How is the financialisation of nature linked to the economic crisis?[1]

A macro-economic view on Green Capitalism and Social-Ecological Transformation

Draft Version – please do not quote or forward!

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1. Introduction

Eight years after the onset of the biggest economic crisis since 1929, expectations of a post-neoliberal[1] turn can be considered premature. Different economic characteristics of the current period, like international imbalances, world debt levels and social inequality have not diminished after the Great Recession from 2007 to 2009, but have reached historical levels (Keen, 2015). A profound political paradigm shift moving beyond rhetoric and materially rolling back financialisation, debt creation and marketization is not in sight (s. e.g. Crouch, 2011; Röttger, 2009). However, 'business as usual' has not returned either. After a period of massive and internationally coordinated fiscal intervention as an immediate response to the collapse of mortgage lending in the US and a histor-ical loose monetary policy maintained until today, the crisis has officially morphed into a recovery – however the weakest in recent history (IIPPE 2015). Capitalist growth has been and still is stabilized, but reasonable doubts exist for its resilience in the mid- and the long-term (see e.g. Keen, 2015; Klitgaard & Krall, 2012). There are increasing indications that the Post-Fordist economic growth path cannot easily be continued and that the fragile state of the world economy coincides with deeper rooted political, societal and ecological dimensions of crisis (Brand, 2016).

The analysis of the current, ambivalent and possibly highly contingent phase of economic and po-litical development represents a challenging task for social sciences. On an abstract level, the task is to provide an adequately „complex conceptualization of the relationship between state, capital, and modes of living and, therefore, of the relationship between rupture and continuity in the cur-rent multiple crisis“ in order to make sense of „the relative political and social stability in the core countries of global capitalism despite current macroeconomic turbulence“ (Brand & Wissen 2012a, p. 548). In the analysis of the inner mechanisms and the prospects of contemporary capitalism, concepts as 'secular stagnation' or 'authoritarian neoliberalism' offer scenarios of long-term eco-nomic decline and political tampering (see e.g. Streeck, 2011; Bruff, 2014). Considering that pro-found economic crises have historically laid the ground for a deep restructuring of economic and political relations, Brand and Wissen (2014) have formulated the thesis that 'Green Capitalism', understood as an emerging frontier of profitable investment opportunities in green technologies and 'natural assets', represents a "viable, potentially hegemonic outcome of capitalist attempts to deal with the current multiple crisis" (ibid., p. 17). The possible and the preferable paths of the current, dynamic phase of economic and political development in the context of multiple crisis are

[1] In this paper, I understand ‚neoliberalism' in the first place as an economic regime that is characterized by a range of supply-oriented economic policies and that builds on specific mechanisms on growth, as debt crea-tion, rising social inequality, growing international imbalances and the creation of new markets (McNally, 2009)

under hot debate in the discourse on (Social-Ecological) Transformation (see for an overview Brand, 2016).

This paper contributes to the discourse on Green Capitalism and Social-Ecological Transfor-mation on the background of the multifaceted processes of economic and political restructuring after the Great Recession. The thesis will elaborate on the question weather and in what way the 'financialisation of nature' is connected to the broader historical process of financialisation and to the 'economic crisis' – understood as the fragile macro-economic situation since 2007 and the crisis mechanisms behind it. The quantitative and qualitative change in global farmland investment since 2007, commonly referred to as 'Land Grabbing', serves as the primary object of investigation. In a narrower sense, the research question is how the current process of financialisation of farmland unfolds and if it can be related to the Great Recession and its underlying crisis mechanisms. The underlying question is if the macro-economic element of the Green Capitalism hypothesis, which states that the economisation (and financialisation) of nature represents a sustaining capitalist at-tempt to deal with the current multiple crisis, can be supported in the analysis of farmland investment and its relation to the historical process of financialisation.

The second chapter following this introduction will describe the concepts of Green Capitalism and Social-Ecological Transformation in detail, and point out what is meant by the 'financialisation of nature' and the 'economic crisis' in order to make clear how these terms are related in the research question. The third chapter provides a 'holistic' theoretical account of 'financialisation' and points out its specifities compared to other accounts. In the fourth chapter, I will apply this theoretical account on the field of farmland investment in order to answer the first, descriptive part of the research question. In the fifth chapter, I will analyse whether and to what extend the quantitative and qualitative change in global farmland investment since 2007 can be related to the Great Reces-sion and its underlying crisis mechanisms. Both chapter 5 and the conclusion will address the bigger question whether the financialisation of nature represents a sustaining capitalist strategy to deal with the current multiple crisis.

The methodical approach is both qualitative and quantitative. Although the thesis builds on eco-nomic data to substantiate the arguments, these insights are integrated into an overall qualitative research design which weighs arguments against each other in a heuristic manner on the back-ground of a literature analysis. The empirical data stems from official databases and existing re-search results. In a deductive manner, the concept of financialisation (chapter 3) and the historical contextualization (chapter 5) serve as frameworks in which more detailed descriptions are placed.

The paper aims at contributing to the academic discourse in three ways. First, despite the phenomenon of 'Land Grabbing' is broadly covered, the research on the financialisation of farmland investment is as newly-arising as the phenomenon itself. Though I do not produce new empirical findings, the connection to the 'holistic' theory of financialisation allows to systematize the existing findings compellingly and to address arguments currently under discussion, as the idea of farmland investment as a "return to the real" (Fairbairn, 2014, p. 783). Second, I intend to contribute to the linkage of descriptive, micro-oriented and causal-analytical, macro-oriented studies, as will be fur-ther explained in chapter 2. Third, the discourse on Green Capitalism is supposed to be enriched by genuinely macro-economic arguments.

The relevance of the research topic results from the background of the turbulent economic and political change processes that followed the Great Recession. Along with other research areas that address the "Political Economy of Post-Crisis Capitalism" (Foley, 2012), dealing, for instance, with the future of the Euro-zone and the European state project, the hegemony of the US and its cur-rency or the rise of the BRICs-countries, the financialisation of nature stands for a highly dynamic research object that promises insights into the causes and consequences of the Great Recession.

The results of the paper fall into two parts. Concerning the descriptive part of the research question, the field of farmland investments will be successfully described with the help of the con-cepts 'interior financialisation' and 'second-order' forms of commodification of capital, which will be explained in more detail below. Concerning the causal-analytical part indices of over-accumula-tion tendencies and their relation to both the Great Recession and the global 'land rush' since 2007 will be presented, though these findings have to be applied very cautiously. Both analytical steps support the macro-economic dimension of the Green Capitalism hypothesis.

2. Contextualisation of the research question

This bridging chapter intrudes the terms financialisation of nature, economic crisis, Green Capital-ism and Social-Ecological Transformation and explains their combination in the research question. The financialisation and economisation[2] of nature[3] has to be understood against the background of

[2] The term of ‚economization' is more comprehensive than the usually applied term 'valorization' (Görg, 2004) and can refer to processes of valuation, pricing, commodification, marketization or financialisation (Gómez-Bag-gethun & Ruiz-Pérez, 2011). Financialisation as a general rule presupposes all first mentioned processes.

[3] As pointed out among others by Kill (2014), the term "nature" 'naturalizes' non-human aspects of reality and thus reproduces certain 'western' understandings of "nature" and its controllability. In this paper, the term "nature" is understood as part of society-nature relationships, thus as inherently societally produced (though "nature" has its own materiality) (Brand & Wissen, 2013).

the political and discursive long-term establishment of nature-related and ecological issues in national and international political institutions and bargaining processes. This processes evolved steadily since the 1970s and are connected to the diffusion of scientific knowledge about the anthropogenic-induced depletion of natural resources, the destabilisation of the atmospheric com-position, respective climate change, and the disruption of interlinked ecosystems (Brand, 2014). The complex, multi-layered and highly power-driven political construction of relevant environmen-tal and ecological problems and adequate solution strategies can be considered part of an ongoing process of the internationalisation of the nation state and its reorganisation on different scales (Wissen, 2011). Following a proposal by Brand (2012), the term 'Green Economy' represents a *transition strategy* put forward by certain apparatuses of the internationalising state and the organized civil society, while the term 'Green Capitalism' should be in use as a critical analytical tool in order to describe the current *transformation processes* capitalism goes through (ibid., pp. 6). The formation of 'Green Capitalism', however, cannot be understood as a guaranteed, smooth process; on the contrary, it is a contested and economically contradictive terrain on which different political and accumulation strategies unfold (ibid.). In other words, the term Green Capitalism can refer to (a) a macro-economic *process* and (b) different *strategies* within the current transformation. This is important because both the strategies (agency) and process (structure) emphasize different levels of analysis. In this paper, I concentrate on the structural level of analysis. The phenomenon of the financialisation of nature is understood as a central feature of the higher-level process of the economisation of nature, which in turn has to be understood as the crucial element in an assumed transformation process towards Green Capitalism, which is to be testified.

The attribution as 'green' by no means implies that the capitalist economisation of nature, for in-stance in the form of emission trading, leads to more sustainable, resource-saving or climate-neutral forms of investment and production. Without engaging in any normative assessments, the concept of Green Capitalism serves as an umbrella term to bundle analytical insights into the formation of new investment frontiers and the dynamic reorganisation of capital in the context of a depleting Post-Fordist growth trajectory. In this sense, phenomena as 'Land Grabbing' or the creation of weather derivatives are included in the research field of Green Capitalism in this paper, though they are not promoted and perceived as genuinely ecological investment projects in the first place. Green Capitalism, understood as a capitalist regime of regulation and accumulation in formation in this sense overlaps with the concept of Climate Capitalism, which analyses how climate change is integrated into the capitalist logic of valorisation e.g. via the creation of "carbon markets and the ecological modernization of production" (Sapinski, 2016, p. 89), as well as the economisation of climatic disasters (see also Spash, 2016). Brand and Wissen (2014) emphasise the potentially hegemonic role of Green Capitalism as a leading narrative of 'post-neoliberal' capitalism that gains support by large societal majorities (ibid., p. 17). As already indicated above, I will approach the concept of Green Capitalism from a structural, macro-economic point of view in this paoer, considering the question whether newly arising investment frontiers in the field of natural assets are sustainable in a capitalist sense and if Green Capitalism can be regarded a realistic long-term accumulation regime.

The term 'Social-Ecological Transformation' can, as Green Capitalism, be understood as an analyti-cal tool in order to describe "the relationship between rupture and continuity in the current multi-ple crisis" (Brand & Wissen, 2012, p. 548). Besides the analytical dimension, however, it is often used as a normative term in order to transport programmatic goals from multiple policy areas (see for an overview Brand, 2016; Brie, 2016; Thomas, 2014). Similar to the term Green Economy, the concept of (social-ecological) transformation is a common point of reference for a broad variety international (governmental) institutions, civil society organizations and research programs (see e.g. WBGU, 2011). It is against this background Brand and Daiber (2012) have termed the transfor-mation concept as "the next oxymoron" (ibid., p. 4), meaning that "'transformation' has the poten-tial to become an oxymoron (like sustainable development) that opens up an interesting epistemic terrain but remains then blurred" (ibid.). This comes close to Reißigs (2016) observation that two variants of the transformation discourse exist, namely once as a "discourse of change" (ibid., p. 222 translation S.D.), and once as a "discourse of stabilization" (ibid., translation S.D.). In a similar fash-ion, Stirling (2015) distinguishes between transition-oriented perceptions of social change on the one hand, understood as being "managed under orderly control, through incumbent structures according to tightly disciplined knowledges, often emphasizing technological innovation" (ibid., 54), and transformation-oriented perceptions on the other hand, the latter involving "diverse, emergent and unruly political alignments" (ibid. p. 54) that lead to fundamental restructuring. In this paper, the concept of Social-Ecological Transformation is understood as a critical analytical term that describes deeply rooted structural changes of societal relations, including societal nature rela-tions. Going beyond the concept of Green Capitalism, however, Social-Ecological Transformation includes developments that go beyond capitalist forms of economic activity and political steering. Without adding a normative assessment, a research programme of Social Ecological Transformation can point to both entry-points and barriers for transformation paths beyond (green) capitalism.

Regarding the linkage between Social-Ecological Transformation (including Green Capitalism and the financialisation of nature) and the 'economic crisis', different critical scholars argued that the growing investment in natural assets follows a deeply rooted crisis of over-accumulation, in which 'excess' money capital cannot be invested at acceptable rates of profit and has to find new investment outlets in natural assets (Zeller, 2010; Pike & Pollard, 2010). The basic idea that the financialisation of nature serves as a "crisis strategy" (Brand & Wissen, 2014) or a resort for over-accumu-lated capital is especially common in the critical scholarship on 'Land Grabbing'. The statement by McMichael (2012) that "this rush to acquire land […] is symptomatic of a crisis of accumulation in the neoliberal globalization project" (p. 681) serves as a good example for this deductive coupling of 'Land Grabbing' and the economic crisis, where the latter is treated as the pre-given independent variable. David Harvey's concept of a 'spatial fix', where surplus capital is absorbed via "spatial dis-placements through opening up new markets, new production capacities and new resource, social and labour possibilities" (Harvey, 2003, p. 64), is a common point of reference in the literature that intersect the global 'rush for land' with the economic crisis. Going beyond land acquisitions, the concept of 'spatio-ecological fix' (Ekers, & Prudham, 2015) treats nature in general as a new spatial site of capital accumulation (see also Corson & MacDonald, 2012). Harvey's (2003) concept of 'ac-cumulation by dispossession' has been taken up by the critical 'Land Grabbing' literature as well (see, e.g. Hall, 2013). Borras et al. (2012) go beyond the realm of 'economic crisis', stating that the "current land grabs […] occur primarily because, and within the dynamics, of capital accumulation strategies largely *in response to* the convergence of multiple crises: food, energy/fuel, climate change, financial crisis […]" (p 851, emphasis in the original).

The macro-economic hypotheses entailed in the concept of over-accumulation and related theories of capitalist crisis, are "good for starting debates about epochal shifts in the global economy and their underlying dynamics" (Ouma, 2016, p. 3); however, they cannot replace the concrete study of the emergence of new asset classes and how they are linked to macro-economic crisis dynamics (ibid.). Often, as Ouma correctly observed, "finance capital is imagined as an abstract entity, which circulates around the globe as a function of its profit-seeking imperative" (ibid., p. 8). The question remains, in what specific form the assumed crisis of over-accumulation articulates itself in 'the con-crete', and how (finance) capital is (re-)produced as specific socio-technical practice (ibid.). In this paper, I indent to offer a differentiated conceptualisation of the economic crisis as part of the financialisation and transnationalisation of capitalism since the 1970s, that does not take phe-nomena as 'over-accumulation' as given but derives them from the historical analysis. This can also help to contribute to a more nuanced theory of financialisation (Christophers, 2015).

The different concepts entailed in the title of the paper, which have been described in further detail above, connect in the research question, asking how the 'financialisation of nature' un-folds in the field of farmland investment and whether and in what ways it is connected to the broader historical process of financialisation and the fragile macro-economic situation since 2007 and its underlying crisis mechanisms. In the following chapter I will offer a theoretical account of financialisation in order to lay the groundwork for a closer description of the phenomenon of the financialisation of nature at the example of farmland investment.

3. A holistic theory of financialisation

The term 'financialisation' appeared already in the 1970s in Marxists academic circles, but became widely used among different scientific schools and disciplines in the 2000s and especially during and after the Great Recession from 2007-2009 (see Lapavitsas & Powell, 2013, for an instructive literature overview). The diversity of the literature fits well to the frequently quoted definition by Epstein (2005), equating financialisation broadly with „the increasing role of financial motives, fi-nancial markets, financial actors and financial institutions in the operation of domestic and interna-tional economies" (ibid., p. 3). Recently, however, doubts have arisen about the scientific applica-bility of the concept, especially when it comes to the analysis of concrete changes of investment patterns in the realm of 'natural assets' (Christophers, 2015; Ouma, 2016). According to this cri-tique, the concept of financialisation has undergone a similar career as 'globalisation', 'neoliberal-ism' or even 'capitalism', in the course of which it changed from the *explanandum* to the *explanans* (Ouma, 2015a); the process of financialisation is taken for granted, while the concrete historical and empirical causal conditions of its realisation and perpetuation are being moved into the back-ground (Ouma, 2016, p. 2).

The "limits of financialisation" (Christophers, 2015) as a scientific concept can be illustrated by ref-erence to the dominant narrative of 'Golden Age'-capitalism, according to which a post-war period of high, stable and inclusive growth has been replaced by a neoliberal period in the 1970s. Finan-cialisation is thought to stand at the heart of neoliberalism, giving rise to a to a predatory version of capitalism which inherently tends to crisis (Sotiropoulos, Milos & Lapatsioras 2013, p. 137). While banks and financial intermediaries have been subjected to the needs and limits of the 'real econ-omy' in response to the Great Depression, the 1970s witnessed a fatal paradigm shift in economic science and policy making alike:

> Efficient financial market theory … replaced the theoretical visions of Keynes and Minsky, and the existing system of tight financial regulation was deconstructed through radical deregulation pushed by fi-nancial institutions and justified by efficient marked theory. (Crotty, 2009, p. 564)

Just as Keynes had cautioned against the dysfunctional role „the function-less investor“ (Keynes, 1997, p. 376), many Post-Keynesian authors associate the neoliberal restructuring of the econ-omy and hence the reasons behind the Great Recession with the re-emergence of a the 'rentier' (see e.g. Hudson, 2010). The shift to neoliberalism appears as the "outcome of a conflict be-tween the productive and the parasitic parts of the society" (Sotiropoulos, Milos & Lapatsioras 2013, p. 137).

This may depict an exaggerated picture of the 'Golden Age'-narrative of financialisation. But it helps to understand the Keynesian problematic, which builds on the perception that the sepa-ration of ownership and possession in the late 19^{th} century and the emergence of shares as a major investment vehicle gave birth to a new social class, which confronts the business class and the earning class in a tripartite class stratification (Sotiropoulos, Milos & Lapatsioras 2013, p. 20). This investing class makes use of its "cumulative oppressive power" (Keynes, 1973, p. 376) via deriving 'function-less' income form lending scare liquid capital. Financial markets thus play an ambivalent role in modern capitalism, "they sometimes facilitate investment but sometimes add greatly to the instability of the system" (ibid. p. 150f), namely if they engage in speculation instead of in enterprise (Sotiropoulos, Milos & Lapatsioras, 2013, p. 21).

Superficially, a Marxian approach seems to come to similar results. At the beginning of the sec-ond volume of capital, Marx presents three moments of the capital circuit (Fig. 1): The circuit of money capital, the circuit of productive capital and the circuit of commercial capital. Is it justified to reason that each of these three moments constitutes a particular fraction of 'the capitalist class'? Desai and Freeman (2011) answer in the affirmative via contending that "financialization is an ever-present possibility in capitalism because, as Marx noted, capitalist activity is divided into the production of value and its circulation. A variety of parasitic classes have historically participated in this" (ibid., p. 6). They claim to build this analysis on "Marx's distinction, which has become critical in our times, between activities that produce value and those that merely circulate it" (ibid., p. 3).

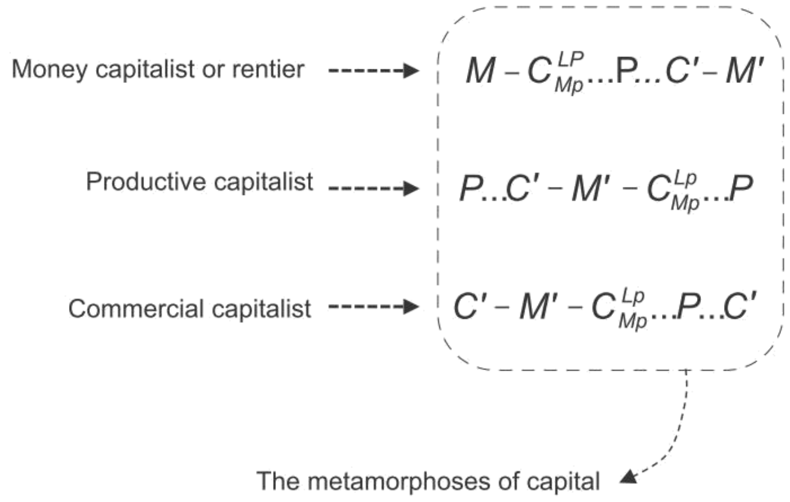

Fig. 1 Three fractions of capital? M = Money, C = Commodity, LP = Labour Power, MP = Means of Production. Taken from Sotiropoulos, Milos & Lapatsioras 2013, p. 47.

Though the financialisation theories considered up to this point clearly grasp many relevant phe-nomena on the descriptive level, one can ask if they are sufficient to conceptualise the complex nature of modern finance. As Lapavitsas (2009) argues:

> The ability to extract rent-like income through financial operations is … a by-product of the transformation of finance rather than its driving force. The ascendancy of finance has systemic origins, and its outcomes are far more complex than industrialists being presumably squeezed by rentiers. (ibid., p. 143).

Following this line of reasoning, I argue that a *holistic* theory of finance and financialisation – no matter if it makes use of Keynesian or Marxian thought – has to take into account the organic unity of financial and non-financial realms of capitalist system, or put differently, of production and circulation (respective of production and consumption). Neither is the financial sphere de-tached from the 'real world' of production, nor has it become dethatched from it under neolib-eralism. Capital builds on the *unity of unity and separation* of production and circulation[4]. What has changed under neoliberalism is the complex articulation of unity and separation of produc-tion and circulation as moments of profit creating activity. I will elaborate on this thought in the following, hereby heavily relying on the work of Sotiropoulos, Milos and Lapatsioras (2013), who in turn developed their analysis in reference to Bryan and Rafferty (2009).

[4] This formulation is a common concept in systems theory, where an operation constitutes a border between itself and the environment, so that the system depicts the unity of unity and separation of the operation and its envi-ronment (Luhmann, 1991, p. 79, 294)

The three different moments of the capitalist circuit depicted in Fig. 1 have been described by Marx as the 'metamorphoses' of capital as a complex social relation in process, which, consid-ering the total movement M – C … P … C' – M', "goes through a sequence of connected and mutually determined transformations" (Marx, 1992, p. 132-133). Marx *defines* "capital that as-sumes these forms in the course of its total circuit" (ibid.) as *industrial capital*. Thus, industrial capital is not industry, but the unity of money capital, productive capital and commodity capital. 'Production' or 'productive activity' in Marx' concept of capital means not the physical produc-tion of 'useful' things, but, far more abstract, the *'production' of surplus value*, respective of profit. Labour power is productive *because and if* it is employed by capital in order to valorise it. "The concept of a productive worker therefore implies not merely a relation between the activ-ity of work and its useful effects […], but also a specifically social relation of production", Marx (1990, p. 644) writes. Every "capitalist enterprise, regardless of the economic sector in which it is primarily active (primary, secondary, circulation, finance) is equally a process of buying com-modities ('creating costs'), […] in order to sell commodities of a different form and use value"
(Sotiropoulos, Milos & Lapatsioras 2013, p. 50).

Also companies in the financial sector "employ labour and means of production to create and sell certain (sui generis) commodities (exchange values that are at the same time use values for others)" (ibid., p. 45). Intermediation (trading credit and financial titles) is a sui generis "service by itself and is therefore a productive activity" (ibid.) *in the sense that it produces profit* via selling commodities. Industry does not occupy the place of production, finance not the place of circu-lation, but every capitalist enterprise is a "*process of unifying production and circulation*" (ibid., p. 43, emphasis added). The production of profit via creating costs and selling commodities (de-fined as things that unify exchange value and use value), is the mode of operation of capital[5]. Financial products, also derivatives, are produced commodities, which have a price and fulfil useful functions for their buyers.

Marx makes it very clear that 'interest bearing capital' is no perverted form of money-as-capital or does make up a distinct, parasitic social class. On the contrary, he treats it as the most devel-oped form of capital. If money-as-capital is not immediately spent for purchasing labour power

[5] The concept of 'operations of capital' has been suggested by Mezzadra and Neilson (2015) and taken up by Ouma (2016) for the analysis of farmland investment .The concept of the 'operation' underlines the specifities of each singular capital cycle as a concrete spatially and temporally located societal process. On the other hand, the con-cept allows the "analysis of the relation between capital and capitalism. An operation always refers to specific capitalist actors while also being embedded in a wider network of operations and relations that involve other actors, processes, and structures" (Mezzadra & Neilson, 2015).

or production means but for the purchase of a security, it "acquires an additional use-value, namely that of serving as capital. Its use value then consists precisely in the profit it produces when converted into capital. In this capacity of potential capital, as a means of producing profit, it becomes a commodity [...], capital as capital becomes a commodity" (Marx, 1991, p. 459-460). Money-as-capital in the form of a security thus is the "pure form of ownership over capital" (Sotiropoulos, Milos & Lapatsioras 2013, p . 53). (Productive) capital and finance capital are not distinct entities, but "finance is the everyday mask of capital*: it's capital's form of existence*" (ibid., p . 139, emphasis in the original). The use value financial titles bear lies in their existence as a "*forward-looking* claim for the appropriation of the surplus value that will be produced in the future" (ibid., p. 53, emphasis in the original).

The Marxian analysis above is summarized in Fig. 2, in which an operation of capital is attributed with a money function ('money capitalist') and a controlling function ('manager'). The 'capital-ist', however, is an artificial category, since capital is neither a thing nor a certain group of peo-ple, but a social relation in process (an operation), where, as shown above, the "movement of money as capital binds the production process to the circulation process" (ibid. p. 43). Under capitalism "commodity production becomes a moment [...] of the circuit of capital" (ibid.). In other words, the 'place of capital' (Fig. 2) is *both internal and external* to the process of (surplus value-) production. Finance and the production of surplus value are *both linked and separated* within capital; capital builds on the *unity of unity and separation* of production and circulation. Money-as-capital in the form of a security cannot be attributed to an encapsulated section of the economy but is organically interwoven with the process of production (of profit).

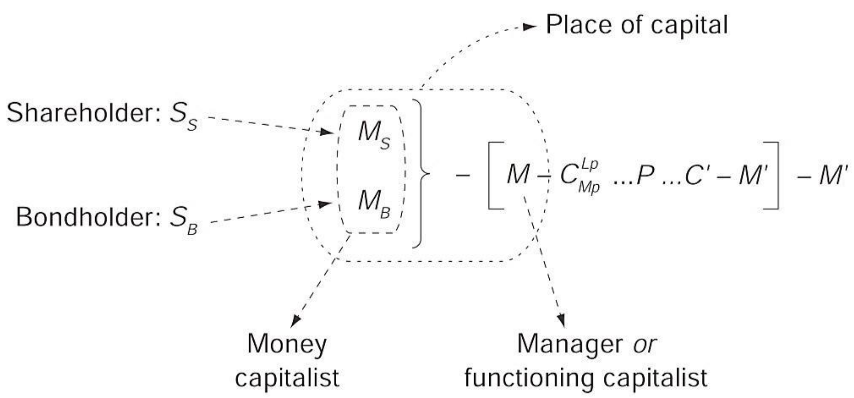

Fig. 2 The place of capital is both internal and external to the enterprise.
Taken from Sotiropoulos, Milos & Lapatsioras 2013, p . 52

Since the production of surplus value (respective the collection of taxes, the issuing of debt or the "financial expropriation" (Lapavitsas, 2009) of wages) is a contested, political terrain, the security turns this risk into a commodity and makes it tradable. It gives the functioning capitalist entity (respective the state, the debt taker) a price regarding its capacity to capitalize the secu-rity. In Fig. 2, two types of 'paper duplicates' occur, an ownership title that represents ceded money capital on the one hand (bonds) and an ownership title that represents 'material' capital on the other hand (shares) (Sotiropoulos & Lapatsioras, 2014, p. 91). Those securities, which are integral elements of the production process, can be understood as simple forms of derivatives, since they derive their price regarding to the future earning capacities of the liquid or illiquid capital they refer to (however to a one-time fixed rate in the case of bonds). Financialisation, however, cannot be understood without considering the additional level of risk commodification that comes with the spread of more developed financial derivatives. While a security turns cap-ital, which in turn is a specific social relation, into a commodity that is priced respective to the capacities of that social relation to produce a future income stream for the owner of this com-modity, the security still represents a concrete risk that is related to the specifities of the social relation considered. Financial derivatives translate several concrete risks that are associated with commodified capital into quantitative signs and thereby make them comparable and trad-able "without giving up the ownership of the underlying commodity" (ibid., p. 97). While the security represents a concrete embodiment of risk, "it is only with the rise of derivatives that these risks can be priced and traded independently of the security itself" (Sotiropoulos, Milos & Lapatsioras 2013, p. 175).

With the spread of financial derivatives after the collapse of the Bretton Woods system, commodified capitals (including securitized debt) worldwide became integrated into "an international space of multiple investment spheres for individual and isolated capitals" (ibid., p. 117). Financial markets thus have developed "into a complex and multi-dimensional system" (ibid.), including not only money markets, bond markets, share markets, currency markets, but also markets for commodified risks of commodified capitals. "As a result, an *international of capital* has come into existence that is permanently on the lookout for secure profits and self-valorization of money" (ibid., emphasis in the original). It becomes clear that with the commodification of individual 'income streams' and the subsequent commodification of the expected or price or income developments of those 'income streams', the mutual control and potential investment – in other worlds: competition – between different capitals reaches a new quality. Since the production of surplus value is dependent on financing in the form securities, and since the risk of securities is commodified in the form of derivatives, financial markets “have the dual function of assessing and effectively organizing individual capitals (within enterprises facilitating exploitation strategies favorable for capital) and at the same time promoting a particular form of financing” (Sotiropoulos & Lapatsioras, 2014, p. 13). To put it simple, financialisation reinforces the competition-induced imperative of profitable capital utilisation within a capitalist social relation. Present-day finance-dominated capitalism thus can be perceived as a power system “that is associated with an active port-folio management process” (ibid., p. 72), where sub-optimal capital utilisation is structurally eliminated, while finance, money-as-capital in the form of a ‘pa-per duplicate’, is the technology behind this power (Sotiropoulos, Milos & Lapatsioras 2013, p . 54).

On a strictly theoretical level, financialisation has to be understood as a development of the commodity form (and not primarily of the money form) that implicates a development of the concept of capital itself, as the unfolding and autonomization of capital as the self-valorization of value (Teixeira & Rotta, 2008). Instead of a clearly distinguishable *form* of capitalism that is marked by the dominance of a specific capital fraction (or ‘the sphere of circulation’) in the first place, financialisation involves a development of all phases of the circuit of capital and their relationship among each other and is in this sense a deeply rooted transformation that unfolded the functioning of capital without altering the logic of capital and without producing a neces-sarily unsustainable version of capitalism. Instead of a specific *phase* of capitalism that will be followed by an easily distinguishable future phase (e.g. of de-financialisation), financialisation is deeply intertwined with the development of capitalism and represents a continuous process, which goes hand in hand with discontinuities (e.g. financial crises, shifting fields of investment).

With the help of the above made theoretical clarifications, financialisation can be defined in two steps. In a broader sense it means the increasing weight of ‘the financial’ within the unity of financial and non-financial dimensions of capital as profit-creating activity. In the more empiri-cally oriented description below, it will become clear that that the ‘rise of finance’ is not simply the result of a class project by the ‘investing class’ in the first place, but a shift in the complex articulation of the separation of production and finance under the unity of capital. As finance
“has followed the dynamics of capital on the background of class struggles from the very begin-ning of capitalism”(Sotiropoulos, Milos & Lapatsioras 2013, p . 139), financialisation responded to “deep tendencies at the level of capital-accumulation and profitability that drove deregula-tion and that underpin the current crisis […]; deregulation followed and responded to structural

transformations – most notably the rise of multinational corporations with international financ-ing requirements” (McNally, 2009, 42). Transnational corporations (TNCs), in turn, form „a cat-egory of their own“ (Serfati, 2008, p. 35) and can be described as „an organizational modality of finance capital“ (ibid.). TNCs can be involved in a growing number of financialized capital move-ments, while banks can act as big stockholders of industrial companies or make investments with their profits (Milberg, 2008, p. 423). Especially in the field of ‘land grabbing’, which will be ana-lysed in more detail below, it becomes clear that not necessarily institutional investors with

‘purely financial interests’ are implementing the process of financialisation, but that also agri-cultural operators and traders increasingly focus on the price developments of their fixed and liquid assets (Fairbairn, 2014, p. 788). In this broader sense, financialisation means a qualitative shift in the way how ‘the financial’, meaning the exchange-value side of commodities and assets, are perceived and treated *within* the course of profit-creating activity and thus can be referred to as ‘*interior financialisation*’ (Müller, 2012).

In a narrower sense, and connected to the increasing weight of ‘the financial’ within profit-creating activity, financialisation means the process in which expected price or income developments of liquid or illiquid assets (‘income streams’) are transformed into an objective, quantitative, calculable and legally protected form, in order to make them as commodities tradable on internationally integrated financial markets (Ouma, 2014, p. 197). As described above, the com-modification and bundling of several concrete risks of underlying ‘income streams’ in the form of derivatives, which can be understood as *‘second-order’ forms of commodification of capital*, increase the pressure on the commodified and financially valued capitals to increase their prof-itability and thus reinforces the weight of ‘the financial’ within those capitals. The emergence of derivatives and their quantitative increase thus can be seen as the ‘tip of the iceberg’ as part of a deeply rooted shift in the role of assets and their price and income developments that has also and especially taken place within ‘productive’ enterprises (Müller, 2012).

In the following chapter I will apply the building blocks of a holistic theory of financialisation developed above in order to describe the phenomenon of the financialisation of nature.

4. The financialisation of nature

4.1. The financialisation of nature in the context of the Ecosystem Services approach

In this sub-section, I will introduce the analysis of the phenomenon of the financialisation of nature via connecting it to the broader trend of the economization of nature. While natural resources in the form of commodities produced for sale are an integral element of capitalism since its inception, the recent processes of economization of nature can be said to mark a new phase of societal nature relations. Instead of serving solely as material inputs (use-values) to production, it is the exchange-value of nature-related commodities and their (expected) price developments that is of crucial im-portance in the current mode of the economization of nature. Nature-related commodities in turn must not refer to natural resources but can and increasingly do refer to 'sinks' respective the 'ser-vice' of nature to absorb externalities of capitalist commodity production. In order to give a basic idea on how the economization of nature has changed in this direction, I will roughly elaborate on the creation of 'Ecosystem Services', as one of the most important developments in the last dec-ades, in the following[6].

The political-economic creation of Ecosystem Services has, as pointed out by Kill (2014, p. 10) al-ready started in the 1970s with the framing of "beneficial ecosystem functions as ecosystem" in the academic and policy-advising literature. The Earth Summit in 1992 and the Kyoto protocol (adopted in 1997) represented important milestones in establishing an economic view on nature and environmental problems. In 1999, a committee consisting among others of the World Re-sources Institute (WRI), the United Nations Environmental Programme (UNEP) and the World Bank passed a resolution that established the Millennium Ecosystem Assessment (MA), of which findings where launched in 2005 and can be considered a "critical landmark that firmly placed the ecosys-tem services concept in the policy agenda" (Gómez-Baggethun, 2010, p. 1214). In the same year, the EU emission trading system became established. Since the MA, several reports framing global environmental problems in economic terms appeared, as the 'Stern Report' (Stern, 2006) or the 'Potsdam Initiative' (G8, Environmental Ministers Meeting, 2007), the latter facilitating the report 'Economics of Ecosystems and Biodiversity' (TEEB). The TEEB report and the report „Towards a Green Economy – Pathways to Sustainable Development and Poverty Eradication" (UNEP, 2011) are central pillars within the 'Green Economy Initiative', launched in 2008 by the UNEP. The Rio+20 summit in 2012 facilitated and was followed by additional international initiatives incorporating the Ecosystem Services approach, as the Wealth Accounting and the Valuation of Ecosystem Services (WAVE) initiative or the EU's Mapping and Assessment of Ecosystems and their Services (MEAS) initiative (Kill, 2014, p. 11).

For the manifold processes of economic valuation, commodification and financialisation that go hand in hand with the establishment of the Ecosystem Services approach, the emotive term 'Green Grabbing' became widely used in the critical literature since 2012 (see Fairhead , Leach & Scoones,

[6] See for a more comprehensive historical contextualization of the process of the economization of nature Gómez-Baggethun, 2010.

2012 for an overview; Heuwieser, 2012, p. 10). It is derived from the older term 'Land Grabbing', which refers to the global structural changes in the agrarian sector especially since 2007 (see Cot-ula, 2012, for an overview). While, partially, large-scale land acquisitions have been justified with reference to the production of agro-fuels, 'Green Grabbing' refers to processes of commodification and financialisation of nature that follow an explicitly ecological agenda. The economic valuation, commodification and financialisation of nature, often with the help of the Ecosystem Services ap-proach, then appears as a tool in order to deal with environmental and ecological problems. Carbon sequestration (Hill, 2013), offsetting and emission trade (Bond, 2012), the protection of biodiversity (Tregidga, 2013), wildlife (Masse, & Lunstrum, 2014) or fishery (Doerr, 2016), biofuel-production and eco-tourism (Ojeda, 2012) are important examples that that fall under the category of 'Green Grabbing'. The marketization of nature can be compared to less recent phenomena as the privati-zation of 'public services', the financialisation of (private or public) debt and the expansion of finan-cial markets in general; also in these cases the opening up of new fields of (profitable) investment went hand in hand with non-economic arguments.

In the following, I will characterize the financialisation of farmland as one field in the process of financialisation of nature.

4.2. The financialisation of farmland as 'interior financialisation' and 'second-order' commodification of capital

In this sub-section, I will approach the phenomenon of 'financialisation of nature' more narrowly. Of prime interest here is whether the financialisation theory developed above can be usefully ap-plied on the concrete case of 'Land Grabbing'. The match or mismatch between financialisation theory and the concrete processes of financial economization of nature should allow conclusions into two directions: First, whether and in what form the financialisation of nature, distinguishable of mere processes of valuation and commodification, actually takes place and can scientifically be tracked. Second, weather the observed form of financialisation of nature supports the above made characterization of financialisation as a deeply rooted and ongoing historical phenomenon that is characterized by a certain durability and resilience.

As already mentioned above, investments in farmland do not necessarily follow an ecological agenda, though land acquisitions with the aim to produce bio-fuels partially have been framed into that direction (McCarthy, Jacqueline & Suraya, 2012). Large-scale land acquisitions, however, have to be understood as a cross-sectional phenomenon that is connected to various fields of 'Green Grabbing', as carbon offsetting or wildlife protection. In addition to that, the marked increase of farmland investment appears as a pertinent research object against the background of the hypoth-esis of Green Capitalism not primarily because of the associated discursive framings, but due to its possible economic function as a 'crisis strategy' in connection with the collapse of mortgage lending in the USA and other countries in 2007/2008.

The NGO GRAIN, which coined the term land grabbing with a report in 2007 (GRAIN 2007), reported land transfers covering 2 million ha before 2008, the volume of reported signed deals increasing to 6 million ha in 2008 and 30 million in 2009 (GRAIN 2009, computed data taken from Arezki, Deininger & Selod, 2015, p. 218). At the height of the commodity price boom in 2009, GRAIN re-ported 452 land deals covering 45 million ha land in 82 countries affected (ibid., p. 217). A NGO report by the International Land Coalition (ILC) refers to even 203 million ha land being under negotiation between 2000 and 2010 (Anseeuw et al., 2011, p. 4). The Land Matrix reports 1204 concluded deals at the time being and 204 deals currently under negotiation, the concluded deals covering 43.2 million ha (Land Matrix, 2016). Concerning the amount of capital invested, only rough estimations can be quoted; in reference to GRAIN data, Daniel (2012) presents estimates revealing that more than 100 billion USD have been investment in farmland between 2008 and 2012, though farmland only represents a share of investment objects (ibid., p. 703). The ILC report from reports that "78% of land deals are for agricultural production, of which three-quarters are for biofuels. Mineral extraction, industry, tourism, and forest conversions are also significant contributors, add-ing up to the remaining 22%" (Anseeuw et al., 2011, p. 4). Exclusively considering farmland invest-ment, four primary target regions can be identified, which "account for more than 80 percent of the current and targeted value of investments globally and over 64 percent of the number of indi-vidual funds and other institutional equity structures invested in primary agriculture" (Luyt et al., 2013, p. 32), namely "Australia/New Zealand, Brazil, Canada and the United States" (ibid.).

Concerning the origin of investment, GRAIN identifies three different investor groups among the land deals until 2009, whereby public agencies account for 25.8%, private firms for 36.1% and pri-vate funds for 38.1% of deals negotiated (GRAIN 2009, computed data taken from Arezki, Deininger & Selod, 2015, p. 219). The database by Alomar and Cousquer (2012), which aggregates all con-cluded deals prior to 2012, credits public agencies for only 7.3%, but private firms for 67.3% (ibid.). The difference is based on diverse understandings of public investors. Sovereign Wealth Funds (SWFs) that manage large amount of public means only account for a relatively small amount of land transactions. Public investments, however, can also take place via state-owned enterprises and government-to-government deals (Daniels, 2012, pp. 703). Among private investors, non-financial companies as agribusiness or biofuels develops can be distinguished from financial companies, especially institutional investors. The latter represent “a significant yet understudied player in today’s land and property transformations” (Knuth, 2015, p. 164) and are of particular relevance in order to understand how farmland became financialized especially since 2007.

The clear distinction between public and private as well as financial and non-financial investors, however, can be misleading since, in any case, the investment in farmland takes the form as a pur-chase of an asset by a sum of money capital. Asset managing companies that manage financial market vehicles, as hedge funds or private equity funds, receive money by public, private or insti-tutional investors, and invest them in securities, which in turn can refer to farmland itself or to stakes in agricultural companies (see Fig. 3). What makes ‘land grabbing’ a case of financialisation of nature is not primarily the fact that money capital is partly raised and mostly managed by finan-cial market actors, but that the creation of profit in farmland investments stems increasingly from the purchase and sale of securities, rather than through investment in labor power or means of production (Krippner, 2005, S. 174). In the following, I will characterize the form of financialisation of farmland in greater detail.

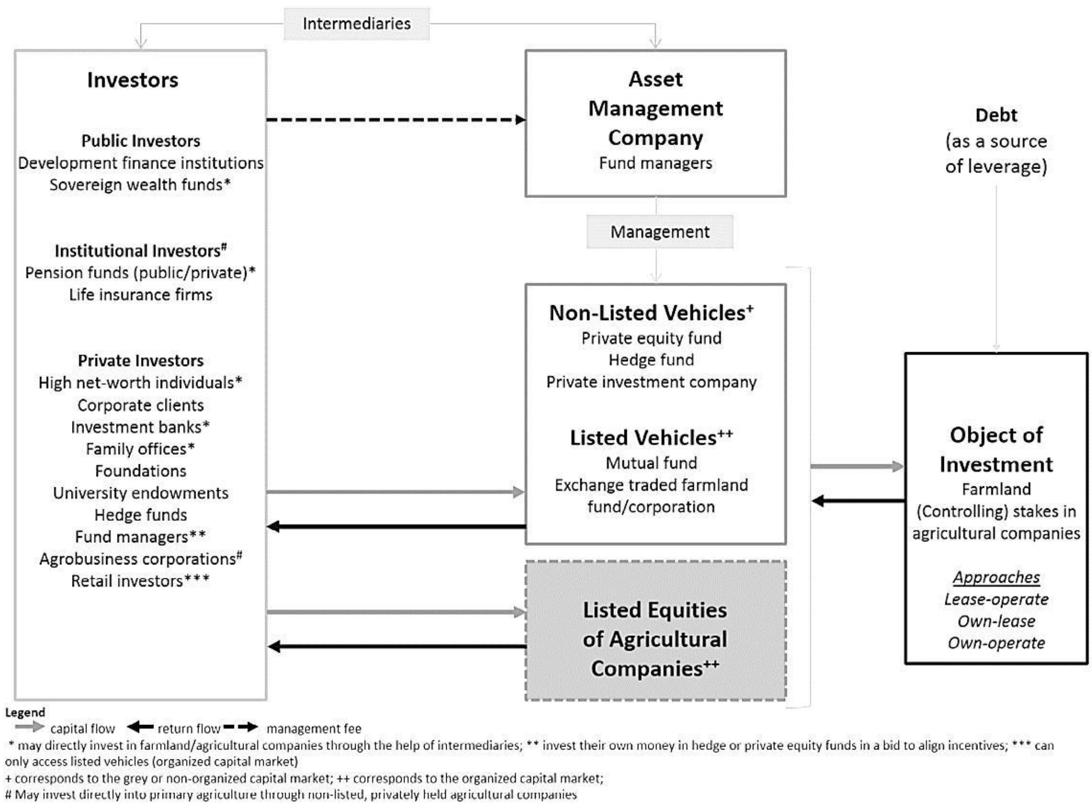

Fig. 3 Investors, intermediaries and investment structures in the agricultural finance space. Taken from Ouma, 2016.

In historical retroperspective, first steps towards the conversion of farmland into an asset class can be observed in the US already since the 1980s (Kaplan, 1985; Ouma, 2014, p. 201). As Axelrod (2014) has shown at the example of the United States, the acquisition and allocation of farmland changed during the second half of the 20th century to a 'market-based' system "marked by the introduction of … sophisticated agricultural finance" and the retreat of financial provisions by the state (Axelrod, 2014, p. 8). Not only in the US, the state played but a crucial role in creating stable markets, industrialising agriculture, creating global value chains and paving the way for 'foreign' investors und thus the construction of farmland as a profitable investment object for private capital (Martin & Clapp, 2015). As a development within the market-based system, in which capital for farmland investment stems primarily from the private sector, a new period since 2007 is character-ized by the growing dominance of institutional investors and financial rationales (Ouma, 2016, p. 5). As listed in Fig. 3, investors include among others pension funds, corporate clients or investment banks. The invested capital operates via investment vehicles, as private equity or mutual funds. Fairbairn (2014) distinguishes two main types of farmland investment: In the own-lease approach the "investor simply acquires the land, finds a tenant operator, … and begins receiving an income stream in the form of rental payments, as well as capital gains from appreciation" (ibid., p. 783). In the own-operate approach "the investor is financially involved in both the purchase of the land and the agricultural production that takes place on it" (ibid.). In Fig. 3, a third investment type (lease-operate) is included, referring to the process where land is leased by investors alongside an invest-ment in shares of agricultural operators.

In all types of investment, the actual investment process is normally carried out by an asset management company, which in turn receives a management fee (Daniel, 2012). Farmland investment management organization (FIMOs) have existed since the 1980s in the US; the new period since 2007, however, witnessed the rise of two new types of FIMOs, stemming either from the financial sector or from 'traditional' agricultural operators themselves (Fairbairn, 2014, p. 787). Private equity backed FIMOs receive capital by third-party investors ('limited partners'), e.g. high-net-worth individuals or pension funds, until a certain fundraising target is completed (Daniel, 2012, p. 704).

After the fund is closed, the fund management ('general partners') scouts target companies and typically buys majority control via 'management buyouts' or 'leveraged buyouts' (ibid.; Makhene, 2009). After the private equity fund (managed by the FIMO) is expired, its company shares are sold on public stock exchange via an Initial Public Offering (Makhene, 2009). The second type of FIMOs that emerged since 2007, referred to in Fig. 3 as 'Listed Equities of Agricultural Companies', is cre-ated via transferring of parts of the farmland portfolio of agricultural operators into a separate asset management organization (Fairbairn, 2014, p. 788). Thus, agricultural operators increasingly capi-talize the appreciation of their assets and in this way focus on the exchange-value side of commod-ified capital. Also big agricultural traders developed partially into finance market actors via provid-ing asset management services and speculating on land and commodity price developments, as has been insightfully studied in the case of Cargill (Salerno, 2014).

The above made detailed description of the vehicles and modes of farmland investment can be generalized as a concrete example of the first element of financialisation that has been described in chapter 2 as a process of 'interior financialisation', meaning the increasing weight of 'the finan-cial' within the unity of financial and non-financial dimensions of capital as profit-creating activity. Though agricultural production always entailed a financial dimension (e.g. the extension of credit for agricultural production via a private bank and related interest payments), the new period since 2007 is characterized by farmland investments that capitalize the price developments of land prop-erty titles and of assets of agricultural companies; besides the capitalization of this exchange-value side of commodified capital, the income stream that constitutes the use-value side (rent in the case of property, dividends/revenues in the case of securities) is of crucial importance in the investment process as well, also and especially for financial market actors. The financialisation of farmland thus depicts a shift in the complex articulation of productive and financial aspects within the operation of capital as profit creating activity. Tellingly, agricultural operators and traders start to act as an "organizational modality of finance capital" (Serfati, 2008, p. 35) themselves. This blurred and com-plex relationship between financial and non-financial companies within finance capital (Poulantzas, 1974, p. 154) is of crucial importance in order to draw conclusions on the nature and resilience of the current expansionary trend of farmland investment, as will be analyzed in further detail below.

As an immediate step, however, also the second characteristic of financialisation that has been described in the theoretical chapter, namely the process during which expected price or income developments of liquid or illiquid assets are transformed into an investment vehicle themselves, also referred to as 'second-order' forms of commodification of capital, can be analysed in the agri-cultural sector, though in an early and underdeveloped stage. Crucial for understanding this inten-sification of financialisation that increases the liquidity of farmland assets even further is the devel-opment of Real Estate Insurance Trusts (REITs) that specifically target farmland property. As corpo-rate entities that redistribute 90% of their income to investors and therefore are freed from corpo-rate taxation, REITs have been created in the US in 1960, spread massively in the 1990s and played a key role in the financialisation of several types of property, as timberland or housing (Gunnoe &

Gellert, 2011; Peterson & Kuethe, 2015). REITs collect a portfolio of individual properties and normally specialise on a certain type of property; shares of an individual REIT in turn are traded either on the public stock exchange or as a non-listed vehicle. The purchase of shares from a REIT offers the possibility for investors to profit from rising property prices without binding their capital for a longer time period as in the case of 'limited partnerships' in FIMOs and without holding non-depre-ciable land property titles directly in the company balance sheet (Knuth, 2015, p. 173; Fairbairn, 2014, p. 789). In the case of Farmland REITs (F-REITs), farmland is normally purchased by tenant farmers and then leased back to them against rental payment (Peterson & Kuethe, 2015, p. 2). The first F-REIT based in the US has been created in 2013, in September 2015 three F-REITs where listed at the New York Stock Exchange (where 199 REITs are listed in total), of which the combined total shares have been initially valued at 151.2 million USD (equal to 16.7% of the combined value of outstanding shares for all US equity REITs by the end of 2014) (ibid.). Between 2005 and 2006 at least five F-REITs, though normally referred to as Special Purpose Investment Companies, have been created in Bulgaria due to expected land price increases after the accession to the EU in 2007 (Fairbairn, 2014, p. 789; DTT, 2005). Interestingly, REITs are also facilitating investments in new and unconventional forms of 'property' that are covered by the 'green grabbing' literature, as 'pollution rights' and 'ecosystem services' (Knuth, 2015, p. 173; Sullivan, 2013).

The creation of farmland REITs can be reformulated with the financialisation theory developed above, in which financialisation has been described in a second step with the commodification of the expected price or income development of commodified capitals in order to bundle several in-come streams (or the price development of their commodity-expression) into a new vehicle and abstract the concrete risk from them. Among the few scholars that give consideration to this "fron-tier of farmland financialization", Fairbairn (2014) has characterized the investment opportunities REITs offer as the "aggregation of the rental payments made by tenant farmers on several proper-ties into a single income stream that investors … then buy into" (ibid., p. 789). The 'second-order' commodification of rental payments, in which investors do not directly buy into a farm property title, but into an investment vehicle that refers to several property titles, can be understood as the

'tip of the iceberg', which signals a general shift in the role of assets and their price developments in the operation of capital. Both FIMOs and REITs create a space for capital to valorize itself as financial capital and expand the frontier of financialisation via coupling cash-flows and property income, respective the quantitative development of both, with the operations of the financial system (Mader, 2013, p. 14).

4.3. Current trends in farmland investment and their implications

In this sub-section, I will build on the empirical description of the phenomenon of the financialisa-tion of farmland while addressing different arguments and conclusions that are made in the litera-ture on farmland investment and the financialisation of nature. Up to this point it has been demon-strated that the financialisation of nature, distinguishable of mere processes of valuation and com-modification, can be grasped with the help of the holistic theory of financialisation developed in chapter 3 and can be empirically observed in the case of farmland investment. What remains to be clarified is whether the observed form of financialisation of nature supports the above made char-acterization of financialisation as a deeply rooted and ongoing historical phenomenon that is char-acterized by a certain durability and resilience. Different traits of the increase in farmland invest-ment since 2007 point into that direction. Farmland investments by private investors have partially been interpreted as an emerging need of financial markets for non-risky, secure assets in the con-text of turmoil in other segments of the financial market since 2007 (Fairbairn, 2014, p. 778; Garner & Brittain, 2012). Given the high correlation of farmland assets value with inflation, but low correlation to other asset classes, farmland assets are seen by investors as an appropriate store of value and thus as a means to diversify investment portfolios (HighQuest Partners, 2010). In reference to the double function of farmland assets to provide both an inflation hedge and an income stream, farmland has been characterized as "gold with yield" (Koven 2012) and became subject of special-ized agricultural investment conferences (Fairbairn, 2014, p. 778). Connected to that, the financial-isation of farmland has been described as a "*return to the real*" (Fairbairn, 2014, p. 783, emphasis added), meaning a break with an assumed trend of financialisation as the "increasing accumulation through financial channels as opposed to productive ones" (ibid.). On the background of the Green Capitalism hypothesis, Brand and Wissen (2012) have taken up this argument, considering farmland investment a form of "financialisation which is not opposed to, but rather mediates extended re-production and thus real accumulation" (ibid., p. 28).

Theoretical arguments by authors as Gunoe (2014) or Zeller (2011) can be read into the opposite direction; Gunoe (2014) suggests "that we are witnessing an unprecedented integration be-tween finance capital and landownership that harkens back to previous eras of rentier control" (ibid., p. 478). The hypothesis of a "'*neo-rentier economy*' controlled by, and operating in the interests of, an oversized financial sector" (ibid., emphasis added) reveals common features to the abovementioned 'Keynesian problematic' that associates the neoliberal restructuring of the economy with the re-emergence of a 'rentier'-class. Hudson (2010), for instance, states that „bankers have formed an alliance between finance, insurance and real estate … to free land rent and monopoly rent from taxation" (ibid., p. 420). Zeller (2011) argues in a complementary way that investment capital extracts an increasing share of profit income via the ownership of prop-erty or debt titles and the associated rent or interest payments. Both arguments, one stating that the financialisation of farmland represents a ‘return to the real’, the other stating that it continues the decoupling of a parasitic financial sphere from the ‘real economy’, assume a sep-aration between the financial and the ‘real’ economy, though the development of the relation-ship between both is conceptualised differently.

Concerning the first mentioned view (the ‘return to the real’), a few (theoretical) clarifications have to be made. In the lease-operate (own-operate) investment type, pooled capital is indeed invested not (only) into farmland property titles, but (also) into shares of agricultural operators in order to bind the invested capital into the cash flow resulting from agricultural production. The latter investment possibility is but not a feature of the farmland property title itself, but of the corporate entity that produces on the land and issues shares. This difference between a ‘financial’ and a ‘productive’ asset is of gradual nature though, since in no case an asset turns productive in the sense that it becomes identical with the process of income creation it draws on. The creation of an income stream is achieved through inherently qualitative social processes (e.g. the employment of human labour) and their translation into a quantitative relation (e.g. a wage relation). In this sense, Sotiropoulos, Milos and Lapatsioras (2013) reject the contraposi-tion of a ‘real world’ of production and a fictitious world of finance – “*the true materiality of capitalism regards the complex articulation of social power relations*” (ibid., 140, emphasis in the original), which are reified in the commodity form as a representation of capitalist reality (ibid., p. 141). This “socially functioning (mis)interpretation of economic reality” (ibid.) (e.g. in the form of a security) and the socio-technical process of profit creation it represents are not contradic-tory expressions, but constitute each other. The ‘return to the real’ thus cannot mean a spill over of finance capital into the social processes of profit creation. The separation of financing and managing functions in the operation of capital (Fig. 2) remains intact. The ‘return to the real’ can imply a proliferation of asset classes that are more directly related to the creation of (worker’s) income or the production of commodities (used for consumption or production, respective ‘ex-tended reproduction’). However, it does not depict a discontinuity in the process of financialisa-tion as the increasing importance of ‘the financial’ in the operation of capital and the translation of income or price developments of assets into own standing investment vehicles. The financialisation of farmland is in continuity with the general process of financialisation of property (cap-italizing the price development of property titles) that is taking place since decades (Knuth, 2015).

Concerning the second view presented (‘neo-rentier economy’), it should indeed be noted that in the case of own-lease investment types and even more in the case of investment in F-REITs money capital is employed as finance capital that profits from rental payments and farmland value appreciations. Individual and isolated sums of money capital can be channelled into farm-land investment vehicles that, in the case of F-REITs, create income via receiving rental pay-ments. What complicates the picture is the fact that, as has been pointed out above, the actual investment process is carried out by an FIMOs, who's clients consist not only of institutional investors, but also of corporate clients, and agribusinesses (operators, traders) themselves. The latter have even developed their own FIMOs since 2007 in order to capitalize farmland price developments. Besides the heterogeneous origin of invested capital, its usage is not only dedi-cated to earn rental payments (as in lease-operate approaches). The distribution of (rental) in-come, in turn is a highly complex process due to its mediation by corporate entities and second-ary income distribution by the state. The assumption of the re-emergence of the 'rentier' thus cannot be upheld; the increasing weight of 'the financial' and the connected emergence of de-rivatives build on a pre-given separated unity of financial and productive aspects in the creation of profit that has not altered principally in the course of financialisation (though has the articu-lation of both).

To sum up, both the 'return to the real'- and the 'neo-rentier economy'-argument refer to justi-fied observations, but over-exaggerate the meaning of own-operate/lease-operate approaches in the first case or of own-lease approaches or investments in shares of F-REITs in the latter case. Both developments stand in continuity with the historical process of financialisation as a deeply rooted shift in the role of assets and their price developments that is reinforced by 'second-order' forms of commodification of capitalist relations. New forms of property, as emission rights or ecosystem services, are brought into the operations of finance capital, or old forms of property, as farmland, are capitalized in new ways. As Ouma (2016) has pointed out, rather "than imagining the history of capitalism as one where industrial capitalism gives way to financialized capitalism" (ibid., p. 1), it is more helpful to consider "processes and practices of financial econ-omization that have reworked economy, society and nature at specific historical conjunctures"

(ibid.). Crucial for the process of financialisation is not the vague distinction between 'produc-tive' and financial opportunities of investment, but "the *formation of profound excess liquidity that is supposed to valorise itself as financial capital*" (Herzog & Schäppi, 2011, p. 79, emphasis added). Before this historical argument can be developed further with reference to the linkage between the financialisation of nature and the economic crisis, a few objections to the charac-terisation of the financialisation of farmland as a resilient trend deserve mention.

Visser (2015) has recently presented indices from news articles and investor interviews revealing "that profitable farmland investment is *not* the solid, global trend that is often proclaimed" (ibid., p. 281, emphasis in the original). At the example of Russia and other post-soviet farmland mar-kets, it can be shown that farmland investments are underperforming, with Rumania and Bul-garia as important exemptions (Visser, 2016). Also the three US-based F-REITs where falling short of expectations so that share values had to be corrected downwards (Peterson & Kuethe, 2015). Referring not only on farmland investment, McCarthy, Vel and Afiff (2012) argue that "only a fraction of land acquisitions lead to on-the-ground projects" (ibid., p. 541). Though the Land Matrix (2016) draws a different picture, reporting 1553 concluded transnational and do-mestic land deals, of which only 89 have been abandoned, the general observation that investor optimism and methods of standardization and asset making often are confronted with the 'ma-teriality' and specifities of farmland as an input to production has repeatedly been made (McCar-thy, Vel & Afiff , 2012, p. 541; Ouma, 2014b, p. 165; Visser, 2015, p. 283). This observation, however, does not indicate a discontinuity with the financialisation era; the 'artificial' quantifi-cation and binary representation of complex underlying social realities – as a "socially function-ing (mis)interpretation of economic reality" (Sotiropoulos, Milos & Lapatsioras, 2013) – has also been described in the field of financialisation of credit (Aitken, 2013).

Visser (2016) has therefore proposed to "differentiate between commoditization and resource making on the one hand, and asset making on the other" (ibid., p. 12). Though in many cases land deals that referred to land on the African continent, for instance, represented a commodi-fication of formerly not clearly demarcated land, the liquidity of the resulting property titles and their financial economization *as assets* remains on a low level (ibid.). In the post-soviet region and many countries of the global north, in contrast, "the current finance-driven land rush is pri-marily a process of asset making, and to a lesser extent of enclosure, as much of the land was already privately held" (ibid.). Hall (2013), who has analyzed whether 'land grabbing' represents a modern form of 'primitive accumulation', comes to mixed results and states that while "finan-cialisation may generate new investment opportunities for capital by creating new commodities and new markets, it is often applied to things that are already held by capitalists as private property" (ibid., p. 1598). This leads to the conclusion that the financialisation of farmland, under-stood as a mode of profit creation that capitalizes and develops an existing asset structure, can be scientifically observed is in continuity with the overall trend of financialisation. This comes close to Fairbairn's (2014) statement that "financialization of the global economy since the 1970s has opened up new possibilities for the incorporation of farmland into financial circuits" (ibid., p. 779).

In sum, it can be noted that financialisation does not have to imply the simultaneous develop-ment of sustainable processes of income creation. It does not refer to the creation of assets but to the way how assets and asset price and income developments are perceived and treated in the course of profit-creating activity. The rootedness and continuity of the financialisation of nature at the example of farmland investment consists in the transmission of a deeply rooted mode of operation of global capitalism to new fields of investments. This transmission and con-solidation of financialisation in the field of farmland investment does not guarantee profitable investments in every case, let alone sustainable farming methods in an ecological sense. The continuity of financialisation precisely means the unfolding and expansion of a specific capitali-zation dynamic that reproduces certain contradictions and potentials for crisis, which in turn lead to shifting investment patterns and strategies of re-stabilization. The perpetuation of finan-cialisation despite its destabilizing properties sheds light on the underlying economic drivers of financialisation (of nature), that can only be understood from a historical perspective.

5. Financialisation in historical perspective

5.1. Four causal channels between financialisation and the transnationalisation of capital

As pointed out in chapter 2, the critical debate is rich in contributions that interpret the global 'rush for land' as the result of a crisis of over-accumulation that acts as a push factor for capital to seek new fields of investment. The existence of a crisis of over-accumulation is normally assumed as being existent, or derived from deductive reasoning. Though a 'macro-economic' view that covers also deeper rooted trends in the development of capitalism is reliant on deductive concepts as 'over-accumulation', the concrete form of the economic crisis and its linkage to the observed form of financialisation of nature cannot be directly deduced from the concept itself, but has to be re-constructed from the historical analysis. The following theoretical clarifications and historical re-constructions follow two main questions. First, it is to ask whether a crisis of over-accumulation can be scientifically observed and what form it takes. Second, whether it can be shown that the ob-served form of over-accumulation acts as a push-factor for capital to invest in 'natural assets'. Un-derlying this it is of special interest whether the 'holistic' theory of financialisation, which puts spe-cial emphasis on the continuity of financialisation as a deeply rooted re-organisation of capitalist relations that also and especially concerns 'productive' enterprises and modes of investment, can be traced in the historical contextualization.

Did the capitalist accumulation dynamic enter into a state of over-accumulation and thus comes into consideration as a possible explaining variable for the global 'land rush' and the financialisation of nature in general? Zeller (2011) answers in the affirmative and makes sense of the Post-Fordist phase of capitalist development as repeated delays and displacements of a tendency of over-accu-mulation that burdens the capitalist system since the 1970s (ibid., pp. 66). He treats the GR as both as a driver of the expansion of 'finance capital' into new realms and as being driven by the over-accumulation crisis that emerged with the "rising power of financial capital in form of pension and investment funds" (Zeller, 2013, p. 1689, translation S.D.). Similarly, Bond (2011) argues that in "the late 1960s, a global economic slowdown began" (ibid., p. 685) and locates the creation of carbon markets in the context of a deeper overaccumulation crisis and investors' desperate need for new speculative outlets" (ibid., p. 685, see also Lohmann, 2009). Without focusing on ecological implications, the historical work by Brenner (2003) similarly proceeds from the assumption that the developed economies are situated in a state of overproduction since decades, only compensated via massive credit expansion leading to the Great Recession (Lapavitsas, 2011, p. 613).

Lapavitsas (2011) has declared this approach „indeed a reversal of classical Marxism, for which re-structuring is an inevitable response to over-accumulation, while crises are temporary and sharp upheavals that prepare the ground for the restoration of profitability" (ibid., p. 618). Though a prin-cipal rejection of the idea of compensatory credit expansion in the context of over-accumulation would be premature, it is worth critically emphasizing the underlying theoretical relationship be-tween rupture and continuity that is inherent in the above mentioned arguments. The *crisis* (of Fordism) *itself* is understood as the moment of continuity that has been temporarily displaced, but is still present in contemporary capitalism. Similar to Golden Age narratives, in which the moment of continuity consists in the persistence of bad regulation respective the negative impact of neolib-eral institutions, the process of financialisation appears as an unsustainable economic growth tra-jectory that is moving towards an impasse. This mental picture easily translates into expectations of *rupture* from the neoliberal era – be it in the form of an approaching paradigm shift, a system-threatening economic collapse, a long-term decline of capitalism or the advancing disintegration of political legitimacy. The Green Capitalism hypothesis, without denying the (contingent) elements of rupture that characterize contemporary capitalism, puts emphasis on the persistence of finan-cialisation also after the GR and the potential capacity of capitalism to restore both legitimacy and profitability in moments of crisis.

In line with the Green Capitalism hypothesis, I would like to propose a different element of conti-nuity, which underpins the Post-Fordist growth trajectory before and after the Great Recession, namely the process of *transnationalisation of operations of capital*[7] that is inherent to the rise of both financial markets and TNCs. I argue that over-accumulation as a possible push-factor for cap-ital to interpenetrate new fields of investment could be observed through a theoretical linkage be-tween the phenomena of financialisation and the spread of TNCs respective the transnationalisa-tion of ownership and production. In what follows, the interconnection of the transnationalisation and financialisation of capitalism is presented along *four causal channels* that are taken out of the current literature.

The first channel manifests itself during the crisis-driven decomposition of the Fordist order, expressed in a degressive trend of capital profitability. From 1966 to 1982 the US rate of profit declined from 10% to 7.9% (AMECO 2014)[8], what has been explained insightfully by Brenner (2003) with the economic catch up process of Western European states and Japan, leading to increased capitalist inter-state competition (Brenner, 2003, pp. 45). Poulantzas (1974) draw on the declining rate of profit in order to explain the increase in US direct capital export in Western European man-ufacturing, the "directly productive capital" (ibid., p. 153). The increasing volume of world trade and US-American capital export is connected to the expansion of the euro-dollar markets from 9 billion USD in 1964 to 57 billion USD in 1970, while the US gold reserves only amounted to 16 billion USD (Lambie, 2010, p. 31). Until the year 1979 the value of Dollar accounts on non-American banks had expanded to 475 billion USD (ibid.). The coincidence of transnational business and finance has rightly been emphasized by Duménil and Lévy (2004):

> In the 1960s, a new international finance developed... The circulation of dollars in the world played a central role, but the most crucial element was probably the convergence between the rise of the new international finance and the internationalisation of production (the development of multinational corporations). International firms needed financial institutions allowing for the circulation of funds internationally. (ibid., p. 24)

In the context of declining capital profitability, companies draw on international financial markets in order to handle cross-border transactions. The increasing divergence between Dollars circulating outside the US and American gold reserves led to a revocation of the dollar gold-peg in 1971 and the exit from the system of fixed exchange rates in 1973 (McNally, 2009, p. 42). Two developments that are central preconditions for the process of financialisation are interlinked with this, and thus constitute the *first causal channel* between the transnationalisation and financialisation of capital-ism. On the one hand the system of flexible exchange rates represented uncertainties for capital movements that involved more than one currency. This led to the development of financial deriv-atives that were supposed to protect corporations against the risk of currency devaluation, but simultaneously cleared the way for second-order forms of

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[7] Transnationalisation can be understood as the extension of the space through which operations of capital constitute themselves as social relations with the "tendency towards the combination under a single economic prop-erty *of capitals coming from several different countries*" (Poulantzas, 1974, p. 158, emphasis in the original). Trans-nationalisation thus is closely related to the process of 'centralisation', which has been described by Marx as a pooling of existing capitals via mergers and acquisitions, analytically distinguished from processes of 'concentra-tion' as the expansion of individual capitals via re-investments (Marx, 1962, p. 653-657).

[8] It must be noted that it is highly controversial in the Marxist discourse (a) if and in what way the profit rate can be measured and what it can explain in a transnational economy, (b) if the profit rate rose or fell before the Great Recession and (c) if and how it is causally linked to the Great Recession (see Basu and Vasudevan, 2013, for an overview).

commodification of capital as described in chapter 3 (ibid.). Second, the end of the dollar-gold-peg enabled the USA to go into debt in their own currency without technical limits as an important feature of financialisation, as will be shown below.

After the degressive period in capital profitability the rate of profit in the US increased from 7.9% in 1982 to 10.4% in 1997 (AMECO, 2014). In the same period the phenomena of financialisation condensed. With dividend payments, share buy-backs and mergers and acquisitions profits were increasingly used to utilize 'shareholder value' instead for investments in means of production and human labour-power (Milberg, 2008, pp. 420). The shift from long-term oriented to short-term oriented financialized investment strategies in the context of an internal balance of power tipping from managers to investors later became prominent as "shareholder value revolution" (ibid., p. 421). Here we can place the *second causal channel* between the financialisation and transnational-isation of capitalism. While the restoration of capital profitability is commonly explained by the intrinsic reorganisation of the labour process and „neoliberal wage compression" (McNally, 2009, p. 56) in the core countries, the spatial reorganisation of production via outsourcing of labour in-tensive production steps is of crucial importance as well, since it accompanied and conditioned the other two factors. Whereas Poulantzas has focused on US multinationals investing in West-Euro-pean manufacturing since the mid-1960s, it is important to point out how this process expanded and mutualised in Post-Fordism. Since the Plaza accord from 1985 that appreciated the West Ger-man and Japanese currencies respective to the Dollar, West German capital exports rose by 800% until 1995, Japanese capital exports by 600% (McNally, 2009, p. 49-53). In the 1990s Southeast Asia had become a centre of global capital accumulation. From 1990 to 1996 its stock in fixed capital rose by 300% (ibid.). Overall the number of people employed in export industry quadrupled form 1980 to 2005, with half of this rise stemming from Southeast Asian countries (ibid.). By the year 2002 109 million workers where employed in manufacturing in China but only 53 million in of the G7 member countries (ibid.).

To sum up, the transnationalisation of manufacturing stands in a common causal structure with the shrinking second and growing tertiary sector in capitalist core countries as well as the increasing share of financial in overall investment. This second causal channel between the transnationalisa-tion and financialisation of capitalism can be described as a *fundamental change in the origin and the usage of profit* (Milberg, 2008, p. 421). Domestic markets gradually lost their importance as an origin of profit respective to foreign input markets and international financial markets. The usage of profit shifted gradually away from reinvestment in physical capital assets and served to an in-creasing extend for financial and speculative purposes (ibid.). TNCs „have employed the formidable profits generated through offshore outsourcing of their production activities to engage in lucrative financial operations at home“ (Ivanova, 2013, p. 68).

While the crisis-driven economic development of the ‘long 1970s’ was ended with a real increase in productivity, underpinned by the global restructuring of production, *overcapacities developed in the target countries affected by outsourcing*. The „industrialization of the periphery augmented global manufacturing capacity, often duplicating existing industries, thereby exacerbating the over-capacity in the core and beyond“ (Ivanova, 2011, p. 867). In the absence of productive investment opportunities profits from the industrialized peripheries where invested in private and public finan-cial assets, which in turn was necessary in order to maintain the US’ growing trade deficit. „The accumulation of surplus capital in the major manufacturing centres of the periphery and credit ex-pansion, financial innovation and institutionalized speculation at the core are like the two sides of a coin.” (ibid., p. 868). The weaknesses of domestic consumption and trade surpluses became struc-tural features of emerging market economies, especially of China, in which globalizing patterns of capital accumulation territorialized themselves. The foreign exchange revenues generated in the periphery in turn underpinned financialisation processes in the centres to a relevant part. This is the *third causal channel* between the transnationalisation and financialisation of capitalism, which is a central feature of the Post-Fordist path of capitalist development until the present.

Empirically, developed countries’ foreign exchange reserves increased by 238% (by 1.8 trillion USD) in the period from 1992 to 2002 and by 215% (by 3.3 trillion USD) from 2002 to 2007 (Hung, 2013, p. 1346; Ivanova, 2011, p. 865). In the same periods developed countries’ reserves increased only by 77.6% and 52% (ibid.). Nevertheless the bigger part of US’ debt is held by private investors, which has rightly been interpreted by Ivanova (2011) as a reaction to “inherent problems of overcapacity, perpetuated by a recycling of the US trade deficits, which became the key source of global liquidity” (ibid., p. 861). Accordingly, McNally (2009) explains the East Asian financial crisis 1997/1998 as manifestation of a generalized state of over-accumulation, which expressed itself in the form of crisis shortly, but is persistent until today (ibid., p. 62).

As a consequence one can re-specify the idea of compensatory credit expansion in the context of over-accumulation, which we have rejected above in the general form Brenner (2003) has put it forward. As McNally (2009) argues insightfully, “the entire period after 1982 cannot be explained in terms of credit expansion, [but] the postponement of a general crisis after 1997 can“(ibid., p. 46). As a response to the financial crisis East Asian economies, especially China, devalued their cur-rencies massively and further put pressure on wages in order to stay on the export driven path of capitalist development. In the meanwhile, Outsourcing via FDIs to developing countries increased unabated from 160 billion USD in 2002 to 480 billion USD 2007 (Smith, 2012, p. 36). On the other hand, US consumer debt increased from 6.8 trillion USD in 2000 to 14.6 trillion in 2007 and US public debt increased from 36% to 82% of GDP in the same period and amounted to 1.46 trillion in 2007 (Ivanova, 2011, p. 866). Growing US debt and trade deficit allowed the US economy „to op-erate as the 'Keynesian engine' of the global economy over the past decade“ (McNally 2009, p. 63) and maintaining the state of over-accumulation since the East Asian financial crisis.

It is in this context one has to put the sharp increase of mortgage debt from 2.2 trillion USD in 2001 to 3.9 trillion USD in 2003 and the steadily expansion of the US housing bubble (Lapavitsas, 2009, p. 117). The sharpened dynamic of financialisation rested on "the pillars of exceptionally low US interest rates, particularly from 2001; steady growth in consumer-indebtedness; and a swelling US current-account deficit“ (McNally, 2009, p. 63). All three factors maintained the economic de-velopment after the East Asian financial crisis, which rests on increasing social inequality, interna-tional imbalances, credit expansion and overcapacities (Ivanova, 2013, p. 68).

Simple causal attributions to the sphere of circulation or the sphere of production cannot explain the current mode of accumulation, which becomes especially obvious from the *forth causal channel* between the transnationalisation and financialisation of capitalism, namely the growing independ-ence of TNCs from commercial banks, which in turn refocused their investment strategy increas-ingly from business credit to workers' consumption (Lapavitsas, 2009, p. 144). In the course of the spatial reorganizing of production described with the second causal channel TNCs became less de-pendent on classical banking credit issued by commercial banks and began to directly engage on financial markets, „even to the extent of maintaining separate departments for operations in trade-credit and financial securities“ (ibid., p. 127). Banks had to concentrate on alternative sources of income, as issuing consumption and housing credits. The share of housing and consumption credit in overall credit increased in the US from 31% in 1973 to 50% in 2007, while the share of banking credit in overall liabilities of non-banking corporation decreased from 20% to 6% and household debt increased from 41% to 98% of GDP in the same time (Lapavitsas, 2011, p. 620). As a conse-quence, financialisation cannot be explained with the dominance of banks and inner dynamics of financial markets alone, since it rests on a change of the "molecular relationship" (ibid.) between banking and industrial capital *within* finance capital which in turn is interlinked with the spatial re-organization of production.

To sum up, the transnationalisation and concentration of ownership and investment, itself being a reaction to structural problems of capital reproduction rooting in the 1960s, evolved within a con-tradictory process that produced new constraints and conditions for continued accumulation. While the system of fixed exchange rates was not compatible with transnational capital movements with accordingly international financing requirements, the end of the dollar-gold peg and the de-velopment of financial derivatives laid the foundation for an ever increasing causal interaction of the transnationalisation and financialisation of capitalism. The spatial separation of production and consumption going along with the transnationalisation of economic property via FDIs, which gained additional dynamic and included peripheral spaces of investment increasingly since the 1980, led to a profound transformation in terms of the origin and the usage of profit. As the origin of profit a high wage level in the consumption country lost part of its importance, which devolved upon a low wage rate in the country of production. The usage of profit took place increasingly within financial-ized capital movements in capitalist core states. The structural lack of aggregate demand that went hand in hand with this development was contained by antagonistic but interdependent paths of capitalist development. An important interdependence aroused between the reflux of foreign ex-change reserves earned in the periphery to financialisation activities in the core, especially in the USA, which was necessary to maintain its increasing trade deficit and indebtedness. In the context of augmenting over-accumulation in the industrialized peripheries, especially in China, this interde-pendence became a self-enforcing dynamic expressing itself in ever increasing international mac-roeconomic imbalances and world debt levels. This constellation went through a serious fracture in the East Asian financial crisis 1997/1998 and was underpinned by massive credit expansion, es-pecially in US mortgage markets. A structural background if this development was the refocusing of bank activities towards consumer credit, which in turn corresponded with the diminishing im-portance of banking credit for TNC's investment strategies. The globally securitised debt burden of the US household sector led to a global financial and economic crisis from 2007 to 2009, in which banks and companies had to be rescued by massive monetary and fiscal expansion meaning a par-tial transformation of private into public debt.

5.2. Empirical indications on the linkage between over-accumulation, the Great Recession and the financialisation of nature

What conclusions can be drawn from this historical contextualisation regarding the existence of over-accumulation and its relation to the global 'land rush' and the financialisation of nature in general? First, differing from views offered by Brenner (2003) or Zeller (2011), I have argued that the crisis of the 1970s was ended by a fundamental transformation of capitalism in the form of an intertwined dynamic of transnationalisation and financialisation that restored capital profitability. However, building on the analysis by McNally (2009), I argued that the transnationalisation of pro-duction gave rise to overcapacities in peripheral countries targeted by direct capital export since the mid-1990s, especially in China. The massive expansion of credit, e.g. underpinning the expan-sion of the US mortgage market, since 1998 has been described as a means to temporarily displace the over-accumulation problematic until it reappeared in the Great Recession. The historical anal-ysis thus suggests the existence of a tendency of over-accumulation, though its concrete manifes-tations and particularities, e.g. regarding the future of the Euro-zone, the US-Dollar, the BRICs-countries or of the financialisation of nature, certainly have to be analysed separately in much greater detail.

Taking the case of farmland investment as an example, it is initially striking that, despite the natu-ralness with which over-accumulation tendencies in general and the Great Recession in particular are related to the financialisation of nature in the critical literature, in-depth quantitative-empirical assessments of this causal relation can hardly be found. There is not even consensus regarding the role of the Great Recession, or more precisely the breakdown of asset classes related to the US housing market, as a potential driver behind the global 'land rush'. Instead, the hike in food prices in 2007 and 2008 that rendered farmland investment more profitable is normally treated as a trig-ger for the explosion of farmland investment (Anseeuw et al., 2011, p. 24). The sharp increase in food prices in turn is normally not related to the Great Recession as well, but explained with refer-ence to bad harvests, increasing oil prices, demand for biofuels or the depreciation of the US dollar (Headey & Fan, 2008). However, despite the significant decrease in food prices in the second half of 2008, farmland investment remained on a high level after 2009 (Anseeuw, 2011, p. 24). The increasing profitability of farmland investment, connected to 'yield gap'-narratives and positive characteristics of land assets as inflation hedge and non-risky investment opportunity – in other words: pull-factors that attract investment-seeking capital – are frequently named in the literature in order to explain the continuing investors' interest in farmland. Push-factors, understood as mechanisms that motivate or even necessitate a shift of investment strategies away from specific investment areas towards nature-related assets, however, would provide more promising indica-tions in order to approach the over-accumulation hypothesis.

Different indices allow carful doubts concerning the exclusive importance of pull-factors. Borras et al. (2012) have shown with the help of an detailed study of 17 FAO reports that large scale land acquisitions in Latin America and the Caribbean are to a big extend directed towards non-food or flex-crop use, thus contradicting the "dominant narrative that land grabs occur because of the food crisis of 2007–2008" (ibid., p.855). An extensive econometrical study by Arezki, Deininger and Selod (2015) came to the result that the motivation that is associated with the yield gap approach to better utilize potential on land that is already cultivated, cannot be regarded a significant driver of the 'land rush' (ibid., p. 225). Also a weak tenure security and a high risk-to-profit ratio do not form a substantial obstacle for farmland investment according to the study, what could be viewed as an indication that investment in land assets are not primarily motivated by their positive characteris-tics themselves but need to be considered in the context of the wider investment climate (ibid., pp. 225).

A possible indication for the causal role of the Great Recession has been considered by Ouma (2014) and consists in the sequential correlation of contracting investment in housing assets and expand-ing farmland investment. The investment volume in the global urban real estate investment market contracted, after increasing from 130 billion USD in 2001 to 1.05 trillion USD in 2007, to 440 billion USD in 2008 (ibid., p. 217; Pohl & Vornholz 2013, p. 7). The average rate of return of real estate investment in North America decreased from 8.75% in 2001 to 6.27% in 2007 (ibid.). Both indices, the investment volume and the rate of return picked up again after 2008, but remained on a lower level. The annual volume of farmland investment (measured in terms of ha of reported and cross-referenced signed deals), on the other hand, pended on a relatively low level (around 2 million ha) from 2000 to 2007, but increased to 5.9 million ha in 2008 and jumped to 30.4 million ha in 2009 (Alomar & Cousquer, 2012; Arezki, Deininger & Selod, 2015, p. 218; Anseeuw et al., 2011, p. 24). Though the scale of capital invested (estimated about 100 billion USD in between 2008 and 2012 (Daniel, 2012, p. 703)), is still substantially lower than investment in urban real estate, the temporal coincidence of the contraction of housing investment and the expansion of farmland investment is nevertheless striking. As already described in chapter 4, the phenomena associated with the finan-cialisation of farmland, as the rise of FIMOs, F-REITS and new origins of invested capital, started to condense in 2007, just when US mortgage markets fell into difficulties.

Returning to the three central questions named at the beginning of this chapter – if over-accumu-lation can be observed, if it can be related to the financialisation of nature, and if its form is coherent with the 'holistic' theory of financialisation of chapter 3, the following concluding remarks can be made. The historical contextualisation suggested a tendency of over-accumulation that emerged towards the later stages of the transnationalisation of capitalism and fuelled the inflation of the US housing bubble, of which collapse in turn triggered the Great Recession. There are indications that the financial turbulences related to the Great Recession represent push factors that underpinned shifting investment patterns towards natural assets, especially towards land assets. The historical account of financialisation given above supports the 'holistic' theory of financialisation, since the process of transnationalisation of operations of capital is treated as the continuous element that underpins financialisation as part of a deeply rooted re-organisation of capitalist relations that also and especially concerns 'productive' enterprises and modes of investment.

However, a number of important limitations have to be added to these answers. The historical con-textualisation has been made in a highly schematic and simplified manner and does not represent empirical proof of the existence of an over-accumulation tendency/crisis. A clear and empirically solid causal relation between an over-accumulation tendency or the Great Recession on the one hand and the global 'land rush' on the other could not be presented. And, finally, the discovered coherence of the holistic theory of financialisation and the historical contextualisation is of circular nature, since both analytical steps follow a certain deductive and self-affirming methodology. The attempt to link the financialisation of nature and economic crisis and to trace assumed macro-eco-nomic developments in concrete fields of economic development has exemplified the problematic mismatch between micro- and macro analysis rather than overcoming it.

6. Conclusion

This paper contributed to the academic discourse on Green Capitalism on the background of the current dynamic phase of economic and political restructuring after the Great Recession. The underlying research interest was to provide an adequately „complex conceptualization […] of therelationship between rupture and continuity in the current multiple crisis" in order to make sense of „the relative political and social stability in the core countries of global capitalism despite current macroeconomic turbulence" (Brand & Wissen 2012, p. 548). The question how the 'financialisation of nature' is connected to the broader historical process of financialisation and the 'economic crisis' has been used as an example to analyse how both economic restabilisation and new potentials for crisis emergence from the Great Recession. The quantitative and qualitative change in farmland investment since 2007, commonly referred to as 'Land Grabbing', was the primary object of investigation. In a narrower sense, the research question was how the current process of financialisation of farmland unfolds and if it can be related to the Great Recession and its underlying crisis mechanisms. The question behind was if the macro-economic element of the Green Capitalism hypothesis, which states that the economisation (and financialisation) of nature represents a sustaining capitalist attempt to deal with the current multiple crisis, can be supported in the analysis of farm-land investment and its relation to the historical process of financialisation.

Chapter 2 contextualised the research question in the academic debate and explained the linkage between the concepts of Green Capitalism, Social-Ecological Transformation, financialisation of na-ture and the economic crisis. It became clear that both micro-oriented, descriptive and macro-ori-ented, deductive concepts have to be employed in order to answer the research question. The connection of rather descriptive and rather macro-economic oriented approaches and the closer determination of the 'economic crisis' respective the phenomenon of over-accumulation and its relation to the global 'land rush' has been considered as a key aim of the paper.

Chapter 3 offered a 'holistic' theory of financialisation that underlined the unity of financial and productive aspects in the operation of capital, of which articulation has shifted in the course of financialisation. Financialisation has been described in a first step as the increasing weight of 'the financial' within the unity of financial and non-financial dimensions of capital (referred to as 'interior financialisation'), in a second step as the translation of price and income developments of existing assets into own-standing investment vehicles (referred to 'second-order' forms of commodi-fication of capital).

Chapter 4 approached the phenomenon of financialisation of nature at the example of farmland investment in a descriptive manner in order to answer the first part of the research question. It could be shown that both aspects of financialisation ('interior financialisation' and 'second-order' forms of commodification) can be observed in the field of farmland investment since 2007. In addition, the argument has been made that the financialisation of farmland neither implies a break with the historical process of financialisation in the form of a 'return to the real', nor the continua-tion of financialisation understood as the consolidation of a 'neo-rentier economy'. With reference to recent doubts regarding the long-term profitability of the financialisation of farmland it has been argued that he continuity of financialisation precisely consists in the unfolding and expansion of a specific capitalization dynamic that reproduces certain contradictions and potentials for crisis, which in turn lead to shifting investment patterns and strategies of re-stabilization.

Chapter 5 attempted to trace the Great Recession and an underlying tendency of over-accumulation as drivers of the financialisation of nature. Indeed, the schematic historical contextualization provided hints for the existence of an over-accumulation tendency that developed in the 1990s and affected the inflation of the US housing bubble, which in turn triggered the Great Recession. A few indications for push-factors related to the Great Recession that motivated or necessitated shifting investment strategies towards land assets could be listed. However, the demonstration of both an over-accumulation tendency and its linkage to farmland investment remained on a general and empirically insufficient level. On a theoretical level, the historical contextualization supported the characterization of financialisation as a deeply rooted and sustaining reconfiguration of capitalism that has been elaborated on in Chapter 3.

The research question and the underlying research interest can be addressed as follows. Financial-isation as a long-term shift and deeply rooted re-configuration of the operation of transnationalis-ing capital(ism) increasingly penetrates new fields of investment, especially since the outbreak of the Great Recession in 2007. The economization of nature and nature-related assets constitutes an emerging investment frontier of global capitalism. Comparable to earlier waves of financialisation in other fields, the functional role the price and income development of land property titles and shares of agricultural operators acquire in the operation of capital is shifting, with the creation of derivatives that derive their price from future earning capacities of underlying land assets as the most recent expression of this. The process of financialisation is part of a fundamental process of transnationalisation of ownership, investment and production that both contributed to and lifted the profitability crisis of the 1970s and contributed to the recovery of capital profitability in the 1980s. As an inherent element of the transnationalisation of production, over-capacities developed in the industrialized peripheral countries in the 1990s and contributed to an over-accumulation tendency and the inflation of asset price bubbles in the 2000s. Indices exist that the Great Recession proliferated the increase in farmland investment; in this way, the financialisation of nature is linked to the 'economic crisis', which exists/existed in the subtitle form of an over-accumulation tendency and the concrete form of the Great Recession.

Though financialisation as an economic process and neoliberalism as a political ideology surely have suffered economically or politically in the Great Recession, the field of farmland investment and the phenomenon of financialisation of nature demonstrate impressively that policies and economic strategies of marketization and financialisation continue in an unbroken fashion, though partly un-der an ecological agenda. Certainly, the Great Recession represented a serious disturbance in the Post-Fordist growth path and is part of a deeper rooted crisis dynamic that has developed since the 1990s and that has not come to an end yet. However, as the example of financialisation of nature suggests, this disturbance does not translate into a rupture from the fundamental process of transnationalisation and financialisation that characterizes capitalism since the 1970s. Though neoliberalism as the ideological 'operating system' in the background may in the future or already does give way to another hegemonic narrative, the transnationalising and financializing dynamic is likely to sustain, also due to its solidification in the imperial mode of living (Brand & Wissen, 2014). As the vivid creation of new investment organizations and vehicles in the field of farmland investment since 2007 exemplified, the economic crisis situation provides the background for multifaceted processes of restructuring and re-stabilization.

It has to be underlined that the strong emphasis on the continuity of financialisation does not imply that the contradictions and crisis tendencies of contemporary capitalism can be resolved easily or that Green Capitalism depicts an ideologically generalizable and economically coherent mode of development. The persistence of financialisation (and transnationalisation) can as well lead to in-creasing tensions and most certainly deepens the multiple crisis in the long run. The assumption that the elements of continuity dominate in the "relationship between rupture and continuity in the current multiple crisis" (Brand & Wissen 2012, p. 548) implies in the first place that ruptures and non-capitalist paths of Social Ecological Transformation depend on the contingent outcome of societal contestations rather than on economic necessities.

Addressing the limitations of the paper, it must be noted that the focus on macro-economic, structural aspects went to the expense of discourse- and actor oriented levels of analysis. In order to draw more concrete conclusions for the analysed transformation process towards Green Capitalism it would be necessary to analyse which constellations of actors are involved in what kind of transition strategies. In general, the linkage between economic, political and discursive processes that are crucial in their interaction in order to understand the current, dynamic phase of re-struc-turing after the Great Recession, could not be elaborated on within the scope of the paper.

Also the macro-economic analysis itself remained on a general level. In order to deepen the descriptive aspect of the analysis it would be necessary to draw on or undertake concrete case studies on how the investment strategies of financial market actors, agricultural traders or agricultural op-erators are changing. In order to deepen the causal-analytical aspect of the analysis it would be necessary to draw more exhaustively on data of existing data-bases in order to analyse the alleged correlation between shrinking (or decelerating) investment in urban real estate and rising (or ac-celerating) investment in land. The assumed over-accumulation tendency that became manifest in the 1990s is to be analysed in greater detail via referring to balance sheets of corporations or ca-pacity utilization rates. It must be underlined that the alleged development of the profit rate (re-spective its recovery since 1982 in the case of the US) is highly controversial (see Basu and Vasude-van, 2013). A theoretical recourse on what role the development of the profit rate and the concept of over-accumulation play in the ranks of Marxian crisis theory could not be delivered, too (see Sablowski, 2003).

Further research could take up the mentioned limitations and deepen the descriptive or the causal-analytical aspect of the macro-economic view on Green Capitalism or link this view to actor-ori-ented levels of analysis. Also the process of Social-Ecological Transformation was neglected in this paper. In order to fill this gap, both resistance and possible transformation paths that roll back the current mode of economization and financialisation of nature could be considered.

7. Table of figures

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Statutory Declaration

I hereby formally declare that I have written the submitted dissertation entirely by myself without anyone else's assistance. Where ever I have drawn on literature or other sources, either in direct quotes, or in paraphrasing such material, I have given the reference to the original author or authors and to the source where it appeared.

I am aware that the use of quotations, or of close paraphrasing, from books, magazines, newspapers, the internet or other sources, which are not marked as such, will be considered as an attempt at deception, and that the thesis will be graded with a fail.

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