

SPECULATIVE HARVESTS

Financialization, Food, and Agriculture

Jennifer Clapp and S. Ryan Isakson

AGRARIAN CHANGE AND PEASANT STUDIES SERIES



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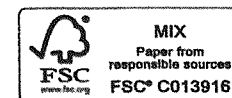
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What Is the Link Between Food and Finance?

The issues surrounding food and agriculture have garnered enormous public and academic interest over the past decade. One could argue that there is nothing new about the themes of greatest interest, including rising food prices, land grabbing, corporate concentration, and the ecological consequences of an increasingly industrialized food system. Indeed, food activists and scholars have long sought to understand and counteract these processes, identifying factors that contribute to them and working toward more just and sustainable food provisioning. Yet, as a number of examples illustrate, there is, in fact, something new about these longstanding concerns with the food system — in particular, the ways in which financial actors and motives are intensifying and qualitatively transforming these negative features of the contemporary global food economy.

Consider, for instance, the major investment bank Morgan Stanley's purchase of leasing rights for more than 40,000 hectares of prime farmland in Ukraine in 2009 (*Economist* 2009). It was one of hundreds of large-scale land acquisitions by financial institutions that have compromised the land rights of millions of farmers over the past decade (White et al. 2012). Similarly, at the height of food price volatility in 2010–12, five major investment banks — Goldman Sachs, Barclays, Deutsche Bank, JP Morgan, and Morgan Stanley — reportedly made over US\$2.7 billion speculating on food prices (Global Justice Now 2013). The associated spike in food prices diminished access to food for millions of the world's poorest people (FAO 2011). In another example, in 2015, under pressure from two separate hedge fund managers that were shareholders, the seed and agrochemical giants Dow and DuPont announced a US\$130 billion merger of the two firms (Crooks 2015). The combining of these two firms set off a mad rush of further mergers and acquisitions in the

agricultural input industry that, if successful, will see just three firms control over two-thirds of the global seed supply (ETC Group 2016).

As the above examples make clear, food and financial systems are tightly coupled. However, the details of precisely how these systems interface in practice, and how those linkages affect the everyday lives of real people, are often in the shadows. Financial transactions in the sector are often obscured by the esoteric terminology surrounding them as well as by norms of corporate practice that are anything but transparent. But for those affected by these linkages between the food and financial systems, the outcomes have very real consequences. Understanding the ways in which these dynamics unfold should not be the privilege of financiers and large agrifood companies alone. All participants in the food system, including farmers and consumers, should have access to information about the interaction between the food system and the financial system and its wider implications.

More generally, a growing number of scholars are directing their attention to “financialization,” a process in which financial actors and financially driven motivations have taken a larger role in society, across all sectors in the economy (e.g., Epstein 2005; Krippner 2011). These scholars point out the ways in which the growing primacy of finance has affected the non-financial economy, in which tangible goods and non-financial services are provisioned. The agrifood sector is no exception to this process of financialization. While the links between food, agriculture, and finance are literally centuries old, dating back at least to early commodity exchanges, the contemporary process of financialization has subtly, yet dramatically, infiltrated and reorganized the contours, objectives, and outcomes of the present-day agrifood order.

This book provides a closer look at the linkages between the food and financial systems and provides greater clarity to the topic through the use of ordinary language and concrete examples. It examines the mechanisms by which the processes of financialization have transformed many elements of the agricultural sector into “asset classes” or arenas for financial investment. It also explores how agrifood companies use sophisticated financial tools to enhance their own profits. It documents and explains the unprecedented scope and

form of these recent changes, giving particular attention to the roles played by different social actors and highlighting the impacts on a range of stakeholders in the agrifood system.

① We argue that financialization in the agrifood sector reinforces three troubling trends in the food system. First, it exacerbates inequalities across and within different sets of food system actors, as well as across and within different geographical locations. The recent transformations have facilitated the consolidation of wealth and power among financial elites and corporate management at the expense of food labourers, agricultural producers, and ordinary consumers. The result is highly uneven consequences for different stakeholders both within and across food systems.

② Second, financialization is driving a number of socio-economic changes that heighten the fragility of the global food system, undermining its socio-ecological resiliency. New financial instruments and a prioritization of the interests of shareholders have fostered unstable markets and have worked to further entrench industrial modes of agriculture while heightening the associated ecological and social risks. As a result, food systems are now much more vulnerable to economic shocks and environmental hazards such as biodiversity loss, pests, and climate change.

③ Third, financialization in the food system impedes collective action. It has vastly complicated the work of activists and policymakers in both the global North and the global South who advocate for more just and sustainable food systems. The highly complex nature of financial instruments, combined with the expanding lobby power of corporate and financial elites, has hindered the efforts of civil society groups and social movements to engage in policymaking and other efforts to challenge these detrimental processes.

Together, these implications of financialization within the agrifood sector weaken the ability of food systems to provide sustainable food security and livelihoods. The potential for these negative impacts has not gone unnoticed in political arenas, and a variety of interventions have been considered, from the introduction of new financial instruments to mitigate risks, to voluntary responsible investment initiatives, to (re)newed state regulation. We evaluate the likely impact of these proposed interventions and consider the

prospects for more socially just and environmentally sustainable agrifood systems as the process of financialization continues to evolve.

What Is Financialization?

Before delving into the specifics of financialization in the agrifood sector, it is important to take a step back and look at what exactly financialization means in a broader sense. Since the late 1990s, a number of scholars from a range of disciplines — from political scientists, to geographers, to economists, to sociologists and anthropologists — have turned their attention to the concept of financialization as a way to make sense of a what appears to be a shift in the creation of wealth away from productive industry toward finance (van der Zwan 2014). Financialization, according to Epstein (2005: 3), refers to “the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies.” Krippner (2011: 4) adds to this understanding by stressing that financialization results in “the tendency for profit making in the economy to occur increasingly through financial channels rather than through productive activities.”

In both of these definitions, there is an important distinction between financial activities (the investment of funds with the expectation that it will result in interest, dividends, or capital gains) and the non-financial economy (sometimes referred to as the “real,” or “productive,” economy, where production, trade, and distribution of non-financial goods and services takes place). Traditionally, the financial system has allocated funds for the acquisition of physical capital, thereby financing investment in the real, or non-financial, economy. While there is some debate about how rigid the boundary is between these two realms, there is a general consensus that in recent decades finance has become increasingly autonomous, capable of expanding and generating profits on its own, through complex financial assets. That is, rather than generating profits through loans and other forms of financing to non-financial enterprises, since the 1970s, the financial sector in dominant economies has dramatically shifted to speculative activities that generate returns that are independent of — or, at the very least, distantly linked to — the

productive economy (Kotz 2011). At the same time, the growing prominence of financial motives, logics, and markets has infiltrated and fundamentally reshaped the underlying non-financial economy and the democratic societies in which it resides.

There are several strands in the literature that interpret the key features of financialization in different ways, although they overlap and build upon one another (for a review, see Krippner 2011; van der Zwan 2014). Although they deploy different entry points to explain the phenomenon, each centres on the idea that contemporary capitalism is being transformed by the growing role of finance in the economy, and each is important in considering the role of financialization as it reshapes the food and agriculture sector.

One strand highlights the ways in which financialization has reshaped economies such that capital is primarily accumulated through financial channels. In the U.S., for example, Krippner (2011: 28) notes that financial sector profits were around 10–15 percent of the total profits during the 1950s–60s. But that figure grew rapidly in the 1980s, more than doubling between the mid-1980s and 2008 to around 30–40 percent (Khatriwada 2010). Finance has become a lucrative sector, and financial firms — including investment banks, asset management firms, mutual funds, hedge funds, pension funds, and private equity funds, among others — have become increasingly important. The financial sector has become a leading source of profit generation in many economies, especially in rich industrialized countries, while the profitability of manufacturing has declined in recent decades. With the rise of finance as a key source of profit, non-financial firms are increasingly engaging in financial activities and earning a greater share of their revenues from the financial aspects of their business (Krippner 2011; van der Zwan 2014: 101). Payments from non-financial firms to the financial sector — in the form of interest payments, stock dividends, and share buyback schemes — have also increased in this context as these firms are increasingly pressed to provide payments back to their main investors (see Crotty 2009). As non-financial firms see a growing share of revenues going back to the financial sector, they are pressed to save costs and often end up offshoring production. As a result of this process, workers' wages have stagnated, economic growth has slowed, markets have become

more volatile, and income inequality has become more pronounced (Palley 2007; Khatiwada 2010; Baud and Durand 2012; Wolff 2013; Stockhammer 2004).

Alongside the financialization of accumulation, a second approach sees financialization as a product of the so-called “shareholder revolution” of the 1990s, in which managers for firms of all types reoriented the direction of their enterprises such that their top priority is to satisfy their shareholders’ demands for dividends (Froud, Haslam, Johal et al. 2000; Froud, Johal, Leaver et al. 2006; Crotty 2009; Baud and Durand 2012). To incentivize accommodating behaviour, chief executive officers (CEOs) are increasingly compensated with company shares, effectively linking their salaries to overall equity performance. As non-financial firms bow to shareholder pressure to maximize returns, wealth is redistributed among the key stakeholders within the firm, while workers’ wages remain flat, leading to increased inequality (Froud et al. 2000). If firms are not able to provide a steady and competitive return on their investments, shareholders often pressure management to restructure the firm. This restructuring frequently results in the sale of unprofitable units, or mergers with other firms to increase market share, both of which can lead to job losses for employees. With monetary easing since the 2008 financial crisis, characterized by low interest rates, it has been relatively easy for firms to distribute a greater share of profits to shareholders. The availability of low cost loans reduces the need for firms to retain earnings to finance their various activities. Many firms have taken advantage of low interest rates to borrow funds for the acquisition of competing firms. In this context, employees face not only low or stagnant wages as the relative share of returns distributed to shareholders and managers increases, but also fewer benefits and less job security (Froud et al. 2000; Palley 2007).

A third approach many scholars have taken to examine financialization is to concentrate on the ways in which finance has infiltrated — and, indeed, become a necessity in — everyday life. Rather than focus on financial and corporate elites, these scholars have zeroed in on the ways in which ordinary citizens have become part and parcel of the prioritization of financial incentives by increasingly engaging with financial practices in their own lives (Aitkin 2007;

Langley 2008). Mortgages, the rise of consumer credit and debt, and increased participation in investment funds, including a greater focus on the need for individuals to save for retirement, are all ways in which consumers have become more engaged with finance as part of their normal day-to-day activities (Montgomerie 2008). Managing risk and security, activities that were once deemed the realm of financial experts and the state, are increasingly understood as the responsibility of ordinary individuals (Martin 2002; World Bank 2013). Through engagement with these kinds of mass-marketed financial products, people in effect internalize norms of behaviour that revolve around financial considerations. These changes in attitude, and in the practice of finance at the individual level, have been facilitated by technological and institutional developments such as online banking and investment interfaces and, notably in the context of the global South, mobile financial services like the widely celebrated M-Pesa. Ironically, as the everyday security of individuals becomes more entwined in their personal financial activities, they have become increasingly vulnerable to financial risk and may not have sufficient information about its inner workings and implications (van der Zwan 2014).

Each of these features is important for understanding the scope of financialization. But we must also ask what enabled the rise of finance in the first place? Krippner (2011) identifies three explanations, each affiliated with a prominent theoretical paradigm. For mainstream economists, financialization serves to align the interests of corporate chief executive officers with those of the firms’ shareholders. While the former had previously been rewarded for reinvesting profits into the firm to spur innovation and expansion of production and sales, shareholders have made growing demands for a greater share of the profits to be paid out as dividends. Increasingly, corporate executives are compensated in stock options and their own positions are under threat from private equity takeovers and mergers. Such pressures have brought the interests of firm management and shareholders more in line with one another (Froud et al. 2006; Palley 2007).

A second explanation emerges from Keynesian thinking about speculative bubbles. Adherents argue that insufficiently regulated

financial markets are inherently prone to speculative excess, where asset prices far outpace their intrinsic value due to the belief of investors that prices will continue to rise, driving prices higher still. Investors' ignorance about the functioning of an economy leads them to engage in herd behaviour. That is, rather than admitting their lack of knowledge, investors collectively follow the speculative activities of leading actors. But such markets are inherently unstable and prone to crashes (Palley 2007; Crotty 2009).

Alternatively, Marxist scholars portray financialization as a cyclical feature of capitalism, which for them is prone to periodic crises. Such crises are caused by falling profits that result from the downward pressure on prices from competition, and episodes of "overaccumulation," during which the productive capacity of firms greatly exceeds effective demand, meaning that additional investments in working capital are unlikely to generate satisfactory returns. Kotz (2011), for instance, argues that under corporate capitalism, where ownership of enterprises takes the form of ownership of stocks in firms (often referred to as equity shares, or financial securities), economic elites can escape the risks posed by technological change and ruthless competition. This happened in the early twentieth century when antitrust legislation and economic volatility drove economic elites like the Rockefellers to transfer their wealth from the ownership of productive enterprises to real estate and finance. Similarly, during the 1970s, international competition and the declining profits of U.S. and British manufacturers drove many investors to redirect their surplus capital from productive investments to financial speculation.

It is important to note that financialization is not a process that is forced exclusively by financial elites, but also one that is fully embraced by corporate elites in search of profitable outlets for their capital during periods of economic uncertainty. Channeling surplus capital into financial markets (e.g., government bonds, corporate stocks, currency speculation, and home mortgage based investments) helps to postpone the full effects of economic crisis, thereby providing a "spatio-temporal fix" (Harvey 2003: 87). This process is typically encouraged by interstate competition for capital in international financial markets. In response to the most recent crisis, for example, many states actively deregulated financial markets in order to attract

financial capital to their jurisdictions. These dynamics worked to drive up financial asset prices even as profits in the non-financial economy remained stagnant (Harvey 2010; Krippner 2011).

Although these theoretical interpretations differ in their explanation of the contours of financialization, all note that the process unfolded in the context of financial deregulation, which was integral to the neoliberal economic restructuring that took place in the latter part of the twentieth century. Economic turmoil in the 1970s and early 1980s prompted governments in the U.S. and Britain to dismantle the Keynesian-style regulation of the financial sector, which had been in place since the 1940s (Helleiner 1994). This process was heavily influenced by the ascent of neoclassical economics at the time, especially the "efficient market hypothesis," which postulated that minimal government regulation was the key to better functioning markets. The result was a "new financial architecture" (NFA) that embodied this preference for keeping government involvement in these markets to a minimum. As economist James Crotty (2009: 564) writes, the NFA "is based on light regulation of commercial banks, even lighter regulation of investment banks, and little if any regulation of the 'shadow banking system' — hedge and private equity funds and bank-centered Special Investment Vehicles." The NFA enabled financial institutions, previously constrained by regulation, to freely amass large quantities of investment funds and to develop novel financial products. In the 1980s and 1990s, many debt-affected developing countries were pressured to adopt similar policies by multilateral banks that made access to loans contingent upon financial deregulation (Mosley 1991; Boucher, Barham, and Carter 2005).

The financial crisis of 2008 drove home the point that the financialized economy is more turbulent and highly susceptible to crisis. Poorly regulated financial markets, the growth of new financial instruments, low interest rates, and credit and housing bubbles set the stage for a global banking meltdown (Helleiner 2011). As a 2015 U.N. Conference on Trade and Development (UNCTAD) report notes, the expansion of credit and the rise of new financial instruments to manage risk in the past several decades have contributed to a system that may be more adept at absorbing smaller shocks, but

less able to anticipate and respond to the larger systemic weaknesses and risks that such a system brings. The financial crisis prompted governments around the world to consider enacting more stringent regulation in order to rein in risky financial practices. However, financial interests have fought hard against the adoption of any new rules that might curtail their activities, and nearly a decade later the few regulations that were put in place are now under pressure to be relaxed (Helleiner 2014).

As the literature makes clear, the implications of financialization are serious, affecting both the production and distribution of wealth. It drives further economic inequality by redistributing wealth within firms and contributes to job insecurity by shedding less profitable elements of firms and offshoring production. It also reinforces corporate concentration as firms strive to expand their revenues and the associated returns to shareholders through mergers with — and acquisitions of — their competitors. And it accustoms individuals to financial activities in their everyday lives, while at the same time making them more vulnerable to financial risks from rising debt loads and greater exposure to increasingly unstable domestic and global financial systems. In addition, financialization also makes political resistance more challenging by obscuring the processes that contribute to deteriorating socio-economic and ecological conditions behind complex financial tools. The increased offering of financial “solutions” to growing insecurity ostensibly makes the financialized economy more tolerable, while at the same time entrenching it. Such shifts conflate multiple social objectives into a much narrower set of abstract financial values; resulting in a depoliticization of the economy (Krippner 2011; Breger Bush 2016).

Financialization and the Food System

This book outlines the ways in which financialization has transformed the agrifood sector and highlights its impact on food systems in the form of more concentrated power and wealth, weakened socio-ecological resiliency, and stifled efforts to build more just and ecologically sound food systems. These effects are the culmination of the specific ways that the three main dimensions of financialization

outlined above — the opening of new arenas for accumulation, the prioritization of shareholder value, and the financialization of everyday life — unfold in the agrifood sector. We provide an overview of the ways in which these processes have unfolded in the agrifood sector and explain the important shifts that were necessary for this financialization of the food sector to take hold. We discuss both the direct impacts that arise from these specific modes of financialization, as well as their broader implications.

In addition to systematically analyzing these processes of financialization specific to the food and agriculture sector, we also show that these aspects are not always distinct or mutually exclusive ways to understand the processes and implications. Indeed, our in-depth look at these dynamics in the agrifood sector reveals that the distinct ways in which financialization is generally characterized overlap with and reinforce one another in complex ways. Further, our analysis highlights the socio-ecological dimensions of the financialization process, which are often underplayed, or outright ignored, in the more general literature on financialization. We show that questions of inequality and political agency are inextricably tied to questions of ecological sustainability, especially in the case of financialization in the agrifood arena.

Agriculture Targeted as a New Arena for Capital Accumulation

The food and agriculture sector has become a new site of investment, or arena of accumulation. Financial sector actors have increased their investments in the sector, and traditional actors in the food and agriculture sector are turning to financial tools and investments to secure profits. The transformation of the agrifood sector into an attractive site for financial accumulation required the abstraction of the cultural and physical qualities of food and land into financial values of interest to investors. It also required a regulatory environment that enables purely financial profit-making activities associated with these assets. Agricultural commodity markets, for example, involve trade in derivatives, which are financial products whose value is derived from the price of an underlying asset, in this case the prices of agricultural commodities. These financial instruments enable market participants to hedge their risks, that is, to offset unexpected changes

in the value of the commodities that may arise over the course of its production. Markets for agricultural commodity derivatives in the U.S. were tightly regulated for most of the twentieth century to enable hedging activities by farmers, grain buyers, and other actors directly involved in the agricultural sector, while limiting financial profit-taking by speculators, who were merely betting on the direction of prices. The deregulation of those markets after the 1980s, however, opened the floodgates to speculative activities and paved the way for the proliferation of new complex financial investment tools specifically geared toward the food and agriculture sector.

These novel financial investment instruments have drawn in new financial investors in ways that were not previously possible. With fewer restrictions on their activities, investment banks and commodity trading firms began to sell commodity index funds that track a compilation of commodity prices. And large-scale institutional investors, such as mutual funds, hedge funds, pension funds, insurance companies, and endowments for universities and foundations, sought to diversify their investment portfolios by adding exposure to commodities through these novel instruments (see Table 1-1 for a description of the main financial players in agricultural investment). In order to hedge their risks, the financial institutions and commodity traders that sold these funds then increased their investment in commodity derivatives products as well as physical assets in the sector. This development deepened the role of financial actors in agricultural commodity markets and enabled a larger number of investors to speculate on food and agricultural commodity prices. Increased speculation in commodity markets, in turn, has been widely implicated in driving up food prices and making agricultural commodity prices more volatile (Worthy 2011; Ghosh 2010).

The food and agriculture sector has also become a new site for financial accumulation in ways other than commodity speculation. There has been a rise in new types of investment funds based on food and agriculture that enable investors to profit from financial exposure to farmland and agribusiness companies. Again, it is large-scale institutional investors who have flocked to these new financial instruments tied to the sector. The flood of capital into these funds has been associated with the global land grab and soaring prices for farm-

land, which further limits access for small-scale farmers (Fairbairn 2014; Magnan 2015; Desmarais et al. 2017). Additional financial instruments in the sector include new kinds of derivatives that are

**Table 1-1 Key Financial Players in
Large-Scale Agricultural Investment**

Investment Banks	Large banks, such as Goldman Sachs, Morgan Stanley, Citigroup, and Deutsche Bank, that focus on investment products and services
Hedge Funds	Funds that invest on behalf of high net worth actors; seek high returns in a short period of time
Private Equity Funds	Funds that invest on behalf of high net worth actors; use funds to gain control of enterprises that they overhaul before selling
Pension Funds	Funds that invest retirement and pension savings on behalf of members
Mutual Funds	Funds that invest in equities and other assets on behalf of investors who need not be especially wealthy
Sovereign Wealth Funds	Funds that invest state funds on behalf of governments
Commodity Trading Firms	Commodity traders, such as Archer Daniels Midland, Bunge, Cargill, and Louis Dreyfus (i.e., the ABCD companies), and their financial investment subsidiaries
Insurance Companies	Firms that pool the risks of individual actors and invest large sums of money to hedge risks
University and Foundation Endowments	Entities that invest large sums of money for the purpose of ensuring investment income for their operations
Asset Management Firms	An umbrella category that refers to the various types of companies that pool the funds of multiple clients for investment purposes. Types of funds these firms manage include hedge funds, mutual funds, pension funds, index funds, and private equity funds.

marketed to farmers as insurance even though they are speculative instruments that do not guarantee against loss. Sales of these derivatives cum insurance products has the potential to generate significant revenues for those actors who sell them — including various types of financial actors as well as multinational seed and agrochemical companies — even though they only provide farmers with a partial form of security (Johnson 2013; Isakson 2015). Financial actors are also providing credit services across the food and agriculture value chain in ways that tend to privilege large-scale producers and disadvantage those producers operating at a small scale (Boucher et al. 2005; Fletschner, Guiringer, and Boucher 2010).

Agri-food Firms Reshaped by the Rise of Shareholder Value

A broader shift toward increased prioritization of shareholder value in the corporate sector in the 1980s–90s facilitated and shaped the process of financialization in the food sector from farm to plate. As in the broader economy, agribusinesses have embraced a growing belief that their primary function is to provide profit for shareholders, rather than to serve society's wider interest to provide nutritious food that is universally accessible as well as decent livelihoods (Jones and Nisbet 2011; Baud and Durand 2012). As a reflection of this shift, a greater share of food and agriculture companies across agri-food supply chains are now owned by large asset management firms that manage funds for institutional investors seeking to benefit from those equity values. Like in the broader economy, compensation for CEOs in the agri-food sector is now largely tied to equity values. In response, corporate managers have reshaped these firms in ways that maximize financial profits for shareholders, regardless of the social and ecological costs associated with that pursuit.

To satisfy the demands of their shareholders, agri-food firms have increasingly sought growth and profit expansion through mergers and acquisitions, rather than investment in productive activities (Jones and Nisbet 2011). They have also faced pressure to reallocate resources out of activities that would expand growth based on product improvements, such as research and development, and into dividend payments (Rossman 2010; Isakson 2014). Shareholder orientation also encourages firms to cut costs wherever possible,

increasing the externalization of environmental and social costs. The redistribution of wealth within food and agriculture firms has reshaped global supply chains, making them even more elongated as sourcing and processing are increasingly globalized to locations where wages are lower and environmental standards are weaker (Clapp 2014). Consequently, jobs have become less secure and wages have stagnated in the sector (Rossman 2010; Baud and Durand 2012; Burch and Lawrence 2013).

Everyday Activities Influenced by a Financialized Agri-food System

The financialization of everyday life has also permeated the food and agriculture sector along a number of dimensions. This aspect of financialization was facilitated by a shift toward neoliberal policies starting in the 1980s, which advocated a reduced role for the state in supporting the agricultural sector. Agricultural research and credit provision were once seen as key responsibilities of the state in many countries, as part of a broader project of building a strong nation state by stabilizing commodity prices to enable sufficient domestic food production. But this role has been abdicated in many countries, which have effectively handed off responsibility for these important functions to the private sector (Chang 2009; Martin and Clapp 2015).

In many cases, farmers are now expected to individually manage economic risks through their savvy participation in financial markets. This compulsion for individual agricultural producers to regularly participate in financial markets has normalized these activities in everyday contexts (Taylor 2011; Johnson 2013). Private banks and agricultural input firms have become providers of agricultural credit and insurance to producers, locking the latter into arrangements predicated on deriving profit, which is a different focus than support for the sector as part of nation-building. This trend has the effect of downloading responsibility for price smoothing functions for commodity markets onto farmers.

At the same time, food retail companies have become major providers of credit and other financial services to their customers, many of whom are cash strapped and engaged in precarious employ-

ment, often seeking their loyalty through points programs (Burch and Lawrence 2013). Ordinary citizens are also connected to the sector at a personal level through financial services, such as their purchase of mass-marketed agriculture-linked mutual funds as part of their retirement savings. Agriculture and food linked investments are presented by financial institutions as a means by which individuals can diversify and secure their savings and investment portfolios (Wheaton and Kiernan 2012; Fairbairn 2014). But linking food acquisition to the provision of credit by the same provider only heightens consumers' dependence on these firms for both financial security and food security.

Broader Implications of a Financialized Food System

As we show in more depth in the subsequent chapters, the targeting of the agrifood sector as a new arena of accumulation, the reshaping of firms in response to the rise of shareholder value, and the reorientation of everyday financial activities associated with the agrifood sector, have together transformed the food system in myriad ways. They are associated with numerous troubling trends in the food system, including land grabbing, food price volatility, corporate concentration, insecure agricultural and food system livelihoods, the homogenization of agricultural technologies, and a loss of autonomy for both producers and consumers, among others. While these impacts may at first glance appear to be separate from one another, a closer look reveals that they are interlinked in complex ways that have broader implications for the food system as a whole (see Table 1-2).

The abstraction of food into financial value, for example, enables not only new opportunities for accumulation through equity and other investments in the sector. It also facilitates shareholders' valuation of food firms in purely financial terms, which allows them to evaluate and compare investment options across the sector. In this way, financialization facilitates investment in the activities and enterprises that best adhere to financial objectives and, of course, denies funds to those that do not. The development of new financial tools for agricultural investment also infiltrates everyday life, as food system actors increasingly rely upon those tools to manage their own risks.

Similarly, as states offload responsibility for fostering agricultural innovation and farmer credit services onto private actors, the food and agriculture sector is increasingly valued in financial terms, which in turn draws in financial investors. The emergence of new mechanisms for managing price risk at the individual level not only opens new arenas for capital accumulation for banks and other providers of credit, but also shapes everyday financial transactions. The rise of index-based agricultural insurance, for instance, provides the private insurance industry with a new profit stream based on the inherent risks faced by farmers, while at the same time farmers are forced to incorporate this kind of financial mechanism into their daily operations.

The reinforcement of the trends is also evident when agribusinesses that pander to shareholder values work to cut costs by scaling back on employee benefits, like health insurance and retirement packages, that represent a short-term cost for the firm. In such cases, food sector workers are left with little choice but to assume these responsibilities through their individual purchase of financial and insurance products that, in turn, create new channels for accumulation for both food and financial institutions as well as investors.

These aspects of financialization collectively generate three broader implications that reinforce troubling macro-trends in the food system. These broader effects are summarized below and are emphasized throughout the analysis in the following chapters.

Concentrates Power and Wealth

Financialization has contributed to a consolidation of power and wealth among elite financial and corporate actors at the expense of other participants in the food system. Inequities in the global food system have long been present, but by many accounts this inequality has become more pronounced in recent decades (Friedmann and McMichael 1989; Clapp and Fuchs 2009). Financialization has exacerbated and extended this pattern of inequality by creating new opportunities for accumulation by financial and corporate elites through new financial instruments that simultaneously create conditions — such as food price volatility, threats to land rights, reduced job and livelihood security, and corporate concentration — that

disadvantage less powerful actors in the food system.

Food system inequality has also become more pronounced in recent years with the growing corporate concentration across the agrifood system (Howard 2016). The process of financialization, with its prioritization of shareholder value, has encouraged more merger and acquisition activity in the sector, thus contributing to more extreme forms of corporate concentration. At the same time, the power of the financial elites has become even more entrenched as financialization has left ordinary individuals increasingly dependent on the financial sector to manage insecurity through their personal acquisition of insurance, credit, and retirement savings, all of which link to the food and agriculture sector in various ways.

Compromises Socio-Ecological Resilience

Financialization has compromised the socio-ecological resilience of the food system. At a most basic level, the short-term profit-seeking tendencies of global financial markets are poorly suited to serving the long-term needs of sustainable agriculture. The novel financial instruments that enhance investors' opportunities for immediate financial gains, like commodity index funds and farmland investment products, have left the system more prone to instability. More volatile food prices associated with commodity index funds have increased vulnerability and uncertainty for both food producers and consumers, a trend that became painfully evident over the course of 2007–12 following the eruption of crises in both the food and financial sectors. Speculative farmland investments have encouraged production at all costs, typically employing industrial farming methods that have been associated with climate change and biodiversity loss (Jarosz 2009). Similarly, the proliferation of derivatives as tools for managing agricultural risk has had the paradoxical effect of promoting the homogenization of agricultural technologies, thereby reinforcing the movement towards less resilient agricultural systems (Cronon 1991; Isakson 2015).

The livelihoods of many agricultural producers have been rendered more fragile as the prioritization of shareholder value in agribusiness corporations has also encouraged more capital-intensive and ecologically damaging industrial modes of agriculture as a means

to deliver more immediate and substantial returns (Weis 2010). Corporate restructuring, under pressure from the financial industry, has had the effect of locking in reliance on a shrinking array of genetically modified seeds and associated agrochemicals, with deleterious effects on biodiversity and attendant knowledge and practices (ETC Group 2016). This “one size fits all” approach to agricultural technologies is likely to result in the greater homogenization of agricultural systems, which will heighten their vulnerability to ecological shocks, such as drought and extreme weather events associated with climate change (Taylor 2017). More generally, as financial values gain precedence over alternative social values, other important objectives ascribed to agricultural production — including its role in preserving biodiversity, providing livelihoods, and provisioning food — are subsumed by the prioritization of short-run returns on investments.

Impedes Collective Action

Financialization has generated new challenges for those trying to create more just and sustainable food systems. The new instruments for financial investment associated with the agrifood sector have become so complex and highly technical that civil society groups and policymakers seeking to promote food system reform are effectively excluded from participating in policy debates (Clapp 2014; Williams 2015). At the same time, the prioritization of shareholder value has created corporate giants that have ample budgets to put toward lobbying for rules that shape food systems to their own benefit (Fuchs, Meyer-Eppler, and Hamenstädt 2013). This inequity in access to policy processes results in rules that favour large-scale agricultural models, making it difficult for small-scale alternative food movements to scale up and out.

Meanwhile, the individualization of responsibility that has accompanied the financialization of everyday life has deflected attention away from the need for broader systemic change. In many ways, the food system has been “de-politicized” for ordinary citizens, as food and livelihood security have become increasingly dependent upon the purchase of financial services associated with the sector. Investments in farmland and agricultural commodities, for example, have become a normal component of retirement savings, the pro-

Table 1-2 Mutually Reinforcing Aspects of Financialization and Food System Change

Aspect of financialization	Shifts that enable financialization to take hold in food system	Specific mechanisms through which financialization is expressed	Potential direct consequences
New Arenas for Accumulation	Abstraction of food, agriculture, and farmland into financial values for investment; deregulation of financial markets	Commodity and farmland speculation; new financial products such as index funds and derivatives based insurance	Food price volatility; rising land prices and dispossession of farmers; environmental degradation; redistribution of value from food workers to finance
Prioritization of Shareholder Value	Growing belief that the primary function of firms is to generate shareholder returns	Profits paid as dividends rather than productive investment; mergers and acquisitions	Corporate concentration; cost externalization; livelihood/job insecurity; reinforces industrial agriculture
Financialization of Everyday Life	Neoliberal reconfiguration of the state; offloading of responsibility for risk management onto private actors	Mass marketed investment products for retirement savings; private sector consumer and producer financial services	Dependence on financial service providers; individual interest in financial gains; reduced security for farmers and consumers

Together, these processes drive food system change in three key ways

<i>Broader implications for the food system</i>	(1) Exacerbates unequal distributions of wealth and power in favour of financial elites (2) Compromises food system resilience by undermining its social and ecological foundations (3) Dampens collective efforts to build more just and sustainable food systems
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curement of agribusiness-sponsored financial services has become necessary for securing food and productive inputs, and the purchase of derivatives has become the most available means for mitigating agricultural risks. Ironically, this context has obscured the role of financialization in laying the groundwork for the food and financial insecurity of individuals. For many in the general public, financialization is not recognized as the cause of their insecurity. Instead, it is understood as the solution.

The connections between financialization and these broader trends in the food system are not always self-evident, because links can be diffuse and hard to pin down. In this book, we bring them to light by tracing the deeper shifts required for financialization to take hold and the specific mechanisms through which financialization is expressed, as well as the potential consequences of those mechanisms. Through this analysis, we connect the dots between financialization and broader trends that critics have identified in the food system.

Outline of the Book

The remainder of this book teases out these connections between food and finance, both the direct and the indirect, as well as the deeper structural shifts in the food system encouraged by the various dimensions of contemporary financialization. We explain and illustrate how these connections came about, how they operate, and their broader effects.

Chapter 2 provides a brief explanation of commodity-based derivatives, such as futures and forwards contracts, and identifies their use in a variety of historical contexts. While such contracts have the potential to help food system actors like farmers, traders, and food processors manage the inherent uncertainty of markets for agricultural products, they are also often of interest to financial speculators who hope to profit by trading on that uncertainty. The chapter describes how states and other actors have long regulated the activity of financial actors in derivatives markets, lest they end up hijacking the food system for speculative gain. It also explains how and why such regulations were rolled back in financial hubs

in recent decades, creating an opening for financial technicians to introduce new investment products based on agricultural derivatives, and facilitating a flood of capital into agricultural derivatives markets. We conclude with an explanation of how the recent burst of financial speculation on agricultural commodities is linked to growing price volatility in the markets for actual food, including the food price spikes of 2007–08, and describe the uneven social impacts of those price swings.

Chapter 3 explains how derivatives are increasingly promoted as a means for agricultural producers, particularly poor farmers in the global South, to manage the growing risks associated with food price volatility and environmental change. In many areas of the world, agricultural production has become riskier since the 1980s, with the unravelling of international commodity agreements and the rollback of state protections for farmers, like price supports and agricultural insurance. To address the resulting insecurity, a number of influential actors have promoted the expansion and development of derivatives markets wherein agricultural producers are expected to purchase financial instruments that will allow them to hedge against economic and environmental risks. The chapter details this financialization of daily life for agricultural producers, explaining how conventional derivatives like futures contracts are increasingly presented as the best means by which farmers can manage market-based risks, while new types of derivatives based on the weather and other environmental measures are widely promoted as “insurance” against threats from nature. The rollout of these market-based financial fixes across uneven socio-economic landscapes has exacerbated inequalities within agrarian populations and along agrifood supply chains.

Chapter 4 focuses on efforts to reconfigure farmland for financial purposes. While farmland has long been prized as an asset that retains its value, even in the face of general economic malaise, it is also a productive asset that is essential to farming. In the wake of the 2007–08 food and financial crises, financial actors joined the scramble of the “global land rush” in the hopes of capitalizing upon farmland’s unique ability to store value while generating revenue from agricultural production. However, even though farmland may exhibit values that are prized by financial investors, it is also shaped

by place-specific historical, cultural, and political processes that can complicate efforts to reformat it for purely financial purposes. The chapter describes these challenges and outlines the methods and strategies for overcoming them. The distress of contemporary farmers, emanating from unmanageable levels of debt, an inability to access affordable credit, and increased vulnerability to economic and environmental stress, has facilitated the transfer of farmland from “willing sellers” to financial investors. The result is often the growing concentration of farmland ownership and erosion — if not outright elimination — of farmers’ land rights.

Chapter 5 explores the financialization of agribusiness, giving particular attention to the ways in which the financialization of accumulation and the shareholder revolution have contoured four key sectors in agrifood systems: the seed and agrochemical sector; the commodities trading sector; the food retailing and services sector; and the food processing sector. The growing prioritization of shareholder values in these enterprises has been an important, if understudied, driver of corporate concentration in the contemporary food system. It has also spurred the introduction of new financial products that are an increasingly important source of corporate profits and shareholder returns; contributed to the development of new labour practices that channel a greater share of agrifood value from workers to financial actors; and reinforced the industrial agriculture and food model, which has contributed to the production and distribution of unsustainable and unhealthy food.

In light of the negative impacts that contemporary financialization has had on the food system, Chapter 6 examines the prospects for effectively reforming the governance of financial activities in agrifood provisioning. The 2007–08 food and financial crises spurred state initiatives to re-regulate speculative activities in commodity markets. But pushback from the financial sector and big agribusinesses, whose participation in commodity markets has become increasingly more speculative, has weakened the policies and delayed their implementation. Several voluntary initiatives to limit financial activities in agriculture and farmland grabs have also been implemented, but their effectiveness is questionable. Some civil society actors have taken the burden upon themselves as they have instituted

campaigns to shame financial institutions that are capitalizing upon food price volatility, yet their initiatives have not been particularly successful either, due in large part to the complexities of “following the money” through opaque and labyrinthine financial channels. Despite the limited impacts of initiatives to date, we remain hopeful that an informed and coordinated response from civil society and policymakers can contribute to the development of food economies where social justice and environmental sustainability trump financial profits.

Finally, in a brief concluding chapter, we tie all of the above together to review the broad implications of a financialized food system: its role in exacerbating socio-economic inequalities within and along different nodes in agrifood supply chains; the way it has compromised the socio-ecological resiliency of the food system; and how the new financial tools and actors have compounded the complexity of the food system with the effect of obscuring responsibility and dampening political resistance. We also consider prospects for change and potential responses to the current situation.

In light of the challenges outlined above, it is difficult to remain optimistic about the potential to reclaim our food system. Yet the stakes are enormous. Challenging the speculative activities and logics of finance capital is imperative to the creation of democratic, equitable, sustainable, and resilient food economies. For resistance to be effective, however, an understanding of how and why finance permeates and shapes food provisioning is imperative. The primary objective of this book is to contribute to this knowledge.

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Feeding Finance from Farm to Plate

The processes by which food makes its way from field to plate have been fundamentally reshaped in recent decades by the growing presence of financial actors and the increasing importance of financial motives in agricultural supply chains. The food and agriculture sector has become increasingly attractive as a site for financial investment, particularly following the 2007–08 food price crisis, which gave credence to the narrative that a growing world population would soon outstrip the Earth's capacity to provide sufficient food. For financial investors, this neo-Malthusian outlook stressing higher food prices and a growing concern about future food supplies translated into a desire to own a stake at different points along agrifood supply chains, which they considered to be a sure bet for higher returns. New investment vehicles enabled investors to buy into the global food and agriculture sector via agricultural index products that bundle investment shares in commodities, land, and different agrifood companies. Financial actors have also provided loans and other financial services to various actors along agrifood supply chains as a way to reap additional returns from the sector.

At the same time, under pressure from shareholders to increase profit margins, various agrifood enterprises have also increasingly engaged in financial activities in recent decades. Seed and chemical giants, for example, are dabbling in offering various forms of agricultural credit and insurance. Grain trading companies have a long history of trading commodity futures as a means to hedge their risks in the physical grain trade, as discussed in Chapter 2, but more recently they have begun marketing financial index investment products to farmers and other investors as a means to earn additional income. Even the processing sector has begun to actively use financial markets as a means to hedge the price of ingredients. Meanwhile, the food retail sector has developed other financial income strategies, including offering supermarket-brand credit and other financial services to customers.

The melding of finance and agrifood supply chains has resulted in the restructuring of the global food system in ways that prioritize financial profits over other goals, such as food security, environmental sustainability, and cultural diversity. The new financial instruments that have become available to investors further abstract food and agriculture by reconfiguring them as financial opportunities, creating new channels for capital accumulation in the sector. The prioritization of shareholder value across a variety of agrifood companies has put pressure on firms to focus more exclusively on their financial returns, which has encouraged them to increase their own financial activities as a means of profit-making as well as to participate in merger and acquisition activities. Many of these developments have further deepened the role of finance in everyday life, in particular as firms across agrifood supply chains are increasingly engaging in farm and consumer credit provision and as financial investment funds are marketed to ordinary individuals.

Together, these developments have important implications for farmers, consumers, and the environment. As noted in Chapter 2, financial speculation in agrifood commodities by food processors and trading companies can contribute to food price volatility, which has its harshest effects on the world's poorest people while enabling those trading in food to increase their profits. Growing concentration among food and agriculture firms, which results from increased mergers and acquisitions, has led to greater job and livelihood insecurity, while contributing to a concentration of wealth and power in agrifood firms. This concentration also enriches already giant agrifood firms, in turn reinforcing a model of large-scale industrial food and agriculture, which poses enormous health and environmental risks. And the provision of credit/debt by both input companies and food retailers exacerbates the insecurities faced by farmers and consumers, while simultaneously promoting certain forms of production and consumption that increase sales of their products.

Financial Investment throughout the Agrifood Sector

The growing presence of financial investors at various nodes within the food system has shaped incentives in ways that prioritize financial

returns for shareholders over other diverse values that have traditionally been promoted through food systems, such as food security, cultural identity, livelihoods, and sustainability. Hundreds of investment funds linked to the food and agriculture sector have emerged in recent years, creating a new food landscape where financial investors are present in nearly all activities in the sector. The main objective of these funds is financial profit. One investment advising firm, for example, identified over 240 financial investment funds linked to the food and agriculture sector, a more than seven-fold increase from the thirty-three it counted in 2005 (Valoral Advisors 2015). The total assets under the management of these funds stood at approximately US\$45 billion in 2014.

Institutional investors are drawn to financial opportunities in food and agriculture across a range of asset types, including farmland, commodities, listed equities (shares in companies traded on the stock market), private equities (shares in companies not traded on the stock market), and venture capital (funds that invest in start-up companies). Pension funds in particular have been a major source of new capital in the sector over the past decade, and as noted in Chapter 2, they invest trillions of dollars annually. Agriculture and food investment vehicles are typically advertised as a good fit for pension funds because their investors tend to be passive, with a long-term outlook. Accordingly, their promotional materials stress long-term trends regarding population growth and a rising middle class in emerging economies that will inevitably consume not just more food, but high-protein foods such as meat and dairy, which rely on a steady supply of grain in the predominate industrial food model. Rising demand for biofuels also makes investment in the food and agriculture sector particularly attractive to investors, who can reap profits when oil prices rise (TIAA Global Asset Management 2016; TIAA-CREF 2013). A significant proportion of investor interest in agriculture is in financial products tied to commodities and farmland. Investment in these subsectors was discussed in detail in Chapters 2 and 4 and are only briefly mentioned in this review of investment across agrifood supply chains.

While investments in farmland and commodities have garnered a large amount of attention in analyses about the linkages between

food and finance, investments in agrifood-linked equities have received relatively less consideration. Yet approximately one-third of financial investment in agriculture is in listed equities — i.e., shares in firms traded on the stock exchange and indices that track the value of the shares of those companies (Valoral Advisors 2015). A number of investment management firms that cater to large-scale institutional investors sell both over-the-counter (OTC) index fund products (e.g., agriculture-focused mutual funds) and exchange traded funds (ETFs) specifically tied to the sector. These types of index funds are based on complex swap arrangements orchestrated by financial institutions. Similar to commodity index funds, outlined in Chapter 2, OTC equity index funds are sold directly to investors off-exchange, while exchange-traded funds are traded on the stock exchange.

Asset managers have developed equity-based index funds to give investors broad exposure to firms across the agrifood sector, without those investors having to purchase stocks in those companies directly. Rather, the funds track the performance of an index of agrifood company stocks, while the asset management firms actually own stocks in those same companies as a way to hedge their risks from selling the index product. A number of equity-based index funds focusing on agriculture have emerged in the past decade that index shares of a variety of firms across agrifood supply chains. These include funds that invest in companies that specialize in fertilizer, farm machinery, seeds and crop protection, food processing, agricultural commodity trade, packaged foods, and ingredients, as well as grocery retail and fast food. Some funds provide broad-based coverage of firms from across the entire agrifood sector, while others focus on specific subsectors.

One of the larger equity index funds that offers broad exposure to food and agriculture is VanEck Vectors Agribusiness ETF (which has a ticker nickname of “MOO”). This fund was launched in 2007 and has over US\$800 million in assets under management (VanEck 2017). MOO tracks shares of firms in the seed and agrochemical industry (e.g., Monsanto, Syngenta), farm equipment (e.g., Deere, Toro, Kubota), and agricultural commodity traders (e.g., ADM, Bunge, Wilmar). It also tracks some food processing companies (e.g., Tyson), fertilizer firms (e.g., Potash, Agrium, Mosaic), and

animal health companies (e.g., Zoetis) (see VanEck 2017). Other funds include BlackRock iShares Global Agriculture Index (which has a ticker nickname of “cow”), which launched in 2007 and manages some US\$230 million in assets (BlackRock 2017a). cow has holdings across the agrifood value chain, including shares in firms specializing in seeds and agrochemicals (e.g., Du Pont, Monsanto, Syngenta), fertilizer (e.g., Agrium), commodity traders (e.g., ADM, Bunge), food companies (e.g., Tyson, Del Monte), farm equipment (e.g., Deere), and food ingredients (e.g., Ingredion) (see BlackRock 2017a). BlackRock also markets its World Agriculture Fund, an OTC index fund launched in 2010, which manages US\$115 million in assets. This fund also invests across the value chain with similar holdings to cow, but with a heavier presence of fertilizer stocks (see BlackRock 2017b). Some large asset management firms, such as State Street and Vanguard, include agriculture, food, and beverage stocks in their general and consumer staple index funds, which include a range of stocks from across many different sectors and industries.

As a result of the growing popularity of agrifood equities index funds, institutional ownership of shares in agribusiness companies across the sector has increased in recent decades. This greater institutional ownership in the agrifood sector reflects a broader ownership trend in U.S. publicly traded firms, where institutional investors now collectively hold around 70–80 percent of the shares in large firms traded on the stock exchange. The top asset management companies, such as BlackRock, typically own around 10–20 percent of most publicly traded American companies (*Economist* 2016). Consequently, many purported “competitors” in an already concentrated agrifood system are largely controlled by a relatively small number of asset management firms. Although these asset management firms are managing the money of “passive” investors, they frequently engage directly with the management of the firms in which they invest, pressuring them to ensure decent returns for shareholders.

This kind of continual pressure has resulted in increased attempts by firms to acquire their rivals through mergers and acquisitions as a way to increase shareholder value (Spross 2015). Recent mergers across the agrifood value chain, as outlined below, can be viewed

in this light (Clapp 2017). According to Azar, Schmalz, and Tecu (2017), this kind of common ownership intensifies the effects of corporate concentration and can lead to higher prices and fewer product offerings for the goods those firms sell. In this way, financial investment trends have direct bearing on the concentration of wealth and power in the sector. It also manifests in changes at the level of everyday life, as both farmers and consumers face higher prices and less choice.

Investors are also diving into private equity (PE) funds linked to food and agriculture. PE funds typically invest in privately held firms — or, as discussed in the previous chapter, farms — that are not traded on a stock exchange, or they may buy out those that are. Usually private equity funds pool the assets of wealthy investors and require a large minimum investment, often in the hundreds of thousands of dollars. PE firms then deploy the capital to invest in firms where they anticipate high returns over the medium term, during which investors’ funds are “locked in.” Private equity investments are attractive to institutional investors, because the latter have large sums of money to invest and the payoffs are potentially large. In 2014, over thirty-five PE funds that are specifically focused on agriculture had some US\$15 billion under management (*Economist* 2014). There are approximately one hundred other private equity funds that consider agriculture in their broader strategy, with over US\$30 billion under management (Simpson 2014).

TIAA Global Asset Management has been a large investor in agriculture-related private equity, for example, investing in farmland as well as agribusiness. Its agribusiness investments, worth over US\$560 million (this is in addition to over US\$6 billion the firm has invested in farmland), have included investments in agricultural input, processing, protein production, and storage and distribution companies (TIAA Global Asset Management 2016; Nuveen-TIAA 2017). Because private equity investments are made through private channels, there is little transparency and the effects are hard to trace. An Oakland Institute report on agricultural private equity concludes that the potential impacts on land rights, the environment, and smallholder farmers can be significant, yet when pressed directly about their environmental and social practices in these investments,

many fund managers were evasive in their responses (Bergdolt and Mittal 2012).

Venture capital, another type of private equity funding, is also a popular investment vehicle for financial investors, attracting US\$4.6 billion into the food and agriculture sector in 2015 (Burwood-Taylor 2016). Venture capital in the agrifood sector typically invests heavily in start-up technology firms, ranging from agricultural biotechnology, to big data and precision agriculture, to food e-commerce, to high-tech food processing. It was venture capital, for example, that provided funding for The Climate Corp, a big data precision farming and agricultural insurance firm, which was later purchased by Monsanto (Jacobius 2015). The growth in funding to this type of investment is contributing to the continued growth in the industrial high-tech farming model (Bronson and Knezevic 2016).

In addition to their interest in the agricultural sector more generally, as outlined above, financial investors also interface with different subsectors of the food system in specific ways through more specialized investment funds and financial services. These specialized investment funds seek to capitalize on particular points along agrifood supply chains. At the same time, agrifood supply chain actors themselves have also increasingly engaged in financial activities, further blurring the lines between food and finance. These types of interactions at different nodes in agrifood supply chains, as we outline below, illustrate the ways in which financialization has taken hold in the food system from farm to plate and the wider effects this process has had on farmers, workers, and the environment.

Agricultural Input Sector

Finance has played a role in the provisioning of agricultural inputs for over a century. Since the advent of industrial agriculture and the attendant commercialization of inputs, farmers have relied upon agricultural credit to purchase seeds, agrochemicals, fertilizer, and, of course, farming equipment, as outlined in Chapter 3. From the late nineteenth and early twentieth centuries, agriculture was supported by the state in the U.S., Canada, Australia, and Europe, among others, with formal credit schemes and cooperative marketing arrangements.

But since the rise of neoliberal economic policies in the 1980s, the role of the state in backing agricultural credit provision has declined markedly, and private financial institution lending has come to be the norm in the sector (Martin and Clapp 2015).

Financial actors have also made significant investments in enterprises that produce farm inputs, including tractors and other farm equipment, seeds and agrochemicals, as noted above. In addition to adding investments in these firms to their general index funds as well as to agriculturally focused funds, investors have made more targeted investments in the inputs sector. The fertilizer industry, for example, has been especially interesting to financial investors in recent years. Based on the logic that farmers will respond to rising food prices by expanding and intensifying their production, private equity groups have invested in fertilizer producers in China, India, Egypt, and other key countries (Davis 2011; Friedland 2011; ICIS 2007; IFC 2011; Ross 2008). Some specific ETFs are geared toward this sector as well, for example, Global X SOIL fund, which tracks the performance of a number of fertilizer firms, including Yara, Agrium, Mosaic, and K+S, among others (Global X 2016).

Institutional investment is very prominent in the input sector. Large asset management firms — e.g., BlackRock, Capital Group, Fidelity, Vanguard, State Street, and Norges Bank Investment Management — manage money for institutional investors and collectively own around 15 percent or more of the shares of the seed and agrochemical giants Monsanto, Bayer, Dow, DuPont, Syngenta, and BASF, as shown in Table S-1. This collective ownership has put pressure on input firms to improve their performance. Alongside this more general pressure from shareholders, in the cases of Dow and DuPont, “activist investors” (i.e., very wealthy individuals who purchase enough shares to make demands of the management) have also applied pressure on these firms to take actions that will increase shareholder returns. Nelson Peltz’s Trian hedge fund acquired just under 3 percent of the shares in DuPont in 2013 and immediately began to pressure the firm to restructure. In 2014, Daniel Loeb’s Third Point hedge fund purchased just over 2 percent of the shares in Dow and pushed a similar line regarding the need to restructure. Although these share percentages appear on the surface to be relatively small,

they are significant enough to allow these shareholders to push for change at the firms (Crooks 2015).

These kinds of pressures were present in the run-up to the mega-mergers announced in the agricultural input sector over the course of 2015–16 and can be interpreted as a strategy of the big input companies to meet investor demands for higher share prices (see Clapp 2017). In the low interest rate environment since the 2008 financial crisis, it has been easy for firms to borrow funds with which to acquire their rivals. At present, these mega-mergers have largely gained approval by regulators in the thirty or so jurisdictions that require a review of the corporate tie-ups. Once completed, the resulting corporate concentration is likely to have a negative effect on farmers through fewer available technologies, higher prices, and reduced farmer autonomy. It is also likely to further entrench the industrial agriculture model because these firms' profit base is highly dependent upon large-scale high-tech farming practices (IPES-Food 2017).

Financial activities also account for a greater share of the revenue

Table 5-1 Shares Held in the Big Six Seed and Chemical Firms

Firm/Asset Management Company	Monsanto %	Bayer %	Dow %	DuPont %	Syngenta %	BASF %
BlackRock	5.76	10.09	6.11	6.61	6.00	8.30
Capital Group	2.68	3.68	3.60	10.69	4.01	0.91
Fidelity	3.12	1.71	1.17	3.54	0.21	0.50
Vanguard	7.33	2.30	6.27	6.87	2.28	2.31
State Street	4.63	0.50	4.14	5.01	0.40	0.45
Norges Bank	0.81	1.64	0.43	0.63	1.75	3.00
Total percentages owned by top asset management firms prior to mergers	24.34	19.93	21.72	33.36	14.65	15.47

Source: Thomson Reuters Eikon Database (as of Dec.31, 2016), cited in Clapp 2017.

of agricultural input firms, especially as they dabble in the provision of farm credit. The neoliberal restructuring that has taken place since the 1980s has led to a reduction in government subsidies for agricultural inputs and curtailed support for rural development banks. These changes only increased pressure on farmers, who have responded by intensifying agricultural production as a means to generate additional revenue. Ironically, this production increase, on aggregate, has put downward pressure on farm gate crop prices, catching many farmers in a “price-cost squeeze.” Lower crop prices, in turn, have put downward pressure on the revenues of farmers, who, as a group, have increased their expenditures on seeds, fertilizers, and other inputs. The result has been rising levels of farmer debt and growing levels of agrarian distress (Weeks 1995; Vakulabharanam 2005; Isakson 2014). Elevated levels of farmer debt have no doubt enriched rural creditors, including moneylenders, microfinance institutions, and agricultural input suppliers who sell their products on credit (Taylor 2011).

Most of the major agricultural input firms — Monsanto, Syngenta, BASF, DuPont, and Dow — have also set up venture capital funds to invest in start-ups. These venture capital initiatives invest in a range of firms, including biotechnology companies, firms that develop technology for precision farming, and digital communication companies. Monsanto Growth Ventures, for example, invests in early stage companies engaged in biotechnology, pharmaceuticals, microbes, software, market development, and connected devices. The investment arm works to facilitate partnerships with Monsanto to create strategic opportunities that will benefit both Monsanto and the start-up firm (Monsanto Growth Ventures n.d.). Bayer is an outlier in that it does not have its own venture capital fund, but rather invests in external venture capital funds that focus on emerging agricultural technologies (Burwood-Taylor 2016). One of the funds in which it invests, for example, is Finistere Ventures, which invests in start-ups that specialize in agricultural biotechnology, animal health, biopesticides, precision agriculture, trading platforms, biomass, water conservation, and agricultural chemicals, among others (Finistere Ventures n.d.). According to Bayer's new ventures manager, “The agtech space is absolutely exploding with opportunity” (quoted in Burwood-Taylor 2016).

Capitalizing upon the economic distress of agricultural producers, input companies and financial institutions are teaming up to provide credit and other services specifically designed for farmers. In Canada, banking and insurance firm Desjardins offers an “AgriCard” in conjunction with DeKalb seeds, billed as “Seed Now, Pay Later.” This arrangement offers up to fourteen months of interest-free credit when the card is used to purchase DeKalb (owned by Monsanto) brand seeds from one of over 800 participating farm input suppliers. The card also offers different credit limits and payment schedules for day-to-day expenses and for larger purchases such as seeds and crop inputs (Desjardins 2017).

Similarly, in Ethiopia, DuPont has teamed up with USAID as part of the G-8 New Alliance for Food Security and Nutrition initiative to invest in programs to improve the use of hybrid seeds in the country, which includes the provision of credit and training (DuPont 2017a). Much like the partnership between Syngenta and its index insurance spin-off ACRE, described in Chapter 3, DuPont also includes insurance with sales of certain herbicides it sells, through its Crop Protection Plus program, offering credit for DuPont products should its product be adversely affected by weather conditions (DuPont 2017b). In collaboration with financial service providers, Monsanto, Deere, and Cargill had also sold crop insurance but began retreating from the sector in 2014, when falling crop prices and uncertainty about weather cut into profits (Bjerga 2016).

Commodity Traders

Major financial institutions like Deutsche Bank and Barclays have invested billions of dollars in commodity futures, and a number of hedge funds emerged in the wake of the 2007–08 food price crisis to facilitate investors’ participation in food and commodity derivatives markets, as noted in Chapter 2. These financial institutions offer commodity futures index funds, such as Powershares DB Agriculture Fund, which tracks a Deutsche Bank price index of eleven agricultural commodities, including corn, soy, wheat, cattle, hogs, coffee, and cotton (Invesco 2016). Another fund is the iPath Pure Beta Agriculture Exchange Traded Note (ticker name DIRT), which

tracks a Barclays commodity index that includes soy, corn, sugar, cotton, coffee, and wheat, among others, and manages over US\$100 million in assets (iPath 2017). Similarly, in recent years specialized funds have emerged that allow investors to focus their investments on specific commodities, like coffee, wheat, corn, cocoa, sugar, livestock, soybeans, and cotton. Financial institutions are also becoming directly involved in the physical storage and transport of agricultural commodities. In addition to purchasing livestock, grain, and other agricultural products, these funds have acquired storage facilities and transport vessels, enabling them to buy maturing futures contracts from fellow investors. Beyond charging fees for their services, the funds benefit from their more direct access to information about agricultural supply (Meyer 2009).

Even as financial actors have become more active in commodity trading, trader firms have become more involved in financial activities. The dominant agricultural commodity trading houses ADM, Bunge, Cargill, and Louis Dreyfus — collectively referred to as the ABCDs — have all established investment vehicles. These include both venture capital funds and financial institutions that allow external investors to speculate on agricultural commodities and other dimensions of food production (Clapp 2015). Perhaps their most successful ventures have facilitated investment in agricultural derivatives markets, where grain traders have a long history of hedging against undesirable price movements but, since the financial deregulation that began in the 1980s, have become increasingly active in speculation (Murphy et al. 2012; Salerno 2017). Grain storage that was previously public has been privatized under neo-liberal restructuring, translating into significant uncertainty about food supplies. Their prominent market position in agricultural trade and direct contact with crop growers and food suppliers mean that the ABCDs are among the first to know about supply conditions. This unique position enhances the perceived value of their financial instruments among investors seeking to speculate on agricultural derivatives markets (Murphy et al. 2012: 64).

Among the ABCDs, Cargill is the most involved in financial activities (Murphy et al. 2012; Salerno 2017). After 2003, when Cargill began offering financial services to external investors, it created a

number of financial subsidiaries that offer a variety of financial products, including commodity index funds, asset management services, insurance, and opportunities to speculate on real estate, commercial credit, and energy. Its Black River Asset Management company operated a hedge fund arm that managed US\$7 billion in assets. In 2015, parts of the firm were spun off into three independent companies, in response to declining demand for agricultural investments in a period of low commodity prices (Meyer 2015b). Cargill still owns CarVal Investors, however, which has US\$10 billion in assets under management and specializes in liquidations, credit, and real estate (CarVal Investors 2017). Cargill also still operates its Cargill Risk Management arm, which offers customized hedging services in both commodities and currencies (Cargill 2017). In short, Cargill, the world's largest private company, is not only a grain trader but operates as a financial enterprise as well.

It is nearly impossible to discern the extent to which the financial activities of the ABCD firms contribute to their overall revenues. But we can see that these firms were enormously profitable after commodity prices began to rise and become more volatile after 2000, especially as food prices rose sharply in the 2007–2012 period (see Figure 5-1). As Murphy et al. (2012) note, Bunge and Cargill explicitly acknowledged that their financial activities at least partially played a role in their strong performance during that period. The unique vantage point of these firms, between both producers and buyers of agricultural commodities, gives them exceptional insight into the state of global food stocks and global food demand, which is extremely useful information when hedging and speculating on food price movements. In 2008, for example, Cargill was among the first to bet that the price of wheat would fall (Murphy et al. 2012: 25), a move that correlated with a significant increase in that firm's profits. When marketing their financial products, these firms highlight their specialized knowledge as a selling point.

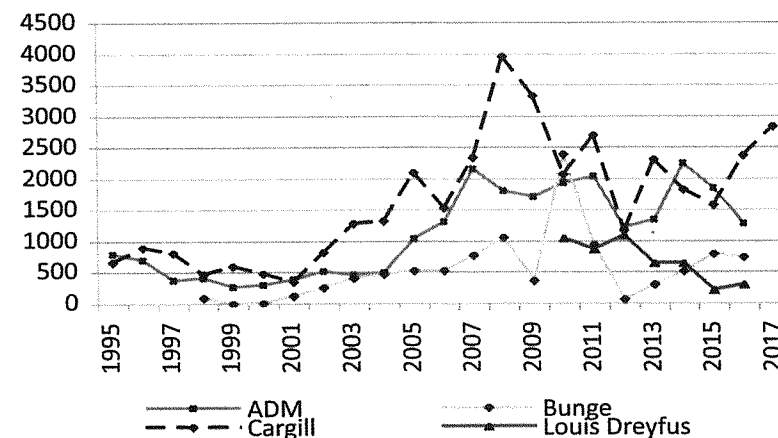
While it is difficult to determine whether the ABCD firms have, in fact, engaged in speculation for their own financial gain (rather than simply hedging their risks), some observers have likened their activities to insider trading (see Salerno 2017). Even the U.S. Commodity Futures Trading Commission (CFTC) recognizes that it is not always

easy to tell the difference between hedging and speculating activities, especially in a context of complex global supply chains (Meyer 2014). Take, for example, firms engaging in “cross-commodity” hedging, which involves trading in one commodity, such as soy, to offset risks in another commodity, such as maize. If the prices of the two commodities are generally correlated, meaning they move together, it is largely considered hedging. But if they do not, then it could be classed as speculation. But the big commodity trading firms do this type of cross-commodity trading on a regular basis. When questioned on this practice, a Louis Dreyfus executive stated: “I don't consider that speculating at all. It's what's normally done in the norm of our business. It is our business. It is what we do” (quoted in Meyer 2014).

Food Processing Companies

Similar to their activities in other nodes of agrifood supply chains, investment banks are playing a more active role in the food processing sector. In 2008, at the height of the food crisis, when many voices were raising concern about the impact of rising meat consumption in China on food prices, Goldman Sachs acquired a 13 percent share of China's second largest meat and poultry processor, Yurun Food Group, and invested a further US\$300 million in the acquisition of

Figure 5-1 Profits of the ABCD Companies (US\$ millions)



Sources: Clapp 2015; company websites and financial press.

another ten poultry farms (Burch and Lawrence 2009; c.f. Schneider 2014). Financial investors have also begun to gain exposure to shares of firms in the food processing sector via the index fund PBJ, which is the ticker name for Invesco Powershares Dynamic Food and Beverage Portfolio ETF. PBJ was set up in 2005 and it manages around US\$150 million in assets. This fund tracks the Dynamic Food and Beverage Intellidex Index, which includes fast food companies (e.g., Dominos, Wendy's), snack food firms (e.g., Hershey, PepsiCo), processed foods (e.g., General Mills, Kellogg), retail (e.g., Kroger), food service (e.g., Sysco), and commodity traders (e.g., ADM, Bunge) (Invesco 2017).

At the same time, food traders and processors have diversified into — and are earning an increasing share of their revenues from — financial activities. As “shareholder value” becomes prioritized in a more financialized world economy, corporate management has bowed to shareholder pressure to maximize the value of shares in the firm (Krippner 2011; Palley 2007). As food price volatility took hold in the years after the food crisis, shareholders in the food processing sector demanded returns in the order of 20–30 percent (Rossman 2010; Jones and Nisbet 2011). Such financial demands have influenced the kinds of foods that manufacturers make available to consumers (Fuchs et al. 2013: 228–29). In this context, food manufacturers have focused on growing markets for snack foods laden with salt, sugar, and fat, which encourage overeating, thereby maximizing sales and dividends for stockowners (Moss 2013). Indeed, the snack food industry is one of the fastest growing segments of the market, with the highest profit payoffs, especially in emerging markets (Neilson 2014). Corporate restructuring in the agrifood sector has also been linked to shareholder pressure to maximize profits. Mergers, acquisitions, and downsizing among agrifood firms have been accompanied by significant job loss in the European Union and the U.S. In many instances, such restructuring has resulted in the outsourcing of food production and manufacturing to counterparts in the global South, whose jobs are less well paid and more precarious (Rossman 2010; Jones and Nisbet 2011).

Research and development (R&D) has also been increasingly outsourced by food processors in the wake of growing pressure to

maximize shareholder value (Rossman 2010). Instead of directly employing food scientists to innovate, many of the top food manufacturers have financialized R&D by establishing venture capital and private equity subsidiaries to capitalize on start-up firms that are seeking to develop new products and break into markets. Among the major food companies with separate venture capital funds are Nestlé, Kraft, Tyson Foods, Unilever, PepsiCo, and Coca-Cola. Through these investment arms, these firms are able to keep tabs on up-and-coming innovative developments and are poised to make an acquisition if they see market opportunities from the start-ups that they support (McDermott 2012). In 2015, for example, Coca-Cola's venture capital fund, Venturing and Emerging Brands (VEB), purchased Blue Sky Beverage Company, a small firm that had been producing all-natural craft soft drinks since the early 1970s. Coca-Cola's acquisition of the firm enabled it to capitalize on consumer demands for healthier products as well as to manage its competition (VEB n.d.).

Food processing companies have also engaged in investment, and some would say speculation, on food commodities that are key ingredients for their products. In 2015, for example, Kraft ran into trouble with the CFTC when it was accused of manipulating wheat prices back in 2011. At a time of high cash prices for wheat, Kraft made a massive US\$90 million purchase of wheat futures contracts, which signalled to the market that Kraft had met its demand for at least six months (Meyer 2015a). Because Kraft utilizes around 10 percent of the U.S. soft wheat supply, this action drove down cash wheat prices near its Ohio processing mill, while at the same time driving up the price of wheat futures contracts (Sosland 2015). The company was able to close out its futures positions at a profit of US\$5.4 million dollars and obtain the wheat it needed at a lower cash price. Kraft argued that the case should be thrown out of court because it is an end-user of wheat, rather than a speculator, and thus not subject to the same regulations as non-commercial operators. However, a U.S. judge rejected this request and the case is still before the U.S. courts with an expected trial date in 2019.

Food Retail and Fast Food

Food retailers have become particularly powerful actors within the food system in recent years (Burch and Lawrence 2013). Their *oligopolistic* (small number of sellers) power over downstream food consumers (and food service providers) amplifies the *oligopsonistic* (small number of buyers) influence they wield over food processors and other food actors across the agrifood sector. Specifically, by controlling the bottleneck between consumers and food producers and processors, they have enormous sway in determining not only what foods are produced but also where they are produced, how they are produced, and their price, quality, and channels of distribution (Busch and Bain 2004; Burch and Lawrence 2009). This position of power within the food system makes retailers especially interesting to financial investors. Food retail companies as well as fast food and institutional food companies, for example, are included in a number of index funds, such as those for consumer staples and general stock market indices, which gives investors an opportunity to capitalize on the power and profitability of these firms.

In addition to passive speculation on food retailers' stock values, some financial actors have taken a more interventionist approach. This was particularly evident in April 2017, when the activist hedge fund Jana Partners acquired a majority share in Whole Foods Market, an upscale North American food retailer. Citing poor returns to shareholders, Jana immediately sought to overhaul the company's board of directors and began pushing for its sale. A mere two months later, Whole Foods was acquired by the prominent online retailer Amazon. Jana subsequently sold its shares in the company, earning a profit of some US\$300 million (Thomas 2017). The sale also contributed to a significant jump in the value of Amazon's shares while, according to a report by Barclay's Investment, Whole Foods' new owners have cut back on labour and the quality of both the produce and the service at stores has tanked (Bonazzo 2017).

Private equity groups have also sought financial returns from the food retailing sector. As Burch and Lawrence (2009, 2013) show, private equity takeovers of supermarkets have transformed the food retail sector. Based on the example of the takeover of the

U.K.-based Somerfield Supermarkets by a private equity consortium, Burch and Lawrence map out four strategies that financial actors utilize to maximize shareholder value. First, the sourcing process is streamlined and costs are reduced by narrowing the product line and reducing the number of suppliers. Second, the workforce is reduced in size while the workload of those who remain is increased. Third, previous commitments to ethical and sustainable sourcing are reduced, like when Somerfield withdrew from the Ethical Trading Initiative (ETI), which sets labour standards for developing country suppliers. Fourth, firms have de-bundled and repackaged assets, as exemplified by Somerfield's sale of its real estate properties to a newly created subsidiary of the firm that then leased the property right back to Somerfield.

The reconfiguration of food retailing along these lines has direct implications for the viability of small-scale agriculture and as such threatens the livelihoods of small-scale agricultural producers. When Somerfield withdrew from the ETI, for example, shareholder demands for profit took precedent over the welfare of food producers. The move raises the prospect that other supermarkets may consider doing the same, widening the impact to a larger number of producers. As food retailers wield growing influence over the agrifood system (Fuchs and Kalfagianni 2010), a broader pull-back from labour and environmental initiatives would have enormous implications for agricultural producers as well as ecosystem health. Similarly, as supermarkets reduce their costs through the streamlining of supply chains, they limit the number of buyers for agricultural produce, giving those that remain enhanced market power over farmers who produce on contract for retailers. These dynamics also disadvantage small-scale producers whose limited quantities of production may be deemed not worth the effort for buyers who seek to minimize transaction costs by buying in large quantities.

At the same time that financial actors are investing in food retailing, food retailers themselves have ventured into financial activities, including investment activities and the financial services industry (Burch and Lawrence 2009; Risso 2010). The financial deregulation that occurred in the 1980s and 1990s has enabled supermarkets to deepen their relationship with their customer base by offering a wide

and growing array of financial products. These include credit cards linked to loyalty programs, as well as pre-paid debit cards, savings and chequing accounts, insurance programs, travel services, and even home mortgages. Although credit has traditionally been offered to customers by general merchants through a trust relationship, these new types of arrangements are tied to global financial markets. The Canadian retailer Loblaws, for example, has partnered with the global credit card firm MasterCard in providing these types of services. Grocery retailers typically promote these initiatives as bringing important services to populations who are not fully served by the banking industry or who are skeptical of the big banks (Werdigier 2009; Risso 2010). Their customers' debt, then, becomes a profitable revenue stream for these retailers, which deepens customers' dependence on these firms both for their food supply and for their financial security.

In at least one case, a major grocery retailer in Canada ventured into financial derivatives trading through an offshore subsidiary "bank." In 1992 Loblaws established an offshore company in Barbados, which it renamed the Glenhuron Bank Ltd in 1993. Funded with money from its grocery profits, Glenhuron Bank invested in complex financial derivatives and generated a substantial profit in the hundreds of millions of dollars, but which escaped taxes due to Canadian laws that exempted Canadian-owned foreign banks from taxation on investment earnings. The case came to light when it became clear to the Canada Revenue Agency that the "bank" was not in fact a normal bank, as it did not offer any financial services to other customers. The Canadian government is taking the case to court, and Loblaws has denied any wrongdoing. If it is found guilty, the firm will be on the hook for upwards of C\$400 million in back taxes (Dubinsky 2018). Whether other similar cases exist is difficult to say, as it is notoriously difficult to obtain details on offshore firms in countries that serve as tax havens.

Retailers in food insecure countries have also been able to capitalize on the growing trend of financialization of food assistance. The World Food Programme and many states have established partnerships with MasterCard to develop debit cards for the delivery of food assistance via approved retail outlets. Proponents of such "digital

food" schemes claim that the initiatives improve the efficiency of food assistance programs. Such arrangements can result in a more rapid disbursement of food and lower costs than delivery of in-kind food shipments. But at the same time, they also enable participating grocers and their financial partners to capture a share of food aid budgets even as the latter aim to leverage cardholders' improved "financial literacy" as a means to sell additional services to poor people (Fieser 2014; World Food Programme 2017). The requirement that food assistance be acquired from food outlets connected to global financial markets also suggests that the foodstuffs available as assistance by this means are likely industrially grown, processed, and packaged foods that are traded in large volumes, rather than locally produced foods supplied by small-scale farmers.

While financial benefits from these various financial activities have benefited food retailers, retail workers and food suppliers have suffered setbacks in their work conditions. As the global agrifood system has become more concentrated in recent decades, power has shifted from food processors to supermarkets (Burch and Lawrence 2009; Howard 2016). As firms in the sector increasingly engage in merger and acquisition activity, there are fewer retail firms that act as gatekeepers between food manufacturers and consumers. This concentrated power intensifies the oligopsonistic power retail firms hold and enables them to transfer costs onto suppliers at the same time that they demand those very suppliers deliver higher quality products at lower prices. Some retailers, for example, have adopted "just in time" inventory management and have made other changes in their supply chain management practices, which have the effect of reducing the amount of their financial assets that are "immobilized" by inventory and storage costs (Baud and Durand 2012: 256).

Retailers have also extended by 50 percent the average amount of time between delivery of food items and payment to suppliers. This shift in payment schedules effectively frees up additional funds for their financial activities and/or to pay out shareholder dividends (Burch and Lawrence 2013; Baud and Durand 2012). Delay before payment for fresh fruits and vegetables has increased in some cases to ninety days, significantly more than the forty-five to sixty days it previously took to pay suppliers (Reardon and Berdegue 2002). For

small-scale producers, the delayed payments can contribute to cash flow problems and increased reliance on credit. As leading retailers such as Wal-Mart and Carrefour seek to cut out intermediaries and contract directly with farmers to provide fresh produce in their stores, these dynamics are likely to intensify. Likewise, food retail workers have been affected by financialization as major retail outlets seek to cut costs and automate services such as checkouts (Burch and Lawrence 2013). For food retail workers who have managed to keep their jobs, workloads have increased even as their compensation remains flat (Baud and Durand 2012; Rossman 2010).

Conclusion

Financial motives and actors have come to play new and more intense roles in agrifood supply chains in recent decades, in ways that have normalized abstract financial values as key indicators in the system. As this chapter shows, new financial investment tools have emerged across the entire agrifood sector, creating fresh opportunities for capital accumulation for both financial investors and agrifood companies. Large-scale financial investors have increasingly found food and agriculture to be a lucrative investment by increasing their ownership in agrifood firms across the sector. Agrifood companies have sought to satisfy shareholders by shoring up their profits through increased financial activity as well as engaging in mergers and acquisitions. Meanwhile, these trends only further feed into the financialization of the everyday in the agrifood sector, for example, by making farmers, food sector workers, and consumers more reliant on credit/debt to finance their day-to-day activities, through the issuing of credit cards by agrifood input and food retail firms, as well as through the growing investment of pension funds and other exchange-traded and over-the-counter funds that invest in firms across the entire sector.

The intensification of financialization across agrifood supply chains over recent decades has resulted in a range of tangible outcomes. Pressure from shareholders for agrifood input companies and food processing firms to engage in mergers and acquisitions has been linked to increased corporate concentration. Commodity price speculation among trading firms has been implicated as a contributor

to food price volatility. Food processing firms have used financial futures markets to influence the price of ingredients, while pushing high-profit but unhealthy foods as a means to satisfy shareholders. Meanwhile, private equity has invested heavily in food retail and fast food firms in ways that have been detrimental for both suppliers and workers, while the former have increasingly engaged in credit provision, which has led to growing indebtedness of both suppliers and consumers.

These more tangible effects of financialization in the food system collectively contribute to several broader trends in the sector that have long been emphasized by critics. First, the effects of financialization have further fuelled the concentration of power and wealth among elite actors at the same time that these impacts have disadvantaged more marginalized players. In other words, the financial owners of the big agrifood firms have become wealthier as the livelihoods of smallholders and workers have become more precarious. Second, the effects of financialization have encouraged a more high-tech industrial model as the dominant organizing principle for the mainstream food system. As financial motives and calculation have become normalized in the sector, food provisioning has become separated from the deeper values imbued in it. Rather than valuing the food system for providing healthy nourishment and secure and sustainable livelihoods, the system increasingly promotes unhealthy food and an industrial agriculture model that may generate short-term returns for shareholders but are ultimately damaging for society and the environment, undermining its resilience over the long term. A third trend, the dampening of collective calls for resistance, is discussed in the following chapter.

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The Prospects for Change

Throughout this book, we make the case that finance and financialization matter for the food system, including in ways that we see as problematic. We outline the broader shifts in the global economy that have taken place in recent decades that work to prioritize financial actors, motivations, and profits in the food system. As we outline in Table 1-2 of our introductory chapter and explain throughout this book, important shifts within the food system were required for financialization to unfold in the way that it has, and as it unfolded, the process has resulted in very real effects, both direct and indirect. Our analysis shows that financialization in the food system has in many respects mirrored the ways in which this process has unfolded in other sectors. Specifically, the financial transformation of the food system has taken three broad forms: (1) it is being reconfigured as a new arena for capital accumulation for financial actors; (2) it has been reshaped in ways that prioritize shareholder value; and (3) financial motivations and mechanisms have been normalized as elements of everyday life.

In this chapter, we briefly summarize how each of these three interrelated dimensions of financialization have progressed within the food system and link these to their direct impacts, as discussed in previous chapters. Stepping back to view the bigger picture, we argue that, in combination, these specific and direct effects of financialization collectively contribute to three broader consequences of profound importance. First, they have exacerbated inequalities of wealth and power in the food system. Second, they have heightened food system vulnerability to economic and environmental stresses. And third, they have introduced new challenges to resistance from civil society. These broader impacts, although indirect at times, influence food systems in ways that are self-reinforcing. Nonetheless, socially just and sustainable food economies are possible. We conclude this chapter by pointing to some potential strategies to these ends.

The Financialization of Food and Agriculture in 3D

As the financialization of accumulation has taken root, profit-making in the agrifood sector increasingly occurs through related financial activities rather than the actual provisioning of food. Two broad transformations have enabled this reconfiguration. First, neoliberal rollbacks of state activities and market regulations, as outlined in Chapters 2 and 3 in particular, have allowed for the expansion of existing financial activities in the sector and the development of new channels for financial accumulation. Second, the practice of abstraction has occluded the various economic, cultural, social, and ecological values associated with food and agriculture, often reducing them to simplistic metrics of expected risk and returns that are prioritized by financial logics. This combination of deregulation and abstraction has facilitated the development of a number of financial products, many of which we discuss in previous chapters, including commodity index funds (CIFS) and food and agriculture-linked exchange traded funds (ETFs) (Chapters 2 and 5); farmland real estate investment trusts (REITs) (Chapters 4 and 5); index-based agricultural insurance (IBAI) (Chapter 3); and credit and other financial services made available by food retailers, agricultural inputs suppliers, and commodity traders (Chapter 5). These new products work to redistribute value in the food system, most notably from ordinary agricultural producers and food consumers (who are becoming increasingly vulnerable and indebted), to financial actors and corporate elites (who are becoming more secure and earning greater profits). Relatedly, the opening of these new channels for financial accumulation has played a direct role in the growing volatility of food prices and the contemporary land rush (Chapters 2, 3, and 4).

Alongside the financialization of accumulation, the dominant food system is being reshaped by the so-called “shareholder revolution.” As we outline in Chapter 5, corporations across the agrifood sector—most notably food retailers, agricultural input suppliers, and food processors—are increasingly prioritizing financial returns to their shareholders over the welfare of their workers and the development of their products. This transformation has been

facilitated by the relatively recent practice of tying the compensation of firm executives to equity values and can be directly linked to the expanding pay gap between CEOs and workers in agrifood corporations. The prioritization of shareholder value has given tremendous power to a handful of institutional investors who own significant shares in multiple corporations that are purportedly competitors. In the face of stagnant sales, which are undoubtedly linked to decreased investment, these shareholders increasingly pressure for mergers with — or acquisitions of — complementary and competing firms, such as in the case of the recent mega-mergers in the agricultural input industry and the Whole Foods–Amazon merger, discussed in Chapter 5. While the practice generates short-term returns for financial investors, it is also a primary driver of corporate concentration in the agrifood sector. The result is less innovation and fewer product lines, be it the food on supermarket shelves or seeds and agrochemicals at the local dealer. Moreover, in their efforts to reduce expenses, which cut into shareholder returns, corporate executives externalize social and ecological costs, which are often borne by other actors within the supply chain, including their workers and agricultural producers.

Third, the financialization of daily life is part and parcel with the previous two dimensions of financialization. Understood as the growing reliance of ordinary individuals upon financial services to fulfill their most basic needs, the financialization of daily life has been fuelled by two related processes. First, the neoliberal rollback of state supports and protections heightened the insecurity of various populations, including many agricultural producers, food workers, and consumers (Chapters 2 and 3). Second, the contemporary campaign of financial inclusion has promoted the individual purchase of financial services as the solution to a host of social problems, such as agricultural producers’ limited access to resources and their exposure to price-based and environmental risks (Chapters 3 and 4), and food workers’ and consumers’ challenges in accessing food (Chapter 5). Combined, these processes help to normalize notions that security, including day-to-day living, is an individual responsibility that is best fulfilled through savvy participation in financial markets. In the food and agricultural sectors, this has helped to fuel

demand for many of the new financial products described in this book — e.g., mass-marketed agricultural investment funds, such as CIFS, land funds, and ETFs for retirement security (Chapters 2, 4, and 5); credit and other financial services offered by food retailers and agricultural input suppliers to facilitate buyers' access to their products (Chapters 3 and 5); debit cards as a means for insecure populations to access food assistance (Chapter 5); and derivatives as a means for managing the risks of agricultural production (Chapter 3). Ironically, as ordinary citizens become dependent upon these mechanisms in their daily lives, they develop a vested interest in the viability of financialization (Chapter 6).

These three modes of financialization are not mutually exclusive and reinforce one another in a variety of ways. For example, the creation of new arenas of capital accumulation through the development of new financial investment tools linked to food and agriculture requires the reconfiguration of agricultural and food activities in ways that fall in line with financial metrics. The abstraction of food and agriculture along these lines also facilitates the ability of shareholders to evaluate agricultural activities in terms that are purely financial, often encouraging rationalization at the level of the firm that makes employment conditions for workers more precarious and threatens producer livelihoods. Similarly, the reconfiguration of food and agriculture according to financial calculations has also infiltrated everyday life, as the abstract conceptualization of food and agriculture in financial terms has become normalized and unquestioned at the individual level through mundane investment and credit transactions that are presented to food producers, workers, and consumers as ways to manage their increasingly elevated risks. The financial products offered to these individuals, in turn, serve as new channels for financial accumulation.

Broader Implications of a Financialized Food System

The direct effects arising from these aspects of financialization may appear discrete and separate from one another. For example, on the surface it is not immediately obvious how rising food price volatility is linked to corporate concentration in the agricultural input or food

retailing sector. Consequently, activists and other detractors tend to focus on each of these problems independently, with different organizations campaigning against specific issues while not always targeting the underlying causes. A key message of this book is that these direct impacts, as disparate as they may seem, are deeply connected with the same causal underpinning: financialization. One of our primary motivations is to connect the dots between the specific outcomes and show the ways in which these various outcomes are linked through the financialized transformation of the food system. To be sure, financialization alone is not the only source of problems in the system. Nonetheless, it is an important driver of many of these issues. Throughout this book, we argue that while each of the direct impacts is noteworthy in its own right, they collectively point to three broader implications about the functioning and potential transformation of the financialized food system.

First, the combined effects of financialization within the food system contribute to greater inequality, whereby financial elites and agrifood companies garner the lion's share of power and wealth, while other stakeholders in the system are made more vulnerable, albeit to varying degrees. The processes of financialization have opened up new channels for accumulation within the food system, which serve as conduits for a redistribution of value that favours wealthier and more powerful actors, both within and across different sets of food system actors. It appears that this process has intensified in recent years. As we outline in Chapter 2, for example, the dramatic increase of financial investment in agricultural commodity markets not only generated direct and substantial returns for investors, but it also exacerbated the volatility of food prices, which had devastating impacts on the world's poorest and most vulnerable people. Unstable food prices, in turn, created further opportunities for financial gain for the wealthy, including new instruments to speculate on changing food prices and appreciating land values, such as CIFS and REITs (Chapters 2, 3, and 4). As we also note in those chapters, relatively well-off actors like wealthier farmers and larger buyers of agricultural commodities are better positioned than their smaller and poorer counterparts to take advantage of many of the new financial products and expanded financial markets. Examples include index-

based agricultural insurance, new commodity derivative markets, and farmland investments.

Similarly, the growing prioritization of shareholder value also contributes to the consolidation of power and wealth as agrifood corporations are restructured in order to meet investor demands for higher returns. These dynamics contribute to growing corporate concentration through mergers and acquisitions across the entire agrifood sector, which often leads to job losses and less autonomy for both producers and consumers. In turn, agrifood corporations have teamed-up with financial service providers to capitalize on the growing precarity of food workers, consumers, and agricultural producers by developing new financial products like retail credit and insurance (Chapters 3 and 5). While these financial instruments may help vulnerable populations to satisfy their immediate needs, they ultimately intensify the concentration of wealth and power in the food system.

Second, the processes of financialization compromise the socio-ecological resiliency of food systems. As financial activities have become more speculative and fickle shareholders more powerful, political and economic elites have come to prioritize short-term returns over long-term investments. In the agrifood sector this translates into a growing emphasis upon the generation of short-term profits over the long-term objective of sustainability. As we illustrated through various examples in Chapters 2 through 5, new instruments of finance, such as CIFS, IBAI, and land-based investment products, have rendered food systems more prone to instability and more vulnerable to economic and environmental shocks. This vulnerability was front and centre during the 2007–08 food and financial crises, where food and farmland markets became highly unstable as prices for both rose sharply and priced both producers and consumers out of the market. Financial processes that encourage the onward march of high-tech industrial models of agriculture and food system organization (outlined in particular in Chapters 3, 4, and 5), further compromise the resiliency of the food system. This trend has led to a catastrophic loss of diversity within food systems, including the erosion of agricultural biodiversity and associated knowledge and practices. It also contributes to climate change through its voracious

use of fossil fuels and associated carbon emissions. This push for the adoption of “one size fits all” technologies has the paradoxical effect of heightening the vulnerability of farming systems to ecological shocks while simultaneously — through contributing to climate change — increasing the probability of drought, hurricanes, and other extreme weather events.

Although new financial tools to mitigate such risks have emerged, such as IBAI (Chapter 3), they do not address the underlying causes of vulnerability, and they only provide compensation to help some actors cope with the effects. Yet these limited protections are rarely available to the most vulnerable agricultural producers, and, paradoxically, the products are often deployed in a manner that encourages the adoption of agricultural practices and economic activities that further undermine the socio-ecological resiliency of food systems. The abstraction of food and agriculture into financial values has facilitated these shifts, as a short-sighted focus on anticipated monetary returns discourages an appreciation for the broader function of food and agriculture in our everyday lives, including its enduring and vital role in providing nourishment and ecological services.

The third implication of a financialized food system is the challenge it poses to resistance. Part of the reason why the negative impacts of food system transformation have not been checked is that the process of financialization itself discourages collective efforts to cultivate more just and sustainable food economies. The highly complex and opaque nature of new financial tools (described in Chapters 2 through 5), has made it extremely difficult to follow and understand the ways in which financialization is affecting food systems on the ground. This complexity presents challenges for social movements and civil society actors who are seeking progressive social change.

At the same time, the enhanced power and wealth of financial and corporate actors translates into significant lobbying power, which they wield behind closed doors to ensure that governance outcomes serve their interests (Chapter 6). Meanwhile, financialization has rendered the food system “apolitical” for ordinary citizens, as finance and financial inclusion are framed as the solutions to their own needs; examples include index-based insurance

for producers and supermarket credit schemes for consumers. As food and livelihood security become dependent upon the purchase of financial services — for example, investments in farmland and agricultural commodities become part of retirement savings; the procurement of agribusiness-sponsored financial services become necessities for securing food and productive inputs; and the purchase of derivatives become the most available means for mitigating risks — individuals become blinded to the role of financialization in producing their insecurity, and their efforts to challenge it become more complicated.

Prospects for Change

As the above summary of our key arguments makes clear, the analysis in this book presents a sobering and admittedly pessimistic view of the impact of financialization on the food system. In particular, if the key implications include an in-built capacity to dampen collective calls for resistance, what are the prospects for progressive change? We end this book with a brief outline of three interrelated approaches, which we see as fundamental for confronting and addressing the negative impacts of financialization in the food system.

We begin by stressing the importance of having a broader public conversation about the impacts of financialization in the food system, which we see as imperative if we are to work effectively toward addressing the root causes of those problems. In order to have this conversation, it is essential to identify and understand the linkages between food and finance. However, the role of finance in the food system is often obscured by its growing complexity, as well as the technical jargon that tends to accompany it, particularly among practitioners and experts in the field. Our motivation in writing this book is to spark a broader conversation among a wider audience, including not just academics and practitioners, but also civil society actors and social movements, about the appropriate role of finance in the food system.

Any attempt to translate complex processes into ordinary language requires a careful balance between excessive detail and oversimplification. We hope we have succeeded at least somewhat in our

attempt to untangle the effects of financialization in the food system in a way that explains its underlying processes and its associated implications in a clear and understandable manner. In the absence of a greater understanding of the ways in which finance interacts with the food system, political pressure to change the policies and practices that govern that relationship will likely miss its target or fail to address the underlying causes. In other words, finance and financialization need to be re-politicized and evaluated not simply in terms of how they affect each of us personally, but also in terms of their broader impacts on society.

Our second proposition is that it is essential for civil society and social movements to strategize about how best to engage with state and international governance actors regarding appropriate regulation of the relationship between finance and the food system. These groups were caught off guard during the 2007–08 food and financial crises, when it became clear that financial actors played a role in exacerbating food price volatility and in encouraging land grabs. These crises provided a political opening for regulatory and policy change “from above” to address some aspects of financialization, as seen by the attempts to curb agricultural commodity speculation and render land and other investments in the sector more “responsible.” Some analysts and social movement actors are skeptical about whether states and international institutions can be relied upon to play a role in taming the negative effects of finance in the food system, especially when states themselves have played a role in paving the way for financialization to occur in the first place.

This skepticism is certainly well-placed in many instances, as we outlined in Chapter 6. But if it can be encouraged to stand strong against lobby pressure, the state is a unique political actor that can implement and enforce rules and regulations — at both the domestic and international levels — in ways that support producers and consumers while holding financial actors and agrifood corporations to account. For this reason, we urge those concerned about this issue not to discount the potential role of the state and international governance mechanisms and instead to engage with these bodies critically to work toward more progressive policy change. More appropriate governance, strongly enforced, can help to open up space for more

equitable and sustainable food *and* financial systems to emerge and to thrive “from below.”

It is possible, for example, to imagine a banking system where the returns from loans and other forms of money creation are controlled by the state (rather than private financial actors) and invested in socially desirable projects like equitable and sustainable food systems (rather than appropriated as private profits). Such an arrangement would have the added benefits of fostering economic stability and countering economic inequality (Fisher 1935; Jackson and Dyson 2014) while encouraging more environmentally sustainable economies (Daly and Farley 2011). It is also possible to imagine stronger international legal frameworks that address the impacts of financialization on the ground. Negotiations have recently begun, for example, on an international, legally binding transnational corporate accountability treaty that seeks to hold business enterprises accountable for human rights violations and environmental crimes (Steg 2017). But to get such initiatives and favourable forms of governance in place requires continued civil society and social movement engagement and pressure to take advantage of political openings to strengthen policy.

Finally, we stress that it is vital to continue the ongoing work to foster and scale out alternative food systems that are shielded from the operation and effects of today’s extensive financialization. The development and success of alternative food systems, including efforts to support small-scale and ecological producers and small- to medium-scale market and distribution systems, and wider consumer access to those systems, can demonstrate that “big finance” is not required for food systems to thrive and achieve their goals. It is encouraging that small-scale producers still feed around 70 percent of the world’s population and do so in diverse ways that are essential for the long-term resilience of food systems (ETC Group 2017). But as we argue throughout this book, the onward march of financialization, particularly the variety of it we have witnessed in recent decades, has encouraged the concentration of farmland and the further expansion of the industrial, high-tech agricultural model, which its proponents say is the only way to feed a growing world population.

The current trajectory of finance-supported displacement and

industrial agriculture puts the lives and livelihoods of many small-scale producers, local distributors, and consumers at risk. For this reason, it is crucial that alternative food systems receive support. At present, small-scale producers, numbering some 2.5 billion people and making up around 40 percent of the world’s labour force, receive less than a third of all agricultural resources and occupy less than 25 percent of the world’s agricultural land (IFAD and UNEP 2013: 8; ETC Group 2017; GRAIN 2014). Greater support for small-scale producers and the alternative food systems through which they operate can help to foster more ecologically and socially sustainable and food secure communities that are safeguarded from the pressures of the financialized, high-tech food system models promoted by financial elites.

Part of the support for more socially and environmentally sound food systems can entail the development of alternative financial models that better serve producers and consumers. As we note at the beginning of this book, agricultural production is an especially challenging economic endeavour characterized by uneven and uncertain income flows and subject to losses from any number of environmental risks, including inclement weather, pests, and disease. Access to finance can help farmers to better manage these dynamics so that they are able to afford the necessary inputs and cover losses when disaster strikes. But farmers need not rely on global financial markets and speculative investors to manage these unique features of the sector.

Community supported agriculture schemes, for example, provide a mechanism for risk sharing that sees consumers pledge funds to farmers at the start of the agricultural season to enable them to cover the cost of inputs and risk of crop failure. In return for this financial service consumers receive “equity” in the form of regular food baskets throughout the harvest season (e.g., Bloemmen, Bobulescu, Tuyen Le, et al. 2015). Longer-term arrangements where food consumers purchase shares in a farm that entitle them to a portion of agricultural output over several years are also an option for farmers seeking to finance major investments in land and other forms of working capital (Nabhan and Mars 2016). Local currencies are another avenue that, to date at least, have remained locally grounded and not captured

by large-scale financial markets. These types of place-based money systems enable communities to keep finance and investment within local economies, and such schemes can be structured in ways that support sustainable food and agricultural systems while discouraging harmful speculative activities (e.g., Dittmer 2013). These are just a few examples of the ways that finance can potentially be reconfigured to better support producers, consumers, and the environment. Much more research is needed on these types of alternative financial systems and their articulation with food and agricultural systems.

“Social banking,” where investors seek to put their savings in investment tools that promote positive change in society, is promoted by some as a possible avenue by which farmers can raise funds to cover the cost of a shift to more sustainable agricultural production methods (e.g., Weber 2014). Lang, Humphreys, and Rodinciuc (2017), for example, identify a number of channels through which socially conscious investors can support more just and environmentally sustainable food systems, including making deposits in mission-driven banks and credit cooperatives rather than large mega-banks, and purchasing bonds in relevant public and private investment initiatives (e.g., Iroquois Valley Farms, which provides mortgage financing to young organic farmers in the U.S.). Such initiatives, when grounded within local communities and focused on smaller-scale and agroecological farming enterprises, can work to push back against the power of big finance in the sector. But like the responsible investment initiatives that were discussed in Chapter 6, market-based approaches along these lines, especially those geared to large-scale investors and based on complex financial tools, risk deepening many of the problems that we discuss in this book. If not implemented with care, such initiatives could reinforce the normalization of new tools of big finance as a solution to problems in the food and agriculture sector, reconfigure socially just and environmentally sustainable agriculture as an arena for financial accumulation, and work to diffuse collective demands for meaningful change. Such an outcome could paradoxically further undermine the socio-ecological resiliency of food systems.

The stranglehold that finance has on agriculture can also be broken by reducing farmers’ dependence on high-cost inputs and

their unfavourable insertion into globalized commodity chains. Van der Ploeg (2009) writes about the growth of “new peasantries” who actively challenge the ability of unregulated capital to control the practices and processes of food provisioning. In part, they do so by shifting to low-input technologies that reduce their dependence upon purchased inputs and the associated debt, but also by campaigning for the decommodification of farmland and for pro-poor redistributive land reform. In addition to reducing farmers’ need for credit, the new peasantries’ embrace of agroecological practices also improve the resiliency of their agricultural operations, thereby reducing their need for insurance. Of course, the need for financial services is not entirely eliminated, but van der Ploeg and his colleagues highlight the potential for them to be provisioned in “nested markets” that are actively instituted by alternative food and economy movements (van der Ploeg et al. 2012).

Rural savings and credit cooperatives have the potential improve farmer autonomy and could play a prominent role in the nested markets envisioned by van der Ploeg et al. (2012). Sometimes referred to as credit unions, savings cooperatives have long been recognized as an effective means for farmers to collectively pool their resources for the provisioning of low cost credit, including for large purchases like farmland and equipment (Guinnane 2011). World Bank economists note that savings cooperatives have the potential to operate more efficiently than private banks when servicing agricultural producers (Huppi and Feder 1990). They also foster the group solidarity and independence from exploitative market relations that can serve as the foundation for socially just agrifood economies (Vakulabharanam and Motiram 2007).

Each of these areas for action on their own is important, but they are much more powerful when approached together. Without a broader awareness and understanding of the linkages between food and finance, it is much harder to press for progressive policy changes that provide space for alternative food systems to thrive. Without support for alternative food systems, the creation of policy space may fail. And support for alternative food systems is bolstered by a broader understanding of the ways in which financialization contributes to problems in the industrial food system, including

in ways that infringe on the rights and livelihoods of those seeking to stay outside of it, and that damage the very ecological base on which food and agriculture systems depend. In short, resistance to the growing role of finance and financialization in the food system requires coordinated action on multiple fronts. For this reason, it is imperative that scholars and activists join forces to bring about that change. We hope that this book contributes to this effort.

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