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Gambling on Hunger?

Commodity Derivatives Trading and the Right to Adequate Food

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NGOs have claimed that financial speculators, gambling on food prices via commodity derivative instruments, contributed to the global food crisis in 2007-11. Commodity futures contracts began life as a form of agricultural insurance and were predominantly used to stabilize commodity prices. How did it come about that these instruments were turned against agricultural production, leading to violations of the human right to adequate food? This article draws on the history of commodity futures trading to explore the claims of NGOs regarding the causal significance of speculation in the recent crisis. It finds that the financialization of futures markets in recent decades has created new channels of influence whereby activity in commodity derivatives markets can impact on underlying food prices. The implications for efforts to realize the human right to adequate food are elaborated.

KEYWORDS: world hunger, commodity derivatives, financialization, the right to adequate food

1. INTRODUCTION

Extreme levels of commodity price volatility in 2007-11 led to a global food crisis. While the price of many commodities was affected, the most prodigious inflation occurred in markets for grain. Between 2007 and 2008 the price of maize, rice, and wheat on international markets more than doubled, in some cases in a matter of months.¹ Approximately half of the calories consumed by the world's poor are accounted for by these three staple grains.² What is more, food price inflation was typically far greater in poorer countries in the Global South than in many richer ones in Europe, or in the US.³ According to the United Nations Food and Agriculture

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¹ Mitchell, *A Note on Rising Food Prices*, World Bank, Working Paper No: WPS4682 (2008) available at <http://documents.worldbank.org/curated/en/229961468140943023/A-note-on-rising-food-prices>, at 3.

² Lobell et al, 'Prioritizing climate change adaption needs for food security in 2030' (2008) 319 *Science* 5863 at 608.

³ Ivanic and Martin, *Implications of higher global food prices for poverty in low-income countries*, World Bank, Working Paper: WPS 4594 (2008) available at: <http://documents.worldbank.org/curated/en/253001468150585777/Implications-of-higher-global-food-prices-for-poverty-in-low-income-countries>.

Organisation (FAO), the number of chronically hungry people in the world rose by 75 million in 2007 alone.⁴ Food prices plummeted rapidly again in 2009, however, the rapid price deflation caused another kind of havoc for the millions of small farmers and agricultural laborers worldwide who depend on agricultural revenue for their livelihoods.⁵ This pattern of extreme price inflation and equally precipitous deflation was played out again on international markets less than a year later. Grain prices moved in a strikingly similar trajectory between the second half of 2010 and late 2011.⁶ While high food prices present an obvious challenge for poor people attempting to command access to food, high levels of price volatility—volatility understood as the variation in the price of a commodity over a period of time—are harmful over the longer term. Commodity price volatility damages prospects for investment and economic growth, leads to harmful exchange rate volatility—thereby prejudicing the ability of populations to attain stable supplies of food imports—and disrupts domestic agricultural production strategies.⁷ Although the general consensus is that the global food crisis is now over, in many countries food prices have remained elevated beyond pre-crisis levels.⁸ Patterns of high and rapidly fluctuating food prices are predicted to intensify in the decades to come, as a growing global population is forced to cope with the threats posed to agricultural production by climate change.⁹ This does not bode well, given that the recent crisis has already intensified the vulnerabilities of poor and marginalized communities. A 2016 report by the Institute of Development Studies and Oxfam concludes that the global food crisis has had a lasting impact on patterns of labour and consumption in the Global South, forcing many people to work longer hours and to travel greater distances to find work and to buy food.¹⁰

The question of what was responsible for these extraordinary market movements has divided economists since the first price spike emerged. On the supply side, it has been suggested that a combination of unfavourable weather conditions, low stock levels, and the ill-timed imposition of export-bans meant that markets were ‘tight’ in the months leading up to the food crisis.¹¹ A ‘tight’ market is one in which demand for a given commodity outstrips the available supply,

⁴ FAO, ‘The State of Food Insecurity in the World: High food prices and food security – threats and opportunities’ (2008) available at: <http://www.fao.org/docrep/011/i0291e/i0291e00.htm>, at 6.

⁵ Von Braun, *Food and Financial Crises: Implications for Agriculture and the Poor*, International Food Policy Research Institute (2008) available at: <https://ageconsearch.umn.edu/bitstream/47663/2/pr20.pdf>, at 7.

⁶ ‘World food prices reach new historic peak’ FAO Media Centre, 3 February 2011, available at: www.fao.org/news/story/en/item/50519/icode/.

⁷ Van der Ploeg and Poelhekke, ‘Volatility and the natural resource curse’ (2009) *Oxford Economic Papers* Gpp027.

⁸ Scott-Villier et al, *Precarious Lives: Food, Work and Care After the Global Food Crisis*, Joint report: Institute of Development Studies and Oxfam (2016) available at: <https://policy-practice.oxfam.org.uk/publications/precarious-lives-work-food-and-care-after-the-global-food-crisis-620020>, at 8.

⁹ Wenzlau, ‘Global Food Prices Continue to Rise,’ 13 April 2013, available at: www.worldwatch.org/global-food-prices-continue-rise-0.

¹⁰ Supra Scott-Villier n 8, at 50-54.

¹¹ For an overview of the significance of these factors see Heady and Fan, ‘Anatomy of a crisis: the causes and consequences of surging food prices’ (2008) 39 *Agricultural Economics* 1: 375-391.

leading to an increase in prices. Others have argued that the increased production of biofuels, a growing appetite for meat in emerging economies, and the depreciation of the US dollar conspired to increase demand for the grains in question.¹² Almost all of these factors are likely to have made some contribution to the price spikes. However, what has also become apparent is that none of them, either alone or in combination, can account for the full measure of price volatility. As analysts at the FAO have emphasised, in April 2008, corn volatility was 30 per cent, and soybean volatility 40 per cent *beyond what could be accounted for* by relevant supply and demand fundamentals during that period.¹³ As this divergence has come under further scrutiny, numerous analysts have suggested that a surge in speculative activity in commodity derivative markets in the years leading up to the crisis could be responsible for exacerbating price volatility. The significance of this claim requires emphasis. As I discuss below, many scholars have argued that the structure of the global food system is responsible for exacerbating the poverty and the precariousness suffered by the food insecure. However, the claim that financial speculators were able to distort commodity prices beyond the fundamentals of supply and demand by investing in derivatives implicates modern market structures in the production of hunger in a manner previously thought to be impossible. The global market in food commodities is constructed around a single scheme for the measurement of the value of food—its price. If this central ordering mechanism can be distorted by financial speculation carried out via instruments linked to this measure of value, what does this imply for international ambitions to tackle food insecurity and realize the right to adequate food?

Part Two of the article contextualizes the debate on the role of commodity derivatives speculation in the global food crisis by placing it against the broader background of world hunger. Part Three elaborates on the phenomenon of commodity derivatives trading and relates the competing claims made by NGOs, economists and the financial services industry regarding its possible causal significance in the crisis. Part Four then turns to the history of commodity futures trading to explore the changing composition of these markets, and the dramatic shift in the role that they play in the global economy. Finding evidence that would corroborate the claims of NGOs—that commodity futures markets have been ‘financialized’ since the late 1980s — the section concludes that this paradigm shift has created new avenues whereby investment in commodity derivatives can impact on underlying food prices. Part Five concludes with an analysis of some of the implications of these findings for efforts to realize the human right to adequate food.

¹² Ibid.

¹³ FAO, *Volatility in Agricultural Commodities: An Update* (2008) available at: <http://www.fao.org/docrep/010/ai466e/ai466e13.htm>.

2. WORLD HUNGER AND THE GLOBAL FOOD CRISIS

There was much that was extraordinary about the 2007-11 global food crisis—the magnitude of the price inflation, the number of countries affected, and the role of new industries, such as biofuel production, in its causation. As the former Special Rapporteur on the right to food, Olivier de Schutter, has observed, the crisis was also unique in that it was ‘possibly the first price crisis that occurred in an economic environment characterized by massive amounts of novel forms of speculation in commodity derivative markets.’¹⁴ For the millions of people who were suffering from hunger in the decades preceding the crisis, however, their experience of the events of 2007-11 may have been nothing out of the ordinary. Food crises of a regional and seasonal variety—a number of them resulting in famines—had been endured by millions of people around the world prior to these recent events.¹⁵ Philip McMichael, a food-regime theorist, has argued that food crises are ‘endemic to the modern world’, pointing to the prior global food crisis of 1972-74.¹⁶ Others contend that decades of artificially low prices, procured through the use of agricultural subsidies in the Global North, have resulted in recurrent crisis for millions of peasant farmers in the South who, unable to compete, are driven off their land.¹⁷

To emphasise the prevalence of hunger in the decades leading up to the global food crisis is not to imply that no progress has been made towards its eradication. Understanding of the causes of hunger has advanced considerably in recent years. Dominant approaches prior to the 1980s, which focused predominantly on the provision of food aid and the transfer of technologies to boost supplies, have been gradually replaced by a new generation of targeted interventions geared to the achievement of ‘food security’.¹⁸ The origins of this concept lie in the theories of the development economist, Amartya Sen, who revolutionized thinking on the causes of famine with his analytic of ‘entitlements’.¹⁹ Contemporary approaches to tackling food insecurity reflect the insight that, more often than not, hunger is suffered not because of a lack of available food, but because of the inability of people to command access to food economically.²⁰ While natural disasters and conflict continue to be regarded as two important proximate causes of hunger,

¹⁴ De Schutter, *Food Commodities Speculation and Food Price Crises: Regulation to reduce the risks of price volatility*, (2010) Briefing Note 02, available at: http://www2.ohchr.org/english/issues/food/docs/Briefing_Note_02_September_2010_EN.pdf, at 3.

¹⁵ For a discussion of some these crises see generally Dreze, Sen, and Hussain. *The political economy of hunger: selected essays* (1995).

¹⁶ McMichael, 'The World Food Crisis in Historical Perspective' (2009) 61 *Monthly Review* 3.

¹⁷ Rosset, 'Food Sovereignty and the Contemporary Food Crisis' (2008) 51 *Development* 4 at 460.

¹⁸ Food security is commonly defined as including both physical and economic access to food that meets people's dietary needs as well as their food preferences. FAO, *Declaration of the World Summit on Food Security, WSFS 2009/2*, (2009) available at: <http://www.fao.org/wsfs/wsfs-list-documents/en/>

¹⁹ Entitlements can be defined as the socially determined rights and opportunities which enable people to legally command access to food. Sen, *Poverty and Famines: An Essay on Entitlement and Deprivation* (1981).

²⁰ WFP, 'Causes of hunger', available at: www.wfp.org/hunger/causes.

poverty is now recognized to be the preeminent factor conditioning hunger globally.²¹ Another key development in the fight to end world hunger has been the elaboration of a human right to adequate food. The codification of the right in the International Covenant on Economic, Social and Cultural Rights (ICESCR) in 1966 was the first step in advancing efforts to combat hunger beyond it being a moral duty or a policy choice, instead making it a legally binding human rights obligation. Subsequently, the contents of the right were made more concrete, notably in General Comment 12 of the United Nations Committee on Economic, Social and Cultural Rights (CESCR), which puts the onus on national governments to create the conditions for the progressive realization of the right.²² In 2004, the FAO developed a further set of Voluntary Guidelines to provide practical guidance to States in their implementation of the right, and a number of new initiatives have been launched in the post-crisis context.²³ A UN High-Level Task Force on the Global Food Security Crisis (HLTF) was established in April 2008 the mandate of which is to ‘scale up’ investment in food and nutrition security with a specific focus on working towards the realization of the right to food.²⁴

That these moves represent a sincere effort by the international community to respond to the problem of world hunger is not in doubt. Nevertheless, in spite of advancements made in the establishment of institutions that promote food security and the right to adequate food on a formal level, overwhelmingly, these entitlements are not sufficiently realized in practice. Hunger persists, in spite of the increasingly sophisticated strategies developed by governments and international agencies seeking to tackle it. Advancing an explanation for this state of affairs, a growing body of critical scholarship has suggested that the stubborn persistence of hunger may be a consequence of structural problems and inequities in the global food system.²⁵ Their interventions may be informed by different methodologies and may concentrate on different substantive issues, however, critics of development policy,²⁶ food regime theorists,²⁷ advocates of ‘food sovereignty’,²⁸ and critical scholars of international economic law²⁹ have all intervened

²¹ Ibid.

²² UN Committee on Economic, Social and Cultural Rights (CESCR), General Comment No 12: The Right to Adequate Food (art. 11), 12 May 1999.

²³ FAO, *Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of national food security*, (2005).

²⁴ HLTF, *Updated Comprehensive Framework for Action*, (2010) available at: http://www.fao.org/fileadmin/user_upload/ISFP/UCFA_Final.pdf, at xi.

²⁵ See Jacqueline Mowbray for a discussion of some of the limitations of rights-based approaches to tackling hunger. Mowbray, ‘The Right to Food and the International Economic System: An Assessment of the Rights-Based Approach to the Problem of World Hunger’ (2007) 20 *Leiden Journal of International Law* 3.

²⁶ Frank, *The development of underdevelopment* (1966); Rist, *The history of development: from western origins to global faith* (2002); Peet, *Unholy Trinity: the IMF, World Bank and WTO* (2003).

²⁷ Proponents of ‘food regime theory’ carry out historical materialist analysis of the development of the global food system. See Friedmann and McMichael, ‘Agriculture and the state system: The rise and decline of national agricultures, 1870 to the present,’ (1989) 29 *Sociologia ruralis* 93; Friedmann, ‘Distance and durability: Shaky foundations of the world food economy’ (1992) 13 *Third World Quarterly* 371.

²⁸ Patel, ‘Food sovereignty’ (2009) 36 *The Journal of Peasant Studies* 663; Shattuck and Holt-Giménez, ‘Moving from Food Crisis to Food Sovereignty’ (2010) 13 *Yale Human Rights and Development Law Journal* 2; Trauger,

to a similar effect: ever since the period of European colonialism, they maintain, populations in the Global South have been subjected to successive waves of agricultural and development-oriented ‘restructuring’ that have served to intensify conditions of food insecurity for many vulnerable populations.

Here I summarize the arguments of these scholars. It is commonly asserted that the widespread adoption of an industrialized, specialized, export-oriented mode of agricultural production has increased the reliance of Southern populations on grains traditionally consumed by people in the North, such as maize, rice, and wheat. This homogenization of diets has meant that poor people in low income countries face competition not only from wealthier consumers purchasing food grains, but also in the form of biofuels and feed grains for livestock.³⁰ Industrialized agricultural production—which requires substantial capital to instigate and depends on fossil fuels and other expensive inputs to function—has also been shown to favour wealthy commercially experienced actors over small farmers with few resources. This has resulted in the displacement of rural populations throughout the Global South who have been driven into urban slums, or onto marginalized land that is less fertile and appropriate for the growing of food.³¹ As a consequence of the promotion of this model of agricultural development, many developing countries are now highly dependent on imports for their food supplies. Mozambique, for instance, imports 60 per cent of the wheat its people need, and Egypt imports 50 per cent of its food supplies.³² Making matters worse, what critics denote ‘the industrial agri-foods complex’ now occupies the centre of the global food system. Two companies, Archer Daniels Midland (ADM) and Cargill capture three-quarters of the world grain trade.³³ Enabled by the same international rules on trade and investment that have created obstacles for countries in the South in their attempts to access Northern markets,³⁴ these companies take advantage of what are designated ‘global value chains’—referring to the disintegration and re-integration of production through inter-firm, inter-country trade in order to take advantage of the lowest

‘Toward a political geography of food sovereignty: Transforming territory, exchange and power in the liberal sovereign state’ (2014) 41 *Journal of Peasant Studies* 1131.

²⁹ Carmen Gonzales illuminates the role of the international trade regime in creating and exacerbating vulnerability and food insecurity in the South. Gonzalez, ‘Institutionalizing Inequality: The WTO Agreement on Agriculture, Food Security, and Developing Countries’ (2002) 27 *Columbia Journal of Environmental Law* 440; Gonzalez, ‘Trade liberalization, food security and the environment: the neoliberal threat to sustainable rural development’ (2004) 14 *Transnational Law and Contemporary Problems* 419; Orford, ‘Food security, free trade, and the battle for the state’ (2015) 11 *Journal of International Law and International Relations* 1.

³⁰ Magdoff and Tokar, ‘Agriculture and Food in Crisis: An Overview’ available at: www.monthlyreview.org/2009/07/01/an-overview-of-the-food-and-agriculture-crisis/ [last accessed 20 January 2017].

³¹ Bello and Baviera, ‘Food Wars’ in Magdoff and Tokar (eds), *Agriculture and food in crisis: Conflict, resistance, and renewal* (2010) at 43-6.

³² De Schutter, *Observations on the current food price situation: Background Note*, 21 January 2011 at 1.

³³ Wiggins and Levy, *Rising Food Prices: A Global Crisis*, Overseas Development Institute Report (2010) available at: <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/1630.pdf>.

³⁴ Gonzales, *supra* n 29.

possible price for a given input.³⁵ Small farmers cannot compete and are priced out of the market, leading to yet more rural poverty and resulting in the further monopolization of global markets by transnational companies.³⁶

The movement for ‘food sovereignty’—connoting people’s democratic control of the food system—asserts that nothing less than the fundamental restructuring of the global food system will address the persistence of hunger.³⁷ Originating with the peasant organisation, La Via Campesina, proponents advocate restructuring control over land and food in order to respond to widespread inequities in market power.³⁸ A key goal of the food sovereignty movement is to ‘re-localize’ the production and consumption of food, de-linking, as far as possible, local producers from global markets. While few economists or policymakers anticipated the global food crisis, advocates of food sovereignty have been warning of the threat to food security posed by the current structure of global food system for years. The particular form of the recent crisis, however, demands that greater attention be paid to what has remained a relatively under-researched feature of the global food system: the role of financial markets. In the search for an explanation for the extraordinary volatility of 2007-11, NGOs such as Oxfam and Global Justice Now (GJN) (formerly the World Development Movement),³⁹ economists including Jayati Ghosh and Cornelia Staritz,⁴⁰ and a number of financial services industry insiders have argued that a recent surge in speculative activity in global commodity derivative markets could have been responsible for conditioning the price spikes.⁴¹ They have set out to prove that, while millions of

³⁵ Gibbon, Bair, and Ponte, ‘Governing global value chains: an introduction’ (2008) 37 *Economy and Society* 3.

³⁶ Vargas and Chantry, *Ploughing through the meanders in food speculation*, GRAIN, (2011) available at: <http://www.odg.cat/en/publication/ploughing-through-meanders-food-speculation>, at 19.

³⁷ Patel, ‘What Does Food Sovereignty Look Like?’ (2009) 36 *The Journal of Peasant Studies* 3.

³⁸ ‘What is La Via Campesina?’ available at: www.viacampesina.org/en/index.php (follow ‘Organisation’ hyperlink).

³⁹ Jones, *The Great Hunger Lottery: How banking speculation causes food crises*, World Development Movement (2010) available at: https://www.globaljustice.org.uk/sites/default/files/files/resources/hunger_lottery_report_6.10.pdf; Worthy, *Broken Markets: How financial market regulation can help prevent another global food crisis*, World Development Movement (2011) available at: <https://www.globaljustice.org.uk/sites/default/files/files/resources/broken-markets.pdf>; Herman, Kelly, and Nash, *Not a Game: Speculation vs. Food Security*, Oxfam Issues Briefing (2011) available at: <http://policy-practice.oxfam.org.uk/publications/not-a-game-speculation-vs-food-security-regulating-financial-markets-to-grow-a-143669>; Vander Stichele et al, *Financing Food: Financialisation and Financial Actors in Agriculture Commodity Markets*, SOMO Report, (2010) available at: https://www.researchgate.net/publication/228290851_Financing_Food_Financialisation_and_Financial_Actors_in_Agriculture_Commodity_Markets.

⁴⁰ Ghosh, Heintz and Pollin, ‘Speculation on commodities futures markets and destabilization of global food prices: exploring the connections’ (2012) 42 *International Journal of Health Services* 465; Staritz and Küblböck, *Re-regulation of commodity derivative markets – Critical assessment of current reform proposals in the EU and the US*, ÖFSE – Austrian Research Foundation for International Development, (2013) available at: http://www.oefse.at/fileadmin/content/Downloads/Publikationen/Workingpaper/WP45_re-regulation.pdf.

⁴¹ Soros, interviewed for Stern magazine, 3 July 2008, available at: www.stern.de/wirtschaft/news/maerkte/george-soros-we-are-in-the-midst-of-the-worst-financial-crisis-in-30-years-625954.html.

people in the Global South went hungry during the global food crisis, financial instruments were being used by financial speculators in wealthy parts of the world to ‘make a killing on hunger’.⁴²

The next section explores the phenomenon of commodity derivatives trading and relates the competing claims made concerning its role in the grain price volatility of 2007-11.

3. COMMODITY DERIVATIVES TRADING AND COMMODITY PRICE VOLATILITY

Commodity derivative contracts form part of a broader class of financial instruments known collectively as ‘derivatives’, thus called as they are said to derive their value from that of an underlying asset. Some of these assets are tangible, like agricultural commodities, fuels, and property; others are intangible, such as currencies, interest rates, and stocks. Derivatives take the form of contracts that enable contracting parties to assume a trading position on the anticipated movements of the underlying asset in the future.⁴³ Depending on the contractual nature of the derivative, parties will be afforded a particular set of rights and obligations as concerns the asset. Derivatives are commonly used for what are known as ‘speculating’ and ‘hedging’ purposes. Parties using derivatives to speculate are seeking to profit from price changes in the underlying asset. By contrast, those using derivatives for hedging purposes are seeking to anticipate risks that could impact their interests in the physical assets underpinning a particular derivatives contract, such as a shipment of grain, or they might enter into a derivatives transaction to diversify their portfolio of investments—a strategy that can be understood as a form of macro-hedging.⁴⁴

Derivatives have a reputation for being highly complex—a perception supported by the complex financial formulas used to calculate their value. From a legal perspective, however, derivatives have their origins in a more basic instrument known as a ‘futures contract’. A futures contract is a standardized contract through which two parties agree to exchange a fixed amount of a given commodity at an agreed date in the future for a sum of money negotiated in the present. For example, Farmer A contracts with Manufacturer B on the first of September 2017 to deliver one tonne of wheat on the first of December 2017, for a price of five thousand euros. Depending on what the market value of one tonne of wheat is on the first of December 2017, one party will have benefitted from the transaction, and the other will have made a loss. However, both parties will have insulated their livelihoods against the possibility of an even greater loss.

⁴² Grain, *Making a Killing on Hunger*, (2008) available at: <https://www.grain.org/article/entries/178-making-a-killing-from-hunger>.

⁴³ Hudson, *The Law of Finance* (2009), at 1093.

⁴⁴ For a more detailed discussion of the nature and function of derivatives see Folger, ‘What is a derivative?’ Investopedia, available at: <http://www.investopedia.com/ask/answers/12/derivative.asp>.

Farmer A does not risk the market being flooded with wheat, which would mean he would receive low compensation for his harvest, and Manufacturer B does not risk being forced to pay a very high price for wheat in the event of a market scarcity.

Futures contracts have been used for centuries as a mechanism of agricultural insurance. Originally, these instruments were only sold via institutions known as ‘futures exchanges’. However, in recent decades a new market known as the ‘over-the-counter’ (OTC) market—also known as the ‘swaps’ market—has emerged.⁴⁵ Prior to the new regulations introduced for this market after the global financial crisis (discussed below), OTC transactions were carried out bilaterally, between private parties, and were transacted outside of formal futures exchanges. OTC derivatives were—and continue to be—principally traded by large banks and hedge funds; these institutions also created a more sophisticated range of financial instruments linked to commodity prices, most notably, commodity ‘index funds’. Index funds are an investment vehicle designed to give investors a return based on a mathematical formula aggregated from the values assigned to a specified basket of commodities, including non-food commodities such as fuels and metals.⁴⁶ The first such index was created by Goldman Sachs in 1991.⁴⁷ These products enable a wide range of actors to gain profitable exposure to commodity futures markets without having to engage directly in ‘costly and fiddly direct trading’ in the futures market.⁴⁸ According to data provided by GJN, there has been an enormous growth in index fund holdings in agricultural commodity markets, which have increased 26-fold from around three billion US dollars in 2003 to 80 billion in 2011, with index funds making up over 60 per cent of overall financial holdings in agricultural futures markets.⁴⁹ Pension funds—retirement schemes that require employers to contribute to match those made by employees to go towards the provision of a pension—have been funnelling large volumes of capital into commodity index funds over the last decade. GJN estimated in 2014 that £1.5 billion of UK pension savings were being used to speculate on food prices—£180 for every person in the UK contributing to a pension.⁵⁰

⁴⁵ Swaps are a species of derivative that enable parties to ‘swap’ their respective advantages in different markets for mutual benefit. However, ‘swaps’ is a common name given to all OTC derivatives. ‘IBM in Deal on Currency’ *New York Times*, 18 August 1981.

⁴⁶ See further ‘Commodity Index’, Investopedia, available at: <http://www.investopedia.com/terms/c/commodityindices.asp>.

⁴⁷ ‘Standard & Poor’s to Acquire Goldman Sachs’ GSCI,’ 6 February 2007, available at: www2.goldmansachs.com/our-firm/press/press-releases/archived/2007/2007-02-06.html.

⁴⁸ World Development Movement, ‘Dangerous Futures: How are pensions fuel hunger’ (2013) available at: https://www.globaljustice.org.uk/sites/default/files/files/resources/pension_report_final.pdf, at 9.

⁴⁹ Ibid.

⁵⁰ Ibid at 4.

A. Competing Causal Claims

NGOs argue that deregulation of commodity futures markets since the late 1990s has invited an influx of speculators into the market, usurping the traditional role of futures contracts in agricultural risk management. Many such ‘speculators’ are financial actors employed at banks and hedge funds, whose daily business is the retailing and trading of financial instruments. They may be financial traders trading commodity derivatives on a short-term basis, or they may be financial investors or pension funds managing a portfolio of investments that includes commodity derivatives over a longer time horizon. While the particular strategies used by these actors may differ, they are united in their intention to make a profit through market speculation: by predicting how the market values assigned to existing ‘assets’—in this instance, underlying commodities—are going to change over time. This influx of speculators is said to have brought about the ‘financialization’ of commodity futures markets, helping to produce a ‘speculative bubble’ in commodity prices much in the way that speculative bubbles are seen to emerge in markets for financial assets. In broad terms, financialization in this context can be understood as the increased role of financial motives, financial actors and financial institutions in the operations of commodity futures markets.⁵² Of critical importance is the effect that this is seen to have on behaviour within the futures market and the market for OTC derivatives, as well as on the prices of food commodities. The principal concern is that the stabilizing effect that futures can have on commodity prices has been subordinated to the potentially destabilizing pursuit of financial profit. Analysts at the United Nations Conference on Trade and Development (UNCTAD) have argued that as a result of the dominance of financial investors in contemporary commodity futures markets, prices in futures markets no longer accurately reflect supply and demand fundamentals for the commodities in question.⁵³ As I will discuss below, this presents a serious threat to the stability of the prices of physical food commodities.

NGOs and campaigners have presented facts and figures documenting the huge upswing in investment in commodity derivatives to corroborate their claims about the role of speculation in the causation of the crisis. Their reports detail how the notional amount of outstanding commodity derivatives contracts was valued at \$1,270 billion in June 2004 and had risen to \$6,394 billion by June 2006;⁵⁴ how the volume of investment in commodity index funds increased by 1,900% between 2003 and March 2008;⁵⁵ and how, by 2012, financial actors outnumbered commercial participants in commodity futures markets by as many as four to one.⁵⁶

⁵² Epstein (Ed), *Financialization and the world economy* (2005) at 3.

⁵³ UNCTAD, *Don't blame the physical markets: Financialization is the root cause of oil and commodity price volatility*, (2012) available at: http://unctad.org/en/PublicationsLibrary/presspb2012d1_en.pdf at 1-2.

⁵⁴ Bank of International Settlements, *Quarterly Review*, (December 2006).

⁵⁵ Wahl, *Food Speculation as the Main Factor of the Price Bubble in 2008*, World Economy, Ecology & Development, (2009) available at: http://www2.weed-online.org/uploads/weed_food_speculation.pdf at 11.

⁵⁶ Michael Greenberger speaking at the High Level Thematic Debate on Addressing Excessive Price Volatility in Food and Related Financial and Commercial Markets, United Nations, New York, on Wednesday 11 April 2012,

Campaigners have also sought out expert testimony from industry insiders. As GJN reports, ‘Gregory Fleming, President of Merrill Lynch, said in May 2008 that commodity markets looked similar to the dot.com bubble of the late 1990s and the bubble in structured-credit products which preceded the credit crunch.’⁵⁷ Sympathetic economists have compiled statistical evidence that would appear to demonstrate a causal relationship between speculative activity and price volatility, demonstrating how the surge in demand for commodity derivatives maps onto the trajectory of grain prices during this period.⁵⁸ UNCTAD has further presented evidence that commodity index funds—the primary vehicle for financial investment in food commodity markets—have altered market pricing dynamics.⁵⁹ New correlations between previously distinct groups of commodities have been observed since index fund trading has become widespread.⁶⁰ For example, while ten years ago the price of stocks traded on the Euro Stoxx 600, the price for crude oil and the price for agricultural commodities behaved differently. Since the introduction of commodity index funds, these prices have begun to move almost in unison.⁶¹ NGOs and campaigners have condemned the activities of financial speculators, and have called on policymakers and regulators to take action. As GJN asserted in 2010, ‘allowing gambling on hunger in financial markets is dangerous, immoral and indefensible. And it needs to be stopped before any more people suffer to satisfy the greed of the banks.’⁶²

On an intuitive level, it seems highly plausible that a phenomenal surge of any kind of investment into a market could have an impact on the prices within it. Attributing the price volatility in 2007-11 to a class of greedy, risk-loving speculators has also proven popular—speculators have been prosecuted in the media for ‘profiting from hunger’⁶³ and ‘gambling on starvation’.⁶⁴ However, claims that speculation in commodity derivatives could have the kind of impact suggested in the NGO literature are strongly denied by many within the financial services industry.⁶⁵ Paul Krugman, a Nobel prize winning economist, has insisted that no matter how

available at: www.unmultimedia.org/tv/webcast/2012/04/general-assembly-thematic-debate-on-addressing-excessive-price-volatility-in-food-and-related-financial-and-commodity-markets.html [last accessed 18 November 2016].

⁵⁷ Jones, *supra* n 39 at 10.

⁵⁸ Ghosh, ‘The unnatural coupling: Food and global finance’ (2010) 10 *Journal of Agrarian Change* 72.

⁵⁹ Jones, *supra* n 39 at 9.

⁶⁰ Correlation is a statistical measure that indicates the extent to which two or more variables fluctuate together. A positive correlation indicates the extent to which those variables increase or decrease in parallel; a negative correlation indicates the extent to which one variable increases as the other decreases. ‘Correlation’ available at: <http://whatis.techtarget.com/definition/correlation>.

⁶¹ UNCTAD, *supra* n 53 at 3.

⁶² Jones, *supra* n 39 at 4.

⁶³ Hari, ‘How Goldman gambled on starvation’ *The Independent*, 2 July 2010.

⁶⁴ Kaufman, ‘Want to stop banks gambling on food prices? Try closing the casino’ *The Guardian*, 10 May 2012.

⁶⁵ Deutsche Bank has recently supported its decision to continue investing in commodity derivatives arguing that ‘there is no convincing evidence that the products we offer have a de-stabilizing impact on prices and cause more people to go hungry.’ Deutsche Bank, ‘Our position: the key questions and answers’, available at: www.db.com/cr/en/concrete-current-questions-and-answers-may-2014.htm.

much financial investment flows into commodity futures markets, ‘a futures contract is a bet about the future price. It has no, zero, nada direct effect on the spot price of a physical food commodity’.⁶⁶ Indeed, the argument that financial actors taking positions in derivatives markets could have such an impact on underlying food prices contravenes many of the mainstays of economic theory. Prices in a market economy are supposed to bear a rational relationship to their ‘true’ values as determined by fundamentals of supply and demand. This is thought to be particularly the case with asset prices in financial markets, which are commonly believed to aid the process of price ‘discovery’, acting as sophisticated mechanisms of assimilation and dissemination on supply and demand fundamentals across dispersed markets.⁶⁷ Even if a group of speculators was driving futures prices away from fundamentals, it is commonly held that ‘the market’—in actuality, a group of other market actors known as ‘arbitrageurs’—would correct this.⁶⁸ Many economists also resist what they regard as an unfair and ill-informed portrayal of speculative investment. As Bharat Kulkarni argues, ‘[b]y assuming risk, providing liquidity and capital the speculator brings stability to the market’.⁶⁹

As I will argue later, there is good reason to question whether the assumptions underlying economic theories of price formation are safe when the huge shift in the character and operations of traditional futures markets—and the operations of commodity derivative markets—are taken into account. At the present juncture, though, it is also necessary to emphasise that there are ambiguities in NGO accounts of these events. NGOs have tended to single out ‘speculative’ ‘financial’ investment as a negative practice, and to look approvingly on the use of futures for ‘commercial’ ‘hedging’ purposes. However, distinguishing whether an investment practice is or isn’t ‘speculative’ is not an easy task.⁷⁰ Speculative investment is often equated with short-term trading, and is reputed to involve taking on higher levels of risk than the average investor. Yet, commodity index investment, identified as a key culprit in contributing to the commodity price volatility, is carried out over the long-term, and provides stable, as opposed to risky, returns.⁷¹ Complicating matters further, many financial institutions use commodity futures to ‘hedge’ against risks taken in other financial markets. Banks and hedge funds retailing commodity index funds actually take up the less-profitable, more risky side of the trade to facilitate the investments of their clients. This requires them to use commodity futures contracts to hedge against the potential liabilities that they may incur.⁷² Such macro-portfolio hedging strategies make it more difficult to distinguish which traders, or institutions, are acting as financial ‘speculators’, or when

⁶⁶ Krugman, ‘Speculative nonsense once again’ *The New York Times*, 23 June 2008.

⁶⁷ The theory that financial markets are ‘informationally efficient’ is known as the ‘efficient markets hypothesis’. Fama, ‘Efficient Capital Markets: A review of theory and empirical work’ (1970) 25 *The Journal of Finance* 383.

⁶⁸ Krugman, ‘Commodity prices (wonkish)’ *The New York Times*, 19 March 2008.

⁶⁹ Kulkarni, *Commodity Markets & Derivatives* (2011) at 40.

⁷⁰ For a discussion of the semantic and conceptual issues that stem from the identification of a given practice as ‘speculative’ see Szado, ‘Defining speculation: The first step towards a rational dialogue’ (2011) 14 *The Journal of Alternative Investments* 75.

⁷¹ Clapp, *Food* (2012) at 142.

⁷² ‘Macro-hedge’, Investopedia, available at: www.investopedia.com/terms/m/macrohedge.asp.

they are doing it. Furthermore, large corporate traders of physical food commodities—Bunge, Cargill and Louis Dreyfus—not only sell commodity derivative products to farmers and food processing companies, they also take speculative positions in the market with their own capital.⁷³ Some of these agricultural conglomerates own hedge funds that specialize in trading commodity derivatives such as Black River Asset Management LLC, a subsidiary of Cargill, which was estimated to have \$6 billion in assets in October 2011.⁷⁴

B. Evidence of a Connection

Parties on both sides of the debate over commodity derivatives speculation have carried out causal economic analysis to try to establish whether or not speculative activity was the cause of price volatility.⁷⁵ Many studies rely on Granger causality testing, but reach disparate conclusions.⁷⁶ A joint report on food price volatility written for the G20 by a number of agencies, including the FAO, International Monetary Fund (IMF), UNCTAD and the World Bank, illustrates the difficulty in forming a conclusive recommendation on this issue. The report concludes that increased financial sector involvement in food commodity markets ‘probably acted to amplify short-term price swings and could have contributed to the formation of price bubbles in certain circumstances’.⁷⁷ Under pressure to respond to what civil society actors have insisted is a grave threat to food prices, policymakers have adopted a precautionary approach. They have moved to introduce regulations to reduce ‘excessive’ levels of speculation in commodity derivative markets.⁷⁸ Governments in the US and Europe have now finalized rules which aim to subject the OTC derivative market to a higher degree of regulatory supervision and oversight.⁷⁹ Provisions in Title VII of the US Dodd Frank Wall Street Reform and Consumer

⁷³ Murphy, Burch, and Clapp, *Cereal Secrets: The world's largest grain traders and global agriculture*, Oxfam (2012) available at: <https://www.oxfam.org/sites/www.oxfam.org/files/rr-cereal-secrets-grain-traders-agriculture-30082012-en.pdf>, at 29.

⁷⁴ SOMO, *Challenges for Regulators Financial Players in the (Food) Commodity Derivatives Markets* (2012) available at: <https://www.somo.nl/challenges-for-regulators-2/> at 5.

⁷⁵ The Institute for Agriculture and Trade Policy (IATP) provides a helpful compendium of much of this work, see Lilliston and Ranallo (eds), *Excessive Speculation in Agriculture Commodities: Selected Writings from 2008-2011*, IATP, (2011) available at: <http://www20.iadb.org/intal/catalogo/PE/2011/08247.pdf>.

⁷⁶ The Granger Causality test is a test developed by Nobel prize-winning econometrician, Clive Granger. It is acclaimed for providing a rigorous way of establishing when correlations might have a causal link. Granger, ‘Investigating causal relations by econometric models and cross-spectral methods’ (1969) 37 *Econometrica* 424.

⁷⁷ FAO, IFAD, WFP et al, *Price Volatility in Food and Agricultural Markets: Policy Responses* (2011) available at: http://www.fao.org/fileadmin/templates/est/Volatility/Interagency_Report_to_the_G20_on_Food_Price_Volatility.pdf.

⁷⁸ ‘G20 Leaders Statement: The Pittsburgh Summit,’ 24-25 September 2009, available at www.g20.utoronto.ca/2009/2009communique0925.html.

⁷⁹ The US rules fall under the Dodd Frank Wall Street Reform and Consumer Protection Act of 2010 Pub.L. 111–203, H.R. 4173 (Title VI and Title VII). The European provisions are contained in two separate pieces of legislation: Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counter-parties (CCPs) and trade repositories (TRs) (EMIR), and Directive 2014/65/EU of the European

Protection Act 2010 (Dodd Frank),⁸⁰ and European equivalents under the second Markets in Financial Instruments Directive (MiFID II),⁸¹ and the European Market Infrastructure Regulation (EMIR),⁸² require that derivative trades are better collateralised, that transaction data is reported to regulatory agencies, and that transactions are ‘cleared’ through a regulated body known as a ‘clearinghouse’.⁸³ ‘Position limits’, which place an upper limit on the number of contracts *other than bona fide hedging positions* which an investor, a or combined group of investors, may hold for a specific commodity, have also been put in place.⁸⁴ These limits are expressly designed to restrict the volume of both exchange traded futures contracts and commodity derivative contracts that financial investors are able to control, thereby limiting their capacity to distort the prices of underlying commodities.

NGOs have largely welcomed the reforms. Nevertheless, critics have suggested that the new measures are unlikely to protect commodity prices from future interference. It has been argued that the position limits put into place by regulators are set too high, and that a total ban on various forms of commodity derivatives trading should have been pursued.⁸⁵ Others have noted that, in spite of protracted attempts to develop a clear formula for distinguishing between which trades are ‘speculative’ and which are ‘bona fide commercial hedges’, this distinction is not adequate to capture the complex realities of contemporary trading practice.⁸⁷ Adding to regulator’s woes, the position limits set by the CFTC were struck down by a court in Washington after two trade associations associated with the derivatives industry moved against them.⁸⁸ The text of the US Dodd Frank Act only mandates the imposition of such limits ‘as appropriate’.⁸⁹ Significantly, these groups contended that this was not the case since, in their view, it ‘remains unclear’ that excessive levels of speculation were the cause of recent price volatility.⁹⁰ The

Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU Text with EEA relevance (MiFID II).

⁸⁰ Pub.L. 111–203, H.R. 4173.

⁸¹ Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU Text with EEA relevance.

⁸² Regulation (EU) No 648/2012 OJ (2012) L201/1.

⁸³ Instead of transacting with another financial or commercial party, the clearing requirement mandates that a clearinghouse is the counterparty to all trades. Regulatory agencies are charged with overseeing the clearinghouses, and for developing appropriate tools and procedures for risk mitigation.

⁸⁴ Both sets of reforms seek to maintain the benefits of non-standardised bilateral OTC transactions for commercial hedgers using commodity derivatives to insure themselves against risks arising in the course of their businesses.

⁸⁵ Suppan and Hansen-Kuhn, *Speculation Update: Progress Report on U.S. Commodity Market Reforms*, IATP, (2012) available at:

https://www.iatp.org/sites/default/files/2012_02_23_DoddFrankImplementation_KHK_SS_0.pdf.

⁸⁷ Mayor, ‘US commodities regulator wrestles hedgers and speculators’ *Financial Times*, 20 June 2014.

⁸⁸ International Swaps and Derivatives Association Inc. and Securities Industry and Financial Markets Association v. United States Commodity Futures Trading Commission, District Court For The District Of Columbia (Civil Action No. 11-CV-2146 (RLW)).

⁸⁹ Dodd-Frank Wall Street Reform and Consumer Protection Act, Sec. 737, ‘Position Limits’ (2)(A) Establishment of Limitations.

⁹⁰ For a discussion of the implications of this judgement, see Williams, ‘Dodging Dodd-Frank: Excessive Speculation, Commodities Markets, and the Burden of Proof’ (2015) 37 *Law & Policy* 119.

CFTC appealed the judgement, and is currently in the process of drafting new rules to impose the limits.⁹¹ Nevertheless, unresolved doubts about the nature and extent of the role played by speculation in the causation of the recent price volatility could serve to undermine the effective operation of the regulations.

I have analyzed the relevant provisions of the new US and European regulations in another contribution, where I argue that the new measures are unlikely to be effective as they do not adequately account for how the financialization of futures markets has altered processes of price formation for physical food commodities in the first instance.⁹² I consider that the new regulations are unlikely to be of much value in terms of protecting the human right to adequate food, and, to the extent that these reforms create the impression that something is being done to tackle the phenomenon of food commodity speculation, I think that they may serve to exacerbate the problem. As Susan Marks has cautioned, reforms can be problematic when they allow ‘admonition, indignation and condemnation to get in the way of *explanation*.’⁹³ It may not be possible to discover the ‘truth’ about the role of speculation in the global food crisis, particularly using the causal models typically used by economists. By turning to history, however, it may be possible to advance beyond the unhappy status quo, which is characterized by the vilification of financial speculators by NGOs and the media on the one hand, and the equally insistent denials of the financial services industry on the other.

In the paragraphs to come, I will seek to shed more light on the nature of the relationships between global finance, commodity derivatives, and food price volatility. Practices of speculation in commodity markets have a long lineage, and have been linked to episodes of grain price volatility in the past. Equally important, though, is the fact that the global trade in commodity derivatives today bears little resemblance to the primarily national, exchange-based futures speculation of earlier eras. Rather than fixating on the speculative practices of financial traders—as do the new US and European regulations—what emerges from the history below is that it may be the broader financialization of commodity futures markets, and the liberalization of the global economy, that can help to explain these recent market events. Importantly, this history will illustrate the mistake of those who tend to portray OTC derivative markets as somehow operating beyond the reach of the State—as markets that are only now, post-2008, to be subject to regulation.⁹⁴ As will be demonstrated, law and State institutions have played a

⁹¹ CFTC, ‘Fact Sheet - Reproposal of Regulations on Position Limits for Derivatives and Final Regulations on Aggregation of Positions’ available at:

www.cftc.gov/idc/groups/public/@newsroom/documents/file/plreproposals_factsheet120516.pdf.

⁹² Chadwick, ‘Regulating Excessive Speculation: Commodity Derivatives and the Global Food Crisis’ (2017) 66 *International and Comparative Law Quarterly* 3.

⁹³ Marks, ‘Backlash: the undeclared war against human rights’ (2014) 4 *European Human Rights Law Review* 319 at 324.

⁹⁴ Greenberger, ‘Overwhelming a Financial Regulatory Black Hole with Legislative Sunlight: Dodd-Frank’s Attack on Systemic Economic Destabilization Caused by an Unregulated Multi-Trillion Dollar Derivatives Market’ (2011) 6 *Journal of Business and Technology Law* 127.

much more active role in enabling the prices of food commodities to become subject to the ministrations of global financial markets than is commonly acknowledged.

4. THE FINANCIALIZATION OF FUTURES TRADING

Many of the NGO reports on food commodity speculation make some reference to the history of commodity futures trading to ground their claims. What is more, a number of scholars have charted the evolution of the futures contract from a form of agricultural insurance to its present-day incarnation as a new variety of financial asset.⁹⁵ Much of the existing literature on the history of futures trading focuses on the US and the significant developments that took place there in the nineteenth and twentieth centuries. This history will evince the same geographical bias, and it will cover something of the same substantive territory, however, it will also be a retelling that underlines key issues that other histories have neglected.

A. Commodification

The first organized futures exchange operated many centuries ago, in Osaka, Japan.⁹⁶ However, the contemporary practice of futures trading owes much to developments in the US. The original futures contract—then termed a ‘forward’—was widely used there in the nineteenth century as a mechanism of agricultural insurance.⁹⁷ Such contracts were typically negotiated between a farmer and a grain merchant, and operated so as to ‘lock in’ a price for the crop in question, preventing a change in market conditions from impacting too drastically on their profits. Using a forward contract to mitigate the risk involved in a business in this way became known as ‘hedging’. While forward contracts did reduce some of the hazards involved in agricultural production, the bilateral nature of the arrangements meant that one party could always go bankrupt and end up forfeiting on their commitments. Moreover, as the US economy expanded, the need arose for a centralized marketplace for the trading of commodities and the transferring of risk. For these reasons, agricultural entrepreneurs in the city of Chicago, the preeminent city for commodities trading at the time, founded the Chicago Board of Trade (CBOT) in 1848.⁹⁸ The CBOT took control of the mountains of grain arriving in Chicago from the increasingly productive farms of the American mid-West. It created better storage facilities, and, by the 1850s, had established a system of staple grades, standards and inspections, all of which rendered the

⁹⁵ Berg, *The Rise of Commodity Speculation: From Villainous to Venerable* in Prakash (Ed), *Safeguarding Food Security in Volatile Global Markets*, FAO, (2011) available at: <http://www.fao.org/docrep/013/i2107e/i2107e.pdf>; Cowing, *Populists, Plungers, and Progressives: A Social History of Stock and Commodity Speculation, 1868-1932* (2015); Markham, *The history of commodity futures trading and its regulation* (1987); Tett, *Fool's Gold: How Unrestrained Greed Corrupted a Dream, Shattered Global Markets and Unleashed a Catastrophe* (2010).

⁹⁶ Wakita, ‘Efficiency of the Dojima rice futures market in Tokugawa-period Japan’ (2001) 25 *Journal of banking & finance* 535.

⁹⁷ Berg, *supra* n 94 at 247.

⁹⁸ Bjerga, *Endless Appetites: How the Commodities Casino Creates Hunger and Unrest* (2011) at 6.

grain that was stored its inventories fungible. This meant that purchasers of grain no longer contracted for a specific crop of wheat or corn with a particular farmer, but began to contract for a set quantity of the grains stored in the warehouses of the CBOT.⁹⁹ These interventions were envisaged to facilitate a productive and profitable trade in agriculture. The same is true of the move away from the trading of ‘inefficient’ individualized forwards contracts towards the use of standardized ‘futures’—a step taken in 1865. The new standardized contracts were identical in terms of the quantity, quality, delivery month and terms of the trades being made.¹⁰⁰ Unlike forwards, however, these instruments were exchangeable. This early act of commodification was critical to the rise of speculative trading in futures. Only now could parties with no connection to agricultural production profit by trading the contracts as a commodity, without having to be concerned about the practical complications of storing tonnes of maize or wheat.

B. Privatization

By the late 1880s, the competences of the CBOT expanded, and it began acting as an intermediary, guaranteeing both sides of the futures contracts.¹⁰¹ In order to do business in this way, those involved had to be members of the CBOT, demonstrate financial solvency, deposit ‘margin’ payments to collateralize the trades, and abide by specified rules relating to contract settlement, payments and deliveries, and grievance procedures.¹⁰² As a result, farmers and grain merchants could rely on a more efficient means of hedging risk. The improved efficiency of the futures exchanges also eliminated another kind of risk, however, which was the legal risk that had previously left speculators vulnerable to having their contracts voided under the Common Law.¹⁰³ During the eighteenth century, Common Law courts in both the US and the UK elaborated the ‘rule against difference contracts’ to deter parties from speculating on price movements. Futures contracts that were carried out for the sole purpose of profiting from price changes were deemed to be no different from gambling. Whether the parties to a futures contract ‘intended’ or could have ‘reasonably intended’ to take physical delivery of the commodities contracted for was the test used by judges to differentiate legitimate hedging from speculative contracts for difference.¹⁰⁴ However, even if neither party to a difference contract expected to take delivery, courts would nonetheless enforce the contract if one party had some *pre-existing economic interest in the underlying good* that would be damaged by the occurrence of the same event that would allow it to profit under the contract.¹⁰⁵ This was to preserve the benefits of

⁹⁹ Chandler, *The Visible Hand: The Managerial Revolution in American Business* (1977) at 211.

¹⁰⁰ ‘Timeline of CME achievements’ see www.cmegroup.com/company/history/timeline-of-achievements.html [last accessed 18 November 2016].

¹⁰¹ Hieronymus, *Economics of Futures Trading for Commercial and Personal Profit* (1977) at 76.

¹⁰² Margin payments are a form of collateral, or security deposit, paid by the person wishing to take a position in a futures or derivatives market. A sum of money will be paid as a form of deposit for making the trade the percentage of which is determined according to the rules of the futures exchange or trading platform upon which the contract is traded.

¹⁰³ Stout, ‘Derivatives and the Legal Origin of the 2008 Credit Crisis’ (2011) 1 *Harvard Business Law Review* 1.

¹⁰⁴ *Ibid* at 11.

¹⁰⁵ *Ibid* at 12.

futures trading for commercial actors who, albeit not contracting to buy or sell the commodity itself, nonetheless wished to use them to hedge against risk.

Lynn Stout has offered a compelling counter-narrative that qualifies the tendency to portray the early CBOT as an area dedicated to servicing agricultural production. By guaranteeing the performance of futures contracts, even if they were transacted for speculative motives, and by ensuring that members posted collateral and had adequate finances, the commodity exchanges functioned precisely as a mode of ‘private ordering’ that allowed speculators into the market.¹⁰⁶ Public courts would not enforce speculative futures contracts for the agriculturally unaffiliated due to concerns about a variety of economic and social ills, but the private exchanges would. Significantly, though, neither the US government or the US courts made speculative trading illegal.¹⁰⁷ Thus, in effect, the State legitimized arenas of exception in which the speculative trading of futures contracts was able to flourish, so long as it was carried out by those with the resources to participate in an exchange.

C. Publicization

The commodification of forwards contracts and the private ordering of the CBOT did contribute to a rise in speculative trading in commodity futures during the late-nineteenth century. Nevertheless, the exchanges were still largely the province of farmers, millers, merchants, and other parties whose business was concerned with agricultural production.¹⁰⁸ Indeed, the successes of organized futures trading led to futures exchanges based on the Chicago model being established in Liverpool, Frankfurt, New York, and Vienna, and later in India and Argentina.¹⁰⁹ Back in the US, however, there was trouble on the home front. Government subsidies and mechanized production methods had led to the chronic overproduction of many staple crops. After World War One, agricultural commodity prices in the US collapsed.¹¹⁰ Wages were falling, and consumption levels no longer accommodated supply. Vast quantities of grain were left rotting in the warehouses of Chicago. This led to an epidemic of price manipulation as farmers, manufacturers and grain handlers began to hoard physical commodities and to trade in futures contracts in an attempt to drive prices back up.¹¹¹ Widespread manipulation began to attract the attention of legislators, who moved to introduce new regulations to prevent price fixing. However, while these concerns were exertive, it was the development of ‘shadow’ futures exchanges known as ‘bucket-shops’ that led to a legislative clamp-down on speculation in the 1930s.

¹⁰⁶ Ibid at 14.

¹⁰⁷ Ibid.

¹⁰⁸ Ibid at 15.

¹⁰⁹ Berg, *supra* n 94 at 248.

¹¹⁰ Sumner, ‘Recent commodity price movements in historical perspective’ (2009) 91 *American Journal of Agricultural Economics* 1250.

¹¹¹ Slavov, ‘Manipulation, monopoly, and the Chicago Board of Trade’s transition from self-regulation to government regulation’ (2001) 37 *Journal of Law and Economics* 329.

In 1877, the CBOT began publishing futures prices on a regular basis.¹¹² Bucket-shops made use of this information, and, assisted by the development of the ‘stock ticker’—a device used by stockbrokers that printed price information on stocks and futures transmitted over telegraph lines—began to rival the fee-paying, members-only exchanges.¹¹³ Bucket-shops functioned as a kind of ‘off-track’ betting parlour where ordinary citizens too poor to participate in the exchanges could place wagers on the prices listed on organized exchanges.¹¹⁴ The spate of speculation that ensued led to widespread condemnation of bucket-shops as gambling dens. Stories began appearing in newspapers about ‘reckless men who had squandered tens of thousands of dollars, bankrupted themselves, ruined their reputations and destroyed their families’.¹¹⁵ Many states in the US moved to declare bucket-shop wagers legally void, in some instances making running a bucket-shop criminal.¹¹⁶ During this period, however, the organized futures exchanges also began to face criticism. Farmers and small business owners increasingly complained that speculative traders were using futures to manipulate the markets, leading to commodity price volatility.¹¹⁷ A legal battle between the bucket-shops and exchanges was waged between the 1880s and 1903, with the exchanges seeking to prevent bucket-shops from using their futures price quotations to facilitate wagers.¹¹⁸ Courts consistently rejected the attempt of the CBOT to claim a proprietary interest in their prices, arguing that the exchanges were not waging a moral crusade but were seeking to establish a monopoly.¹¹⁹

Following the Wall Street Crash of 1929, and propelled by a wave of hostile public sentiment towards the banks, three separate pieces of legislation were passed by the US Congress to prevent what was seen to be undesirable interference in commodity markets by speculators, namely, the Securities Act of 1933,¹²⁰ the Securities Exchange Act of 1934,¹²¹ and the Commodity Exchange Act of 1936 (CEA).¹²² The most significant of these was the CEA, which, among other things, banned all commodity options trading.¹²³ Options, which grant the right but not the obligation to buy or sell a commodity, were deemed to be highly speculative and were seen to pose a risk to grain price stability. The option ban remained in effect until 1981, when the CFTC reintroduced the trading of exchange-traded options on futures contracts as part of a three-

¹¹² ‘History’, CFTC, available at: http://www.cftc.gov/About/HistoryoftheCFTC/history_precftc.

¹¹³ Cowing, *supra* n 82 at 28-29.

¹¹⁴ Hochfelder, ‘How Bucket Shops Lured the Masses into the Market’ 1 October 2013, available at: www.bloomberg.com/view/articles/2013-01-10/how-bucket-shops-lured-the-masses-into-the-market.

¹¹⁵ *Ibid.*

¹¹⁶ Stout, ‘Why the law hates speculators: regulation and private ordering in the market for OTC derivatives’ (1999) 48 *Duke Law Journal* 701 at 719.

¹¹⁷ Stout, ‘Uncertainty, dangerous optimism, and speculation: An inquiry into some limits of democratic governance’ (2011) 97 *Cornell Law Review* 1177 at 1205.

¹¹⁸ Hochfelder, ‘Where the Common People Could Speculate’: The Ticker, Bucket Shops, and the Origins of Popular Participation in Financial Markets, 1880–1920’ (2006) 93 *Journal of American History* 2 at 351.

¹¹⁹ *Ibid.*

¹²⁰ 15 USC. 77a-77aa.

¹²¹ 15 USC 78a-78jj

¹²² P.L. 74-765, 49 Stat. 149.

¹²³ Sections 4c(b) and 4c(c) of the CEA 1936.

year pilot programme.¹²⁴ The CEA further created the Commodity Exchange Authority—a regulatory body that had the power to set ‘position limits’ restricting the size of speculative positions by individual traders or those acting in concert with each other.

Although the trade in commodity futures contracts continued to boom during the early twentieth century, this was interrupted by the advent of World War Two. On account of government intervention schemes, such as those administered in the US under the Commodity Credit Corporation, the pricing function of futures remained suspended in the decades after the war.¹²⁵ It wasn’t until the 1970s that the trade in commodity futures was resurrected, as a result of the liberalization policies that fundamentally restructured global economic relations.

D. Liberalization

It is well known that a wave of liberalization and deregulation swept the world in the 1970s and 1980s, at the behest of a new political allegiance intent on giving effect to the free market philosophies of economists such as Friedrich Hayek and Milton Friedman.¹²⁶ The watershed moment was the decision to abandon the Bretton Woods system of fixed exchange rates in the early 1970s. Under Bretton Woods, all international currencies had been pegged to the US Dollar, and, at this time, the flow of capital across international borders was tightly controlled.¹²⁷ A new system of floating exchange rates was devised when US economic interests became compromised by these arrangements, leading it to affect a unilateral withdrawal in 1971.¹²⁸ Following this withdrawal, restrictions on the free movement of capital were lifted. Free market economists like Hayek and Friedmann, whose views were given institutional backing by the multilateral financial institutions, including the IMF and the World Bank, persuaded many countries to abandon restrictions on the freedom of capital to move across borders. With the advent of this increased market liberalization, producers, manufacturers and retailers were forced to compete in an increasingly globalized world economy. Their incomes became newly vulnerable to fluctuations in global interest and exchange rates. A new breed of financial derivatives was developed by the financial services industry, ostensibly to assist in insuring against these market movements.

It is commonly suggested that derivatives were a timely development on the part of the financial services industry to respond to the challenges of a liberalized global economy. Yet,

¹²⁴ The CFTC was able to do this as a result of the Shad-Johnson Accord of 1981, under which the CFTC and the Securities and Exchange Commission agreed to divide responsibilities for the regulation of different types of financial instruments. The Shad-Johnson Accord was enacted into law via the Futures Trading Practices Act of 1992. H.R. 707—102nd Congress: Futures Trading Practices Act of 1992. See ‘History’ CFTC, available at: www.cftc.gov/About/HistoryoftheCFTC/history_1980s.

¹²⁵ Berg, *supra* n 94 at 252.

¹²⁶ Stedman-Jones, *Masters of the universe: Hayek, Friedman, and the birth of neoliberal politics* (2014).

¹²⁷ Singh, *Taming Global Financial Flows: Challenges and Alternatives in the Era of Financial Globalisation: A Citizen’s Guide* (2000) at 1.

¹²⁸ *Ibid*.

closer scrutiny of the development of derivatives upsets the assumption that their invention was a matter of economic necessity. Innovations that led to the development of a new class of financialized derivatives out of the basic structure of the futures contract took place in the ‘Euromarkets’—established in the 1950s and 1960s as a means of evading international restrictions on the free movement of capital.¹²⁹ According to Tickell, it was in this arena of regulatory exception—thus called because the UK and US governments actively encouraged the development of this ‘offshore’ market—that international banking began to ‘develop its own dynamic’, leading to the innovation of a new science of financial risk management that brought in an era of models, formulas, and sophisticated financial products, such as derivatives.¹³⁰

The trading of ‘eurobonds’—a precursor of derivatives that enabled bonds to be denominated in a currency other than the home currency of the country in which the bond is issued—helped to undermine the operation of capital controls and destabilized the Bretton Woods system.¹³¹ Moreover, as a paper by one of the pioneers of derivatives, Leo Melamed, makes clear the development of derivatives actually predates the decision to abandon the gold standard.¹³² Rather than being a solution to the exigencies of a newly liberalized global economy, the development of derivatives as a tool of private risk management helped to justify the US decision to move away from Bretton Woods.¹³³ Derivatives are not strictly a matter of economic necessity; they are also policy choice. What is more, while derivatives do offer protection from risks extending from liberalized global markets, they can also contribute to price instability by facilitating destabilizing flows of financial capital.¹³⁴ As well as legitimizing the growth of derivatives markets, the shift in the policy agenda towards more liberalized global markets also brought about a shift in public perceptions about the social utility of speculation.¹³⁵ Businesses seeking to ensure that the value of their goods would not be negatively affected by fluctuating exchange rates might not always find another commercial party to enter into a hedging transaction with. Speculators, who would take up the other side of these transactions, thus came to be seen as playing a legitimate economic function by assisting commercial hedgers, no matter if their motives were speculative or not.

The Chicago Mercantile Exchange (CME)—formerly the Chicago Butter and Egg Board—introduced the first currency futures contracts in 1972. This made it possible to exploit price

¹²⁹ Financial institutions in Europe, principally in London, began processing transactions that enabled financial institutions in other jurisdictions to deposit funds in their home currency denominations—often US dollars—and thereby circumnavigate restrictions on capital flows. Christophers, *Banking Across Boundaries: Placing Finance in Capitalism* (2013).

¹³⁰ Tickell, ‘Dangerous derivatives: controlling and creating risks in international money’ (2000) 31 *Geoforum* 87 at 91.

¹³¹ Helleiner, ‘Explaining the globalization of financial markets: Bringing states back in’ (1995) 2 *Review of International Political Economy* 315 at 322.

¹³² See Melamed, ‘Evolution of the International Monetary Market’ (1988) 8 *Cato Journal* 2 at 398.

¹³³ Helleiner, *supra* n 130.

¹³⁴ Singh, *supra* n 126.

¹³⁵ Berg, *supra* n 94 at 254.

fluctuations between the British Pound, Canadian Dollar, Deutsche Mark, French Franc, Japanese Yen, and Mexican Peso.¹³⁶ Currencies began to be bought and sold on a market that would soon dwarf the markets for all other asset classes put together.¹³⁷ By this point, futures trading had taken on a very different character from the traditional open outcry trading first established in Chicago. Previously dominated by traders in company-designed suits, communicating through elaborate hand signals, these traditions were gradually replaced by screens, mobile phones, and television channels.¹³⁸ Along with the advent of electronic trading, a new trade in OTC instruments or ‘swaps’, as they are called in the US, began to emerge.

E. Deregulation

At first, Stout writes, OTC swaps traders may not have realized that the instruments that they were trading might be deemed legally void as speculative ‘difference contracts’.¹³⁹ By the 1980s, however, they were well aware of the problem. Seeking to protect their new industry, financial firms mounted an ‘orchestrated campaign’ to give legal certainty to the trade in currency and interest rate swaps—the most commonly traded financial derivatives at the time.¹⁴⁰ A number of scholars and journalists, including Stout, Carruthers,¹⁴¹ and Tett,¹⁴² have chronicled the decade-long tussle between the financial services industry and state regulatory agencies over the legal status of OTC contracts. Each of these authors reinforces that doubts about the safety of the proposals were raised at congressional hearings. However, pressure from powerful financial lobbyists began to build.¹⁴³ As a result of the increasingly liberalized economic climate, it was argued that OTC derivatives were necessary to hedge against new forms of risk threatening commercial enterprise. What is more, risk was now something that could be calculated with accuracy, thanks to the new calculative powers of financial science, or so it was argued.¹⁴⁴ By the late 1990s, resistance to the clamour for deregulation collapsed, and the Commodity Futures Modernization Act (CFMA) was passed. Stout is the most explicit in her argument about the role that law played in the emergence of the OTC market. She concludes that the global financial crisis was ‘the direct and foreseeable ... consequence of the CFMA’s sudden and wholesale

¹³⁶ Ibid at 253.

¹³⁷ Correa, Wesley, and Soto, ‘Financial speculation, global crisis and food sovereignty’ available at www.cedem.org/~ftpcedem/htdocs/2010/03/Correa-Soto-Marshall.pdf, at 3.

¹³⁸ Bjerga, supra n 97 at 13-14.

¹³⁹ Stout, supra note 116 at 1206.

¹⁴⁰ Ibid.

¹⁴¹ Carruthers, ‘Diverging derivatives: Law, governance and modern financial markets,’ Columbia Law School Blog, available at: www.blogs.law.columbia.edu/glawfin/files/2013/10/09-Diverging-Derivatives.-Law-Governance-and-Modern-Financial-Markets-by-Bruce-G.-Carruthers.pdf.

¹⁴² Tett, supra n 94.

¹⁴³ Montopoli, ‘Report: Wall Street Spent 5 Billion for Political Influence,’ CBS News, 4 March 2009, available at: <http://www.cbsnews.com/blogs/2009/03/04/politics/politicalhotsheet/entry4842645.shtml>.

¹⁴⁴ As Nassim Taleb has argued, the ability of financial science to accurately calculate risk is flawed and fails to account for the impact of events that are highly unlikely, but that occur more often than analysts anticipate. Taleb, *The black swan: The impact of the highly improbable* (2007)

removal of centuries-old legal constraints on speculative trading in over-the-counter derivatives'.¹⁴⁵

The *expansion* of the OTC market place was incontestably a consequence of legislative acts of deregulation. The Financial Services Act (FSA) 1986 in the UK and the CFMA 2000 in the US dismantled statutory and Common law rules put into place expressly to prevent the speculative trade in 'off-exchange' futures instruments.¹⁴⁶ As well as legitimating a market in OTC derivative instruments, a provision in the CFMA known as the 'swap-dealer' loophole benefited financial institutions selling OTC derivatives by treating them as commercial hedgers for the purposes of investing in exchange-traded futures contracts. This critical re-characterization allowed financial institutions dealing in swaps to take long-term positions in commodity futures markets—a change in trading practice that paved the way for the development of index funds.¹⁴⁷ On the other hand, while Stout is correct to insist that changes in the law were instrumental in bringing about growth of the OTC derivatives market, it is inaccurate to suggest that all of the changes amounted to 'deregulation'. Derivatives instruments themselves are creatures of law—contracts; bundles of legal rights and obligations; synthetic legal constructions—that have no independent existence outside of their contractual form.¹⁴⁸ While they are categorized as private law instruments, they are nonetheless dependent on domestic public legal institutions—national courts—for vindication.¹⁴⁹ Nor did the claim of the financial services industry to be able to self-regulate through these risk management instruments inspire a complete withdrawal of centralized regulatory supervision. Market-based measures of value and risk were 'hard-wired' into regulatory policies to replace standardized regulatory requirements in financial governance.¹⁵⁰ A more compelling analysis is that financial regulations were not so much removed but rather recalibrated during the 1990s and 2000s. Derivatives, after all, can be understood as a form of regulation in themselves. These instruments are not only a private legal mechanism used by private actors to manage individual risks. Rather, governments have positioned derivatives as an alternative to domestic or international mechanisms to deal with the destabilizing effect of flows of trade and investment, thereby delegating a form of regulatory power over the health of the broader economy to the private sector.

¹⁴⁵ Stout, *supra* n 102 at 4.

¹⁴⁶ Under Section 63, the FSA 1986 offered OTC trading an enforceability guarantee in the UK. S. 63 Financial Services Act 1986; Commodity Futures Modernization Act 2000 H.R.5660—106th Congress (1999-2000).

¹⁴⁷ Ghosh, 'The Commodity Price Rollercoaster' World Development Movement (August 2008) at 5.

¹⁴⁸ Pistor, 'A Legal Theory of Finance' (2013) 41 *Journal of Comparative Economics* 315 at 318.

¹⁴⁹ *Ibid.*

¹⁵⁰ For further discussion of these measures see Pagliari, 'Who Governs Finance? The Shifting Public-Private Divide in the Regulation of Derivatives, Rating Agencies and Hedge Funds' (2012) 18 *European Law Journal* 44 at 48.

F. Financialization

Though the CFMA opened the gates, other developments during the 1990s established food commodities as the ‘next generation asset-class’,¹⁵¹ a term coined in 2004 by Jim Rogers, bestselling author of *Adventure Capitalist*¹⁵² and *Hot Commodities*.¹⁵³ It was partly as a result of the collapse of the property bubble and the frantic search for investment opportunities after the global financial crisis that commodity futures markets were cast in the role that the dot.com and real estate markets had played before them—as an attractive haven for financial capital. Investment banks such as Goldman Sachs began to tout commodity investment as a ‘portfolio enhancer’ that would enable investors to ‘diversify’ their investment portfolios and protect their assets in the aftermath of the financial crisis.¹⁵⁵ From the humble forward contracts of the nineteenth century, commodity futures evolved into an established asset class in the market for global capital. This critical transition is no better illustrated than by the merger of the CBOT with the several key financial and stock trading institutions in 2007. The exchange was bought by the CME Group—a corporation that now owns not only the CBOT, but also the Chicago Mercantile Exchange (CME), as well as a majority share in the Dow Jones Indexes (one of the major stock market indexes).¹⁵⁶ Its range of derivatives includes futures and options based on interest rates, equity indexes, foreign exchange, energy, agricultural commodities, weather and real estate.¹⁵⁷ Food and financial futures are now traded under the auspices of a single multinational trading corporation, indistinguishable in their form and purpose to the traders who move vast sums of money between stocks, currencies, and grain commodities and back again with the click of a mouse. While it is still possible to purchase a traditional futures contract for 5,000 bushels of Soft Red Winter Wheat,¹⁵⁸ many individual contracts are now bundled together and traded as part of a commodity index fund. Millions of trades are now executed by computer programmes that use financial algorithms to exploit ‘infinitesimal price discrepancies that only exist over the most infinitesimal time horizons’.¹⁵⁹

Zooming out from Chicago, the bigger picture is one of a global economy dramatically altered over the course of the past century. The US economy and, even more so, the UK economy is now heavily dependent for revenue on financial services.¹⁶⁰ Alongside their roles in

¹⁵¹ Rogers, *Hot Commodities: How Anyone Can Invest Profitably in the World's Best Market* (2007) at 43.

¹⁵² Rogers, *Adventure Capitalist: The Ultimate Road Trip* (2004).

¹⁵³ Rogers, *supra* n 150.

¹⁵⁵ Robison, Loder, and Bjerga, ‘Amber Waves of Pain,’ *Business Week*, 22 July 2010.

¹⁵⁶ ‘History’, CME Group, available at: www.cmegroup.com/company/history/.

¹⁵⁷ CME Group, available at: www.cmegroup.com.

¹⁵⁸ CME Group, available at: www.cmegroup.com/trading/agricultural/grain-and-oilseed/wheat.html.

¹⁵⁹ O’Brien, ‘Everything you need to know about High-Frequency Trading’ *The Atlantic*, 11 April 2014.

¹⁶⁰ House of Commons, *Financial Services: contribution to the UK economy*, House of Commons Library, SN/EP/06193, 21 August 2012 available at: <http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN06193>.

the generation of financial revenue and the provision of risk management, commodity derivative markets are now widely positioned as the optimum mechanism for the gathering of information on supply and demand fundamentals in the underlying economy. No longer do futures exchanges jealously guard their prices, as they did in the bucket-shop era. Instead, they actively publish and disseminate them, extolling their virtue for the purposes of ‘price discovery’. As Charles Carey, the Chairman of the CBOT confirmed in 2007, ‘[t]he whole world sees our prices, and the whole world reacts to our prices’.¹⁶¹ There are applications for mobile phones that are marketed to farmers and grain commodity sellers to allow them to check futures prices for precisely this purpose.¹⁶²

G. Implications

No one would claim that the financialization of commodity futures markets was the only factor that led to the price spikes in 2007-8 and 2010-11. Factors such as new weather patterns resulting from climate change, wars and strikes impacting on the production of oil—a widely-relied upon agricultural input—and the widespread promotion of biofuels that have led to tonnes of grain being diverted away from human consumption all contributed to these market events. Isolating the precise role played by increased investment in commodity derivatives has proven exceptionally challenging. This is why an engagement with the history of commodity futures trading is so valuable. When it comes to financial markets, bankers and economists are the ‘experts’, which makes their denials about the causal significance of speculation hard to contest—even if economic tools of analysis have not provided a convincing alternative explanation for the magnitude of the price volatility post-2007. These contingents would likely dismiss evidence of linkages between speculation in futures trading and grain price volatility in the past as ‘circumstantial’. This has certainly been the treatment of the various forms of evidence marshalled by the NGOs, which clearly indicate a connection between commodity derivatives speculation and the grain price volatility of 2007-11. I would argue that precisely what the history of commodity futures serves to provide is a sense of the critical importance of the ‘circumstantial’. Changes in circumstance prompt changes in human behaviour, as the introduction of standardized futures, the modes of private ordering developed at the CBOT, the publication of futures prices to the ‘common’ people, and the development of instruments that have permitted capital to flow across borders would all exemplify. The theories and models that have been used by economists to deny that activity in commodity derivative markets could have had the impact suggested by the NGOs are all based on assumptions about how people behave in markets. Once one gets a sense of the considerable qualitative differences between the early trading of futures contracts as a means of agricultural insurance, and the way that commodity derivatives are bought and sold in contemporary markets this begs the question whether economic tools are sufficiently sophisticated to account for how behaviours in the market are

¹⁶¹ Bjerga, *supra* n 97 at 18.

¹⁶² Kittrell, ‘New app streamlines grain trading,’ available at: www.agriculture.com/news/technology/new-app-streamlines-grain-trading_6-ar17557.

likely to have changed as a result of these altered circumstances. I will now seek to demonstrate how processes of financialization have opened up new channels of influence whereby activity in commodity derivative markets can impact on underlying commodity prices.

First, the ‘financialization’ of commodity futures markets has exponentially increased the opportunities for a wide range of parties to trade in instruments linked to commodity prices. Some have suggested that the sheer volume of investment in commodity derivatives alone has created a form of ‘artificial demand’ for underlying commodities, pushing prices up.¹⁶³ However, a more persuasive explanation is that the financialization of futures trading has changed the nature of speculation itself. As De Schutter underlines, ‘traditional’ speculation carried out in the early days of the CBOT was still speculation based on information agricultural fundamentals—a link to agriculture was maintained.¹⁶⁴ By contrast, speculation in contemporary futures markets has become predominantly ‘momentum based’. In synergy with trading in other financial markets, actors trading commodity derivatives increasingly engage in ‘herding’ behaviour—watching the markets and anticipating how other actors are going to invest.¹⁶⁵ As John Maynard Keynes and Hyman Minsky both argued, it can become irrational for traders to persist in trying to trade on accurate information on supply and demand when so-called ‘technical’ or ‘noise’ traders are driving prices upwards of fundamentals.¹⁶⁶ Commodity index funds are another structural development that means that trading positions no longer reflect supply and demand fundamentals for agricultural commodities. Index investors automatically roll their expiring contracts over into new ‘long’ positions,¹⁶⁷ meaning that vast sums of money are funneled into indexes by large institutional investors irrespective of the day-to-day movements of each individual commodity.¹⁶⁸ Index fund investment is further exacerbated by increased reliance on financial algorithms. Just as the stock-ticker facilitated the diffusion of commodity futures prices in the 1920s, thereby affecting market behaviour, the electronic trading software, options-pricing formulas, and high-frequency trading technologies developed to facilitate the trade in OTC derivatives have changed trading behaviours. More than 95 per cent of futures are bought and sold today through computer networks, many of which operate to exploit a twitch in market movement or value irrespective of what informed it.¹⁶⁹

¹⁶³ See Frederick Kaufman talking about how investment bankers have engineered an ‘artificial upward pull on the price of grain futures’. Kaufman, ‘How Goldman Sachs Created the Food Crisis’ *Foreign Policy*, 27 April 2011.

¹⁶⁴ De Schutter, supra n 14.

¹⁶⁵ UNCTAD, *Price formation in financialized commodity markets: The role of information*, (2011) available at: http://unctad.org/en/docs/gds2011_en.pdf, at 21.

¹⁶⁶ Dow, ‘The psychology of financial markets: Keynes, Minsky and emotional finance’ in Papadimitriou and Wray (eds), *The Elgar Companion to Hyman Minsky* (2010) at 246.

¹⁶⁷ Investing ‘long’ means investing in the expectation that an asset is going to rise in value.

¹⁶⁸ Rogers, supra n 150 at 58.

¹⁶⁹ Foodwatch, *The Hunger Makers: How Deutsche Bank, Goldman Sachs and Other Financial Institutions Are Speculating with Food at the Expense of the Poorest*, (2011) available at: https://www.foodwatch.org/uploads/media/the_hungermakers_foodwatch_report_20111000.pdf, at 24.

Financial investment in commodity derivative instruments has not been a steady upward trend, and levels of investment did drop in 2009.¹⁷⁰ Nevertheless, financial investors continue to invest large volumes of capital in financial instruments linked to food prices. The Standard and Poor GSCI Agricultural Index gained two-thirds from 2010, reaching a record level in March 2011, when the second commodity price spike emerged in international markets for grain.¹⁷¹ What is more, as a report by Oxfam underlined in 2011, ‘the expansion of commodity speculation has not reached its end’.¹⁷² Quite to the contrary, Oxfam’s analysts argue, several financial institutions are only just beginning to deepen their involvement in commodity derivatives. Bayern LB announced at the end of 2011 that they had established a two per cent position in financial instruments linked to agricultural prices, and the DZ bank created its own commodity index, the DZ Bank Best Commodity, in 2011, in which wheat and corn each account for twelve and a half percent.¹⁷³ Contemporary futures trading continues to be dominated by actors who have no interest in agricultural fundamentals, and who buy and sell exchange traded commodity futures and OTC commodity derivatives as though they were any other financial asset. As a result of the financialization of the market, far fewer market participants are basing their trading decisions on research into supply and demand for agricultural commodities.

The introduction of new financial means and motives provides a clear indication of how the prices of commodity derivatives can be driven into a speculative bubble. Nevertheless, this does not provide a complete explanation for how activity in commodity derivative markets can impact on underlying commodity prices. To understand this, it is necessary to emphasize the repositioning of derivatives markets as playing two critically important roles in the liberalized global economy. Since the 1980s, derivative markets have been positioned as simultaneously the venues in which risk management tools are bought and sold, and a sophisticated information-gathering mechanism that leads to ‘price discovery’. Futures prices are meant to reflect information more complete than would be available on fragmented ‘spot’ markets (markets for tangible food commodities).¹⁷⁴ Going back to the critiques of Krugman, while he may be correct that a bet about a futures price has no *direct* effect on a spot price, it has a very well-established *indirect* effect. Taking a position in a futures market is a miniscule contribution—a claim to information—that goes towards the formation of a futures price that is used as a benchmark to set the underlying spot price. Technologies have been developed that assist farmers and grain sellers in checking futures prices for precisely this purpose. Taken together, the contemporary trade in financialized commodity derivatives enables a spectrum of different actors to take positions in the market for commodity futures that are not based on information about supply and

¹⁷⁰ Oxfam, ‘DON’T GAMBLE WITH FOOD! How the German financial industry is making a business out of hunger’ (2011) available at: https://www.oxfam.de/system/files/englische_zusammenfassung_final.pdf.

¹⁷¹ Weiss, ‘Archer Daniels unit joins foodmakers’ push into money management’ Bloomberg, 2 May 2011, available at: <https://www.bloomberg.com/news/articles/2011-05-02/archer-daniels-unit-joins-cargill-pushing-into-asset-management-amid-rally>.

¹⁷² Supra Oxfam n 169, at 2.

¹⁷³ Ibid.

¹⁷⁴ Peck (ed), *Futures Markets: Their Economic Role* (1985) at 73.

demand fundamentals, but that are being *read as such by other market actors*. This indicates a clear channel of influence between speculative-inflated prices listed on financialized commodity futures markets and the prices of physical food commodities that is not adequately accounted for in the accounts of economists who continue posit these markets as separate.

On this last matter, it is necessary to address a final outstanding issue. Due to the influence of behavioural economics, few economists are likely to contest the point that futures prices can be inflated by collective speculative ambitions.¹⁷⁵ Similarly, most economists, Krugman included, will be aware that practices of benchmarking can mean that futures prices can influence prices in underlying markets, even if this practice is not frequently foregrounded in their analyses. The crux of the debate over the role of commodity derivatives speculation in the price volatility hinges, therefore, on the insistence by economists that rational arbitrageurs can be depended upon to intervene in speculatively-distorted futures markets and to restore prices to their ‘fundamental’ values. In this context, arbitrage would involve purchasing and storing physical grain and selling commodity futures and derivatives to drive futures prices back down. Krugman has used data on commodity storage to argue that no accumulation of the kind that would be produced by arbitrageurs was observed during the price spikes—a fact that he claims indicates that speculation was not causally significant.¹⁷⁶ Campaigners have already countered Krugman’s claims by pointing to the proliferation of private grain storage facilities that is not accounted for in his data set.¹⁷⁷ This would suggest that arbitrageurs could in fact have been exploiting a price divergence between ‘artificially’ inflated futures and ‘fundamental’ values during this period. I would now like to return to the history of commodity futures trading to supplement their objections with a broader point.

Much in the way that the standardization of forwards contracts incentivized a spate of speculation in the nineteenth century, the financialization of futures trading has created novel incentives for market actors. The publication of futures prices in the 1920s prompted huge swathes of ordinary people to begin speculating via bucket-shops. Similarly, since the late 1980s, actors like pension funds and commercial grain traders expanded their range of market activities and have adopted novel strategies to speculate on price movements. Arbitrageurs are now also availed of an array of instruments that allow them to exploit price differences *without having to pay for grain storage*. Much of economic theory explains behaviour in markets as a function of self-interested, profit-maximising behaviour. My question is why arbitrageurs are assumed to be

¹⁷⁵ A leading figure in the Behavioural School, Robert Shiller won a Nobel Prize for his work on speculative bubbles in the 1990s in which he demonstrated how ‘feedback loops’ created by traders adopting positions informed by the behaviour of other traders could drive prices away from fundamentals and result in market volatility. R. J. Shiller, *Irrational exuberance* (Princeton New Jersey, Princeton University Press, 2015).

¹⁷⁶ Krugman, *supra* n 66.

¹⁷⁷ The stock inventory levels referenced by Krugman are calculated based on data supplied by governments which does not include information on stocks held by private actors. Breger Bush, ‘How Commodities Hoarding Distorts Food Prices’ *Naked Capitalism*, 5 June 2013, available at www.nakedcapitalism.com/2013/06/sasha-breger-how-commodities-hoarding-distorts-food-prices.html.

immune to the profitable opportunities that the financialization of futures trading extends to them? Why would a rational arbitrageur burst a price bubble by attempting to restore prices to fundamentals by handling grain when more profit can be made—and more efficiently too—by trading with the herd? Is it not possible—likely, even—that the proliferation of financial instruments linked to the price of commodities and the opportunities that they extend has changed what it is rational to do in this market, *including for arbitrageurs*?

This section has sought to illustrate how changes in the character of commodity futures trading has opened up new channels of influence whereby the trading of commodity derivatives can impact on underlying food prices. As well as testifying to how altered circumstances change market behaviour, the analysis has sought to relate something of the enabling role that State and legal institutions have played in facilitating the transformation of a mechanism for agricultural insurance into a financial asset. Commodity futures contracts were developed as a means to facilitate farmers, and other actors involved in food processing and retailing, in the production of food for human consumption. In spite of clear historical evidence of linkages between surges in speculation, grain price volatility and the trading of futures contracts outside of regulated exchanges, since the late 1980s, governments have been doing precisely what Common Law courts refused to do. They have created the legal and institutional support for the development of a market in instruments that enable a wide range of actors to speculate on the price of food. While they may be traded by professional financiers, valued according to complex mathematical formulae, and enjoy legal certainty and the backing of national courts, as bilateral bespoke instruments that facilitate speculative wagers, OTC commodity derivatives closely resemble speculative contracts for difference. What is more, the activities of speculators have been legitimated by a discourse that positions them as providing a public service by assisting in the mitigation of risk. The liberalization of markets for trade and capital was only possible thanks to the prior development of derivatives to protect commercial revenue from the risks associated with exposure to global markets. And, yet, the very real—if frequently under-interrogated—existence of risks relating to exchange rate fluctuations, interest rate appreciations, and destabilizing capital flows justifies both financial and commercial actors in entering into yet more derivatives transactions in order to hedge against such risks. To the extent that many such hedging transactions are, like speculative transactions, likely to be divorced from the fundamentals of agricultural supply and demand, they may pose a similar threat to food price stability. This has important implications for the new regulations developed in response to the campaigns of NGOs. The primary concern of this article, though, is to consider how a financialized trade in commodity derivatives may impact on efforts to realise the right to adequate food.

5. COMMODITY DERIVATIVES TRADING AND THE RIGHT TO ADEQUATE FOOD

The right to adequate food imposes three levels of obligation on State parties: the obligation to respect, to protect and to fulfil the right, with the obligation to fulfil encompassing both an obligation to facilitate access to food and to provide it in certain circumstances.¹⁷⁸ As the UN Committee on Economic, Social and Cultural Rights (CESCR) has made clear, the duties of State signatories extend not only to ensuring the *availability* of food adequate to the need of their populations, but also the *accessibility* of that food, including the ability of citizens to access it *economically*.¹⁷⁹ Economic accessibility implies that ‘personal or household financial costs associated with the acquisition of food for an adequate diet should be at a level such that the attainment and satisfaction of other basic needs are not threatened or compromised’.¹⁸⁰ Discussing the responsibilities of States in a context of high and volatile food prices, Olivier de Schutter has underlined that ‘[s]ecuring the right to food means ensuring that people have access to adequate food at affordable prices, whatever the market conditions.’¹⁸¹ As studies detailing the impact of the global food crisis would attest, however, ‘[m]ost poor households were left to cope on their own with high price rises’.¹⁸² Very few of those surveyed in early to mid 2008 reported having received any assistance from the State.¹⁸³ What is more, many people in low-income countries in the Global South were forced to switch to less nutritious foods to afford bread and rice during the crisis, and to spend less on other essential needs such as clean water, sanitation, education and health care.¹⁸⁴ On this basis alone many States could be found to have been in breach of their obligations to ensure economic accessibility to food during the global food crisis.

While this may be true, placing responsibility on the resource-stretched governments of the countries in which populations suffered most acutely from the effects of the price inflation may not be the most fruitful, or the most just, strategy to protect the right to adequate food. Attention might be better directed to those States whose policies have both exacerbated conditions of food insecurity and have enabled a profitable trade in financial instruments linked to the prices of staple food commodities. As the scholarship discussed in Part Two has shown, policy choices that favoured an industrialized, specialized, export-oriented mode of agricultural production, and that liberalized markets for trade and for financial capital, have increased reliance on global markets for basic food staples. As this article has now demonstrated, governments in the US, the

¹⁷⁸ CESCR, *supra* n 22, at para 15.

¹⁷⁹ *Ibid* paras 8-13.

¹⁸⁰ *Ibid* para 13.

¹⁸¹ De Schutter, ‘What are the implications for the right to food when food prices become volatile?’, available at: www.srfood.org/en/governance-and-the-global-food-crisis.

¹⁸² Compton, Wiggins and Keats, *Impact of the global food crisis on the poor: what is the evidence*, Overseas Development Institute (2010) available at: <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/6371.pdf>, at iv.

¹⁸³ *Ibid*.

¹⁸⁴ Von Braun, *supra* n 5 at 5.

UK, Europe, and in other parts of the world with a developed financial sector have supported the transformation of commodity futures markets into arenas for profitable financial speculation and hedging. New channels of influence have been opened whereby both the risk-management and profit-making needs of commercial and financial enterprises can impact on the critical measure of value that determines access to food for increasingly market-dependent populations around the world.

As well as being under a duty to progressively realize the right to adequate food, States must also ensure that other enterprises or individuals do not deprive individuals of their access to food.¹⁸⁵ In General Comment 12, CESCR has specifically identified the failure of a State to regulate the activities of individuals or groups so as to prevent them from violating the right to food of others as grounds for a violation of the right.¹⁸⁶ As the history of futures trading makes clear, the growth of an industry in which the needs of food insecure populations have been subordinated to the interests of financial profit is the result of the conscious decision of governments to ‘deregulate’ commodity futures trading (in the sense of removing it from regulatory supervision) since the late 1980s. The success of the trade in commodity derivatives has further depended on the active support for the functioning of derivative markets, and the enforcement of a range of new derivatives contracts in national courts. Governments in the US and in Europe have thus permitted the development of a complex array of instruments that have enabled financial actors to treat food commodities as they would any other financial asset. In response to the suggestion that governments are responsible for speculatively-conditioned food price volatility, it might be countered that it could not have been known an advance that activity in commodity derivative markets could lead to such harmful patterns of price volatility. Again, however, the history of commodity futures markets illustrates that these events were indeed foreseeable. Courts in the primary jurisdictions in which commodity derivatives are now traded once refused to enforce speculative contracts for difference because of concerns about the social implications of such trading practices. Legislation was carefully elaborated in the US in the 1930s with the aim of restricting volumes of speculative trading in commodity futures based on concerns about market manipulation and grain price volatility. Surely it is these States, then, and not the governments of countries most affected by the events of the global food crisis, should be the ones that are called to account?

As Smita Narula has argued, there are issues in attempts to hold States responsible for the actions of third party actors in the transnational context. In her view, the effective implementation of the right to food is ‘undermined by international human rights law’s state-centric focus and jurisdictional constraints’.¹⁸⁷ She is persuasive in her argument that globalization has meant that the activities of a company or a financial institution domiciled in

¹⁸⁵ CESCR, supra n 22 para 19.

¹⁸⁶ Ibid.

¹⁸⁷ Narula, ‘The Right to Food: Holding Global Actors Accountable under International Law’ (2005) 44 *Columbia Journal of Transnational Law* 691.

one country can now impact on the food security of citizens of another State, creating an accountability gap. Obligations under human rights treaties charge States with responsibility towards their own citizens, not those of other States. A similar assessment would seem applicable to the present matter of commodity price volatility, which is typically portrayed as having being exacerbated by speculators operating in global markets either beyond the law or, at least, domiciled in a different country to those who suffered most in 2007-11. Bearing in mind the information that this article has brought to light, however, assigning responsibility for activities in global markets might not be as difficult as is commonly thought. The globalization and the liberalization of markets now means that the actions of institutions reverberate around an increasingly interconnected economy. This means that citizens of all States are affected by the permissions that are granted to financial and corporate entities operating in these market, including those in which international financial institutions are domiciled. Citizens in the US, the UK, and Europe were also impacted by the price volatility in 2007-11, albeit to a lesser extent.¹⁸⁸ This could provide a basis to breach the accountability gap Narula identifies. A more preferable route, however, might be to work towards acceptance that the responsibilities of States under international human rights law extend to the actions of commercial and financial actors that relate to international markets on the basis that they can impact on the human rights of all mankind.

In his role as Special Rapporteur, De Schutter has done much to bring the issue of commodity derivatives speculation to the attention of the international community. De Schutter clearly places responsibility on those States in whose jurisdictions commodity derivatives are traded to take steps to prevent infringements of the right to adequate food, even if the negative effects of these activities are predominantly felt by persons living in other jurisdictions. He has outlined a number of steps that States can take to ensure economic access to food going forward, including the establishment of grain reserves, actions to protect access to land, and, importantly, the regulation of commodity derivatives trading.¹⁸⁹ ‘States should ensure that dealing with food commodity derivatives is restricted as far as possible’, he suggests, ‘to qualified and knowledgeable investors who deal with such instruments on the basis of expectations regarding market fundamentals, rather than mainly or only by speculative motives.’ These measures, he maintains, ‘would enable States to fulfil their legal obligations arising under the human right to food.’¹⁹⁰ The difficulty with this prescription is that, as discussed in Part Three, regulating to restrict excessive levels of speculation in the market has been fraught with complication. De Schutter gives no indication as to how the subjective motives of traders are to be determined when they are effecting transactions in the market—something that has proven to be an issue in the attempt to create regulatory rules in the US and in Europe. The ambition to apply a scheme of

¹⁸⁸ Monroe, ‘Crisis? What crisis? How politicians ignore the existence of food banks’ *The Guardian*, 22 April 2015; ‘Findings from Hunger in America 2014 Report’ available at: www.feedingamerica.org/hunger-in-america/news-and-updates/press-room/press-releases/feeding-america-highlights-state-of-hunger.html.

¹⁸⁹ De Schutter, *supra* n 180.

¹⁹⁰ De Schutter, *supra* n 14 at 1.

regulatory rules that preserves the benefits of the market but removes the worst ‘excesses’ has an obvious appeal. On the other hand, as this article has sought to emphasise, it is the broader industry of financialized commodity derivatives trading that puts food prices in jeopardy. It is not clear if this industry can be regulated in a way that removes the potential threat posed to food prices whilst ensuring that derivatives can still be used to play a vital function in risk management.

This article does not offer a concrete recommendation as to how the challenges of commodity derivatives trading and their potential to contribute to future patterns of food price volatility can be resolved. For now, it puts forth only a plea—a plea for a fundamental shift in perceptions about the nature of State responsibility in the context of world hunger. Both the conditions that enabled activity in commodity derivatives to exacerbate the price volatility in 2007-11 and the vulnerability of food insecure populations are, to a significant extent, the consequences of a stance taken by States towards markets—financial and commercial. Broader policies that States adopt towards markets *in general*, and not just specific policies in the area of agriculture, must be assessed for their potential impact on the ability of populations to command access to food. Finally, while there is much to be commended about the initiatives being proposed by the High Level Task Force to improve food security, these efforts repeat a mistake common to many of the earlier (failed) attempts to tackle world hunger. This is a tendency to focus on the lack of entitlement of the poor and vulnerable, whilst leaving the entitlements of more powerful market actors largely naturalized and under-interrogated. If the contribution of commodity derivatives trading to the 2007-11 global food crisis can tell us anything, it is that more attention must be paid to how the entitlements of more powerful market actors are being exercised and extended, and how this impacts on access to food. After all, what the diverse range of actors trading commodity derivatives in the years leading up to the crisis had in common was that they were trading these contracts in a legally-constructed, State-sanctioned market, secure in the confidence that their entitlements would be respected, protected, and fulfilled.

6. CONCLUSION

Speculative investment in commodity derivatives was not the sole factor to cause the global food crisis. A constellation of supply and demand factors are implicated in the causation of the price spikes, and quantifying the precise contribution made by speculative activity may not be possible. This article has drawn on the history of commodity futures trading to counter influential denials issued by economists and the financial services industry that are jeopardizing current efforts to regulate excessive levels of speculation in commodity derivative markets. An examination of the history of futures trading provides a clear illustration of how commodity futures markets have been financialized in recent decades, creating new channels whereby activity in derivative markets can have an impact on underlying food prices. This is highly significant for the ability of future generations to enjoy food security. Importantly, this history

also demonstrates that the capacity of States to control and shape the nature of operations of global financial markets is more extensive than is commonly believed. This has significant implications for the responsibilities of States and their obligations with regards to the right to adequate food. The broader scheme of policies adopted by States towards markets has to be understood to influence the ability of the food insecure to command access food. What is more, rather than continuing to focus on the 'lack' of entitlement of the food 'insecure', greater attention must be paid to the origins, form, and significance of the abundance of entitlement enjoyed by other market actors, whose position in global markets has perhaps become too secure. To quote a trader from the CBOT, in modern market structures 'what for a poor man is a crust, for a rich man is a securitized asset class.'¹⁹¹ The notion that global commodity markets can do justice to both sets of 'needs' is a fiction, one that must be challenged if the right to adequate food is to become more than an aspiration.¹⁹²

¹⁹¹ Vidal, 'Food speculation: 'People die from hunger while banks make a killing on food' *The Guardian*, 23 January 2011.

¹⁹² Unless otherwise stated, all urls in this paper were last accessed on 27 September 2017.