that both companies had ambitious targets for innovation efforts and output (number of new products and innovative impact in terms of new mode of actions, chemical classes and favourable regulatory profile.

[206] Killer acquisitions.

of outsiders;[207] previous historic developments;[208] and overlaps in pipeline products;[209] innovation diversion effects (business stealing effect); cannibalization effects; and the pre- and post-merger appropriability are key factors to be considered.

Clearly, *Bunge/Viterra* takes place in an industry where innovation plays a crucial role. Bunge carries out crucial technological activities and significantly invests in R&D. Bunge has extensive technical expertise and a global network of innovation centers focused on developing new product technologies and advancing scientific research. These centers combine pilot plants, labs and analytical and sensory capabilities. In addition, Bunge has launched an 'Open Innovation' programme to find new solutions and partnerships that will build an ecosystem around its business. This programme is aimed at fostering collaboration and diversification of Bunge's capabilities pertaining to commodities sourcing, supply chain logistics, food and ingredients processing and customer service. Bunge is also strategically positioning itself to be the preferred partner for reducing carbon in fuel supply chains by developing all grades of vegetable oils feedstocks. By removing Viterra's competitive pressure t*Bunge/Viterra* is likely to lead to a situation where both the merging and non-merging parties will be less inclined to invest in R&D and innovate. Of course, more research is required to reach definitive conclusions. Yet it is worth considering how the merger could harm innovation under the unilateral effects framework of analysis developed by the EC in *Bayer/Monsanto* and *Dow/Dupont*.

Where innovation rivalry is driving innovation efforts the EC needs to identify the 'innovation spaces' in which Bunge and Viterra compete and investigate whether the elimination of overlapping research efforts could cause a reduction in overall innovation competition in the agrochemical sector especially in light of the increased concentration levels, the existing barriers to entry, and the overall fall of R&D output and spending as a proportion of the merging parties revenue.[210] Such a merger can reduce the innovation incentives of the merging parties by suppressing innovation competition between them (first-order effect); and the merging and non-merging parties' incentives to innovate by reducing the overall competitive pressure within the market (second-order effect).[211]

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[207] if only a few non merging parties effectively constrain the merging parties a significant loss of innovation competition is likely. In a concentrated market any reaction of non-merging parties is unlikely to fully offset the reduction in innovation when innovation capabilities between non merging and merging parties differ.
[208] European Commission, Case No COMP/M.7932 Dow/DuPont, paras 2124-2158: consolidation was accompanied by reduction in the innovation intensity and output.
[209] J&J/Actelion; Novartis/GSK oncology; Pfizer/Hospira.
[210] The Commission's attempt to incorporate innovation effects into the unilateral effects analysis has been importantly shaped by the theoretical work by M. Motta and E. Tarantino, 'The Effect of Horizontal Mergers, When Firms Compete in Prices and Investments: Working Paper 1570, Department of Economics and Business, UPF' (2017); G. Federico, G. Langus and T. Valletti, 'A simple model of mergers and innovation' (2017) 157 Economics Letters 136; G. Federico, G. Langus and T. Valletti, 'Reprint of: Horizontal mergers and product innovation' (2018) 61 International Journal of Industrial Organization 590.
[211] European Commission, Case No COMP/M.7932 Dow/DuPont paras. 2005, 2044-2048, 3285

The magnitude and likelihood of the first-order effect depends on (a) whether prior to the merger, the merging parties have an incentive to innovate to capture current and future sales from each other when introducing new and improved products ('business stealing effect'[212] or 'innovation diversion effect'[213])[214] and (b) whether post-merger the new entity will have disincentive to innovate because the introduction of a new product could lead to the cannibalisation of its own existing product lines ('cannibalisation effect' or 'replacement effect'). [215] If Bunge and Viterra compete closely with respect to the development of new products pre-merger, they may have less incentives to compete fiercely and engage in post-merger innovation because the merged entity will be able to internalise the negative externalities that merging parties posed on the profitability of each other pre-merger by engaging in innovation efforts. As a result, the merging parties' incentives to innovate post-merger will be reduced. [216] The internalisation of such externalities will increase the opportunity cost of the cannibalisation effect, and depress the merged entity's incentives to innovate.[217] In that case the merged entity will have a strong incentive to discontinue or reposition one line of research to prevent the cannibalization effect. The first-order effect is likely to be significant if the merger brings together two out of a limited number of effective innovators, who in the absence of the merger would have been likely to divert significant sales from each other by investing in innovation.[218]

The second-order effect of *Bunge/Viterra* on innovation, if established, will exacerbate the first-order effect and further reduce the incentives of the merged entity and the non-merging parties to innovate because the merger will reduce the overall level of competition in the product market. [219] The extent to which a merger could generate

[212] I. Kokkoris and T. Valletti, Innovation Considerations in Horizontal Merger Control, (2020) 16(2) *Journal of Competition Law & Economics*, 220, 228.
[213] B. Jullien and Y. Lefouili, 'Horizontal Mergers and Innovation' (2018) 14(3) Journal of Competition Law & Economics 364 374–379.
[214] Case No COMP/M.7932 Dow/DuPont (n 15) para. 2043. Case No COMP/M.8084 Bayer/Monsanto (n 16) paras. 1013, 1025-1033, 1058.
[215] Case No COMP/M.7932 Dow/DuPont (n 15) para. 2001. Case No COMP/M.8084 Bayer/Monsanto (n 16) paras. 1013, 1022, 1037. For this replacement effect K. J. Arrow, 'Economic Welfare and the Allocation of Resources for Invention' in National Bureau Committee for Economic Research (ed), *The Rate and Direction of Inventive Activity: Economic and Social Factors* (Princeton University Press 1962).
[216] Case No COMP/M.7932 Dow/DuPont (n 15) para. 2002, 2043; 3017-3022; Case No COMP/M.8084 Bayer/Monsanto (n 16) paras. 281, 1041.
[217] Case No COMP/M.7932 Dow/DuPont (n 15) para. 2856 f,n. 2016; 3018; Case No COMP/M.8084 Bayer/Monsanto (n 16) para. 1059. This analysis closely follows the model developed by G. Federico, and G. Langus, and T. Valletti, Horizontal Mergers and Product Innovation (February 26, 2018). Available at SSRN: https://ssrn.com/abstract=2999178 or http://dx.doi.org/10.2139/ssrn.2999178 Kokkoris and Valletti, op. cit., 228–229.
[218] Case No COMP/M.7932 Dow/DuPont (n 15) para. 2007; Case No COMP/M.8084 Bayer/Monsanto (n 16) paras. 281, 1164-1170.
[219] Case No COMP/M.7932 Dow/DuPont (n 15) para. 2044-2045, 2005, 3285. For further discussion of the analysis of the second order effect in the context of innovation competition, Federico, Langus and Valletti, op.cit.; Kokkoris & Valletti, op. cit.

adverse first- and second-order unilateral effects on innovation depends on the innovation-based contestability of pre-merger sales.

If Bunge and Viterra have the prospect of successfully capturing each other's sales by introducing a novel product – i.e. if their sales are contestable by engaging in inventive activities – rivalry (or competitive pressure) drives innovation, and therefore a loss in rivalry – e.g. a merger between them – is likely to reduce innovation.[220] The degree of closeness of innovation competition between Bunge and Viterra is key to determine how the proposed merger will affect innovation.

It should be noted though that the first- and second-order anti-competitive effects on innovation competition could be alleviated or offset by countervailing factors, such as entry, expansion or efficiencies. High barriers to entry[221] and expansion,[222] characteristic to the agrochemical but also agricultural commodity trading and logistics sectors (see Section IIiii), however, have been assessed by the EC in the past, and may very well be present again in the context of this merger. By increasing barriers to entry and expansion, *Bunge/Viterra* could prevent new entrants and existing competitors particularly with lower scale from compensating any possible reduction of the merging parties' incentives to innovate.[223] In addition, due to the strategic complementarity between the Big Five, the merged entity may have an extra incentive to reduce its innovation efforts post-merger.[224] This could be particularly the case in view of the strategic complementarity between the members of the grain oligopoly.

Nonetheless, the appropriability effect of the merger and any other merger-specific efficiencies could mute its adverse effects on innovation-based market contestability.[225] This is a highly context and fact-specific assessment.[226] Therefore, Bunge and Viterra should incur the burden to proffer evidence of such merger-specific efficiencies and how

[220] C. Shapiro, 'Competition and Innovation: Did Arrow Hit the Bull's Eye?' in J. Lerner and S. Stern (eds), *The Rate and Direction of Inventive Activity Revisited* (University of Chicago Press 2012) 362, 364 386
[221] Case No COMP/M.7932 Dow/DuPont, para. 2007; Case No COMP/M.8084 Bayer/Monsanto (n 16) paras. 1062-1080.
[222] Case No COMP/M.7932 Dow/DuPont , para. 3240-3256.
[223] Ibid para. 2008, 2019.
[224] Case No COMP/M.7932 Dow/DuPont, para. 2018; Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings. OJ [2004] C 31/5 para. 31.
[225] Shapiro op.cit., 365, 389 (noting that a merger-induced reduction in rivalry may intensify innovation competition, if it enhances the merged entity's capabilities to appropriate post-merger innovation).
[226] Case No COMP/M.7932 Dow/DuPont (n 15) paras. 3264-3278. Case No COMP/M.8084 Bayer/Monsanto (n 16) paras. 70, 76, 87, 99. This conclusion is in line with the findings by Motta/Tarantino and Federico/Langus/Valletti that even though horizontal mergers may lead to innovation-enhancing efficiencies, they are unlikely to outweigh the adverse first-order effect of the merger on innovation incentives. M. Motta, E. Tarantino, The effect of horizontal mergers, when firms compete in prices and investments, (2021) 78 International Journal of Industrial Organization 102774; Federico, Langus and Valletti, op.cit.

these may mute its adverse effects on innovation.[227] Conclusively, *Bunge/Viterra* could adversely affect innovation if the following elements are present: (i) the innovation-based contestability of pre-merger sales is large;[228] (ii) the appropriability of post-innovation rents is high due to strong IPR protection, and therefore rivalry stimulates innovation;[229] (iii) consolidation between rival innovators is unlikely to be associated with efficiencies in the form of greater appropriability or innovation synergies; (iv) Bunge and Viterra are close and important innovation competitors; (v) the parties' fear of cannibalisation of own existing products is sufficiently large to create a disincentive to innovate; (vi) the structure of the market is oligopolistic; and (vii) the remaining R&D players are unlikely to significantly increase or reposition their innovation efforts to profitably offset the merger-induced reduction of innovation. Under these conditions the proposed merger can generate first- and second- order unilateral effects, and, thereby, diminish innovation competition on the market.[230]

Takeaway

A merger could adversely affect innovation if the following elements are present: (i) the innovation-based contestability of pre-merger sales is large; (ii) the appropriability of post-innovation rents is high due to strong IPR protection, and therefore rivalry stimulates innovation; (iii) consolidation between rival innovators is unlikely to be associated with efficiencies in the form of greater appropriability or innovation synergies; (iv) the parties are close and important innovation competitors; (v) the parties' fear of cannibalisation of own existing products is sufficiently large to create a disincentive to innovate; (vi) the structure of the market is oligopolistic; and (vii) the remaining R&D players are unlikely to significantly increase or reposition their innovation efforts to profitably offset the merger-induced reduction of innovation competition. When rivalry drives innovation a merger-induced reduction in competitive pressure can generate first- and second- order unilateral effects, and thereby diminish innovation competition on the market.

Bunge has extensive technical expertise and a global network of innovation centers focused on developing new product technologies and advancing scientific research. There could be overlaps between Bunge's and Viterra's innovation activities, projects

[227] Case No COMP/M.7932 Dow/DuPont, paras. 3264-3278. Case No COMP/M.8084 Bayer/Monsanto, paras. 70, 76, 87, 99. This conclusion is in line with the findings by Motta/Tarantino and Federico/Langus/Valletti that even though horizontal mergers may lead to innovation-enhancing efficiencies, they are unlikely to outweigh the adverse first-order effect of the merger on innovation incentives. Motta and Tarantino, op. cit.; Federico, Langus and Valletti, op. cit..

[228] Case No COMP/M.7932 Dow/DuPont, para. 2001.

[229] ibid para. 2046.

[230] C. Shapiro, 'Competition and Innovation: Did Arrow Hit the Bull's Eye?' in J. Lerner and S. Stern (eds), *The Rate and Direction of Inventive Activity Revisited* (University of Chicago Press 2012) 364–365.

and R&D efforts. In that case the proposed merger may (a) reduce innovation rivalry; (b) eliminate an important competitive force; (c) reducteR&D input[231] or R&D output[232] (d) lead to product discontinuation.

iv. Innovation Diversity and Sustainability Harms

In *Bayer/Monsanto* the EC signalled for the first time that it remains open to considering the adverse effects of the mergers on sustainability as long as these effects resulted from a decrease in competition between the merging and/or non-merging parties.[233] The EC focused solely on innovation understood as maximisation of innovation incentives, efforts and output to make its assessment and disregarded the role of innovation diversity. Yet, innovation diversity is crucial. Innovation diversity can enhance the endogenous capability of a system to develop better solutions to existing problems.[234] A decentralised pursuit of innovation paths by multiple teams can ensure that, within the same time, multiple alternative approaches and experiments are undertaken. Such a 'parallel paths' strategy is likely to be much quicker in solving technological problems than a process where a few teams engage in sequential phases of trial-and-error within an already entrenched paradigm.[235] The pursuit of a greater number of parallel approaches by independent teams creates more opportunities of simultaneous mutual learning than the sequential pursuit of a single research project at a time. Simultaneously, a larger number of independent players may lead to a higher number and variety of research projects.[236] Thus innovation diversity increases the probability of 'doing things better' and 'doing better things'.[237]

[231] GE/Alstom.

[232] Dow/Dupont, §387: the EC found that both companies had ambitious targets for innovation efforts and output (number of new products and innovative impact in terms of new mode of actions, chemical classes and favourable regulatory profile.

[233] Case No COMP/M.8084 Bayer/Monsanto, para. 3020.

[234] W. Kerber, Competition, Innovation and Maintaining Diversity through Competition Law, Chapter 9 in Competition Policy and the Economic Approach, (Edward Elgar, 2011), 3, 9.

[235] The virtues of 'parallel path strategies' relative to sequential strategies has been further analysed by R. R. Nelson, 'Uncertainty, Learning, and the Economics of Parallel Research and Development Efforts' (1961) 43(4) The Review of Economics and Statistics 351; W. J. Abernathy and R. S. Rosenbloom, 'Parallel Strategies in Development Projects' (1969) 15(10) Management Science B-486-B-505; F. M. Scherer and W. S. Comanor, 'Mergers and innovation in the pharmaceutical industry' (2013) 32(1) Journal of Health Economics 106.

[236] W. Kerber & N. Saam, Competition as a Test of Hypotheses: Simulation of Knowledge generating Market Processes", (2001) 4(3) Journal of Artificial Societies and Social Simulation (JASSS), https://www.jasss.org/4/3/2.html 1.4-1.5, 2.4-2.8.

[237] Kerber, op.cit., 13–15. W. M. Cohen and S. Klepper, 'The tradeoff between firm size and diversity in the pursuit of technological progress' (1992) 4(1) Small Bus Econ 1 2.

Innovation diversity can also increase a system's capacity to absorb or respond to endogenous and exogenous shocks.[238] The more diverse a system or organisation is, the lower the probability of simultaneous system-wide failure would be, as there will be several parallel, redundant teams striving to find the best solution to a certain problem.[239] If one team choses the wrong path, there will still be numerous other teams pursuing a different path. In this regard, the overall system would be one step closer towards the solution. By contrast, if all teams were to follow the same path, the risk of system-wide failure would increase. Consequently, by mitigating the risk of errors through decentralisation, duplication of efforts and redundancy, the pursuit of parallel paths (innovation diversity) reduces the probability of simultaneous failure. [240] Such diversification of the risk of failure across various research paths[241] makes the relevant system more 'resilient'[242] and capable of responding to unexpected changes.[243]

A related issue concerns the direction of innovation in the sector, which may be considered as the "quality" dimension of innovation (rather than its level, low, high etc.). In assessing the effect of the *Dow/Dupont* concentration on the non-price parameter of innovation, the EC made an effort to explain why innovation in crop protection is of crucial importance ''both from the perspective of farmers and growers'', the consumers affected by the merger, as well as ''from a public policy perspective.'' , in view of the increased effectiveness of crop protection and its positive impact to food safety, environmental safety and human health[244]. The SDG objectives may provide a broader

[238] K. Carlisle and R. L. Gruby, 'Polycentric Systems of Governance: A Theoretical Model for the Commons' (2017) 47(4) Policy Stud J 927 936–937..

[239] Carlisle and Gruby, op.cit., 944–947; W. Abernathy, and R. S. Rosenbloom. "Parallel Strategies in Development Projects." (1969) 15(10) *Management Science*, 486–505.

[240] Carlisle and Gruby, op.cit., 944–947. On the relationship between decentralised decision-making, multiplicity and diversity of sources of innovation Kerber, op. cit., 13.

[241] Ibid 15. J. Farrell, 'Complexity, Diversity, and Antitrust' (2006) 51(1) The Antitrust Bulletin 165 167. For the positive contribution of diversification of sourcing as an ‚insurance strategy' to the resilience of systems and integrated value chains P. Régibeau and K. Rockett, 'Economic analysis of resilience: A framework for local policy response based on new case studies' (2013) 11(1) Journal of Innovation Economics 107 131, 133-134; V. Babich, 'Vulnerable Options in Supply Chains: Effects of Supplier Competition' (2006) 53(7) Naval Research Logistics 656; V. Babich, A. N. Burnetas and P. H. Ritchken, 'Competition and Diversification Effects in Supply Chains with Supplier Default Risk' (2007) 9(2) Manufacturing & Servie Operations Management 123; L. V. Snyder and others, 'OR/MS models for supply chain disruptions: A review' (2016) 48(2) IIE Transactions 89 96-97, 102; S. Hosseini, D. Ivanov and A. Dolgui, 'Review of quantitative methods for supply chain resilience analysis' (2019) 125 Transportation Research Part E: Logistics and Transportation Review 285 293–294.

[242] We use the term 'resilience' in line with the definition provided by Régibeau/Rockett as 'ability of an economy, society, organisation, or individual to *recover* effectively from an unexpected shock' Régibeau and Rockett (n 158), 109.

[243] The number of relations or actions adjusted per decision-maker per minute in polycentric, self-coordinated orders or teams is thus higher than in monolithic authoritatively controlled teams or social orders. F. M. Scherer, 'Time-cost tradeoffs in uncertain empirical research projects' (1966) 13(1) Naval Research Logistics 71; Abernathy and Rosenbloom, op.cit.;. Carlisle and Gruby, op.cit., 936–937.

[244] Case No COMP/M.7932 Dow/DuPont (n 15) para. 1975. For a discussion, see I. Lianos, Polycentric Competition Law, (2018) 71 Current Legal Probs. 161.

theoretical framework to indicate the objectives valued by the specific social contract, as a tool to make qualitative arguments about the desirable direction of innovation. In essence, not all innovation is good, only "sustainable innovation" to the extent that sustainability is a high-end goal of the European Social Contract.[245] Calls and initiatives for "Responsible Business Conduct" to make global markets more inclusive and sustainable have put additional emphasis on building resilient and sustainable global value chains. [246] New legal tools put forward the implementation of "responsible innovation",[247] human rights and broad sustainability concerns not only at the level of the firm but also at that of the value and supply chain, and more generally, the agricultural industry.[248]

By increasing the dependence of farmers and by raising barriers to entry, the proposed merger could further entrench a model of agriculture that relies on an environmental and socially unsustainable model of agriculture at the expense of alternative business models that would enable a smoother technological transition, one in which the smallholder farmers and potential entrants wishing to become vectors for technology adoption in this industry may not finish as the "losers" in this transition. It could further decrease the pool of available agricultural products, and increase the reliance of farmers and growers on the conventional tools and agricultural solutions provided by the large agrochem conglomerates to which some of the grain traders are indirectly linked through common ownership by index funds.[249] As a result, an increasing number of farmers and growers would be left without effective alternatives to an industrialised mode of agriculture. Further industry consolidation and homogenisation would cement the path-dependence of the agriculture and food sector towards an industrialised, large-scale mode of production and distribution, diminish consumer choice and protection, undermine food safety and security, harm biodiversity and degrade the environment. Of course, more information is required here to reach definitive conclusions.

[245] See, I. Lianos, Competition Law as a Form of Social Regulation, 65(1) The Antitrust Bulletin 3.
[246] OECD (2021), Building more resilient and sustainable global value chains through responsible business conduct https://mneguidelines.oecd.org/rbc-and-trade.htm .
[247] See, J. Stilgoe, R. Owen, P. Macnaghten, Developing a Framework for Responsible Innovation, (2013) 42 Research Policy 1568– 1580.
[248] See, for instance, the Act on Corporate Due Diligence Obligations in Supply Chains in Germany (Gesetz über die unternehmerischen Sorgfaltspflichten in Lieferketten) which came into force on 1 January 2023 and regulates the responsibility of German enterprises to respect human rights (protection against child labour, the right to fair wages, environmental protection) in global supply chains. See also, at the EU level, the recent EU Directive on corporate sustainability due diligence for which was adopted in June 2024. Directive (EU) 2024/1760 of the European Parliament and of the Council of 13 June 2024 on corporate sustainability due diligence and amending Directive (EU) 2019/1937 and Regulation (EU) 2023/2859, OJ L, 2024/1760.
[249] See, for instance, Appendix 1 in which it is noted that Bunge has substantial shareholder overlap with DuPont being owned by same institutional investors.

Consequently, the EC should not only assess whether the merging parties would raise prices, reduce output, and discontinue their innovation efforts, but also review the way the merger affect innovation diversity, and the trajectory of technological change in this industry as well as its impact on the type, quality and direction of innovation.[250] The EC should also examine whether the merged firms would lack the incentives to support the emergence of 'healthier' or more resilient farming solutions that require the use of fewer chemicals or GM-products. In this sense, protecting innovation diversity is crucial for promoting sustainability. By entrenching the path-dependence of the existing modes of agriculture, such a merger could not only entail environmental degradation, but also undermine the resilience of food systems.

Takeaway

Understanding innovation competition in terms of innovation incentives, capabilities, efforts, and output does not fully capture the impact of a merger on innovation. Emphasizing the closeness of innovation competition and the merging firms' incentives and ability to innovate turns a blind eye to the direction, quality and diversity of innovative activity, and underplays the impact of a merger on sustainability parameters dependent on innovation diversity. While a positive relationship between a greater number of firms and innovation diversity does not always hold, there are, at least, some reasons to believe that the greater the number of firms, the greater the variety of innovation projects (not only innovation in products but also business models) would be, and the more intense polycentric innovation competition would be. In a similar vein, it seems reasonable to assume that a decrease in the number of firms through a horizontal merger may adversely affect the variety of approaches to innovation pursued within an industry. Against this backdrop, it is crucial that the EC assesses the impact of *Bunge/Viterra* on innovation diversity (e.g. the contribution of the proposed merger to further entrenching a particular model of agricultural production and distribution and its potential to eliminate alternative innovation paths) to fully account for its effect on innovation competition. In that way the EC will be able to better account for the competition-relevant sustainability effects of the proposed merger. Greater innovation diversity is particularly relevant in market contexts where sustainability is important, such as the agri-food sector.

v. Cross-shareholding and competition harms

There are extensive contractual connections between all of the five agricultural commodity traders (see subsections II.iv, III.ii). Such cross-shareholdings constitute

[250] ibid.

barriers for new entrants in the agricultural commodity trading sector and raise the risk of collusive behaviour between the five agricultural commodity traders. Specifically, *Bunge/Viterra* could raise competition concerns if Bunge has any sizable direct or indirect interests in businesses that compete with Viterra. In general, where a purchaser already holds a minority interest in a market participant other than the target, the transaction might lead to a substantial impediment to effective competition.[251] This could be the case if the purchaser's minority shareholding gives it a 'significant interest' in the other market participant. 'Significant interest' could be understood as referring to occasions where 'the entity which holds the [minority] interest has the ability to materially influence the economic behaviour of the entity in which the interest is held, including but not limited to decisions relating to pricing, purchasing, distribution, marketing, investment, and financing'.[252] Cross-shareholding is also mentioned in the EU horizontal merger Guidelines as a possible facilitator of possible coordinated effects, in the sense that it provides an information channel amongst competitors,[253] and that it provides "help in aligning incentives among the coordinating firms".[254] O'Brien and Salop

[251] Horizontal Merger Guidelines (HMG) [2004] OJ C 31/ 5, para 20(c); *Dow/ DuPont* (Case M.7932) Commission Decision (27 March 2017)., Annex.5. See, for a discussion, 35See J Rotemberg, 'Financial Transaction Costs and Industrial Performance' (1984) Massachusetts Institute of Technology, Alfred P. Sloan School of Management, Working Paper No 1554-84, 1984; T Bresnahan and S Salop, 'Quantifying The Competitive Effects of Production Joint Ventures' (1986) 4 International Journal of Industrial Organization 155; R Reynolds and B Snapp, 'The Competitive Effects of Partial Equity Interests and Joint Ventures' (1986) 4 Int J Ind Organ 141; R Gordon, 'Do Publicly Traded Corporations Act in the Public Interest?' (1990) National Bureau of Economic Research, Working Paper No 3303;
D O'Brien and S Salop, 'Competitive Effects of Partial Ownership: Financial Interest and Corporate Control' (2000) 67 Antitrust Law Journal 559 (2000); Posner, Morton and Weyl (n 34); D Gilo, 'The Anticompetitive Effects of Passive Investment' (2000) 99 Michigan Law Review 1; D Gilo, Y Moshe and Y Spiegel, 'Partial Cross Ownership and Tacit Collusion' (2006) 37(1) The RAND Journal of Economics 81; G. Diego Pini, 'Passive – Aggressive Investments: Minority Shareholdings and Competition Law' (2012) 23(5) European Business Law Review, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2233350 (arguing that even the acquisition of non-controlling shareholdings may distort competition and requires a close scrutiny by competition authorities); A. Tzanaki, Minority Shareholdings (March 8, 2023). Deborah Healey, Bill Kovacic, Pablo Trevisán, and Richard Whish (eds.), Global Dictionary of Competition Law, Concurrences Review 2023, available at SSRN: https://ssrn.com/abstract=4539501

[252] In assessing whether a particular minority stake rises to the level of a significant interest, the full context of the relationship is relevant to consider whether the entity which holds thee minority interest has ca exercise *de jure* and *de facto* influence. Relevant factors in this regard may include: (a) voting rights attached to the minority interest holder's shareholdings or interest in a combination; (b) the status of the holder of partnership interests (e.g., general or limited partner) and the nature of the rights and powers attached to the partnership interest; (c) whether the business is widely or closely held, and whether the minority interest holder is the largest shareholder; (d) whether the minority interest holder will be able to carry or block votes in a typical meeting; (e) the existence of any special voting or veto rights attached to the minority interest holder's shares or interests; (f) the terms of any shareholder or voting agreements; (g) the dividend or profit share of the minority interest as compared to the minority interest holder's equity ownership share, etc.; (see Report, s. 8.1).

[253] HMG, para. 47.

[254] Ibid., para. 48.

note that even if firms do not collude, either expressly or tacitly, the incentives driving cross-ownership are likely to result in an anti-competitive outcome[255].

Even in the absence of a material influence, a minority interest can have a negative effect on competition. A firm that holds a minority position in a business and acquires a competitor to that business might have a reduced incentive to compete with the business in which it holds an interest. If the firm raises its price and consequently loses sales, it will benefit, through its minority interest, from sales that flow to the business in which it holds a minority interest. In effect, the firm will recapture some of the sales diverted to the business in which it holds a minority interest and may thus have a greater incentive to raise its own price than it would absent the minority interest. The extent of diversion between the firms' products and the profits earned on these diverted sales is crucial in that regard. The likelihood, significance and impact of any such change to the incentives of the minority interest holder should also be considered to assess the competitive impact of the transaction.[256]

This theory of harm was explored by the Canadian Competition Bureau. It should be noted that G3 and Viterra are competitors in the Canadian agricultural market, particularly in Western Canada. Viterra is G3's largest competitor in the areas surrounding each of G3's 19 facilities in Western Canada and both companies operate in many of the same markets within the agricultural supply chain in Canada, including grain origination and handling. To these it should be added that G3 often plays a disruptive role in the grain origination market in Western Canada, aggressively gaining market share from established grain companies such as Viterra and offering higher prices to farmers. In addition, G3 has plans for further expansion (especially in Western Canada) and introduction of innovation to improve its services. Furthermore, G3 has built a network of new high-capacity grain elevators across the Prairies and a new grain terminal at the Port of Vancouver, which operate near similar facilities owned by Viterra. In this context, it does not come as a surprise that the Canadian Competition Bureau was worried that *Bunge/Viterra* might have an adverse impact on competition given Bunge's minority stake in G3.

For this reason, the Canadian Competition Bureau reviewed information provided by Bunge and G3 Global Holdings Limited Partnership (G3), a joint venture between Bunge and Saudi Agricultural Livestock Investment Company (SALIC),[257] to which Bunge held a 25% interest. This information included formal agreements governing Bunge's interest in and relationships with G3, such as shareholder agreements and commercial agreements; records reflecting the operations of G3's board, such as board meeting

[255] D O'Brien and S Salop, 'Competitive Effects of Partial Ownership: Financial Interest and Corporate Control' (2000) 67 Antitrust Law Journal 559 (2000).
[256] see Report, s. 8.3
[257] A global agribusiness investment company wholly-owned by the Saudi-Arabian government.

minutes and board meeting materials; and ordinary-course records reflecting the flow of information between Bunge and G3, as well as internal decision-making and discussion at both Bunge and G3 about G3's operations and strategy.[258] Based on its review, the Bureau concluded that Bunge's 25% minority interest in the parent company of the G3 constituted a significant interest in the joint venture that could allow Bunge to exercise material influence over G3 notwithstanding the absence of a controlling stake. The shareholder agreement governing the joint venture gave Bunge veto rights over a number of significant decisions relevant to core elements of G3's competitive position and the right to appoint a minority of directors. According to the Bureau, the existence of these veto rights "weakens the ability" of the majority shareholder (SALIC) to 'constrain Bunge's influence'.[259] The Bureau also concluded that even if the commercial and financial arrangements between G3 and Bunge 'may also provide Bunge with a strong negotiating position in its dealings with G3' the 'interactions between Bunge and G3 in the context of these agreements may also include discussions of competitive dynamics, including pricing by... Viterra'.[260] In addition, the Bureau considered that Bunge's status as a shareholder entitles its board of director nominees to receive competitively-sensitive operational and financial information (such as confidential information about pricing, costs, capacity, strategic plans, and marketing) from G3, including detailed financial, strategic, and competitive information.[261] Other Bunge employees who are not G3 directors would also receive such information. Such information exchanges could in the Bureau's view allow the companies to coordinate their conduct in a number of ways that could be detrimental to competition, 'including by coordinating pricing or other strategic behaviour, pre-empting scarce resources, or gaining an advantage in contractual negotiations with the rival or third parties'.[262]

On these grounds, the Bureau concluded that, although Bunge does not 'control' G3, the 25% interest it holds in G3 is a significant interest that provides it with the ability to materially influence the economic behaviour of G3, giving it the ability and incentive to influence G3's strategies with respect to investment, entry, and expansion, as well other factors that impact its general competitive strategy, and thereby prevent or lessen competition substantially.[263] By contrast, absent *Bunge/Viterra*, 'G3 was likely to

[258] see Report, s. 3.1.
[259] see Report, s. 8.2.2.
[260] see Report, s. 8.2.2.
[261] See Report, ss. 8.2.3, 9.5 ('the potential for competitive harm resulting from [Bunge's] access to [G3's] confidential information will be greatly amplified given Viterra and G3 compete in a number of markets in the agricultural supply chain in Canada').
[262] (see Report, s. 8.2.3)
[263] The Bureau found, for example, that Viterra is G3's largest competitor in the areas around each of G3's 19 facilities in Western Canada. Moreover, G3 "often plays a disruptive role [in the grain origination market in Western Canada]...aggressively gaining market share from established grain companies like Viterra, and offering higher prices to farmers in order to purchase grain". The Bureau also found that G3 was the fastest-growing competitor in Western Canada, with plans to expand its operations further and to introduce innovations that would improve its service. See Report, s. 8.3, 9.3.

continue to be an aggressive and innovative competitor in Canada'.[264] The Bureau was also concerned about Bunge's access to G3's competitively-sensitive information and the effect this would have on potential coordinated anticompetitive conduct following the *Bunge/Viterra*.[265]

On this basis, it could be argued that in order to fully account for the competitive impact of the proposed merger the EC and other competition authorities need to thoroughly map out any minority interests and cross-shareholdings that Bunge and Viterra may have to other market participants as well as common ownership situations (see Appendix) and assess their competitive significance.

Takeaway

The EC (and other competition authorities) should investigate whether Bunge or Viterra hold minority rights or interests in other market participants. In that case the merged entity may have the ability to materially influence the economic behaviour of the entity (or entities) in which the interest is held, including but not limited to decisions relating to pricing, purchasing, distribution, marketing, investment, and financing. Even in the absence of a material influence, a minority interest can have a negative effect on competition: (a) the merged entity might have reduced incentive to compete with the business in which it holds an interest; (b) the merged entity might be able to receive competitively-sensitive operational and financial information (such as confidential information about pricing, costs, capacity, strategic plans, and marketing) facilitating, thereby, tacit collusion.

vi. Beyond harm in the context of relevant markets – new dimensions of power and the formation of global agricultural networks/ecosystems

Over the last two decades the global agricultural value chain has been progressively transformed into an ecosystem of closely tied players. This occurred first at the input segment of the food value chain. Using information technology and other technological advances such as precision farming,[266] a small number of players emerging out of consecutive merger waves in the agricultural and agro-chem sector control the vast amount of data that is generated through the use of smart sensors and connected farm equipment providing agronomic and equipment insights that are crucial to ensure efficient production. The emergence of integrated technology, traits, seeds, chemicals

[264] See Report, ss. 8.2.3, 9.5.
[265] See Report, ss. 8.2.3, 9.5
[266] See European Parliament, Precision Agriculture and the Future of Farming in Europe, IP/G/STOA/FWC/2013- 1/Lot 7/SC5 (December 2016), available at http://www.europarl.europa.eu/RegData/etudes/STUD/2016/581892/EPRS_STU(2016)581892_EN.pdf

and/or platforms around Agri-Tech business ecosystems following the last merger wave in 2015-2017 has contributed to the erection of new barriers to entry as companies wishing to enter the relevant market(s) may have to offer an integrated solution to farmers.

This may have also stifled disruptive innovation if, in the absence of this merger wave, firms were able to enter one or two segments of the market, without the need to offer an "integrated" platform product that would offer significant economies of scale but would also require high fixed costs. In addition, such platformization has resulted in "locking-in" more farmers to specific agrochem providers, limiting their incentive and ability to switch to rivals, even if these offer a better or a cheaper product, to the extent that these rivals cannot compete with the full product offering (multi-product ecosystem) or cooperation solutions of such business ecosystems (multi-actor ecosystem). [267] . Research has highlighted how such platformization and constitution of business ecosystems in the area of agriculture may reinforce the power of large agricultural companies,[268] which are seeking to develop an "integrated offering of equipment and services for farmers", thereby enabling them to "gradually build a compelling one-stop solution that will allow them to compete for the lion's share of the market".[269]

Market players in this industry have positioned themselves as fully integrated providers, or as the orchestrators of a broader business ecosystem. This may lead to the development of bottlenecks and lock-in situations in the food supply chain that may affect other market actors, such as farmers, and ultimately consumers. It may also block the entry into the agricultural markets of new players, such as independent platforms and IT/cloud providers that may compete with "traditional" agri-players in the food value chain, such as input, machine and/or and equipment companies,[270] thus exacerbating the existing bargaining inequality between farmers and the input segment of the value chain. These companies may develop strategies to exploit different sources of revenue investing in new data-based technologies or expand in adjacent markets.

Arguably, a similar strategy is now followed by the large players of the agricultural commodities and logistics segment of the food value chain, who benefit from a gatekeeping position as they sit at the interface between farmers and the processors or the distribution segment (large wholesalers, supermarkets), thus affecting the output part of the farming segment of the food value chain. The rising importance of data on

[267] M.G Jacobides & I. Lianos, Regulating platforms and ecosystems: an introduction, 2021) 30(5) *Industrial and Corporate Change* 1131

[268] I. Lianos, A. Ivanov & D. Davis, *Global Food Value Chains and Competition Law* (CUP, 2022).

[269] L. Corsini, A. Gocke, T. Kurth, K. Wagner, *Crop Farming 2030: The Reinvention of the Sector* (Boston Consulting Group, 2015), 10.

[270] Digital Ag-The Platform Ecosystem Challenge (April 23, 2020), available at https://www.strategyand.pwc.com/de/de/implications-of-covid-19/digital-ag-the-platform-ecosystem-challenge.pdf .

agricultural commodities, is illustrated by the joint venture formed by the ABCD companies to constitute Grainbridge LLC, a "data refinery" which builds on the huge dataset of grain transactions of its shareholders (ADM, Cargill) combining this with external datasets like historical futures prices, USDA market forecasts, and user data, to provie ''decision support" for farmers.[271] Another platfrom that highlights the role of data is Covantis (with as founding members ADM, Bunge, Cargill, COFCO, Louis Dreyfus Company and Viterra,see subsection III.ii above) a digital platform aimed at optimizing export trade execution processes by connecting shippers, traders and charterers,[272] as well as their recent investments in digital technologies and AI (advanced data analytics, and machine learning techniques) for predictive crop yield forecasting, soil health monitoring and management, supply chain optimization, traceability, quality control and grading of crops, disease detection, the development of new food products, crop diagnostics etc.[273] By developing large global agricultural networks linking thousands or even millions of farmers with the other segments of the food value chain, the ABCCD in general and the merged entity in particular will be able to, first, benefit from indirect network effects and feedback loops, as the more farmers and variety of products they cover, the more data they will be able to harvest and the more valuable they will be to processors and other intermediaries that need access to agricultural production. Through their geographic expansion in different regions of the globe, the ABCCD will also be able to leverage their wide geographical presence to increase their role as gatekeepers of access to farmers and farmed products for processors and the large distribution sector. This will make it increasingly difficult for new entrants in the agricultural commodities and logistics industry to gain competitive advantage and to challenge the dominance of the ABCCD, and to achieve efficient (global) scale.

Second, the ABCCD will benefit from significant technological and data advantages, particularly in the context of price formation and in futures markets, through their privileged access to information, thus accentuating the risks of speculation and enabling profeteering from price volatility. Third, by controlling an important access point, the interface between the farming and the processing/distribution level at the global scale for a variety of agricultural products, the ABCCD may benefit from a "cross-market leverage"[274] to the extent that they will be able to use data from one market to steer consumers toward their product in another market. This could be especially the case in a period of climate change and "high impact and low probability" (henceforth, 'HILP')

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[271] See, https://philosophygeek.medium.com/lessons-from-building-an-agricultural-data-refinery-6b4fb13a5e62 .

[272] See, https://www.bunge.com/Press-Releases/Covantis-Launches-Transformational-Blockchain-Platform-for-Global-Commodities-Trade .

[273] See, https://www.farmerp.com/ai-ml-in-agriculture-how-these-technologies-are-shaping-a-promising-future-for-agro-sector .

[274] P. Heidhues, M. Koster & B. Kószegi, A Theory of Digital Ecosystems (July 8th, 2024), available at https://www.wiwi.uni-bonn.de/koszegi/ecosystems.pdf .

events Additionally, the ABCCD could take advantage of “convenience bundling” (because searching for or switching to something else is costly),[275] and capture a significant proportion of the surplus value generated by farmers by offering services in connected markets “glued” together by the platform/agricultural network, as part of a tightly controlled (through IT) business ecosystem.[276] Conversely, this cross-market leverage also implies that once the ecosystem has grown, there might be an increased value in expanding control to other access points, and going to great lengths to dominate these markets. This may lower incentives for entry and innovation, but also negatively affect the efficiency of access-point markets with superior alternatives.

There is a growing concern that corporate concentration in the food sector may significantly impact consumer choice and preference formation. Clapp (2022) flags that corporate concentration limits consumer choice in the food sector.[277] Many products available in grocery stores are similar despite different branding, due to being owned by the same food processing conglomerates.[278] This, in turn, threatens to undermine the fundamental assumptions of free market choice and preclude consumers from optimising their consumption to satisfy their preferences. Preferences are sensitive to the effect of mere exposure, where consumers need to first see or taste the product to develop a strong preference for it.[279] Under limited choice, thus, consumers may not have the opportunity to form unbiased preferences. For example, while firms often suggest market differentiation based on nutritional or health claims,[280] 79 percent of the breakfast cereal market in the USA is provided by just three firms.[281] Therefore, corporate concentration may lead to a deeper harmful effect of crowding out consumers' ability to form true preferences through exposure to a limited set of undiversified products (see also our analysis in subsection III.iv on innovation diversity).

[275] See, Z. Chen & P. Rey, A theory of Conglomerate Mergers, TSE Working Paper, n. 23-1447, June 2023 available at https://www.tse-fr.eu/publications/theory-conglomerate-mergers .
[276] Ibid., See also I. Lianos, Ecosystems and Competition Law: A Law and Political Economy Approach, April 2024, CPI, available at Ecosystems and Competition Law: A Law and Political Economy Approach (pymnts.com) ; I. Lianos, K. H. Eller, T. Kleinschmitt, Towards a Legal Theory of Digital Ecosystems (May 27, 2024). Faculty of Laws University College London Law Research Paper No. 16/2024, Amsterdam Law School Research Paper No. 2024-22, Amsterdam Centre for Transformative private law Working Paper No. 2024-01, Available at SSRN: https://ssrn.com/abstract=4849340 ; M. Jacobides & I. Lianos, Ecosystems and competition law in theory and practice, (2021) 30(5) *Industrial and Corporate Change*, 1199.
[277] J. Clapp, The rise of big food and agriculture: corporate influence in the food system. In *A research agenda for food systems* (Edward Elgar) 45-66.
[278] Kelloway, C., & Miller, S. (2019). Food and power: Addressing monopolization in America’s food system. *Washington, DC: Open Markets Institute* .
[279] L.J. Frewer, Risvik, E., & Schifferstein, H. (2001) *Food, people and society: a European perspective of consumers' food choices*. Springer Science & Business Media.
[280] G. Scrinis, G. (2016). Reformulation, fortification and functionalization: Big Food corporations’ nutritional engineering and marketing strategies. *The Journal of Peasant Studies*, *43*(1), 17-37.
[281] Hyslop, G. (2017). Cold Cereals USA: The top 10 brands in the first half of 2017.

Takeaway

The emergence of integrated technology, traits, seeds, chemicals and/or platforms around Agri-Tech business ecosystems following the last merger wave in 2015-2017 has contributed to the erection of new barriers to entry as companies wishing to enter the relevant market(s) may have to offer an integrated solution to farmers. Such integration and platformization may have stifled disruptive innovation since, in the absence of this merger wave, firms might have been able to enter one or two segments of the market, without the need to offer an "integrated" platform product that would offer significant economies of scale but would also require high fixed costs. In addition, such platformization has resulted in "locking-in" more farmers to specific agro-chem providers, limiting their incentive and ability to switch to rivals, even if these offer a better or a cheaper product, to the extent that these rivals cannot compete with the full product offering (multi-product ecosystem) or cooperation solutions of such business ecosystems (multi-actor ecosystem). By positioning themselves as fully integrated providers, or as the orchestrators of a broader business ecosystem, the Big Five create bottlenecks and lock-in situations in the food supply chain that may affect other market actors, such as farmers, new entrants and ultimately consumers.

vii. Effects on vulnerable stakeholders in a strategic sector

The *Bunge/Viterra* merger, following Viterra's recent acquisition of Gavilon,[282] will lead to the formation of a global agricultural giant, active in the highly strategic agrifood sector. By strengthening the position of one of the large market players (Bunge), the merger threatens the position of various stakeholders, without at the same time, for the reasons explained in subsections III.i and III.ii, intensifying competition with ADM and the other large players in this highly oligopolistic industry.

As explained above, since the inflationary shock unleashed by the COVID-19 pandemic and the war in Ukraine, the prices of food products – a phenomenon known as 'foodflation'– have risen considerably. Although it remains difficult to ascertain all the causes of this stark evolution, the main processing and transporting firms have arguably played a role in this evolution. For instance, Viterra's 2023 annual report stressed that in Europe, the company captured strong processing margins, which led to record crushing volume. It confirms the position of experts who emphasized the seller origins of inflation, which mostly resulted from the ability of firms with market power to hike prices.[283]

[282] See, https://www.viterra.com/Media/News/Viterra-completes-its-acquisition-of-Gavilo .
[283] See Isabella M. Weber and Evan Wasner 'Sellers' inflation, profits and conflict: why can large firms hike prices in an emergency?' (2023) Review of Keynesian Economics, 11(2), 183–213.

Access to affordable food – In 2023, citizens paid on average almost 30% more for groceries than they did at the beginning of 2021. In some Member States, such as Hungary, prices even went up by more than 60%.[284] The rise in food prices is a cause for alarm regarding citizens' access to affordable food, a condition for the respect of their right to food.[285] For example, in 2024, the Austrian Chamber of Labour met the services of the DG Comp and highlighted how the rise in food prices affects citizens and workers, evoking the role of territorial supply constraints (TSC)[286]. Furthermore, the price rises occur in a market that represents uncompressible purchases for citizens, in particular as most EU countries do not offer systematic shields against food inflation, such as automatic pay-rises (except in Belgium, and in a less comprehensive way in Spain and in the Netherlands).[287] The situation is more devastating in jurisdictions with little financial means for consumption subsidies. A merger pushed by pension funds is likely to result in the maximization of the shareholder value to the detriment of consumers, unless there is evidence that the merger-specific efficiencies will pass on to the final consumers and will fully compensate any losses. Ignoring such concerns may fuel political distrust and instability.[288]

Another concern flows from the position of the farmers and small businesses. As already explained above, the atomistic nature of agricultural markets and the consolidation of the processing and retailing part of the food value chain imply that the bargaining power of farmers is very limited. Especially, corn and soybeans producers are in a tight spot. For seeds, pesticides, and fertilizers, these growers depend on a limited number of companies that have enormous leverage to raise prices. These growers, when ready to market their crops, are confronted by another handful of powerful grain-trading firms, who in turn have leverage to keep prices down. Although the size of a company is not a problem per se, many scholars have shown that dynamics of concentration of economic power tend to maximize the shareholder value to the detriment of various other stakeholders (not just final consumers).[289] Accordingly, national competition authorities have expressed their concerns regarding the vulnerable position of farmers. For example, on 28 November 2023, the Belgian Competition Authority opened proceedings into a possible abuse of economic dependence in the agricultural sector. The national authority

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[284] Van Rompuy, B. (2023). Editorial: territorial supply constraints: a hidden driver of grocery price inflation? *Core: European Competition And Regulatory Law Review*, *7*(3), 139-144. doi:10.21552/core/2023/3/3.

[285] Nadia C.S. Lambek, Priscilla Claeys, Adrienna Wong, Lea Brilmayer, *Rethinking Food Systems, Structural Challenges, New Strategies and the Law* (Springer, 2014).

[286] Arbeiterkamer Wien, 2024.

[287] See ECB, 2008 ; UNI Europa Snapshot Report 2023-01 (https://www.uni-europa.org/wp-content/uploads/sites/3/2023/04/22_02_2023_indexation-1.pdf).

[288] Hence, it is suggested to perform a distributional impact analysis to address such concerns to the extent that data is available. See, for instance, https://ec.europa.eu/social/main.jsp?catId=1594&langId=en ; C. Rodríguez-Castelán et al, Distributional Effects of Competition: A Simulation Approach, IZA Institute of Labor Economics (January 2021), available at https://docs.iza.org/dp14043.pdf .

[289] See W. Lazonick, "Profits Without Prosperity", (2014) *Harvard Business Review,* available at https://hbr.org/2014/09/profits-without-prosperity.

explained that the agricultural sector is one of the most important of the country and concerns a product of which the country is an important EU producer.[290] According to the national competition authority, the structure of the sector, characterized by a high concentration of purchasers, and a highly fragmented supply side (farmers), is likely to affect competition on the national market. *Bunge/Viterra* would increase this trend, reducing even more the number of purchasers, while farmers are already facing dominance in the upstream market (also because of *Bayer/Monsanto*). In Canada, a survey carried out by the Manitoba Canola Growers showed that 66% of respondents agreed that a merger between Bunge and Viterra would affect their business, while 10% said no and 24% were unsure.[291] In *Manitoba Cooperator* it has been said that "the deal is occurring during a time when Saskatchewan and Prairie farmers are facing power imbalances in the market not dissimilar to those that gave rise to co-operative wheat pools in Saskatchewan and Alberta in 1923, and Manitoba in 1924''. The Agricultural Producers Association of Saskatchewan (APAS) stated that ''such a scenario could mean less competitive pricing for farmers' produce, less competitive grain contracts, less access to export sales data, all creating more economic difficulties for farmers''.

Access to water – It would be insufficient to point out the role of the firms of the first decile in the sector of the commodity supply with mere references to markups, prices and economic dominance on the farmers. Referring to a sector that depends on a healthy and balanced environment, the price that is paid by the community includes much more than the facial one. A more connected agri-food supply chain, through bigger and more powerful firms, means an intensification of export production, with many consequences for the water supply. Industrialised agriculture's needs for intensive irrigation have consequences for groundwater reserves. In France, the mega-basins in the Vendée region threaten local market gardeners.[292] The intensification of the lucerne culture in the almost desert valley of the Ebre (Spain) created an entry barrier for many small businesses, who suffer from water scarcity due to intensive irrigation systems.[293] Small

[290] The Belgian Competition Authority opens proceedings into a possible abuse of economic dependence in the agricultural sector, Autorié belge de la Concurrence, Press Release nr 57 -2023, publication date 11/28/2023.

[291] MCGA Member Survey: Bunge-Viterra Merger - What we heard (2023), https://canolagrowers.com/wp-content/uploads/2023/12/Bunge-Viterra-potential-merger-survey-What-we-heard.pdf

[292] Les réserves de substitutions, une solution à la pression agricole sur la ressource en eau ? Observation et affinement des connaissances sur le bassin des Autizes dans le contexte de la gestion quantitative de l'eau au Sud-Vendée, Ecole Normale Supérieure, département de géosciences (https://www.geosciences.ens.fr/cinq-questions-sur-les-mega-bassines) ; Les retenues de substitution : du cas de Mauzé-sur-le-Mignon (Deux-Sèvres) aux conditions générales de leur déploiement, Rapport de l'Académie d'agriculture de France (https://www.academie-agriculture.fr/system/files_force/publications/avis-recommandations/2023/20231117rapportretenues-de-substitutionnovembre-2023.pdf).

[293] Jose Albiac, Michael Hanemann, Javier Calatrava, Javier Uche & Javier Tapia. (2006). The Rise and Fall of the Ebro Water Transfert, *Natural Resources Journal,* 727-757 ; "Disponer solo de la mitad de agua de riego va reducir drásticamente la producción de arroz en el Delta del Ebro", 21 March 2023

businesses are often the main local suppliers, and important labour providers. The weakening of their economic position might lead to the severe de-structuration of the local economy. In the context of a competition policy that includes the analysis of complex ecosystems, food transport, transformation and production cannot be detached from the question of the water supply, above all in areas with strong hydric stress, such as Southern and Southeastern Europe[294].

An inclusive approach – In line with the consistency required by the EU primary law, and with regard to the environmental and social issues caused by the intensification of the global food trade, the authorities should, prior to the clearance of such a structuring project, consider the way it affects the economic development of local communities. This approach is fostered by the enforcement of C169 of the ILO (1989, of which all EU members states are members) that relates to Indigenous and Tribal Peoples. Article 7.1 of the Convention states that peoples concerned [by economic projects] shall have the right to decide their own priorities for the process of development as it affects their lives, beliefs, institutions and spiritual well-being and the lands they occupy or otherwise use, and to exercise control, to the extent possible, over their own economic, social and cultural development. In addition, they shall participate in the formulation, implementation and evaluation of plans and programmes for national and regional development which may affect them directly. The convention is ratified by Brazil, while it has been alleged that both Bunge and Viterra acquired soya produced in territories inhabited by indigenous and tribal peoples, in infringement to this national law.[295] This legally binding provision appears especially topical for this merger as well.

Risk of financialization of carved-out assets – The carve-out operation proposed by both companies to fulfil their competition duties is likely to affect EU assets, mostly in Hungary and Poland. In this regard, previous cases have shown that the dislocated entity is likely to lack sa clear industrial investment and strategy project and to take a drifted path, exposing the plants and the facilities to the will of financial investments without local anchor.[296] While many territories will face tremendous challenges to secure the food supply chain, there is a growing need for public interest economic guidance.

(https://www.agrodigital.com/2023/04/21/disponer-solo-de-la-mitad-de-agua-de-riego-va-reducir-drasticamente-la-produccion-de-arroz-en-el-delta-del-ebro/).

[294] United Nations' Intergovernmental Panel on Climate Change's (IPCC) Special Report on Climate Change and Land (SRCCL), also known as the Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems, 2019.

[295] Ratification: date 25 Jul 2002 ; Gigantes do agro compram soja de fazendeiros multados por plantio em terra indígena embargada em MT (https://reporterbrasil.org.br/2023/05/gigantes-do-agro-compram-soja-de-fazendeiros-multados-por-plantio-em-terra-indigena-embargada-em-mt/).

[296] Commission Decision in Case M.4828 – Owens Corning/Saint Vetrotex (2007) ; Commission Decision in Case M.9172 – Liberty House Group / Arcelormittal Divestment Businesses (2019).

Therefore, remedies should include all affected stakeholders, including the local communities.

The merger project would affect the position of workers, the respect of their rights, health and safety, and their ability to exercise their countervailing power.

Labour share – A recent report by DG Comp explores how rising market power could lie at the heart of an observed decline in the labour share of value added.[297] The report refers to an OECD investigation into the correlation between industry concentration and the labour share, which is defined as the employees' compensation over value added. The study concludes that, on average, the labour share and concentration are negatively correlated, and that this relationship is driven by the top decile of the most productive firms. The concentration of economic power of the potential merger would then lead to a decrease in the labour share, which has further detrimental consequences given the above-mentioned context of difficult access of many workers to essential commodities.

Health & Safety at work – Further, consolidation generates a series of direct environmental risks linked to the erosion of genetic diversity in food systems.[298] The narrowing of R&D pathways has gone hand in hand with increased consolidation across the chain. The resulting erosion of genetic diversity in crop research and in the field leads to a host of risks.[299] Further, dependence on standardized production aggravates the dependence on artificial fertilizers as well as pesticides and fungicides, which further jeopardizes the health of agricultural workers who are exposed to toxic chemicals on a nearly daily basis. By reinforcing the incentives and infrastructures of the dominant industrial model, industry consolidation tends to exacerbate these widespread impacts, which neither ILO labour standards (for example C025 - Sickness Insurance (Agriculture) Convention, 1927 ; C139 - Occupational Cancer Convention, 1974; C170 - Chemicals Convention, 1990 ; C184 - Safety and Health in Agriculture Convention, 2001) nor national regulation of the members states on work related-diseases are able to tackle. In line with the spirit of the EU corporate sustainability due diligence directive (which requires companies to ensure that human rights and environmental obligations are respected along their chain of activities),[300] competition authorities should consider how a company's size and perimeter of activities may affect sustainability.

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[297] Ex Post Economic Evaluation of Competition Policy, Report on the evolution of competition in the EU during the past 25 years, DG Comp, 2024.

[298] *See, e.g.*, Christophe Bonneuil and Frédéric Thomas. (2009). *Gènes, pouvoirs et profits. Recherche publique et régimes de production des savoirs de Mendel aux OGM*, Paris, Ed. Quae-ECLM.

[299] IPES-Food. 2017. Too big to feed: Exploring the impacts of mega-mergers, concentration, concentration of power in the agri-food sector.

[300] Directive (EU) 2024/1760 of the European Parliament and of the Council of 13 June 2024 on corporate sustainability due diligence and amending Directive (EU) 2019/1937 and Regulation (EU) 2023/2859 (Text with EEA relevance) PE/9/2024/REV/1 OJ L, 2024/1760, 5.7.2024.

Countervailing power – Eventually, a more vertically integrated company is likely to reduce workers' ability to carry industrial actions and their bargaining power toward the company. In this respect, a recent complaint published by the Federal Trade Commission regarding a merger project in the retail sector highlights how a competition authority can consider the effect of a merger on collective bargaining.[301] In the Kroger's Acquisition of Albertsons case, the FTC considered that the concentration would raise grocery prices for millions of Americans, while harming tens of thousands of workers. Showing how a competition authority can include the interests of various stakeholders in its assessment, the FTC explained that the combined Kroger and Albertsons would have more leverage to impose subpar terms on union grocery workers that slow improvements to wages, while also being able to worsen benefits, and potentially degrade working conditions.

This approach is in line with legal institutionalism. According to this school of thought, the law can modify economic power relations because of the way in which it enables the various actors to defend their interests ("Antitrust as allocator of coordination rights").[302] Legal institutionalism emphasises the constitutive role of the law in its ability to promote or reduce the autonomy of economic players.[303] The countervailing power exercised by the stakeholders, among which the workers, relies on the way they are enabled by law to unionise and exercise their rights.[304] It is possible to draw a parallel between the pending *Kroger/Albertsons* case and the recent EU guidelines of the DG COMP on the right to collective bargaining of the self-employed (COM (2022) 6846).[305] Recital 16 of the guidelines explains that the conclusion of a collective agreement presupposes a certain level of coordination between the various people making up each of the two parties to the negotiation, and implicitly invites the authority to analyse the relations of power related to the case.

Competition law, and particularly in this context merger control intervention, may be seen as an instrument through which economic actors are given bargaining power in a

[301] FTC, *Kroger Company/Albertsons Companies, Inc., In the Matter of*, complaint (dated: 26 February 2024).
[302] S. Paul. (2020), Antitrust as Allocator of Coordination Rights, *U.C.L.A. Law Review*, vol. 378, 378-429.
[303] S. Deakin, D. Gindis, G. Hodgson, K. Huang, K. Pistor, (2015) « Legal Institutionalism: Capitalism and the Constitutive Role of Law », *Journal of Comparative Economics*, numéro 45, p. 188, University of Cambridge Centre for Business Research Working Paper ; I. Lianos, I. (2022). « Value extraction and institutions in digital capitalism: Towards a law and political economy synthesis for competition law », *European Law Open,* numéro 1(4), pp. 852-890, p. 874
[304] S. Paul. (2023). On Firms, *The University of Chicago Law Review,* volume 90:2, 2023, 579-621 ("statutory enactments not only authorized a preexisting form of economic coordination but also further defined and shaped it").
[305] Communication from the commission Guidelines on the application of Union competition law to collective agreements regarding the working conditions of solo self-employed persons 2022/C 374/02 C/2022/6846 OJ C 374, 30.9.2022.

given market.[306] Where employers have pervasive monopsony power, we can expect implications for wages and working conditions that lend credence to new arguments for competition law intervention.[307]

This perspective of enforcing competition law would take into account how the structure of the market, and its high level of concentration and financialization, may weaken the possibility for other stakeholders to organise and defend their interests. When labour (here farmers') collective power is not in a position to remedy the imbalance of power, ex ante competition law intervention to curtail the emergence of an even tighter oligopsony in the commodity trading segment may offer an appropriate complementary tool.

Takeaway

Farmers and workers may see their bargaining position weakened by the merger as the concentration of economic power will put them in a more vulnerable position. The effects on them are wider than just price and output effects. The degradation of soil and groundwater reserves and their increasing scarcity may raise barriers to entry for farmers and small businesses, reducing thereby business opportunity. In a similar vein, the merger may disproportionately affect local food supply chains. This may further fuel resentment and populism. Against this backdrop, competition authorities have recently demonstrated their ability to better analyse power relations between stakeholders and to use countervailing powers to counter economic concentration, notably through the enhancement of collective bargaining (e.g. of farmers vis-à-vis commodity traders). A legal institutionalist perspective will also accommodate a prophylactic approach to M&A activity by curtailing any risk for further economic concentration of the commodity trading and logistics segment of the FVC.

[306] S. Paul, "Antitrust as Allocator of Coordination Rights", *U.C.L.A. Law Review,* 2020, No. 378, pp. 378-429.

[307] E. A. Posner, G. Weyl, S. Naidu, "Antitrust Remedies for Labor Market Power", *Harvard Law Review*, 2018, pp. 536-601.

IV. Where we stand currently – Merger Review Process in jurisdictions that have reviewed the merger so far.

Since *Bunge/Viterra*, nine countries' competition authorities have reviewed the transaction. Although the majority have approved it, often without any conditions, the decisions from countries where the transacting undertakings have a higher market share, have been less tolerant of the merger. Competition authorities that have reviewed the merger and given a judgment are the EC, Brazilian, Indian, Eastern/Southern African (COMESA), Chilean, Mexican, Argentinean, Australian and Canadean authorities. Each of these will be examined in turn, both with regard to their merger review process, as well as the perspective each authority took when assessing the merger.

Canadian Competition Bureau

The Canadian Competition Bureau (CCB) was notified of *Bunge/Viterra* on 15th August 2024.[308] The CCB evaluated the competitive landscape and raised major competition concerns, especially in the seed oil markets and supply.[309] The Bureau determined that the transaction would likely lead to reduced competition for canola sourcing in regions around Bunge's Altona and Nipawin facilities (both in the province of Manitoba) and in the supply of seed oils to Eastern Canada.[310] The Bureau also identified risks related to Bunge's access to G3's[311] sensitive competitive information (see above subsection III.v). Post-merger, Bunge would acquire Viterra, G3's primary competitor, giving Bunge potential influence over G3's competitive behaviour in ways that could harm agricultural market competition in Canada. The CCB's review of *Bunge/Viterra* was uniquely conducted within the framework of the Canada Transportation Act due to Viterra's ownership of significant grain terminal facilities and high market share in domestic oil shipping.[312] Consequently, the Bureau is required to submit its report to the Federal Minister of Transport rather than issuing its final decision independently. The Governor in Council will make the ultimate ruling based on the Minister's recommendation, informed by the Bureau's findings. This may involve negotiations of remedies, which are agreed upon (with the parties) in a Consent Agreement filed with the Competition Tribunal.[313]

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[308] https://www.canada.ca/en/competition-bureau/news/2024/04/competition-bureau-releases-report-identifying-substantial-competition-concerns-with-bunges-proposed-acquisition-of-viterra.html

[309] Canadian Competition Bureau, "The Canadian Competition Authority releases report identifying substantial competition concerns with proposed merger of agriculture giants (Bunge / Viterra)" Apr-2024, e-Competitions, Art. N° 118626 (https://www.concurrences.com/en/bulletin/news-issues/april-2024/the-canadian-competition-authority-releases-report-identifying-substantial)

[310] Competition Bureau Canada, "Report to the Minister of Transport and the Parties to the Transaction Pursuant to Subsection 53.2(2) of the Canada Transportation Act" Apr-2024 https://competition-bureau.canada.ca/how-we-foster-competition/education-and-outreach/report-minister-transport-and-parties-transaction-pursuant-subsection-5322-canada-transportation-act

[311] G3 is a large oilseed farming and shipping company located in Manitoba Canada, see https://www.g3.catold

[312] See footnote 336

[313] Ibid.

Alternatively, the Bureau may directly challenge the merger before the Tribunal, the body which is able to prevent the merger, impose specific restrictions, or *order* asset or share divestitures to safeguard competition. Given the Bureau's strong indication of anti-competitive risks posed by the merger, substantial remedies should be anticipated to address the merger's market impacts.

EU Commission

On 13th June 2024 Bunge and Viterra notified the EC of their intended merger, initiating the EU's formal merger review, as it met the market share threshold under Regulation 139/2004.[314] In Phase I the EC conducted its initial assessment to determine whether the merger raises serious competition concerns.[315] This phase included market analysis, soliciting feedback from competitors, customers, and other stakeholders, and consideration of potential competitive issues.[316] This initial investigation raised concerns, particularly around oilseed processing capacity in Central Europe: the merger could negatively affect both farmers and downstream buyers by concentrating market power.[317] Given the significance of these issues, the EC escalated the review to a Phase II investigation. The EC concluded that, without changes, the merger would lead to "considerable concentration of oilseed processing capacity in Central Europe" with potential negative effects on farmers and downstream customers[318] within the oilseed market. Therefore, the EC required remedies: the parties had to "divest the entirety of Viterra's oilseed businesses in Hungary and Poland and a number of logistical assets linked to these operations."[319] In the EC's view these commitments fully address the competition concerns identified by the Commission, by removing the horizontal overlaps and vertical links between the parties' oilseed businesses in the concerned territoriesHowever there are many who would have preferred to see the EC to take a different direction due to the global impact the merger may have not only short term but in the medium and long run.[320]

[314] See Article 1, Regulation 139/2004, otherwise known as the EU Merger Regulation.
[315] European Commission, "Competition: Merger control procedures" (https://competition-policy.ec.europa.eu/document/download/8543e71c-4f88-4b37-92c5-a3ec0a0f56f1_en?filename=merger_control_procedures_en.pdf)
[316] Ibid.
[317] See European Commission Merger Decision M.11204: https://competition-cases.ec.europa.eu/cases/M.11204
[318] Ibid.
[319] Ibid.
[320] H. Van Scharen & I. Keizer, "Why did the EU quietly approve a Big Agri mega-merger this summer?" Sept 2024 (https://euobserver.com/green-economy/ar421c0515)

Brazilian CADE

The Brazilian *Conselho Administrativo de Defesa Econômica* (Administrative Council for Economic Defence) also reviewed *Bunge/Viterra*, under its ordinary process, given the transaction's scale and impact on Brazil's market thresholds.[321] Initially assessed by CADE's General Superintendent, this phase involves evaluating potential competition risks, particularly focusing on market concentration within Brazil's domestic markets.[322] CADE's analysis took 11 months,[323] during which the General Superintendent focused on the horizontal concentration of the two parties to produce an overall assessment of the new undertaking's market power and the level of competition in the relevant market post-merger. Ultimately, the General Superintendent concluded that the merger posed minimal competitive risks, with limited effects on domestic markets. As a result, the General Superintendent cleared the transaction without restrictions, allowing the merger to proceed without a referral to CADE's Administrative Tribunal, which only reviews cases requiring additional scrutiny or remedial measures.[324] Allowing the merger reflects the authority's belief that the merger will have minimal impact on Brazil's commodities shipping operations or domestic grain market.[325]

Indian CCI

After being notified of the merger on 13th June 2024, the Competition Commission of India (CCI) initiated its standard Phase I review, analysing the merger's potential effects on market competition within India's domestic markets.[326] Theis process includes a preliminary assessment of market structure and competitive impacts, focusing on areas where the companies overlapped, such as crude soybean and sunflower oil.[327] After reaching out to relevant third parties to gather further market insights, the CCI concluded that the merger was unlikely to raise competitive concerns in India.[328] Given the highly competitive nature of India's oil markets the CCI found that the merger would not limit consumer choice or market accessibility. While some horizontal overlaps were identified, the CCI determined that sufficient market competition would remain post-merger. This assessment allowed the CCI to clear the transaction in Phase I without

[321] https://content.mlex.com/#/content/1494094

[322] C. Saccab Zarzur *et al*. "Merger Filing Guide: Brazil" *Mergerfilers* Oct-2024 (https://mergerfilers.com/guide.aspx?expertjuris=Brazil#guidebook).

[323] Brazilian Ministry of Justice/General Superintendence, Official Journal of the Union 05/13/2024 (https://www.in.gov.br/web/dou/-/despachos-de-10-de-maio-de-2024-559343717).

[324] See footnote 315.

[325] Ibid.

[326] A. Kakkar & V.P. Singh Chauhan, "Merger Filing Guide: India" *Mergerfilers* July-2022 (https://mergerfilers.com/guide.aspx?expertjuris=India#guidebook)

[327] F. Patel "Bunge-Viterra merger filed with Indian antitrust watchdog, claimed not to raise competition concerns" Apr-2024 (https://mlexmarketinsight.com/news/insight/bunge-viterra-merger-filed-with-indian-antitrust-watchdog-claimed-not-to-raise-competition-concerns)

[328] Competition Commission of India, "CCI approves the acquisition of 100% share capital of Viterra by Bunge" July-2024 (https://www.cci.gov.in/media-gallery/press-release/details/413/0)

progressing to the more detailed Phase II investigation, concluding that the merger posed minimal risk to India's domestic market.

Eastern and Southern Africa (COMESA)

The COMESA[329] Competition Commission (CCC) was notified of the merger on 18th August 2023, as the transaction met thresholds for notification due to its potential impact across multiple member states, and reaching turnover or asset values.[330] The CCC initiated its Phase I review, a 45-day review process to assess whether the merger would adversely affect competition in the region. Given the cross-border nature of the merger the CCC evaluated the potential impacts on relevant geographical and product markets, considering whether Bunge and Viterra's combined operations may limit competition within the COMESA common market.[331]

However, in its evaluation the Bunge-Viterra merger, the CCC found that the transaction would not negatively impact competition within COMESA's common market.[332] Based on the companies' limited market shares in relevant markets across the COMESA region, the CCC determined that the merger was unlikely to hinder competition or encourage collusion among other market participants.[333] Consequently, the CCC approved the merger without imposing any structural or behavioural remedies. With no significant issues arising during Phase I, the CCC approved the merger unconditionally, foregoing the need for a more detailed Phase II review. In reaching its decision, the CCC took into account the minimal likelihood of the merger leading to anti-competitive effects or collusion among other market players in the region.

Chilean FNE

Upon notification on 6th December 2023,[334] the *Fiscalía Nacional Económica* (FNE), Chile's competition authority initiated their Phase I review to assess the potential

[329] See https://comesacompetition.org also see https://www.comesa.int

[330] COMESA Merger Assessment Guidelines Oct-2014 available: https://comesacompetition.org/wp-content/uploads/2023/06/141121_COMESA-Merger-Assessment-Guideline-October-31st-2014.pdf

[331] COMESA Competition Commission, "Case File No. CCC/MER/7/23/2023, Decision1 of the 103rd Meeting of the Committee Responsible for Initial Determinations Regarding the Proposed Acquisition of Viterra Limited by Bunge Limited" Dec-2023 (https://comesacompetition.org/wp-content/uploads/2023/08/CID-Decision-Viterra-Bunge.pdf)

[332] COMESA Competition Commission, "Case File No. CCC/MER/7/23/2023, Decision1 of the 103rd Meeting of the Committee Responsible for Initial Determinations Regarding the Proposed Acquisition of Viterra Limited by Bunge Limited" Dec-2023 (https://comesacompetition.org/wp-content/uploads/2023/08/CID-Decision-Viterra-Bunge.pdf)

[333] Ibid.

[334] CeCo - Competition Center at University of Adolfo Ibáñez, "The Chilean Competition Authority approves the proposed acquisition of a Dutch agricultural company by a global agribusiness and food company (Viterra / Bunge)," February-2024*, e-Competitions February,* Art. N° 119556 accessible at :

impacts on competition that may be caused by the transaction's significant market impact.[335] During this 30-day preliminary evaluation, the FNE examined whether the combined market shares of Bunge and Viterra in relevant sectors met Chile's concentration thresholds[336] or would disrupt competitive market dynamics.[337]

The FNE's assessment involved defining the relevant product market however, it did not progress the review to its more in-depth Phase II or needing to go to the *Tribunal de Defensa de la Libre Competencia* (TDLC), Chile's competition court.[338] Instead, the agency concluded that the combined market shares of Bunge and Viterra would not exceed the FNE's market concentration thresholds or reduce the market's competitive structure.[339] Following this assessment, the FNE approved the transaction in a straightforward manner during the Phase I review stage. By concluding the review in Phase I, the FNE effectively signalled its confidence that the transaction would not disrupt the relevant markets within Chile.

Mexican COFECE

Bunge and Viterra notified the Mexican Federal Economic Competition Commission (COFECE) of their merger on November 17th 2023.. The notification was required because the transaction met COFECE's thresholds related to transaction value, asset value, or turnover.[340] Bunge and Viterra had the option to consult COFECE pre-notification for informal guidance on competition concerns, allowing them to address any potential issues early in the process. COFECE's review began with a Phase I investigation, a preliminary 60-business-day assessment to detect any competition concerns. During this phase, COFECE analysed the merger's impact on the Mexican market by examining the market structure, the parties' projected market shares, and potential competitive effects. The Commission determined there was "little probability of affecting competition in Mexico,"[341] likely due to limited overlaps or competitive concerns specific to the region. Since COFECE did not identify any significant concerns during Phase I, it cleared the Bunge and Viterra merger without requiring remedies or

https://www.concurrences.com/en/bulletin/news-issues/february-2024/the-chilean-competition-authority-approves-the-proposed-acquisition-of-a-dutch

[335] See FNE "Stages in the control of concentration operations" available: https://www.fne.gob.cl/fusiones/proceso-de-control-de-operaciones-de-concentracion/

[336] FNE, Guía para el Análisis de Operaciones de Concentración Horizontales available: https://www.fne.gob.cl/wp-content/uploads/2022/05/20220531.-Guia-para-el-Analisis-de-Operaciones-de-Concentracion-Horizontales-version-final-en-castellano.pdf

[337] Ibid.

[338] See footnote 341.

[339] See footnote 340.

[340] L.G. Garcia Santos Coy et al, "Merger Filing Guide: Mexico" *Mergerfilers* Oct-2024 (https://mergerfilers.com/guide.aspx?expertjuris=Mexico#guidebook)

[341] https://content.mlex.com/#/content/1560212

proceeding to a Phase II investigation. This outcome reflects COFECE's view that the transaction would not substantially impact competitive conditions in Mexico.

If necessary, COFECE's decision is subject to judicial review;[342] however, no further actions or appeals followed this clearance of the transaction. As a result, the Bunge and Viterra merger was approved unconditionally, permitting the transaction to proceed without structural or behavioural remedies in the Mexican market.

South African Competition Tribunal

After notification on the 9th of December 2023[343] the Competition Commission of South Africa began its review by examining potential competition and public interest implications of the merger, managed by the Competition Tribunal in close collaboration with the Competition Commission of South Africa.. This initial assessment (Phase I) is a much quicker process, taking a maximum 40 days, while Phase II involves a more detailed examination that may extend up to 120 days for complex cases.[344] During this phase, the Commission was able to evaluate the potential horizontal and vertical impacts on the South African wheat market, considering whether the merger would result in a concentration of market power detrimental to local suppliers or consumers. Public interest factors were also taken into account, such as implications for employment and economic development, reflecting the Tribunal's dual mandate of fostering competition and protecting broader societal interests.[345]

The South African Competition Tribunal cleared the Bunge-Viterra merger on July 3,[346] dependent on conditions aimed at safeguarding competition in the wheat market[347]. This decision reflecting the Tribunal's commitment to balancing market competition with broader public interest priorities. The condition imposed specifically addresses the

[342] See footnnote 357.

[343] Competition Tribunal South Africa, "BUNGE GLOBAL SA LTD AND VITERRA LTD Case number: LM139Dec23" Dec-2023 (https://www.comptrib.co.za/case-detail/20655) Also see https://www.comptrib.co.za/info-library/case-press-releases/merger-alert-outcome-of-mergers-decided-by-the-tribunal-3-july-2024

[343] Ibid.

[344] M. Wagener, "Ten frequently asked questions: South African merger control" June-2023, *Norton Rose Fulbright* (https://www.nortonrosefulbright.com/en/knowledge/publications/0f26f97a/ten-frequently-asked-questions-merger-transactions-south-africa)

[345] Ibid. Also see https://www.comptrib.co.za/info-library/case-press-releases/merger-alert-outcome-of-mergers-decided-by-the-tribunal-3-july-2024

[346] F. Fortes, "Bunge expects to close Viterra transaction in the next several months" Sep-2024 *MLex,* (https://content.mlex.com/#/content/1594344)

[347] Competition Tribunal South Africa, "BUNGE GLOBAL SA LTD AND VITERRA LTD Case number: LM139Dec23" Dec-2023 (https://www.comptrib.co.za/case-detail/20655) Also see https://www.comptrib.co.za/info-library/case-press-releases/merger-alert-outcome-of-mergers-decided-by-the-tribunal-3-july-2024

potential impact on wheat supply and pricing, aiming to prevent any undue concentration of market power that could disadvantage local suppliers or consumers.[348]

Argentinian CNDC

Bunge and Viterra notified Argentina's National Commission for Competition Defence (Comisión Nacional de Defensa de la Competencia, CNDC)[349] as the transaction met the CNDC's thresholds for review based on turnover and transaction value.[350] Given the scale of the transaction, the CNDC initiated its review through its ordinary procedure, beginning with a Phase I analysis, which is designed for mergers unlikely to present substantial competition concerns and lasts up to 45 working days. During Phase I, the CNDC examined key factors such as Bunge and Viterra's market shares in Argentina, competitive overlap, and the potential impact of the merger on market structure and competition. Although this initial phase often clears non-problematic mergers, *Bunge/Viterra* raised competition concerns due to its potential market concentration, particularly in the soy oil sector. Consequently, the CNDC extended its review into Phase II, allowing an additional 120 working days for a more in-depth analysis.

Phase II involved comprehensive economic scrutiny and stakeholder consultations, and recent reports suggest that the CNDC may be concerned about the merger's potential to increase market concentration. Notably, the merger's involvement with Vicentin (a major, albeit insolvent, Argentine soy oil exporter) is likely to impact competitive dynamics,[351] as Vicentin's integration would significantly bolster Bunge and Viterra's market share. The CNDC is expected to evaluate whether the merger would lead to excessive control over soy oil exports and consequently, anit-competitive effects on other market players. As of now, the CNDC has not issued a formal decision regarding *Bunge/Viterra*, with delays potentially reflecting these competition concerns. Due to Argentina's position as one of the world's largest soybean oil exporters, and Vicentin (one of the largest exporting companies prior to its insolvency[352] in the country) the decision of the CNDC will be an impactful one.

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[348] G.d. G, *MERGER ALERT: OUTCOME OF MERGERS DECIDED BY THE TRIBUNAL - JULY 2024* (https://www.comptrib.co.za/info-library/case-press-releases/merger-alert-outcome-of-mergers-decided-by-the-tribunal-3-july-2024)

[349] L. Diego Barry et al, "Merger Filing Guide: Argentina" *Mergerfilers* Oct-2024 (https://mergerfilers.com/guide.aspx?expertjuris=Argentina#guidebook)

[350] Ibid.

[351] N. Misculin, "Argentina to review Bunge-Viterra deal" June 2023 (https://www.reuters.com/markets/deals/soy-giant-argentina-review-bunge-viterra-deal-govt-source-2023-06-13/)

[352] Y. Otero, "Bunge-Viterra merger increases US concentration of Argentina's grain exports" June 2023 (https://buenosairesherald.com/business/agro/bunge-viterra-merger-increases-us-concentration-of-argentinas-grain-exports)

Australia

The Australian Competition and Consumer Commission (ACCC) commenced their review process of *Bunge/Viterra* under their Informal Merger review process,[353] on the 23rd of October 2023 after being notified of the transaction.[354] This informal decision is taken by the ACCC so that the parties request to be made aware whether the competition authority will seek an injunction to prevent the merger. This process can take between 6-12 weeks from notification of the merger, for the ACCC to make initial market inquires and conduct analysis of the effects on said markets the merger would have.[355]

In the case of Bunge and Viterra, the ACCC focused on two primary markets: grain trading and vegetable oil.[356] After reviewing market data and conducting initial inquiries, the ACCC concluded that the merger was "not likely to substantially lessen competition in any market in Australia."[357] Specifically, in the grain trading market, the ACCC found that the merger would not significantly increase either party's market share or reduce competition levels, as Bunge's operations in Australia are concentrated in Western Australia, where post-merger competition remains robust. Outside this region, Bunge does not hold a substantial market position, which minimized concerns about any anti-competitive impact nationwide.[358]

In the vegetable oil market, the ACCC determined that Bunge was not a large enough supplier for the merger to pose competition risks. Given the number of existing suppliers, the ACCC found no significant change in market dynamics post-merger.[359] As a result, the ACCC cleared the merger without conditions and chose not to issue a Statement of Issues, which is a step taken only when potential concerns are identified.[360]

Since the ACCC's informal review resulted in a decision not to oppose the merger, no further regulatory action or Federal Court proceedings were necessary.

The Authorities' perspective so far

Having reviewed the different outcomes of each competition authority, it would be interesting to compare their perspectives on the merger, namely whether they looked at

[353] ACCC, "Bunge Limited - Viterra Limited" Dec-2023 (https://www.accc.gov.au/public-registers/mergers-registers/public-informal-merger-reviews-register/bunge-limited-viterra-limited)
[354] Ibid.
[355] See ACC Informal Merger Review Process Guidelines, available at: (https://www.accc.gov.au/system/files/D17-156292%20Informal%20Merger%20Review%20Process%20Guidelines%20-%20updated%20November%202017_0.PDF)
[356] ACCC, "Bunge Limited - Viterra Limited" Dec-2023 (https://www.accc.gov.au/public-registers/mergers-registers/public-informal-merger-reviews-register/bunge-limited-viterra-limited)
[357] Ibid.
[358] Ibid.
[359] Ibid.
[360] Ibid.

it purely through a simple economic lens (in looking at market shares in specific markets), or whether they further addressed the issue by looking more holistically of the power the new undertaking would possess globally.

From the press releases and decisions that are publicly available, it seems that COMESA, Chilean FNE, Australian CCC, Indian CCI and the Brazilian CADE have all taken the traditional micro-economic perspective looking at the merger, largely ignoring the broader political economy context and a complexity approach. These authorities focused on whether the merger would substantially increase market concertation in specifically defined relevant markets and found minimal risks within their own respective domestic markets. Therefore, while there may not be an impact upon competition within these regions as these agencies centred their evaluations on direct competitive factors like market concentration and consumer welfare rather than on broader economic power dynamics, the merger may negatively impact global (commodities) markets.

However, Canada, being on of the most critical jurisdictions so far, looked further at the post-merger undertaking's power across the country, rather than just in the specific geographical relevant markets. The CCB took the transport/shipping of the goods into account, assessing thereby the new entity more holistically in comparison to the other competition authorities' approaches. It would seem this has given the CCB more room to understand the power *across* different geographic markets that would be held by the new entity, making its decision more impactful, especially considering how many other jurisdictions approved it. It would have been interesting to adopt such an across markets approach also for the product markets and economic activities that will certainly be impacted by the merger, as is shown by our analysis above on ecosystems. While Argentina did not adopt a 'big-picture' view as the CCB, it still took into account the impact upon the local economies in the region due to the transaction involving the procurement of one of Argentina's top exporting undertakings. However, we await the final judgment and the remedies that may be applied with this more nuanced perspective.

V. Broader concerns – resilience, economic democracy, food sovereignty, right to food and complex systems[361]

Concerns over resilience, structural inequality and economic democracy call for a more aggressive competition law enforcement in the agro/food sector.[362] With the aim of guaranteeing a "fairer" distribution of the total surplus value generated in FVCs, these approaches argue that competition law enforcement should focus on the way in which the total surplus value is allocated both between the various segments of the global food value chains and the various jurisdictions in which the merging undertakings are active. From a political economy perspective, it may make sense for emergent and developing countries to consider the inter-country and domestic distribution of the total surplus value of the global food value chain when designing their competition law interventions in this field. The quest for food sovereignty[363] and the fulfilment of the human right to food[364] also form part of the broader "global justice" agenda[365] that has been gaining momentum in recent years, partly as a reaction to the liberalisation of food commodities and exchange.[366] These challenges should lead us to rethink some of the core concepts of merger control.

The increasing consolidation of the food value chain may also produce externalities that need to be tackled from a broader public interest perspective, in view of concerns related to the resilience of supply chains and national security, biodiversity, sustainability and the right to food,[367] as well as the emphasis put by few competition law regimes on public

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[361] This Section partly draws upon I. Lianos & D. Katalevsky, Economic Concentration and the Food Value Chain, in I. Lianos, A. Ivanov, D. Davis (eds.), *Global Food Value Chains and Competition Law* (CUP, 2022), Ch. 6 and I. Lianos, A. Velias, D. Katalevsky & G. Ovchinnikov (2020) Financialization of the food value chain, common ownership and competition law, (2020) 16(1) European Competition Journal, 149.

[362] M. Hendrickson, P. Howard and D. Constance, "Power, Food and Agriculture: Implications for Farmers, Consumers and Communities" in *Defence of Farmers: The Future of Agriculture in the Shadow of Corporate Power* (edited by J. Gibson and S. Alexander, University of Nebraska Press, 2019), 13.

[363] On 'food sovereignty', see P. McMichael, "Historicizing Food Sovereignty", (2014) 41 The Journal of Peasant Studies, 933; P McMichael, "Commentary: Food Regime for Thought", (2016) 43 The Journal of Peasant Studies, 648, which notes that food sovereignty "is about reorganising the international political economy, modelling the social struggle around democratic principles, gender equity, producer rights, ecological practices and rebalancing the urban/rural divide"

[364] On the right to food, see I. Lianos & A. Darr, Hunger Games – Connecting the Right to Food and Competition Law, in I. Lianos, A. Ivanov, D. Davis (eds.), *Global Food Value Chains and Competition Law* (CUP, 2022), Ch. 18 (p.420).

[365] See C. Barry and T. Pogge, Global Institutions and Responsibilities: Achieving Global Justice, (Blackwell, 2005), ; G. Brock, Global Justice: A Cosmopolitan Account, (Oxford University Press, 2009), ; T. Nagel, "The Problem of Global Justice", (2005) 33(2) Philosophy and Public Affairs, 113; T. Pogge, "Priorities of Global Justice", (2001) 32 (1/2) Metaphilosophy, 6; M. Risse, On Global Justice (Princeton University Press, 2012).

[366] P. Claeys, Human Rights and the Food Sovereignty Movement – Reclaiming Control (Routledge, 2015).

[367] For instance, the EU treaties include a general integration clause in Article 7 of the Treaty on the Functioning of the European Union (henceforth, the 'TFEU'), according to which "the Union shall ensure consistency between its policies and activities, taking all of its objectives into account and in accordance with the principle of conferral of powers". Sustainable development constitutes a fundamental objective pursued by the EU.

interest goals.[368] The aim should be to assess the full social costs of these transactions to the extent this is possible. According to this view, the competitive assessment of the recent agro-chem mergers wave should have addressed their important effects on employment, [369] by including this social cost in competition law and policy considerations.

It is important also to acknowledge that food production is an area of great economic and geopolitical importance. According to UN estimates, by 2050 the world population will increase to nine billion, and catering to the additional demand would require a 70% increase in food. [370] Demand for meat and dairy is growing, especially in emerging markets, particularly China and other countries in East Asia. Demand for meat drives grain consumption. The production of 1 kg of beef requires 25 kg of feed (this feed typically consists of grasses, grains like corn and soybeans, and other plant materials) and 15,400 liters (4,068 gallons) of water.[371] The majority of this water (about 94%) is used for producing feed for the cattle. Producing 1 kg of beef generates approximately 60 kg of greenhouse gas emissions, which is more than twice the emissions of the next most polluting food, lamb. The production of 1 kg of beef requires also about 20 times more greenhouse gas emissions per gram of edible protein than plant-based alternatives. It is not surprising, therefore, that since 1980, the demand for field crops has increased almost 90% to almost 2.7 billion tons.[372]

This has resulted in strong pressure to increase agricultural output, which has further intensified in light of growing sustainability challenges, such as the degradation of soil, the reduction of arable land due to urban sprawl, environmental challenges, water scarcity, biofuel consumption, climate change, etc. By 2050, 68% of the global population will be living in urban areas, which means that circa 6.6 billion people will be living in cities. There are several processes by which urbanization might be contributing to higher food prices.[373] Food security and sustainability are set to become increasingly important issues for the developing world. In addition, urban populations typically prefer

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The inclusion of these provisions will inevitably lead the European Commission and arguably the Courts to grant more importance to broader public interest concerns in some circumstances, see: I. Lianos, (144), 1-84; I. Lianos, "Polycentric Competition Law", (2018) 71 *Current Legal Problems*, 161.

[368] South Africa is a classic example. For analysis, see A. Raslan, "Public Policy Considerations in Competition Enforcement: Merger Control in South Africa", (2016), UCL CLES Research Paper Series 3/2016.

[369] After the merger between Bayer and Monsanto completed, Bayer announced 12,000 job cuts affecting one in ten workers globally: see BBC News, "Bayer to Cut 12000 Jobs and Sell Brands", (*bbc.co.uk*, 29 November 2018), <https://www.bbc.co.uk/news/business-46391337>.

[370] See, https://news.un.org/en/story/2013/12/456912 .

[371] See, https://ourworldindata.org/grapher/feed-required-to-produce-one-kilogram-of-meat-or-dairy-product.

[372] See, https://www.syngenta.com/sites/syngenta/files/GRI/our-industry-syngenta.pdf .

[373] J. Stage, J. Stage, G. Mcgranahan, 'Is urbanization contributing to higher food prices?', (2010) 22(1) Environment & Urbanization 199.

a higher calorie and protein diet, which will likely contribute to a global shift towards the increased consumption of meat and dairy products, thus indirectly leading to an increase in the demand for grains (part of the production being transformed to animal feed).

It is undeniable that the proposed merger has the potential to greatly affect who controls the global food production and distribution system. Hence, instead of relying on a narrowly confined test that mostly focuses on effects on output, price and, to a certain extent, innovation, in the context of affected "relevant markets", one should adopt a broader framework of analysis that would consider the full social costs of such transactions to the extent that these may be assessed and quantified, and are related to possible restrictions of competition and increasing economic concentration. Such an approach would enable greater participation in the merger process by third parties, which are most likely to represent citizens' broader interests. However, currently, this form of third-party participation is quite difficult if not impossible because of the procedural requirements for third party intervenors in merger control (as the test for being admitted as a third-party intervenor is usually only satisfied by competitors, suppliers and customers). By contrast, a participation-centred approach,[374] whereby all "affected" interests and stakeholders would be represented in the decision-making process, would increase the efficiency and legitimacy of the procedure.

A higher level of consolidation in the commodity-trading and logistics segment of the food value chain could increase the profitability of agricultural commodity traders, eventually to the detriment of farmers. This most likely will not lead to immediate positive effects regarding food prices, which could be passed on to the final consumers, to the extent that the interface between consumers and farmers is also controlled by an oligopoly. An approach that would focus only on final "consumer welfare" may not factor in the effects on livelihood of around half a billion farmers in the world and their families, most of whom do not benefit from subsidies guaranteeing an acceptable standard of living. It also assumes that higher profitability would lead to higher investments in efficiency of the value chain and R&D, a claim that has recently been questioned by research indicating that large firms prefer to retain their earnings and distribute them among shareholders and management instead of investing them in R&D.[375]

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[374] N. Komesar, *Imperfect Alternatives: Choosing Institutions in Law, Economics and Public Policy*, (University of Chicago Press, 1997).

[375] For recent research on big pharma, see: W. Lazonick, "Profits Without Prosperity", (2014) 92(9) Harvard Business Review, 46-55; W. Lazonick and M. Mazzucato, "The Risk-Reward Nexus in the Innovation-Inequality Relationship: Who Takes the Risks? Who Gets the Rewards?", (2013) 22(4) Industrial and Corporate Change, 1093-1128; P. Gleadle, S. Parris, A. Shipman and R. Simonetti, "Restructuring and Innovation in Pharmaceuticals and Biotechs: The Impact of Financialization, (2014) 25 Critical Perspectives on Accounting, 67-77; M. Mazzucato, "Financing Innovation: Creative Destruction vs. Destructive Creation", (2013) 22(4) Industrial and Corporate Change, 851-867.

Finally, following technological developments (enabling the diffusion of information along the value chain) as well as increased marketisation and financialization, modern food systems have become increasingly complex. Complex systems are prone to disruption as they are easily destabilised by both internal and exogenous shocks. These high-impact-low-probability events, natural or man-made, may cause significant disruptions across various countries and regions.[376] Indeed, complex systems are characterised by negative cascade effects, i.e. "the domino effect", caused by the non-linear interaction of the various parts and subsystems of a complex system.[377] The economic interdependency created by global trade and global supply chains may aggravate the impact of these events and lead to significant cascade effects. Modern supply chains strive for efficiency and tend to cut costs implementing just-in-time policies but, by the same token, they actually increase vulnerability to exogenous shocks. The maximum tolerance for disruption in supply systems working under the just-in-time principle is quite limited.[378] Unexpected disruptions in the global production of agricultural commodities and the supply chain can lead to shortages of supply, on regional or even global levels, which tends to drive up prices and cause financial shocks and social unrest. This may have important implications for resilience.[379]

There are various examples of studies exploring the impact of these HILP events. A study, completed in 2015, by the international insurance company Lloyds, attempted to assess the potential consequences of a global food supply chain shock caused by a combination of global climate change disasters and some other natural factors.[380] The interdisciplinary study simulated a scenario involving a major tornado event in the US, a flood in agricultural regions of India and Pakistan, a major draught in Australia and countries of South-Eastern Asia as well as a wheat disease outbreak in Turkey, Ukraine and Russia. The simulation results predicted a devastating impact on the production of major agricultural commodities leading to a fourfold increase in the price of wheat, corn and soybean prices compared to average prices, an almost 500% increase in the price of rice, triggering famine and social unrest in the poorest countries in the Middle East and Latin America.

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[376] B. Lee, F. Preston and G. Green, "Preparing for High-Impact, Low-Probability Events: Lessons from Eyjafjallajökull", (2012), Chatham House Report, 1, which notes that "the frequency of catastrophes seems to be increasing; and our population remains relatively unaccustomed to the magnitude and probability of the risks we are currently facing".

[377] C. Perrow, *Normal Accidents: Living with High Risk Technologies* (Princeton University Press, 2011).

[378] See, https://www.forbes.com/sites/forbestechcouncil/2022/03/07/disruption-tolerant-supply-chain-planning-and-operation/ .

[379] See for instance, the recent global disruption that resulted from the failure of a centrally located economic actor (the cybersecurity software system Crowdstrike linked to Microsoft) and the collapse of Microsoft's operating system: How decentralization could have prevented the global Microsoft meltdown (cointelegraph.com)

[380] Lloyds, "Food System Shock, The Insurance Impact of Acute Disruption to Global Food Supply", (2015), Lloyd's Emergent Risk Report.

In a more recent study, Wellesley, Preston, Lehne and Bailey analysed global food supply chains by estimating the volume and value of staple foods passing through maritime chokepoints.[381] By combining this information with that on transportation networks, strategic food reserves and environmental change, the study provided a deeper understanding of the risks associated with a disruption to critical infrastructure caused by a natural disaster, extreme weather events, conflicts and/or state and institutional failures. The study noted the importance of the following three factors. The first factor was that the global supply of grain is highly concentrated in specific regions. The US, Brazil and the Black Sea account for 53% of the global exports of wheat, rice, maize and soybean, and just six countries export 70% of globally traded wheat, maize and rice.[382] The second factor was that many countries have become increasingly reliant on imported food due to numerous reasons, ranging from population growth, to change in diets, lack of resources, slowing yield growth,[383] competition for land, natural disasters, etc. The third factor was that international trade has become increasingly important when it comes to ensuring global food security.[384]

Wellesley, Preston, Lehne and Bailey identified 14 chokepoints of strategic importance in the global network of overland and maritime transport routes, which "are exposed to a range of disruptive hazards that threaten to delay critical food shipments".[385] The recent food prices shock that resulted from the war in Ukraine and the geopolitical turmoil also highlighted the risk of depending on few sources of food supply[386].

Market concentration is arguably one of the key components that has resulted in less sustainable and resilient complex systems.[387] High concentration in markets implies a centralised network structure. In centralised network structures, a few nodes connect to almost all of the other nodes, while the other nodes are only linked to those few highly central nodes.[388] Centralised networks are, thus, on average less resilient than decentralised networks with scale-free networks scoring far better in terms of

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[381] L. Wellesley, F. Preston, J. Lehne and R. Bailey, "Chokepoints in Global Food Trade: Assessing the Risk", (2017) 25, Research in Transportation Business and Management, 15.

[382] T. Benton and R. Bailey, "Extreme Weather and Food Shocks", (*nytimes.com*, 8 September 2015), <https://www.nytimes.com/2015/09/09/opinion/extreme-weather-and-food-shocks.html>.

[383] D. Ray, N. Ramankutty, N. Mueller, P. West and J. Foley, "Recent Patterns of Crop Yield Growth and Stagnation", (2012) 3 *Nature Communications,* Article 1293.

[384] T. Benton and R. Bailey, "Extreme Weather and Food Shocks", (*nytimes.com*, 8 September 2015), <https://www.nytimes.com/2015/09/09/opinion/extreme-weather-and-food-shocks.html>

[385] Wellesley, Preston, Lehne and Bailey, 15.

[386] UNCTAD, Global Impact of war in Ukraine on food, energy and finance systems, (Brief No. 1, April 13, 2022), available at https://unctad.org/system/files/official-document/un-gcrg-ukraine-brief-no-1_en.pdf.

[387] S. Rotz and D. Evan, "Resilience and the Industrial Food System: Analysing the Impacts of Agricultural Industrialization on Food System Vulnerability", (2015) 5(3) Journal of Environmental Studies and Sciences, 459.

[388] See J. Rivkin and N. Siggelkow, "Patterned Interactions in Complex Systems: Implications for Exploration", (2007) 53(7) Management Science, 1068; A. Barabási, "Statistical Mechanics of Complex Networks" (2002) 74 Review of Modern Physics 44.

resilience.[389] This may have important effects when it comes to organising the global food system. From a public policy perspective, one may make the argument that a more decentralised structure, with an increased number of actors, rather than a few global players, may fare better in times of crisis, such as a pandemic, by limiting the likelihood of cascade effects.

The major concentration of power that has occurred alongside various segments of the value chain affects the entire vertical dimension of this chain through one fundamental issue. Specifically, institutional investors, at every stage of the FVC, excluding the farming level, have mechanisms that allow them to extract margins at the expense of the farming segment. Whilst this arrangement can, on a case-by-case basis, be argued as being optimal and efficient, two issues emerge. The first is whether such an arrangement poses a long-term threat to the farming industry. In response, we discuss the possibility of sharing the total surplus and using it to innovate, invest in sustainable practices and create buffers against economic shocks. The second issue is more normative and is centred on whether the system that creates the instruments and incentives allowing institutional investors to gradually gain market power and extract the greater share of profit margins is a fair and sustainable system from a social justice perspective. Since the presence of the same investors in most segments of the chain is under-researched, the extent to which it contributes to adverse effects on the market is unclear.

The lack of a reliable profit stream can discourage from undertaking long-term sustainable investment. It has been shown that institutional investors do not provide incentives for sustainability through their economic decision-making.[390] For example, the public consultation undertaken by the European Commission on how institutional investors factor environmental, social and governance ('ESG') information and/or the performance of companies or assets into their investment decisions showed that the majority of investors did not consider that their fiduciary duty regarding ESG was clear and binding enough, thus providing them with an excuse not to consider it in their investment decisions.[391] A recent study of four food product supply chains (specifically tuna, shrimp, soy and beef), all of which were selected based on their economic importance on a global level and potentially adverse impact on the environment, found an abundance of links between the major financial institutions that hold shares in these chains. The study also showed that passive investors, as opposed to active investors,

[389] Y. Kim, Y.-S. Chen and K. Linderman, "Supply Network Disruption and Resilience: A Network Structural Perspective", (2015) 33 Journal of operations Management 43.
[390] A. van Duijn, R. Beukers, R. Cowan, L. Judge, W. van der Pijl, L. Römgens and T. Steinweg, "Financial Value-Chain Analysis", (2016) LEI Wageningen UR Report No. 2016-028.
[391] Directorate General for Justice and Consumers, "Summary of the Responses to the Public Consultation on Long-Term and Sustainable Investment", (2016) European Commission Document, JUST/A3.

engage less with sustainability issues.[392] Thus, part of investors' profits stemming from the value chain have likely been obtained at the expense of incentives and the profit margins required for long-term sustainable production being withdrawn.

Another (social) sustainability issue is whether the farming industry receives a sufficient share of the total surplus so as to make it robust when confronted by economic shocks. If farmers' profit margins are squeezed too much, this may prevent them from building savings buffering them from years of shocks, whether these be related to bad weather, trade wars, etc. Existing instruments, such as impact investing, have been designed to incorporate sustainability issues as part of institutional investors' incentives.[393] We believe that there is a real need for policy-driven discussions on how competition law and regulation could harness such incentives.

Under current market conditions, firms and investors are assumed to efficiently and rationally follow their incentives and reap profits in ways that cater to their clients' interests. Further evaluation is needed to understand whether this is a sustainable way forward or whether cost-cutting and other activities, which have been enabled by a concentration in market power, have reduced the incentives for, and profit surplus available to, farmers to innovate, invest into sustainable practices and withstand economic shocks. Two normative issues ensue. First, one should determine whether it is appropriate that the majority of the total surplus is extracted by the institutional investors. Second, one should examine the likely long-term effects of institutional investors extracting such surplus value. Finally, there is a need for further research into the existence and nature of the additional incentives that exist for investors who hold shares in several segments of the market.

One may also note possible environmental sustainability effects because of the intensification of food exports, through the deepening of global networks. This may in turn impact on water supply, but also on soil quality. As explained by the literature, a failure to identify the importance of soil within increasingly intensive agricultural systems will undoubtedly have serious consequences for humanity and represents a failure to consider intergenerational equity.[394] EU competition law is embedded in a constitutional framework, and should not neglect the broader sustainable development objectives

[392] Apart from the retail banks, which often have developed sustainability policies. However, the authors note that this financing is largely based on syndicated loans and, thus, this changes the dynamics of the leverage of these banks.

[393] M. Rogalska, "Globalisation and Financialization of the Economy Impact Investing at Scale as a Promising Response", (2016) Weatherhead Centre for International Affairs, Harvard University.

[394] Peter M. Kopittke, Neal W. Menzies, Peng Wang, Brigid A. McKenna, Enzo Lombi. (2019). Soil and the intensification of agriculture for global food security, *Environment International*, Volume 132, 2019, 105078, https://doi.org/10.1016/j.envint.2019.105078..

firmly enshrined in the EU Treaties.[395] The economic, social and environmental aspects of sustainable development are highlighted in Article 3 (3) of the Treaty on European Union. Article 11 of the Treaty on the Functioning of the European Union (TFEU) also refers to an integration of the requirements of environmental protection in policies and measures with the aim to promote sustainable development. Finally, Article 7 TFEU, sets a framework for 'consistency' between EU policies and activities and all its objectives. Hence, competition-relevant sustainability concerns should be factored in in merger analysis.

Takeaway

The existing merger control regime needs recalibration in light of the challenges of sustainability, resilience, food security and sovereignty, structural inequality and economic democracy. A "fairer" distribution of the total surplus value resulting from the collective effort and innovation in the food value chain might play a key role to that end. It is also important to take into consideration the inter-country and domestic distribution of the total surplus value of the global food value chain when designing their competition law interventions in this field.

Bunge/Viterra will greatly affect the control of global food production and distribution. Instead of relying on a narrowly confined consumer welfare test that mostly focuses on effects on output, price, and, to a certain extent, innovation, in the context of affected "relevant markets", the competitive assessment of *Bunge/Viterra* should take into account the full social costs of the proposed merger resulting from the restriction of competition, including its potential externalities on national security, biodiversity, sustainability, employment, farmers' welfare, and the right to food, of course to the extent that these social costs can be identified and/or quantified, and are related to possible restrictions of competition and increasing economic concentration. In particular, by focusing on (final) consumers' welfare, merger control may not factor in the effects on the livelihood of around half a billion farmers in the world and their families, most of whom do not benefit from subsidies guaranteeing an acceptable standard of living. Such narrow merger scrutiny turns also a blind eye to problems of disruption and exogenous shocks. The lack of a reliable profit stream can discourage farmers from undertaking long-term sustainable investment, while the deepening of global networks may have an impact on water supply and soil quality, and thereby adversely affect environmental sustainability. Third-party participation (e.g. NGOs, citizens or consumers associations) in EUMR processes is crucial since it

[395] Elias Deutscher and Stavros Makris, 'Making sustainability visible: a new framework and operationalization tests for merger control' in Julian Nowag, Sustainability and Competition Law (Edward Elgar 2024) 375.

could enable the EC to identify the multilevel implications of a mega-merger such as the one between Bunge and Viterra.

Conclusion

The proposed merger between Bunge and Viterra will have far-reaching implications for the global agribusiness sector. In 2021 Bunge's customers were located mainly in Europe (37.6 per cent), followed by the US (24.8 per cent), Asia-Pacific (20.9 per cent), Brazil (7.6 per cent), Argentina (4.5 per cent), Canada (3.1 per cent) and the rest of the world (1.5 per cent). The commodities of its agribusiness segment mainly originate from Argentina, Australia, Brazil, Canada, the EU, Russia, Ukraine and the US.

While it could create the world's largest grain trader, *Bunge/Viterra* also poses significant risks to market competition, innovation, and sustainability. This merger significantly contributes to the consolidation of the already concentrated global agribusiness sector, creating the world's largest grain trader. While the merger may create benefits in terms of operational efficiency and market reach, it also poses substantial risks to market competition, innovation, and sustainability. The merger underscores the need for robust competition law enforcement and regulatory measures to ensure a fair and resilient food system that benefits all stakeholders, from farmers to consumers. The merger highlights also the need for robust competition law enforcement and regulatory measures to address the challenges associated with high market concentration. Ensuring fair competition, promoting innovation, and supporting sustainable practices are essential for the long-term stability and resilience of the agribusiness sector.

Appendix

Bunge has substantial shareholder overlap with DuPont: 29.31% (12.51+7.9+4.4+2.1+2.4) of Bunge is owned by same institutional investors as 26.16% (11.5+5.7+4+2.65+2.3) of DuPont.

In the rest of the 9 companies, the ownership is either predominantly or fully private (3), comprises different set of shareholders (4) or NA (2).

Details

Bunge

Major shareholders: Bunge Global SA

Name	Equities	%	Valuation
Vanguard Fiduciary Trust Co.	17,707,052	12.51 %	1 891 M $
Capital Research & Management Co. (World Investors)	16,729,957	11.82 %	1 786 M $
BlackRock Advisors LLC	11,213,770	7.920 %	1 197 M $
State Street Corp.	6,276,031	4.432 %	670 M $
Fidelity Management & Research Co. LLC	4,869,654	3.439 %	520 M $
BlackRock Life Ltd.	3,930,129	2.776 %	420 M $
Geode Capital Management LLC	3,377,340	2.385 %	361 M $
Pacer Advisors, Inc.	3,327,925	2.350 %	355 M $
Invesco Advisers, Inc.	3,067,113	2.166 %	327 M $
UBS Asset Management (UK) Ltd.	2,763,316	1.952 %	295 M $

ADM

NA

Cargill INC

Institutional Ownership and Shareholders

Cargill Inc (US:US141781BQ63) has 2 institutional owners and shareholders that have filed 13D/G or 13F forms with the Securities Exchange Commission (SEC). These institutions hold a total of 2,000,000 shares. Largest shareholders include BBBMX - BBH Limited Duration Fund Class N Shares, and Six Circles Trust - Six Circles Global Bond Fund .

Cargill Inc (US141781BQ63) institutional ownership structure shows current positions in the company by institutions and funds, as well as latest changes in position size. Major shareholders can include individual investors, mutual funds, hedge funds, or institutions. The Schedule 13D indicates that the investor holds (or held) more than 5% of the company and intends (or intended) to actively pursue a change in business strategy. Schedule 13G indicates a passive investment of over 5%.

DuPont

Major shareholders: DuPont de Nemours, Inc.

Name	Equities	%	Valuation
Vanguard Fiduciary Trust Co.	46,637,545	11.15 %	3 754 M $
BlackRock Advisors LLC	23,998,432	5.740 %	1 932 M $
Massachusetts Financial Services Co.	22,155,892	5.299 %	1 783 M $
Massachusetts Financial Services Co.	21,728,395	5.197 %	1 749 M $
State Street Corp.	16,938,130	4.051 %	1 363 M $
Invesco Advisers, Inc.	11,087,564	2.652 %	892 M $
Geode Capital Management LLC	9,876,005	2.362 %	795 M $
Teachers Advisors LLC	8,629,586	2.064 %	695 M $
Eaton Vance Management	6,228,790	1.490 %	501 M $
Merrill Lynch International	6,127,204	1.465 %	493 M $

Louis Dreyfuss Company
45% equity stake to Abu Dhabi-based ADQ

Agrocorp
private limited company, wholly owned by the founders

Musi-Mas
privately-owned

Amaggi
Amaggi is 100% owned by the Maggi family via the holding company

Golden agri-resources

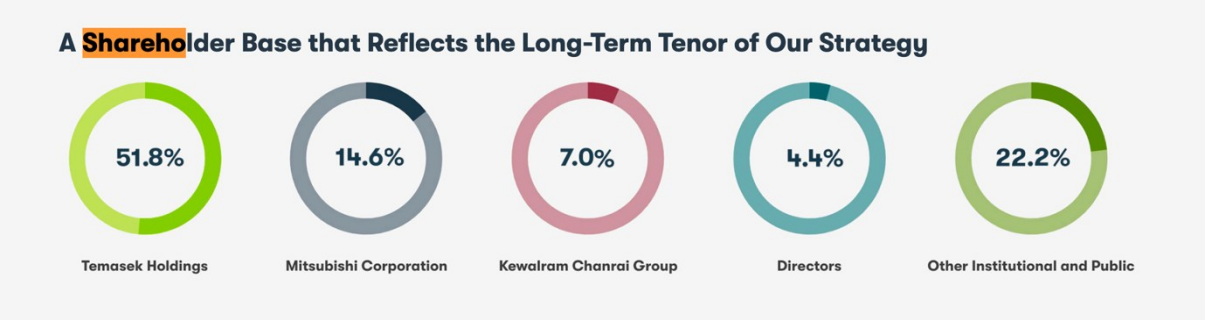
Substantial shareholders

As at 14 May 2024

Ascent Wealth Investment Limited ("Ascent")	2,100,000,000	16.56	--	--	16.56
Massingham International Ltd ("MIL")	982,197,897	7.74	--	--	7.74
Golden Moment Limited ("Golden Moment")	3,070,000,000	24.21	--	--	24.21
Flambo International Limited ("Flambo") (2)	260,000,000	2.05	6,152,197,897	48.51	50.56
The Widjaja Family Master Trust(2) ("WFMT(2)")(3)	--	--	6,412,197,897	50.56	50.56
Silchester International Investors LLP ("SII") (4)	--	--	1,389,641,800	10.96	10.96
Kopernik Global Investors, LLC ("KGI") (5)	--	--	688,018,000	5.43	5.43

Notes:

Olam



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The Widjaja Family Master Trust(2) ("WFMT(2)")(3)	--	--	6,412,197,897	50.56	50.56
Silchester International Investors LLP ("SII") (4)	--	--	1,389,641,800	10.96	10.96
Kopernik Global Investors, LLC ("KGI") (5)	--	--	688,018,000	5.43	5.43

Notes:

Wilmar

NA