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Journal of Agrarian Change

Reproducing vulnerabilities in agri-food systems: tracing the links between governance, financialisation and vulnerability in Europe post 2007-8.

Terry Marsden, Ana Moragues - Faus and Roberta Sonnino

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3 **Reproducing vulnerabilities in agri-food systems: tracing the links between governance,**
4 **financialisation and vulnerability in Europe post 2007-8.**
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7

8 **Abstract**
9

10 Interconnected sets of vulnerabilities have emerged in the European food system since 2007-8,
11 raising concerns about food security in a region with arguably some of the most advanced and
12 prosperous economies and environmental governance frameworks. Historically this is suggesting the
13 current ‘double jeopardy’ problem in food system vulnerability– with systemic declines *both* in
14 sustainability (the ability of the food system to ecologically renew itself) *and* food security (the
15 ability of a population to access sufficient nutritional foods and feed itself). By focussing on both
16 drivers and impacts of food system vulnerabilities in the EU and UK, this paper explores a grounded
17 and relational approach to financialisation- recognised as a key expression of recent growing
18 vulnerabilities.
19

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21
22 Through the prism of the current socio- economic pressures facing food producers, and the
23 emergence of potentially ‘stranded assets’ in the agri-food system more generally, the analysis seeks
24 to show how the *combined* relationships between neo-liberalised governance and the market
25 volatilities encouraged by new rounds of financialisation are creating ‘nested’ vulnerabilities. As we
26
27 conclude, a critical, grounded and systemic understanding of food system vulnerabilities thus
28 becomes a key feature and precursor for potentially developing more resilient agri-food systems --
29 both regionally and globally.
30

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33 **Key words:** food vulnerabilities, financialisation, stranded assets, neo-liberalism, food systems.
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37 **1. Introduction: tracing the links between food governance, financialisation and nested**
38 **vulnerabilities.**
39

40 The paper first provides a conceptual and empirical overview of food system vulnerabilities with
41 reference to the EU and UK. This provides a basis for then developing a more focussed and grounded
42 examination of the role of financialisation as a driver of a range of interconnected and nested
43 vulnerabilities during this recent period. We focus here specifically upon the links between
44 financialised exposure of the farm producer sector, and then the even more recent vulnerabilities
45 which are emerging within this more financialised system as increasing limitations to the
46 exploitation of carbon-based assets become recognised.
47

48
49 In recent years following 2007-8, the food system has witnessed the intensive application of complex
50 financial products whose ‘fictitious’ value is linked to fixed and ordinary assets like farm land,
51 bushels of corn or wheat, or the myriad of products placed upon corporate retailers shelves. This re-
52 commodifying and ‘rebundling’ process in the face of growing food shortages and price rises has
53 been centrally facilitated by neo-liberalising states (as in the UK), which contemporaneously
54 withdrew public systems of support (austerity) whilst stimulating private- risk financialisation.
55

56
57 Following and developing a food *system* perspective, therefore, signals that these co-processes of
58 neo-liberalising governance and corporate financialisation have combined and far- reaching effects
59 not only upon the food production sector, but also on consumers and the complex varieties of firms
60

1
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3 and actors operating between producers and consumers. In short, this points us in the direction- as
4 much of the succeeding analysis demonstrates- in needing to trace the contextualised and nested
5 linkages between: (i) neo-liberalising food governance, (ii) the socio-political impacts of
6 financialisation and, (iii) the relatively recent deepening of nested vulnerabilities both for producers
7 and consumers.
8
9

10 What we postulate here is that there is the need to conceptually and empirically explore the revised
11 and systemic interconnections between these three spheres. Isakson (2015: 571) in a special issue of
12 the Journal of Agrarian Change devoted to financialisation, attempts to link the (re-)production of
13 vulnerabilities (among farmers) with financialisation:
14

15 ‘Vulnerability is contextual and dynamic. It is produced through evolving social relations and
16 articulated within a specific socio-ecological setting (Taylor, 2015). The commodification of
17 agriculture and agrarian relations, the deterioration of ecological conditions and growing inequality
18 resulting from agricultural modernisation and the rollback of state protections under neo-liberal
19 restructuring... combined, these processes have helped produce a global peasantry, that, in many
20 ways is highly vulnerable to the contemporary risks emanating from climate change and increasingly
21 volatile market conditions’. He concludes (557): ‘Financial means cannot substitute for the socio and
22 ecological foundations of security.’
23
24
25

26 The recent conjunctions between neo-liberalist food governance, new rounds of financialisation, and
27 indeed its relationships with setting off a wider and deepening set of social vulnerabilities is creating,
28 overall, as we shall analytically examine below, a food landscape which is far more volatile, not just
29 in market terms. For as Visser *et al* in the same special issue (2015) suggest, key areas needed for
30 further research on financialisation involve tracing thorough the very social vulnerabilities and
31 volatilities which it inherently creates; and identifying the diversity of ‘actors in context’ who
32 promote the drivers, strategies and discourses of the processes as they unfold. They argue (2015:
33 547):
34

35 ‘To what extent are these drivers, strategies and legitimating discourses simply about the
36 management of risk, and to what extent are they about generating profit at the expense of others?
37
38

39 Such research is crucial in order to gain a deeper understanding of the rise of finance in agriculture,
40 and the possibilities and limitations of regulation’.
41

42 As we shall witness below, this very process of construction of nested vulnerabilities is not unique to
43 producers; it also heavily affects the food security of consumers. In the succeeding analysis we will
44 bring a variety of evidence together from EU and UK sources to examine the rise of nested
45 vulnerabilities in the contemporary food system and point to the critical and socio-political location
46

47 of financialisation in this process. This involves: (i) some of the key results from an extensive media
48 analysis during the years since the crisis erupted (2007-8); (ii) a set of selected expert interviews
49 conducted in the UK, and (iii) a Delphi survey of European experts concerning what they regarded as
50 the main drivers of food system vulnerabilities. The first part of the analysis (section 4) focusses
51

52 upon the identifying the interdependent key sets of *drivers* (including financialisation) of food
53 vulnerabilities, as identified by key stakeholders and experts in the UK and EU food policy
54 community. In the second part of the analysis (section 5) we examine the more *grounded social and*
55 *economic impacts* of these vulnerabilities upon UK farm producers, state policy and the future
56 possibilities for a redirection of financial investments as a result of their impacts upon carbon-
57 emissions and climate change more broadly.
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59
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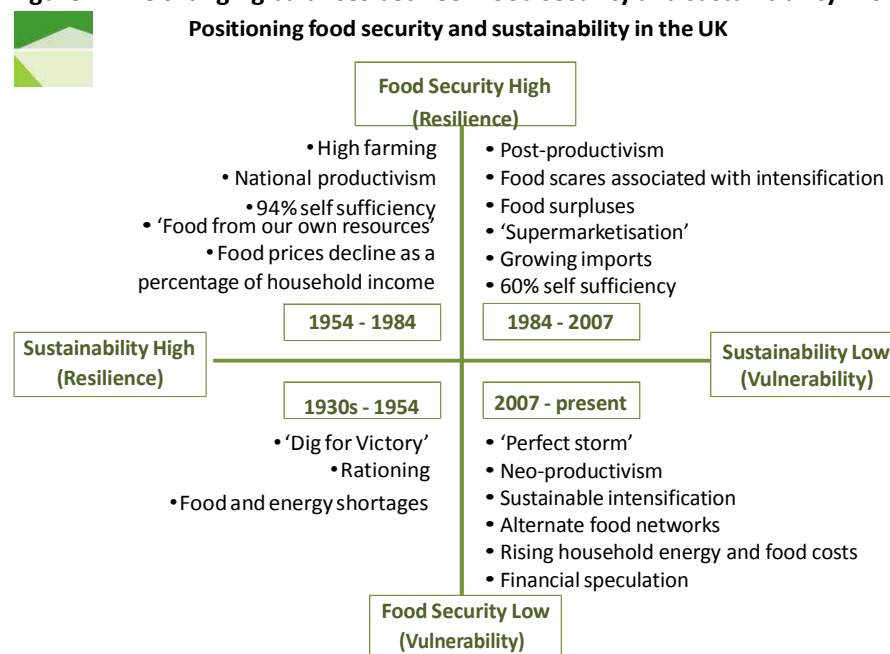
2. New volatilities and nested vulnerabilities in the food system

The global food, fuel, financial and resulting fiscal crisis (FFFF) emerging from 2007-8 has led to the rejuvenation and reproduction of a series of interconnected food system vulnerabilities that cover both food unsustainabilities *and* food insecurities. As figure 1 below attempts to summarise in historical perspective, the production and consumption arenas in the food system have become more systemically connected and more vulnerable over recent years. Since 2007-8, it can be argued that *both* the sustainability and security dimensions of food have diminished compared to earlier governance phases, when both the security and sustainability of the food system was at higher levels. Now both realms are seen to be in crisis. The combinative nature of this crisis has been documented for some time both in Europe (see, for example, Marsden, et al. 2010; 2013) and in North America, where the corporate private-interest model has recently been discussed as an expression of a wider crisis associated with a persistent neo-liberal form of food regulation (see Wolf and Bonanno, 2014; Busch 2014). As Bonanno (2014:27) argues:

‘The limits of neo-liberalism are theoretically clear and empirically evident. Arguably, the crisis of the regime can be seen more as a demonstrated fact rather than a hypothesis. Additionally, existing contradictions make it problematic to argue about the existence of an organised system. Neo-liberalism appears more like a project in crisis, rather than a regime. Yet, and despite claims of economic unsustainability and lack of substantive democracy, neo-liberalism remains the dominant ideology and, in many instances, the preferred political choice of the second decade of the twenty first century.’

The food system is a central subset of these new contingencies, and it is one that, as we shall delineate in this paper, openly displays their contradictions and vulnerabilities, thereby reducing the overall legitimacy of the neo-liberal food regulatory system as a whole (see Ostry et al, 2016).

Figure 1: The changing balances between food security and sustainability in the UK food system



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3 The paper attempts to identify and discuss the onset of interconnected food vulnerabilities through
4 a focus on the food system in the EU and UK, where, since the start of the FFFF crisis, we have
5 witnessed both the rejuvenation of the private- interest, corporate-led governance model, and an
6 intensification of its social impacts and vulnerabilities; such that a renewed discourse around 'food
7
8 security' has emerged (see Feeding Britain Report 2014; UK National Report, TRANSMANGO, 2015).
9 This is leading to a new set of conjunctures which are far more unstable in comparison with the late
10 20th century, which delivered what seemed to be abundant and socially legitimate food provision at a
11 relatively cheap price for the majority of the population. Under the current conditions, by contrast,
12
13 we can expect more volatile and nested vulnerabilities in food nutritional and provision systems
14 operating at the same time and in parallel spaces. For instance, as we shall depict, we are witnessing
15 the continued intensification of production and supply of food and the consequent removal of
16 formerly viable farm businesses, at the same time as a growth in alternative food networks (AFNs) is
17 occurring as a reaction to these trends. What is clear, and UK governance seems particularly prone
18
19 to this, is that there is a lack of coherence and proactivity on the part of the State to act (and
20 especially to positively intervene) in and on behalf of the wider public interest; over and above its
21 private interest obligations to corporate (and increasingly financialised) private food interests.
22

23 These dynamics are tending to devalorise and disempower significant groups of consumers and
24 producers, such that value is continually abstracted from both by the more concentrated and
25 financialised corporate manufacturing, catering and retailer sectors. This is more evident today than
26
27 it was a decade ago, when the dominant private-interest food governance model could rely upon
28 fairly stable and abundant procurement of food materials from around the world at a relatively
29 cheap and (albeit externalised) cost. At the same time, general levels of economic growth and
30 universal state welfare spending also tended to uphold the effective demand and consumption of
31 food goods for the majority of the low- income population. Prior to the ongoing FFFF crisis emerging
32
33 from 2007-8, whilst there was a general recognition that the food system was increasingly
34 ecologically unsustainable (see figure 1), its ability to secure food for the majority of the population
35 was largely taken for granted.
36

37 As Moore (2016) and Marsden and Morley (2014) have recently pointed out, today the emerging
38 conjuncture of resource depletion, on the one hand, and the continued withdrawal of national state
39 welfare nets on the other, together with the upholding of a continuing neo-liberalising and
40 financialised corporate food system, have led to the production of a new set of nested and
41 recombinant food security vulnerabilities.
42

43
44 The current conditions have also further stimulated the corporate controlled 'financialisation' of key
45 aspects of the food system, as growing scarcities have led, in turn, to new rounds of speculative
46 financial investments in land and key natural resources (see Ouma, (2016). New forms of market
47
48 instruments and investments are developed for financial and investment gain, thus often promoting
49 short-term and ephemeral gains and volatilities in agri-food markets (see Burch and Lawrence, 2009;
50 Clapp, 2014; Fairburn, 2014; Isakson, 2014b). One reaction to the crisis has thus been to continue to
51 shift financial resources to resource based 'safe-havens' and 'land grabs', further reducing social and
52 public- good investments that target vulnerabilities and inequalities.
53

54 These transformations, we argue here, will require innovative forms of food governance to replace
55
56 the current withdrawal of national-state food policy in the face of the dominant corporate and
57 financialised food governance model. The related postulates underpinning this argument which we
58 begin explore in this paper include the following:
59
60

- 1
2
3 (i) Since 2007-8 and the emergence of the FFFF crisis there has been a political
4 metamorphosis between national state polities and corporate financialisation. A
5 common effect of this has been a further concentration of control over natural
6 resources, infrastructure and food-based capital.
7
- 8 (ii) This process is deepening and reproducing food vulnerabilities and inequalities, while at
9 the same time promoting separate and autonomous “translocal assemblages”
10 (McFarlane, 2009) in the wider NGO and civic sectors. This is an outcome of ongoing
11 efforts to ameliorate some of these vulnerabilities and to create new social and physical
12 infrastructures that enhance (in the medium to long term) food system resilience.
13
- 14 (iii) The dual and contested transformation process at play is creating new territorialised
15 ‘niches’ at the same time as the neo-liberal financialised model becomes a source of
16 basic vulnerability itself (see our discussion below on ‘stranded assets’, section 5) in that
17 it tends to deepen both food unsustainability and food insecurity.
18
- 19 (iv) Both financialisation and its nested vulnerabilities in food systems need empirically
20 grounding in more fine-grained analyses that tease out the economic and social
21 relationships and dependences these concepts imply. For instance, in order to re-build
22 more resilience and adaptive capacity in food systems it is necessary to fully address the
23 embedded ways in which vulnerabilities and financialisation *are working together*. This
24 provides a more integrated conceptual basis for understanding vulnerability (see Adger
25 2006; Blaikie, 2004) as ‘the state of susceptibility to harm from exposure to stresses
26 associated with environmental and social change and from the absence of the capacity
27 to adapt’ (Adger, 2006).
28
- 29 (v) Critical in mediating the changing balances between the onset of nested vulnerabilities
30 and the (potential) creation of adaptive capacities and resiliences is the question of the
31 types and modes of food governance. These even in their most neo-liberal forms, play a
32 critical role in conditioning these balances. As even the conservative International
33 Monetary Fund has recently come to recognise:
34
35
36 ‘In sum, the benefits of some policies that are an important part of the neo-liberal
37 agenda appear to have been somewhat overplayed. In the case of financial
38 openness, some capital flows, such as foreign direct investment, do appear to confer
39 the benefits to growth claimed for them. But for others, particularly short-term
40 capital flows, the benefits to growth are difficult to reap, whereas the risks, in terms
41 of greater volatility and increased risk of crisis, loom large’ (Ostry et al 2016:40).
42
- 43 (vi) It follows from these postulates, as we will address in the conclusion, that the
44 elimination or reduction of nested vulnerabilities in food systems, and their attendant
45 capacities to build more resilience, will require systemic and governance attention, and
46 indeed a shift and innovation in how the financialised ‘markets’ are managed within (as
47 well as beyond) their specific institutional contexts.
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52 3. Investigating vulnerabilities: Research Methods 53 54 55 56 57 58 59 60

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3 To better understand the nature and outcomes of the UK's food system vulnerabilities, a media
4 analysis was conducted using a total of 475 text units from eight main British newspapers¹ in the
5 2010-2014 period. The text units were selected from the lexis-nexis database introducing 'food
6 security' or 'food poverty' as key words, which resulted in a total of 2572 articles. The text units
7
8 were selected according to their relevance, source, topic and number of articles in that source. The
9 qualitative software NVIVO was used to code and characterise a total of 21 vulnerability drivers and
10 18 food system vulnerabilities that are associated with both immediate and more basic causes and
11 with a diversity of food security framings.

12
13 The media and expert stakeholder analysis was followed at EU level with a delphi-survey of food
14
15 policy stakeholders from the policy, NGO and food business sectors (see Marangus Faus et al, in
16 press). We present below (box 1) some of the key quotations which focused upon aspects of
17 financialisation as key drivers in the global food system.

18
19 The main aim of this study was to identify global food system drivers and vulnerabilities that affect
20 EU's food and nutrition security. To include as many different perspectives on the European food
21 system as possible, we carried out a Delphi expert survey, where interviewees are considered as
22
23 informants on a specific subject, rather than being the object of research themselves. The research
24 process entails different rounds of individual interviews, which are designed to avoid direct
25 confrontation, maintain anonymity and avoid a pre-framing of issues as contentious as food and
26 nutrition (Monney and Hunt, 2009). The overall aim of this method, which has proven especially
27 useful to elicit opinions on complex issues such as climate change (Doria et al., 2009) or public food
28
29 and health policy (Aschemann-Witzel et. al., 2012), is to facilitate consensus while also identifying
30 divergent opinions that can provide the basis for policy changes or new research agendas (Rayens
31 and Hahn, 2000).

32
33 At the start of the research process, we identified – together with nine European research groups
34 from different countries - 98 stakeholders with expertise on global and European food security from
35 different backgrounds (civil society organisations, private sector and the public sector) and different
36
37 areas or stages of the food chain. Potential participants were contacted a minimum of two times
38 each. In the end, a total of 45 international experts participated (39 in the first round and 27 in the
39 second round), which formed what is normally considered a typical sample size for a policy Delphi
40 method (Rayens and Hahn, 2000). This sample is also characterized by a high geographical diversity,
41 since it included participants from 11 different countries and different sectors (18% private sector,
42
43 43% public sector, 36% civil society organisations, 2% public-private partnership). The selection of
44 experts was made in consultation with 9 academics from different European countries working on
45 food security.

46
47 Section 5 of the analysis which focusses more specifically upon the impacts of financialisation and
48 vulnerabilities is based upon additional key interviews and analysis of secondary data which followed
49
50 the earlier surveys mentioned here.

51 52 53 54 **4. Exploring the anatomy of vulnerability in the post 2007-8 UK and EU food system**

55
56 The UK is a particularly illustrative national example of contemporary and nested food system
57 vulnerabilities. Following the decline in Keynesian welfarism and agricultural productivity of the

58
59 ¹ The newspapers selected included: the Guardian, Telegraph, The Sun, The observer, The Independent, The
60 evening standard, The Daily Mail and The Mirror.

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3 1970s, corporate retail expansionism has driven the internationalisation of food supply and
4 consumption. This has fuelled a growing dependency on food imports since the 1980s, which today
5 constitute 40% of all food consumed in the UK (DEFRA, 2014b). The report 'Agriculture in the UK
6 2013' (DEFRA, 2014) shows that the value of imports of food, feed and drinks is nearly twice as high
7
8 as the value of the exports (£40.2 and 18.9 billion respectively). In terms of production, almost half
9 of the agricultural area of the UK is dedicated to cereals, with just 3% of the arable area dedicated to
10 horticultural crops -- a percentage that has been in constant decline since the 1980s (DEFRA, 2014).
11 Smaller farm holdings are disappearing at a faster rate than those over 100 hectares, despite a
12 general increase of agricultural area.

13
14
15 Despite these negative trends, the UK food sector as a whole is expanding, providing 13% of national
16 employment, and contributing 7.1% to the national Gross Value Added (DEFRA, 2014c). The
17 manufacturing of food products shows a high concentration of turnover amongst a few large
18 companies, which together provide almost 60% of the overall employment in the sector (BIS, 2012).
19 Food retailing is highly concentrated; at least two-thirds of sales are accounted for by four retailers
20 (Tesco, Sainsbury's, Asda and Morrison's), with non-multiple stores together reaching just 8% of UK
21 grocery market shares in 2012. Recent grocery share figures (from Kantar Worldpanelⁱ (September
22 2014)) show a sharp increase in discount supermarkets as a result of what some commentators refer
23 to as "the supermarket price war"ⁱⁱ. Meanwhile, independent stores and wholesale markets have
24 continued to decline, but there has been a rapid growth in the number of farmers' markets,
25 indicative of the resurgence of interest in the quality and provenance of food (PMSU, 2008).
26
27
28

29 One of the main concerns for the UK's population today is food prices, which have increased by 18%
30 in real terms between 2007 and their peak in August 2012 (DEFRA, 2014c). This has affected mainly
31 low-income households, who have purchased more pork, poultry and eggs than fruit, fish or more
32 expensive meats (DEFRA, 2014c) -- a dietary trend that contravenes the Government's
33 recommended "eatwell plate"(DEFRA, 2013). In England, 64% of the population is overweight,
34 especially amongst low income families (HSE, 2013).
35
36

37 Government figures now estimate that there are around 13 million people in poverty in the UK --
38 that is, one in five people (Department for Work and Pensions, 2014). Alternative sources state that
39 four million people suffer from food poverty (Gordon et al., 2000)and that around three million
40 people suffer from undernourishment or are at risk of being underfed (Brotherton et al., 2010). Not
41 surprisingly, the UK has recently experienced a significant expansion of charity-run food banks, with
42 estimates of around 500,000 residents now reliant on food aid (Lambie-Mumford et al.,2014).The
43 factors identified by food aid organisations as important drivers leading people to seek food aid
44 include both immediate problems that lead to sudden reductions in household income (such as job
45 losses and problems associated with social security payments), and on-going, underpinning
46 circumstances (such as continuous low household income and indebtedness) that constrain the
47 opportunity of purchasing sufficient food to meet household needs (Lambie-Mumford et al., 2014).
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53 **a. Exploring the drivers of nested food system vulnerabilities in the UK**

54

55 A first stage of the analysis consisted of identifying the main Food and Nutrition Security (FNS)
56 vulnerability drivers highlighted by the media analysis. In the context of this research, vulnerability
57 drivers are defined as threats to the food system that may affect its capacity to deliver food and
58 nutrition security for all. As Table 1 shows, a total of 21 vulnerability drivers were characterized and
60

1
2
3 classified according to ecological, social, economic, political and technological dimensions, and with
4 different levels of importance (++ most mentioned, + mentioned, rarely mentioned).
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10 **Table 1. Vulnerability drivers identified in the UK media analysis**
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12
13
14 These results were then discussed with six experts –covering the agricultural sector, anti-poverty
15 groups, union representatives, sustainability and food chain experts-- through phone interviews to
16 refine set of vulnerability drivers and their interrelations (see table 2 below, the boxes in purple
17 contain the modified vulnerability drivers).
18
19
20
21

22 **Table 2. UK Vulnerability drivers with input from stakeholders**
23

24
25
26 Box 1 deepens this vulnerability analysis by containing the qualitative Dephi survey responses and
27 extracts from Round 1 of the survey. There we posed the question to European experts: ‘What are
28 the key drivers of change of the global food system at the moment?’ We can see here the linkages
29 which are made by the respondents between neo-liberalised governance and financialisation as a
30 major driver, especially since 2007-8.
31

32 We can see here through this empirical evidence both at national (UK and EU levels) the linkages
33 between governance and financial drivers and FNS nested vulnerabilities. They identify specific areas
34 exposed to perturbations that might potentially cause food and nutrition insecurity for specific
35 vulnerable groups or for the society as a whole (Adger, 2006). Vulnerabilities do not represent
36 problems or weaknesses *per se*; they have to be considered in connection with the drivers that are
37 likely to affect the system, as well as include the level of sensitivity, exposure and adaptive capacity
38 of the system/sub-systems affected.
39
40
41
42

43 The main UK **ecological vulnerabilities** comprise declines in soil fertility, biodiversity, production (in
44 terms of yields, losses or polluting effects associated to agriculture), and water (including water
45 footprints and overall water management). **Socio-cultural vulnerabilities** encompass how the
46 vulnerability drivers identified above might affect people’s lifestyle, health and wellness as well as
47 social inequality and incomes. Other vulnerabilities of this kind include information, and particularly
48 the lack of accessible and transparent information, people’s skills and unethical behavior, which can
49 ultimately affect democracy and participation of society in the food system. One important type of
50 **political vulnerability** identified revolves around the fragmentation of policies affecting the food
51 system, combined with weaknesses in public regulation and enforcement. These vulnerabilities are
52 illustrated by examples such as controversies around food labelling schemes, sugar taxes or food
53 frauds, but also through the shrinking of the welfare state and the emergence of private initiatives
54 performing those functions -- for instance, the institutionalization of food banks or the tendency to
55 regulate the food system through private standards.
56
57
58
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1
2
3 There are several **economic vulnerabilities** connected to political vulnerabilities, such as the
4 concentration of power, food markets and logistics. The capacity to influence purchasing habits
5 through choice editing and influencing consumers' behavior is also considered a potential vulnerable
6 area. The analysis shows that reliance on imported foodstuffs and other inputs such as energy, feed
7

8 or water might constitute a state of potential insecurity. Access to land and other resources
9 constitutes a key area of potential insecurity, jointly with the financialisation of food. In fact, food is
10 increasingly becoming a financial asset to be traded over time (e.g. hedge funds) and space. The
11 growth in financial packages by banks, agricultural commodity trading firms and investment funds is

12
13 creating more volatility in food prices, as well as land and commodity markets. Finally, **technological**
14 **vulnerabilities** comprise how the vulnerability drivers identified above might affect food safety and
15 hygiene, the reliance on non-renewable inputs or the policies and politics around research and
16 development of technologies, including the management of property rights and public access to
17 knowledge. This last element is connected with the political dimension and also includes how

18
19 resources are allocated for R&D and how this influences what problems are tackled and what
20 knowledge is created.

21 Our media, expert and Delphi analysis (see Box 1) shows that vulnerabilities cannot be considered in

22
23 isolation, particularly when assessing their relation to food and nutrition security outcomes; that is,
24 availability, access and utilization of good food for all and the stability and control of these
25 outcomes(see FAO, 2008). For example, social inequality and low incomes, skills, information,
26 lifestyle, health and wellness might affect utilization while at the same time also leading to select
27

28 food stuffs that are not appropriate for a healthy diet. Of particular importance are the system
29 vulnerabilities that affect the stability and control of FNS outcomes, which include two main issues.
30 On the one hand, the Delphi results (see box 1) show there is a set of political and economic nested
31 vulnerabilities mainly encapsulated under financialisation, power concentration and the
32 fragmentation and weakness of public regulation. On the other hand, ecological vulnerabilities

33
34 linked to resource depletion and degradation also play a key role in providing stability and control of
35 FNS outcomes. In the case of the UK, losses of biodiversity and soil fertility are particularly relevant.
36

37 38 **INSERT BOX 1**

39 40 41 42 **5. Managing the impacts of financialisation and vulnerability**

43 44 45 46 **a. Grounding *Financialised vulnerability***

47
48 As we see from the vulnerability analysis above, both in the media and especially amongst
49 stakeholders and Delphi questions of economic drivers associated with the concentration of power,
50 financial speculation, land concentration and competition, price volatility and surges, have come to
51 the fore as both important expressions and drivers of vulnerability in the contemporary EU food
52

53 system. Here we wish to concentrate further on these sets of nested vulnerabilities by looking at
54 their expressions and impacts over recent years, and then consider how such financial and economic
55 vulnerabilities could be reduced.
56

57 It has indeed been common in the academic literature to highlight the growth of 'financialisation' as
58 one key feature and indeed reaction to the unfolding global FFFF crisis. Whilst financialisation has a
59 long and varied history in its relationship with agriculture especially (see Chayanov, 1966; Kautsky,
60

1
2
3 1988; Cronin, 1992), recent writers have pointed to the growth in financial ('fictitious') speculation in
4 the agricultural land base as a particular feature of the reactions to the overall financial crisis of
5 2007-8. As Ouma (2016: 2) aptly summarises:

7 'It is not surprising that finance recently turned its eye to farmland and food production.... It
8 sounds convincing, as finances growing interest in all things agricultural seems a textbook
9
10 case of Harvey's idea of the spatio-temporal fix (Castree, 2009; Harvey, 1982), after crises
11 and devaluations in established domains of finance, capital sought greener pastures,
12 extending its operational space into geographies in which it was not much interested in...
13 Indeed, since 2007-8 farmland and agriculture is framed as a thing you should bet on'.
14

15 This (re-newed) penetration by finance into land and agriculture, which has occurred during a
16
17 growing agrarian crisis and food regime instability and volatility (see McMichael, 2012, 2013;
18 Fairburn, 2014), can be seen as a 'new frontier' with regarding the spatial 'fixing' of accumulation,
19 especially in the global South (see Ouma, 2014, 2015). Here we wish to argue the need to adopt a
20 more grounded and embedded understanding of 'financialisation', especially in relation to its
21 interconnections with other complexities of the food system as a whole. We agree with Ouma
22
23 (2016:2) when he argues that: (i) 'financialisation' of farmland may mean different things in different
24 agrarian contexts; and that (ii) it is valuable to view financialisation not so much as an external force
25 (essentially an exogenous driver onto the system), but rather incorporate it into the historical and
26 geographically variegated and grounded performative 'action space'. This leads us to examine the
27 varied entry points for further 'exploring the variegated operations of agri-finance formation'.
28

29 In our analysis, the growing financialisation in the food systems of Europe has reinforced both
30
31 market vulnerabilities, especially in: (i) farm gate prices and (ii) the time-space volatilities associated
32 with general financial investment and food futures markets, which has in turn given more volatility
33 to agricultural commodity markets across the board. To explore how these new rounds of
34 financialisation are creating interconnected vulnerabilities in food system dynamics, we will
35 now focus on each specific expression of the problem.
36

37 ***b. Rejuvenating Farm-based cost-price squeeze volatilities: the combined effects of financialisation***
38 ***and deregulated market exposure.***
39

40
41 Since the inception of the FFFF in 2007-8, far from benefitting from the renewed interest of
42 financiers in farmland and all things agricultural, UK farmers have overall faced a more intense and
43 indeed more volatile market context, higher input costs and a depreciation of their farm household
44 incomes. Despite the investors claims (Jim Rogers)'s claim that 'farmers are going to be driving
45 Lamborghinis: stockbrokers are going to be driving tractors' (Quoted in Harding, 2012; Ouma, 2016),
46
47 and that no matter how bad things get, we all have to eat' (The Economist, 2009), British and
48 European farmers more generally have experienced a growth in vulnerabilities across the different
49 sectors. Whilst agricultural and forestry land prices have escalated as many cash-rich financiers and
50 other urban rich have seen farm land as a key 'safe haven' for investment during periods when other
51
52 investments have seemed too risky, strictly agricultural producer returns on investment have
53 continued to decline.
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57 The relationships between renewed financialisation and the farming community are far from linear.
58 In fact farms have been closing, with recently over half of all dairy farmers arguing they are thinking
59 of quitting the sector in the next few years and at least six farms foreclosing weekly in England and
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3 Wales during 2015-16. The volatility in markets, the disproportionate buying power of the corporate
4 retailers and processors, as well as their increasingly selective processes of recruiting ‘dedicated
5 suppliers’, have combined to increase the structural vulnerability of the sector. By 2016, hardly any
6 farm sector in the UK was experiencing stable or rising incomes due to these factors. This has led
7
8 bodies (not least the Farmers Unions, Farmers for Action and recently the Agricultural and
9 Horticultural Development Board)² to hold fora and lobbying sessions on managing this increasing
10 amount of volatility (see Farmers Weekly, Feb, 2016). Wheat futures markets, milk, horticulture and
11 beef and pigs markets have all been declining, mostly as a result of the exposure to the increased
12 financialisation of the markets.

13
14
15 Both the Westminster House of Commons and House of Lords Select Committees have recently
16 completed cross-party studies and enquiries about this price volatility (see HoC, 2016, HoL, 2016)³.
17 The latter report named 8 key combined drivers for the increasing price and financial volatility:
18 weather shocks in supplying countries, declining stocks, low investment, trade policy of export and
19 importing countries, increasing demand for bio-fuels, rising demand in developing countries
20
21 (especially India and China), financialisation of agricultural commodity markets, and higher carbon
22 based oil and fertiliser prices. We see here important parallels with our earlier media and
23 stakeholder and Delphi analysis in that financialisation is embedded as a driver of vulnerability, and
24 directly interlinked with related aspects of resource depletion and uncertainty over carbon-based
25 supplies. Farmers become a fulcrum and a bell-weather for being increasingly exposed and having to
26
27 manage these combined and ‘nested’ vulnerabilities; all of which have different space-time
28 components.

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30 This is, however only half the picture regarding producer vulnerability, as the strictly financialised
31 market vulnerabilities have combined with further deregulation of state support structures that
32 were originally designed in the immediate post-war period to improve the resilience of farming
33 incomes and prices. In particular the reform of the EU’s Common Agricultural Policy from commodity
34
35 price support towards decoupled payments has increasingly exposed farmers to the now more
36 volatile and speculative market prices across most of the production sectors. These deregulations
37 are thus increasing market exposure (HoL, 2016: 22):

38
39 ‘According to DEFRA, the intensity of market intervention has declined significantly as a
40 result of CAP reform since the early 1990s, leaving EU markets more open to respond to
41 fluctuations of supply and demand.... De-regulation has meant that farmers have now to
42
43 actively manage their own price risk. Clearly this is a huge challenge for the industry, which
44 requires broader and new sets of management skills, beyond the traditional physical skills...
45 Despite the decline in Market intervention...the EU retained a number of market
46 management tools, including intervention buying and export subsidies.’
47

48 These latter potential measures are not, however, comprehensive, and combine with other related
49
50 perturbations associated with the recent Russian food trade embargo and the removal of milk quota
51 regulations that are increasing the exposure of producers to market volatilities. It is a double (state
52 and marketised) edged sword, just coming at a time, as we shall see below, when some policy
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55 ² The authors have been in regular conversations and discussions with these groups as part of the overall
56 primary and secondary research with stakeholders. The Farmers for Action group has led a sustained campaign
57 to promote the role of producers and to lobby government for ‘fairer prices for farmers’. The Agricultural and
58 Horticultural Development Board is a major ‘levy agency’ for the promotion of farm products and innovation in
59 the sector.

60 ³ Marsden has been a member of the Rural Economy House of Lords Group which promoted these inquiries.

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3 makers are beginning to ask of the production sector to become more 'resilient', produce more,
4 more sustainably and with less carbon inputs.
5

6 How to cope with these combined and more financialised vulnerabilities becomes a major challenge
7 for the farming community, since, as some commentators predict, it is likely to lead to a decline in
8 the overall resilience of the productive sector, to reduce capacity and investment in productive
9

10 capital and infrastructures and to trigger further rural depopulation (Marsh, HoL, 2016). For many
11 policy-makers who do not envisage or indeed advocate a return to more comprehensive post-war
12 farmer price support, the main solution to these conditions is to build up the Darwinian
13 individualised adaptive capacity and resilience of the farm businesses that remain, and concentrate
14

15 upon supply side policies (like upgrading the business skills and planning/ management skills of the
16 farm population). This individualised and neo-liberalised notion of resilience (see Davoudi, 2016) is
17 seen as one of the main antidotes to the combined systemic vulnerabilities that the UK and
18 European farm production sector are now facing. As the recent HoL report (pp15) concludes, for
19 instance:
20

21 ' A degree of price volatility sends crucial market signals, which inform production and
22 investment decisions. It also provides incentives for innovation and efficiency gains...
23 Preparedness for price movements will assist farmers in their investment and business
24 decisions, but will not eliminate risk.'
25
26

27 in sum, financialised vulnerabilities as experienced in the UK food system post 2007-8 have become
28 embedded and nested within a wider set of interlinked vulnerabilities that become expressed,
29 relationally, on the farm production sector. More financialised and speculative markets have
30

31 combined with both more deregulated policy changes, and the continued growth of a highly
32 oligopolistic food processing and retailing sector, to further expose the relatively de-concentrated
33 farm sector to conditions that are seriously affecting its medium and long term resilience.
34

35 During this period, corporate retailers have tended to be more concerned with the more intense
36 horizontal competition they have faced, especially from the retail discounters, which has then
37 further intensified price pressure vertically down the line to their processor and farm suppliers. This
38

39 process of intensification of margins and prices continues to generate shareholder dividends for
40 investors in the corporate retailers. In the absence of a strong political commitment to develop state
41 farm policies to protect the national farm infrastructures (as was a feature of the earlier stages of
42 policy , see figure 1), it is likely that these systemic vulnerabilities will continue to inflict a neo-
43 liberalised Darwinian struggle on to the farm sector; one which, for many, will presage further
44

45 intensification of production on a smaller number of farm businesses. One recent example of this
46 has been given by the recently appointed Office of Groceries Code Adjudicator (GCA, 2016,), which
47 found the retailer Tesco guilty of delaying payments to their suppliers and externalising their own
48 financialised risks to the upstream sector.⁴With regard to the inquiry on how Tesco overwhelmingly
49

50 focus upon meeting their own financial targets), she tellingly concludes:
51

52 ' Tesco staff seek agreement from suppliers to the deferral of payments due to them in
53 order to temporarily to help Tesco margin. I saw internal Tesco emails suggesting that
54 payments should not be made to suppliers before a certain date in order to avoid
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56
57 ⁴ After a protracted process led by producer and food supply organisations, and several Competition
58 Commission enquiries into corporate retail practices, the UK Coalition government of 2010 agreed to establish
59 an independent Grocery Code Adjudicator who would have some powers to independently explore complaints
60 about retailer supply chain practices on suppliers.

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3 underperformance against a forecasted margin. I found that Tesco knowingly delayed paying
4 money to suppliers (sometimes up to 24 months) in order to improve their own financial
5 position’.
6

7 Referring again to our systems conceptual model, we can conclude here then that the dominant
8 regime in agri-food has been incorporating new rounds of financialisation at the same time as
9
10 deregulating the role of state intervention in the production sector. These effects, in turn, are
11 transmitting a wider cocktail of combined vulnerabilities onto the farm sector, which in itself is
12 becoming less ecologically, socially and economically resilient. Here financialisation becomes an
13 embedded source of vulnerabilities, and it is, in many ways, only a means of transmitting these
14
15 around the system as a whole. It is somewhat ironic perhaps that the very ecologically-based
16 reasons for this new round of financialisation (the global food supply crisis) is in itself then
17 promoting- through the active articulation of the nested connections we outline here- more
18 ecological and economic vulnerability at the local farm level itself. This, indeed, is one advantage of
19 adopting a critical systemic view of food system vulnerabilities as a hybrid socio-technical system
20
21 that produces different power relations and multi-regime interactions. Such view, as we have
22 attempted to demonstrate, allows us to understand how vulnerabilities become embedded and
23 reinforced not only by individual components but in a combined sense, which creates overall levels
24 of disfunctionality in the system as a whole.
25
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28 ***c. The rise of stranded assets on agri food: exploring the evolution of the food-energy-finance*** 29 ***nexus***

30
31 A second and related entry point with regard to the location and impact of financialisation in our
32
33 conceptualisation of food vulnerabilities relates to very recent realisations about continued resource
34 depletion and climate change. In particular, the recent announcements at the global level of both
35 the revised Sustainable Development Goals and the landmark commitments by 196 countries to
36 limit carbon emissions (Paris COP21) are suggesting the possibilities of significant changes in state
37 and financial investment strategies (see Marsden in press). As we argued earlier, our conceptual
38
39 model proposes to incorporate not just the significance of the dominant food regime but also multi-
40 regime interactions into our thinking, especially concerning the increasing bio-economic and nexus
41 relationships between energy, food, fibre and finance. Again, here we see financialisation as an
42 embedded and grounded set of relations that in fact lubricate, in a variety of ways, the power and
43 commodity relations of this important nexus. Indeed, with the rise of the bio-economy (Brunori,
44
45 2013; Marsden and Farioli, 2015), multi-regime interactions are beginning to play out in setting
46 potential conditions for a real (but highly contested) post-carbonised transition. This inevitably
47 means a renewed emphasis upon the bio-sphere for obtaining the resources to live and be secure.
48

49 A significant push factor for the post-carbon transition in the nexus as a whole could now be
50 developing with the rise of what some investment analysts have been calling the rise of ‘stranded
51
52 assets’ (see Caldecott et al 2014). As many leading banking and financial leaders have been
53 proclaiming this recently (see Carney, 2015), this expression suggests that a new set of nexus
54 vulnerabilities are developing FOR the financial sector itself, with regard to its considerable over-
55 reliance upon carbon based asset investments. There has been a spate of recent national
56 divestments in carbon-based assets, such as that occurring in Norway in 2015 and those set in
57
58 motion by key financial players, such as Morgan Stanley, Citi group and Wellsfargo and Co. A
59 combination of spatially variable pressures and restrictions in exploiting coal, oil and gas deposits
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3 following COP21 seems to suggest that we are beginning to witness the end of the ‘multi-trillion
4 dollar agri-bubble’ (Business Green, 2013), and that financial investment firms need to rethink their
5 medium and long term investment strategies, such that they do not fall victim to what the Governor
6 of the Bank of England Mark Carney (2015) has called the ‘tragedy of the horizons’.

7
8 This is beginning to suggest that the investment in agricultural and agri-food resources, which
9
10 especially from 2002 has been the longest commodity boom since 1945, is coming to an end. Global
11 farmland asset values ballooned during this period, rising by more than 400% from 2002. ‘Stranded
12 assets’ that suffer from unanticipated or premature write-offs, downward revaluations or
13 conversion into liabilities can be caused, it is increasingly recognised, by a new and combined set of
14
15 environmental and associated regulatory risks and vulnerabilities. These are highly entwined in the
16 agri-food regime and spill over into other multi-regime interactions. They include, for instance, ‘first
17 nature’ climate, water and soil events and shocks to supply; new and more comprehensive
18 government regulations regarding carbon pricing, air pollution regulation planning and protected
19 areas management; falling clean technology costs (e.g., solar PV in China, onshore and offshore
20
21 marine, tidal and wind systems); and the rise of open source and translocal cooperative knowledge
22 sharing (see Caldecott, 2015). More specifically with regard to the agri-food sector, we can include
23 the regulations restricting the expansion of GM, the creation of new pests and pathogens as a result
24 of it, the disruption of biotic communities in agro-eco-systems and irreparable losses or changes in
25 species diversity or genetic diversity with species.

26
27 More broadly, we see here how both first (ecological) and second (human-induced) natures are
28
29 indeed beginning to ‘kick back’ upon the process of financialisation of carbonised resource
30 exploitation, when the latter represents over a third of main stock market investments (see Carney,
31 2015). These emerging disinvestment financial strategies could hold significant opportunities but
32 could also create further vulnerabilities for the agri-food system. Again, it will depend on how these
33 processes are managed and governed. What is becoming clear is that when environment-related
34
35 risks materialise and become communicated across places and spaces, they can result in stranded
36 and devalorising assets across the increasingly vulnerable and financialised supply chain. Given that
37 there has been so much agri-food investment over recent years, this could create more intense
38 volatility in investment withdrawals, leading potentially to the exacerbation of the spread of pest
39 and diseases, and, for instance, the changing nature of bio-fuel regulations. What is clear is that the
40
41 potential challenge of stranded assets in agriculture is currently being intensified by the ongoing
42 global agricultural boom, which in turn is feeding off high commodity prices and poor investment
43 returns in other sectors.

44
45 We are witnessing, in other words, a new set of vulnerabilities at the heart of the financialised
46 capitalist-ecology system, which are suggesting social, political and ecological ‘limits’ to the
47
48 carbonised spatial fixes (and speculative bubbles) that this has created, especially over last the
49 decade (see Moore, 2015). As Moore has argued, this could perhaps presage the beginning of the
50 end of ‘cheap natures’, whereby capitalist accumulation can no longer rely upon externalising its
51 carbon-based exploitative vulnerabilities, in a systemic context where this is also increasingly no
52 longer seen as publically legitimate. It also challenges, as Carney (2015) suggests, the in-built
53
54 cognitive short-termism displayed in the recent past both in the financial sector and in many state
55 bodies.

56
57 Overall, the arrival and the incidence of ‘stranded assets’ could be the ‘tip of the iceberg’ for
58 renewed and refreshed long term investment in renewable energies like solar, marine and wind; and
59 indeed could promote farm-based diversification and multifunctionality such that farms become

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2
3 (again) part net contributors to the post carbon food-energy nexus. Reflecting on our conceptual
4 model of food system vulnerabilities, we need to see the arrival of ‘stranded assets’ as conceptually
5 far more than a part of a financialisation factor or ‘black- box’ in the model. It is more of a macro-
6 landscape change and multi-regime factor affecting the inter -connected sets of dominant regimes
7

8 across the food, energy, bio-economy sectors, which is then likely to have profound effects upon the
9 rest of the system interactions outlined in our model.
10

11 12 13 **6. Conclusions: from vulnerabilities to resilience in agri-food system futures?** 14

15 The paper has explored the emergence of recent systemic and nested vulnerabilities in the agri-food
16 system with reference to the UK and EU food sector in particular. First, we have outlined the recent
17 confluence of both food insecurities and food unsustainability since 2007-8 (figure 1). We then,
18

19 second, adopted a focussed framework for examining the linkages between food governance ,
20 renewed and more intensive financialisation, and the development of a range of interconnected
21 vulnerabilities since the 2007-87 crisis (sections 3 and 4). This examines the diversity and effects of
22 the interconnected vulnerabilities in one specific empirical context (the EU/ UK). Third, in the final
23 parts of the paper, (sections 4 and 5) we have focussed upon what were categorised as the more
24

25 economic/financial dimensions emerging from this empirical analysis, and then begun to unpack
26 some of the impacts of ‘financialisation’, which was seen as a major source of vulnerability in the
27 system by many of our respondents.
28

29 As we have shown, and following Isakson (2015) and Ouma et al (2016), the adoption of a more
30 grounded, embedded and, indeed, relational approach to financialisation uncovers far more fine-
31 grained relationships. Financialisation is not one act or game in the agri-food system. It covers many
32

33 games, and we can conclude that it does not fit easily into any single conceptual box. It is a multi-
34 plex process, feeding off the crisis in neo-liberal governance, and affecting the wider economic and
35 social dynamics of the overall food system. As we have learnt by exploring it’s combinational effects
36 upon, first, the farm sector in the UK and, second, in its role now in defining new (de)valuations of
37 carbon based resources and their renewable alternatives, financialisation is now embedded into a
38

39 wider state-corporate-market nexus and regime that is reproducing ecological, social and economic
40 vulnerabilities. In this sense, financialisation is in itself also a relational outcome of embedded
41 existing and future power relations in this hybrid-socio-technical system.
42

43 An implication of this analysis is that we need to continue to build and refine our conceptual
44 frameworks of food system vulnerabilities, so as to target where collective actions and perhaps
45 more publically generated ‘global and (trans-local) local commons’ can be created to make
46

47 transitions towards more effective and *functional resiliences* between food security and food
48 sustainability. The global SDGs and the COP21 processes are the start of creating major and more
49 reflexive state- based actions towards re-shaping investment strategies in the food-energy nexus.
50 At the local and regional scales new translocal networks and assemblages associated with shorter-
51

52 food supply chains and interfaces are becoming more widespread (Constance et al 2015). They are
53 potential ‘game changers’, as we are beginning to see, not least in re-directing financial investment
54 futures and, more specifically agri-food markets of commodities and land resources. They are
55 indeed, in themselves, collective ‘public common’ reactions to the many interconnected
56 vulnerabilities we have identified in this paper.
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58 They are not only, of course, associated with the agri-food system. Finance flows, as we have seen,
59 often quickly occur both within and between different resource-based systems. A key implication
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here is that we will need to build more effective multi-sector frameworks that integrate the nexus of energy, water, and food, ecologies into our understandings of food vulnerabilities, if we are to tease out more resilient pathways that really engage in progressing a more sustainable post-carbon transition. Theoretically as well as practically, it will be necessary for both researchers and (multi-level) state authorities to reflexively recognise and adapt to these interconnected and complex systems, rather than relying on either outdated notions of 'the market' or on individualised conceptions of resilience that, as we have seen here, tend to allocate far more of the risks and vulnerabilities to their victims, be they consumers, producers or their local natures.

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Table 1. Vulnerability drivers identified in the UK media analysis

Ecological	Social	Economic	Political	Technological
Bad weather and climate change ++	Unsustainable purchasing & eating practices ++	Dependency on food imports and international trade++	Cuts on public expenditure ++	GMs ++
Agro-chemical use +	Food fraud and crime ++	Economic crisis++	Tax avoidance +	Food contamination +
Pollution+	Population growth +	Price volatility and surges ++		Intensive livestock/production +
Spread of animal & plant diseases	Increasing social inequalities +	Land competition +		
	Food industry lobbying & advertisement	Food chain complexity & inefficiencies		
	Violence and riots	Financial speculation		

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Table 2. UK Vulnerability drivers with input from stakeholders

Ecological	Social	Economic	Political	Technological
Bad weather and climate change	Unsustainable purchasing & eating practices	Dependency on food imports and international trade	Cuts on public expenditure	GMs
Agro-chemical use and antibiotics	Food fraud and crime	Economic crisis: decrease of household incomes	Tax avoidance	Food contamination
Pollution	Population growth	Price volatility and surges ++	Ownership of resources	Intensive livestock/production
Spread of animal & plant diseases (pandemics and inter-species spread)	Increasing social inequalities	Land competition, management and concentration	International conflicts	Perceptions about technology
Depletion of soils, biodiversity, water and other natural resources	Food industry lobbying & advertisement	Food chain complexity, concentration & inefficiencies	De-regulatory agenda	Packaging
Energy dependency/Fossil fuels	Violence and riots	Financial speculation	Low priority of food in policy agenda	Antibiotic resistance
Nutrient flow	Loss of skills and competence	Capital circulation	Tensions between political objectives	
Challenges of adaptation of crops	Erosion of food culture	Labour abuses		
	Food culture			

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DELPHI results: What are the key drivers of change of the global system at the moment?

- *“Seen through a food regime analysis lens, the food price spikes in 2007-2008 and the resulting riots can be seen as an externalization of the crisis of the corporate-led food regime that took control of the global food system in the 1980s, buttressed up by intellectual property protection that stimulated corporate concentration and by structural adjustment policies and WTO regulations that limit states’ policy space to pursue national food security objectives. Today the ability of the corporate regime to organize global relations of food production and circulation of food, and the WTO’s capacity to manage global markets, in doubt. Additionally, there are legitimate suspicions that the expansion of a productivist and market-based solution to global food provision may be reaching its absolute limits in ecological and climate terms”.*
- *“absence of coordination in different levels, between authorities (EU, national, regional) or within the agri-food chain value, poor knowledge transfer and exchange due to low connectivity between knowledge development (e.g. companies, universities) and practical implementation (e.g. farmers)”*
- *Increasing pest and disease pressure, which is created by new species favoured by increasing trade flows and climate change, as well as resistance development, which can be tackled properly due to the regulatory system*
- *Financial crisis, impending sector’s capability to invest.*
 - *Peak oil (and subsequent effects on the extraction of raw materials, national economies and consumer practices)*
 - *Globalisation*
 - *Financial decisions*
 - *Political decisions (regarding property, State and legislation)**
 - *Financial decisions*
 - *History of low-priced fossil fuels, which have led to the destruction of oil-independent structures from government and the lack of financial sources.*
- *“Lack of financial resources, lobbying in Brussels, lack of integration of states at UE level, lack of comprehensive and holistic perspective gathering the different issues (environmental, social, nutritional), lack of knowledge.*
- *I think the primary drivers of change are economic and political, including:*
 - *Financial capital (speculation and commoditization)*
 - *Neoliberal globalization (growth by decreasing barriers to trade, eliminating subsidies, etc.)*
 - *Competition between producers (which causes consolidation on greater scales, and the reduction of the number of full-time farmers*

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3 • *In fact, the EU is in the driver seat of neoliberal globalization, especially since the financial crisis*
4 *and the rise of austerity politics within the EU.*

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7 • *“the export-oriented “free trade” agenda of capital and multinational companies*
8 • *The privatization of resources (land, water, seeds....)*
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11 The attempts to further “modernize” farming by biotechnology companies (GMO, precision
12 farming...)

13 - the attraction of land and commodity markets for financial capital
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- 15 • financialization of nature (REDD, climate smart agriculture...)
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18 • the growing food sovereignty movement (Nyeleni movement), which unifies peasant farmers,
19 land workers, urban initiatives, scientists, indigenous communities and which struggles to re-
20 localize and re-democratize food systems”
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- 23 • The sector of small-scale food producers around the world, gather several hundreds of millions
24 of producers that face economic, ecological, political, social and cultural challenges: their ability
25 to create new spaces for participation in markets and political decision processes on the local,
26 national, regional and global level
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29 • The corporate sector, which gathers the interest of the major national, regional and
30 transnational corporations involved directly or indirectly into food systems, their influence in
31 design and implementation of public policies, and with impacts on the spaces of small-scale
32 food producers’ participation in markets and political processes”
33 •
- 34 • The governmental and intergovernmental institutions with direct or indirect interventions of
35 food and nutrition, such as through trade, energy, investment, finance, agricultural, mining,
36 nutrition or development policies
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- 39 • The consumer organizations, consumer patterns and their relation with the dominant national
40 and transnational players, including through promotion and marketing practices
41
42 • Changes in global environment, including climate change, energy crisis, energy crisis, regional
43 and global geopolitical developments. Economic policies dominated by the old group of OECD
44 countries, plus China
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- 47 • Technological developments in different models, including the two most opposite approaches:
48 the input-intensive industrial production and consumptions model, and the agro-ecology based
49 approaches on sustainable, human rights compliant and democratized food systems.
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3 *No. In fact, the EU is in the driver seat of neoliberal globalization, especially since the financial*
4 *crisis and the rise of austerity politics within the EU.*

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6 *“the export-oriented “free trade” agenda of capital and multinational companies*

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8 *the privatization of resources (land, water, seeds,)*

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10 *the attempts to further “modernize” farming by biotechnology companies (GMO, precision*
11 *farming...)*

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14 *→the attraction of land and commodity markets for financial capital*

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16 *the change of consumption habits (more meat and dairy in some countries, trend to veganism in*
17 *other countries)*

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19 *financialisation of nature (REDD, climate smart agriculture...)*

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21 *the growing food sovereignty movement (Nyéléni movement), which unifies peasant farmers,*
22 *land workers, urban initiatives, scientists, indigenous communities and which struggles to re-*
23 *localize and re-democratize food systems”*

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25 *all of the above mentioned drivers but additionally the influence of farmer organisations like*
26 *COPA-COGECA and their close relations to biotechnology industry and financial capital*

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28 *The sector of small-scale food producers around the world, gather several hundreds of millions of*
29 *producers that face economic, ecological, political, social and cultural challenges: their ability to*
30 *create new spaces for participation in markets and political decision processes on the local,*
31 *national, regional and global level*

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34 *The corporate sector, which gathers the interests of the major national, regional and*
35 *transnational corporations involved direct or indirectly into food system, their influence in design*
36 *and implementation of public policies, and with impacts on the spaces of small-scale food*
37 *producers’ participation in markets and political processes”*

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40 *The governmental and intergovernmental institutions with direct or indirect interventions on food*
41 *and nutrition, such as through trade, energy, investment, finance, agricultural, mining, nutrition*
42 *or development policies*

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44 *The consumer organizations, consumer patterns and their relation with the dominant national*
45 *and transnational players, including through promotion and marketing practices*

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47 *Changes in the global environment, including climate change, energy crisis, financial crisis,*
48 *regional and global geopolitical development. Economic policies dominated by the old group of*
49 *OECD countries, plus China.*

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53 *input-intensive industrial production and consumptions model, and the agro-ecology based*
54 *approaches on sustainable, human rights compliant and democratized food systems*

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56 *- competition between producers (which causes consolidation on greater scales, and the*
57 *reduction of the number of full-time farmers)*
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