

Financialisation of Natural Resources: A Marxist Approach

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Abstract

The financialisation of natural resources has recently come to the fore in both academic and NGO circles with the food price crisis of 2008 and its implications for the poor across the globe. In addition, the perverse implications of the creation of markets for the right to pollute such as Kyoto carbon trading in increasing environmental degradation and exacerbating inequalities between the developed and developing world have been recognised. This paper aims to develop a systemic and structural understanding of the financialisation of natural resources so as to identify key areas for policy intervention. We take a Marxist perspective to unravel and specify the nature of financialisation of natural resources and its location within the dynamics of contemporary capitalism. In addition, we explore the specific instruments and mechanisms by which the financialisation of natural resources take place so as to identify and specify a number of implications of the financialisation of natural resources and suggest avenues for policy.

Introduction

The collapse of the Bretton Woods Agreement in 1973 unleashed the forces that would drive the capital restructuring that we have seen in the last three decades. This has involved the expansion of markets in general through processes of privatization of activities and capital assets that were previously under state control, as well as the deregulation of financial markets and institutions. Financial activities have spread into several new economic sectors and areas of daily life – housing, pensions, consumption, and so on.

The financialisation of natural resources has recently come to the fore in both academic and NGO circles with the food price crisis of 2008 and its implications for the poor across the globe. In addition, the perverse implications of the creation of markets for the right to pollute such as Kyoto carbon trading in increasing environmental degradation and exacerbating inequalities between the developed and developing have been recognised. As the European sovereign debt crisis in 2011 has worsened, the discussion on the connection between natural resources sector and finance has also gained importance again as spill over from the commodities trade finance is threatening markets for raw materials. (FT, 2011)

This paper aims to develop a systemic and structural understanding of the financialisation of natural resources so as to identify key areas for policy intervention. The paper begins with a literature review of financialisation, locating it within contemporary capitalism; section 2 takes a Marxist perspective to unravel and specify the nature of financialisation of natural resources; section 3 explores the specific instruments and mechanisms by which the financialisation of natural resources have taken place; section 4 summarises a number of implications of the financialisation of natural resources and opens a way towards policy discussion.

1. Framing financialisation in contemporary capitalism

The rise in importance of finance in the global economy since the 1970s has been well documented over the last three decades (e.g. Helleiner, 1994). The term financialisation began to appear in academic literature around early 1990s. It is a complex concept but is broadly used to describe the apparent rise in finance in order to understand the increasing role of financial operations in the course of capitalism¹. Financialisation has been characterised not only in terms of massive expansion of international capital flows that followed capital account liberalisation across the developed and developing world but also the apparent unstoppable expansion of finance through the proliferation of increasingly sophisticated and numerous financial instruments since the 1970s at the expense of investment in ‘productive’ activities.² One explanation given for this is as part of the cycles inherent in capitalist accumulation (Arrighi, 1994).³

More recently, a new strand of literature has emerged around the notion of financialisation, variously understood, seeking to characterise contemporary capitalism in terms of an historical change in the nature of accumulation in the world economy towards one that has become increasingly finance-led instead of driven by the real sector (Boyer 2000; Stockhammer 2004; Epstein 2005; Stockhammer 2007).

More than the quantitative expansion of financial sectors and global financial flows, financialisation describes a process of accumulation unique to contemporary capitalism. The scale and character of financial expansion in penetrating multiple sectors of the economy that had previously been left relatively untouched by financial activities has no historical precedence (Crotty 2003; Stockhammer 2007). Financialisation can be described in its broadest sense as “the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies” (Epstein 2005, p.3). Other, more operational, definitions of financialisation include: taking financialization to entail “the Rise of the Financial or Portfolio Conception of the NFC (Non-Financial Corporations) in Financial Markets” (Crotty 2003, p.273); “the increasing activity of non-financial business on financial markets” (Stockhammer 2004, p.270); and “the rise of incomes from financial investment” (Stockhammer 2004, p.270). The seminal work by Krippner (2005) also points to the rising importance of profits coming from financial activities for non-financial corporations.

Financialisation has been seen to take place via two compatible mechanisms, namely the corporate restructuring driven by the ‘shareholder value movement’ and the massive expansion of financial investment that has occurred through the creation and proliferation of complex financial instruments. As to the first mechanisms, Stockhammer (2004), Lazonick and O’Sullivan (2000) and Crotty (2003) document a shift in power in corporate governance from

¹Arrighi (1994) used this term to analysis the transition of hegemony.

² A number of critical scholars saw this as a decoupling of finance from the ‘real’ economy as the former became increasingly dominated by short-term speculative motives divorced from the industrial finance and the needs of production, for example see Strange (1986).

³ Other authors have discussed the rise of finance without using the term financialisation such as Brenner (2003; 2004) and Chesnais (1998).

managers to shareholders that came about with the assertion of shareholder rights in the 1980s. What this meant in terms of corporate strategy was a shift, from concerns of retaining and reinvesting profits for firm growth in the long-term, to an emphasis on the short-term return on investment required by the maximisation of shareholder value. This took place through the downsizing of the firm and the distribution of a greater share of profits back to shareholders, with the use of higher dividend payments and increased value of share buy backs.

The second mechanism, the massive expansion of financial investment through the creation and proliferation of complex financial instruments, is shared by most financialisation scholars. According to Dumenil and Levy (2005) the rise in financial investments over productive one has been explained by a change in the gap between the rate of return on manufacturing investment and the rate of return on investments in financial assets. The rate of return to financial investments increased in the late 1990s owing to increasing interest rates that resulted from tight monetary policy, and to liberalisation of financial markets. In addition, the removal of interest rate ceilings on deposits encouraged banks and money market funds to invest in higher return (riskier) assets⁴ (Lazonick and O'Sullivan 2002).

In terms of the structure and behaviour of firms and industry, the rise of shareholder value and the widening gap in the rate of return between industrial and financial investment has resulted in firms on both sides of the finance/industry divide moving in favour of finance (Milberg 2007). “[T]he net worth of financial corporations rose steadily relative to the net worth of non-financial corporations...[and]...[T]raditionally non-financial firms became more like financial holding companies with a spectrum of financial services and financial investments swamping production in terms of their contribution to company revenues” (Milberg 2007, p.7).

An interesting debate exists in the literature on whether the recent rise of finance in the global economy means a new era of the rentier or a new era of finance capital. Post Keynesian scholars see the process of financialisation as driven by a new and far-reaching rentierism that, in depriving the productive capitalist of funds, causes a slow-down of accumulation across the economy (Stockhammer, 2007). Orghanzi (2008) and Palley (2007) have also emphasized the deleterious role of *rentiers* on the real capital accumulation. In contrast, or in addition as a complement, other scholars view financialisation as the outcome of a conflict between fictitious and industrial

⁴ According to Lazonick and O'Sullivan (2000) the removal of interest rate ceilings for banks led savings and loans institutions (S&L) - a type of savings banks whose assets were long-lived, low yield mortgages - to invest in higher yielding, riskier assets in order to be able to compete for household deposits. Indeed, in more general terms Rolnick (1987) argues that the removal of deposit ceilings led to an increase in high yielding and riskier investment as banks had to increase the return they earned in order to pay the higher deposit rates. In a similar vein, empirical research shows that the removal of deposit rates in developing and emerging countries has often led to riskier investments and increased bank fragilities (Serieux, 2008).

accumulation, with the former winning out over the latter⁵ (Leyshon and Thrift 2007; Blackburn 2006).

From the perspective of Marxist analysis, the ‘conflict’ between fictitious and industrial accumulations should be understood as part of the dialectical development between the credit system and industrial capital under the capitalist mode of production⁶. Under capitalism, the credit system serves production by reducing the turnover of capital. It can also undermine real capital accumulation if the system acts to appropriate surplus value rather than channel capital into productive investment and the production of surplus value. The appearance of fictitious capital in the system can therefore be, at the same time, functional and dysfunctional for real capital accumulation. This contradiction can be located within Marx’s theory of accumulation under capitalism. More precisely, it can be shown with Marx’s money circuit of capital:

$$M-C \dots P \dots C'-M'$$

The money circuit of capital expresses the self-expanding character of capitalist accumulation through the process of production (P) where money (M) and commodity (C) inputs are transformed into commodity outputs (C') through the use of labour power on other means of production. A surplus of C'-C is created by purchasing labour power below labour time. Commodity output is converted into money M' by selling on the markets. M' consists of M that can be reinvested into the same money circuit of capital, and $m = M' - M > 0$ which can be used to embark upon its own circuit of capital and/or retained as idle or stagnant money.

Two spheres of activity can be identified in the movement around the circuit of capital (as capital transforms through three forms of Money capital (M), Productive capital (P) and Commodity Capital (C)), namely the sphere of production and the sphere of circulation. For Marx, all value is added in the sphere of production, while the sphere of circulation contains the process of exchange in which the credit system plays a central role. No value is added in the sphere of circulation. It is also important to observe that money can only be transformed into capital if it performs its role as pure money (‘money as money’). Money only becomes capital when it leaves its liquidity-form as the universal equivalent of value and connects itself to a specific process of production of commodities. This circuit reflects changes in the value-form, as it first appears as money and after that as capital, with the characteristic of self-preservation and expansion of value. The credit system is pivotal in the process of money as money and money as

⁵ In Chapter 29 of Vol. 3 of the Capital Marx distinguishes real (industrial) and fictitious capital. Whereas real capital is capital actually invested in physical means of production and workers, fictitious capital broadly speaking refers to the net present value of financial assets, i.e. ideal sums of money that result from discounting streams of future payments attached to financial assets. Thus, fictitious capital is a “title to value”. It is often associated with the prices of (government) bonds or stock price which can fluctuate independently of what has happened to the money capital that was originally expended to purchase a financial asset (Lapavitsas, 2010). As a result, although fictitious capital represents “accumulated claims, legal titles, to future production” (Marx, 1981:599), its link to real accumulation can be rather tenuous. Indeed, De Brunhoff (1990) argues that fictitious capital is fictitious because capital without going through the process of exploitation cannot generate value, even though it is ultimately dependent on the generation of surplus value by the industrial capital.

⁶ On this dialectical development see Harvey (2006: chapter 9).

capital. The credit system can speed up the process of converting money in capital by promptly attending to the different demands for capital in the productive sphere. It might also interrupt (create constraints on) this process owing to its relative autonomy from the productive sphere.

In the circulation sphere, the creation of more and more complex financial and derivatives that are further and further removed from any relation with the underlying have greatly expanded the sphere of circulation, allowing the circuit of capital to bypass the interruption of production⁷. In this vein, Lee and LiPuma (2005) describe the of financialisation as the dominance of circulation over production spheres. be characterised as a systemic transformation in the capitalism and “represents a shift in balance between production and circulation that derives from changes in the forces and relations of production as well as in the institutional and legal context of accumulation.” (Lapavitsas, 2009)⁸.

This has shifted the distribution relations between different types of capital with a greater share of value going to money capital at the expense of productive capital. From this discussion on Marx’s theory of capital accumulation, it can be seen that some of the immediate consequences of financialisation, which is defined as the dominance of circulation over production, are the reduction in the profitability of productive investment and the rising in fictitious capital accumulation divorced from production with the inevitable consequence of speculative booms and eventual crashes.⁹

2. Conceptualisation of Financialisation of Natural Resources

Natural resources are resources found within the environment. But what exactly is considered a natural resource? How do we define a primary commodity? And what is the relationship between a natural resource and a primary commodity? The answers to these questions are not straight forward and often a somewhat arbitrary distinction is made between the two categories.

The World Trade Report (WTR) of 2010 define natural resources as “stocks of materials that exist in the natural environment that are both scarce and economically useful in production or consumption, either in their raw state or after a minimal amount

⁷ Data illustrating the expansion of the sphere of circulation relative to the productive sector will be included in the subsequent draft. do we mean subsequent chapter? Otherwise we should probably get rid of this....

⁹ A number of Marxist scholars including Harvey (2010) argue that the current crisis is one of accumulation where barriers against the continued expansion of production are pervasive. This has led to the movement of capital away from productive to speculative spheres. As the crisis ensues, capital continues to seek out new opportunities to expand and it does so through the deepening of financialisation based on the commodification of common goods.

of processing” (p.46). The report further distinguishes natural resource from a number of primary commodities on the basis of their exhaustibility, and non-renewable nature. The emphasis of the WTR (2010), as with analysis based on mainstream economics in general, is on the problems associated with defining property rights for natural resources and the inevitability of negative externalities arising from their exploitation which result in the inefficient allocation of resources.

The WTR (2010) further distinguishes between natural resources that are traded and those which are not. In this context, the report discusses the possibility of alleviating problems of scarcity that result in the uneven distribution of natural resources through the trade in what is currently largely untraded, e.g. water. In other words, whether something is understood as a natural resource, as distinct from a primary commodity depends upon the extent to which the resource is, or can be, enclosed and where well defined property rights can be assigned and traded.

We define natural resources as objects and phenomena of nature, as well as derived from nature (as in agricultural commodities), that exist on a continuum between pure nature (as commons) and the commodity (with well defined property rights). This definition does not rely on any arbitrary distinction between a natural resource and a commodity. In addition, it lends itself to our analysis of financialisation of natural resources, where financialisation follows, as well as facilitates, the process of commodification based on the restructuring of the relations of production/extraction/commercialization. In this way, analyses of the financialisation of different types of primary commodities can inform us on the processes and implications of the financialisation of natural resources which had not previously been marketised.

There is relatively little academic literature to date which address the financialisation of natural resources. Recent academic and NGO focus has been primarily on the role of financial speculation and commodity prices (UNCTAD 2009, WDM 2010, Gilbert 2010, UNCTAD 2011). In a similar vein, very little research exists on how financialisation affects the structure of production and distribution of physical commodities and the changing social relations that have taken place due to the integration of different parts of commodity chains with finance either directly through hedging or the promotion of a whole host of market based risk management mechanisms to farmers in the developing world.

This paper claims that in order to conceptualise the financialisation of natural resources it is necessary to pin down the importance and the place of these resources in the process of capital accumulation. By adopting a Marxist conceptualisation, we argue that the financialisation of natural resources can be understood as structural in the same way that characteristics of financialisation have been in other areas of economy. Because capital accumulation entails and happens through an organic unity of space and time in process in which there are different and parallel processes of capital accumulation happening¹⁰. Capital is the organising principle of modern society and not simply money, property or any other economic variable. In this sense, the capitalist system comprises all the other dimensions of modern economic life as political, social and cultural life, put in movement by capital. In this vein, in relation to the environment,

¹⁰ See Harvey (2006: introduction) for more details.

natural resources in particular, it can be argued that “capitalists and their agents engage in the production of second nature, the active production of its geography, in the same way as they producing everything else: as a speculative venture, more often than not with the connivance and complicity, if not active collaboration, of the state apparatus.” (Harvey 2010: 187)

In this regard, it means that the relation between human society and nature should be taken as a complex unity, being the nature or the idea of nature a social product in which natural resources are recognised as cultural, economic, technical and cultural appraisals. In this sense, “any apparent natural scarcity can in principle be mitigated, if not totally circumvented, by technological, social and cultural changes. But, it turns out, cultural forms are frequently just as fixed and problematic.” (Harvey 2010: 73) The first movement is related to the replacement of one resource by another, for example when coal is scarce or too heavily polluting it might be replaced by natural gas or hydroelectric power. On the other hand, these cultural forms and new technologies may influence the move to rare and highly localised of material inputs. Recently, this has been the case with many new electronic (‘green’ technologies) “like wind turbines, which depend upon the availability of what are called ‘rare earth metals’ with names like indium, hafnium, terbium and neodymium.” (Harvey 2010: 188)

In the last 30 years, in similar vein to other areas of daily life, capitalism has been very much about taking away the rights people had over their natural resources. In order to capture those broader changes in the system with huge social and economic implications, Harvey (2005: 159) develops the concept of accumulation by dispossession which is “the continuation and proliferation of accumulation practices which Marx had treated of as ‘primitive’ or ‘original’ during the rise of capitalism.” These practices would include, among others, processes such as the commodification and privatization of land; the conversion of various forms of property rights (common, collective, etc) into exclusive private property rights; and the neo-colonial and imperial processes of appropriation of assets, natural resources included.

Concomitantly, on the capacity of extracting revenues or resources in general and in line with the process of financialisation discussed in the previous section, Harvey (2010: 245) says that “the credit system has now become, however, the major modern lever for the extraction of wealth by finance capital from the rest of the population.”

In the last decades, due to the rising use of natural resources, these markets have started to become interesting for investment of the financial capital. This is the result of a limited supply of natural resources, which creates the possibility of capital valorisation. According to Zeller (2010), the generation of rents - income stream based on property rights - is an important element of this valorisation of natural resources. Thus, as will be

discussed in more detail below, property rights need to be extended to natural resources – a task which is taken over by the state.

Similar to the argument of accumulation by dispossession addressed by Harvey, Zeller (2010) argues that the commodification of nature can be seen as some sort of primitive accumulation, which he defines as a structural relationship between non-capitalist and capitalist processes of accumulation. Importantly, this process appears under different manifestations depending on the social relations of the time. The appropriation of natural resources by capital, both productive and financial, is one manifestation in our time.

It is possible to say that Harvey does not distinguish between the financialisation of natural resources other areas of social and economic life in terms of its logic embedded in capital accumulation. The main differences (or distinction) would be in the mechanisms through which the financialisation of natural resources operates and in their possible social consequences. In this way, it is possible to establish some similarities concerning financialisation of social reproductive assets such as housing, pension or health system, and of natural resources. The replacement of one resource to another through new technologies or cultural changes analysed above can be seen as a kind of “reproduction” of natural resources in social terms. Therefore, this paper argues that it is possible to analyse the financialisation of natural resources as part of the broader capital accumulation.

In this sense, the concept of financialisation of commodities/natural resources can be understood as the process in which finance capital, led by major financial institutions, has been *dragging* revenues/wealth from the productive capital and other parts of society through different institutional and financial mechanisms. In this process, the appropriation and exploration of natural resources are also fundamental as can be seen through key financial instruments in the next section.

As with neoliberalism and its associated policies of privatisation, the process of financialisation has been made possible through the institutions of the state¹¹. Neoliberalism can be understood as a set of policies and ideology which underpin the capitalist accumulation that is based upon the proliferation and penetration of markets into all aspects of economic and social life through privatisation, and financialisation. McDonald and Ruiters (2005) argue that privatisation of previously public provision of water, energy, health etc. is underpinned by the forces of commodification. Commodification can be understood as the “transformation of all social relations to economic relations, subsumed by the logic of the market and reduced to the crude calculus of profit” (McDonald and Ruiters 2005, p3). Similarly, the financialisation of natural

¹¹ While neoliberalism manifests as a set of policies and ideology that appear as dominant in the governance of contemporary capitalism since the 1970s, it has been argued that it should be understood I think there is something missing here.... Rather than distinct from neoliberalism, financialisation describes a particular process in the deepening of this agenda. Neoliberalism therefore underpins financialisation, but cannot be reduced to it. Rather than a distinct new phase in the structure and dynamics of capitalist accumulation, financialisation should be viewed as underpinned by, and indistinct from, the broader logic of contemporary capitalism and neoliberalism as systemically attached to developments across contemporary capitalism (SaadFilho and Johnston 2005; Fine and Hall 2010)

resources has been based upon heavy involvement of the state in the creation of property rights and market regulation. This will be discussed further in the next section.

In the case of ecosystem services markets, of which carbon markets are the most prominent, state and interstate agencies have been central in the commodification of the right to pollute, i.e. the transformation of unemitted carbon into a scarce, ownable asset that can be distributed among a worldwide grid of proprietors including nation states, companies, communities and individuals; produce the new commodities and stimulate accumulation; and sustain and govern trading systems. (Lohman, 2011)

3. Mechanisms of Financialisation applied to natural resources

Several mechanisms have contributed to the financialisation of natural resources. These mechanisms are broadly divided into (1) changes in physical markets; (2) developments on financial markets; (3) operations by the state.

3.1. Changes in physical markets

Several authors argue that the increased demand on natural resources in the course of continued capitalist accumulation plays a crucial role for the financialisation of natural resources (e.g. Zeller, 2010). The continued capitalist development in the core and its demand on natural resources has been supplemented by an increased incorporation of developing and emerging countries into the capitalist system whose growth demand and late industrialisation poses an increasing demand on finite natural resources. In addition to the increasing demand, capitalist development poses a strain on natural resources through “negative” side effect, such as pollution (e.g. water, air etc.). The increased demand through capitalist accumulation and reduced supply through its negative side effects leads to an (expected) increased scarcity of natural resources. As argued above, this (expected) increased scarcity in turn – and thus its expected increased in value, or price – is an important contributor to the financialisation of natural resources as finance capital “speculates” on this increase in value, i.e. its valorisation. For example, given the continuing urbanization in Asia (and other regions) the Chinese government estimates that the demand for water will rise by 120% in the next 25 years. This expected scarcity, in turn, exerts upward pressure on the price of water on which financial actors can speculate. Related to this, Labban (2010) argues in his critique of the “peak-oil” debate that the increased operations of financial actors in commodity markets make the link between the circulation and the production sphere increasingly tenuous. According to the “peak-oil” argument global production will fall – and thus prices rise – due to imminent resource constraints. However, in the financialisation view adopted in this paper, rising prices are largely the result of financial actors speculating on future price movements, which can – but don't have to be related – to (expected) scarcity in commodities. In this context, Wray (2008) also argues that if the peak-oil argument was correct prices should rise gradually rather than in the abrupt fashion which we have observed over recent years.

As will be discussed in more detail below, beyond the finite availability of resources, scarcity is fundamentally related to the institutional creation of private property rights. This is particularly

evident in the case of the carbon market and the creation of tradable emissions rights within the framework of the Kyoto Protocol of 1997 for the reduction of CO2 emissions.

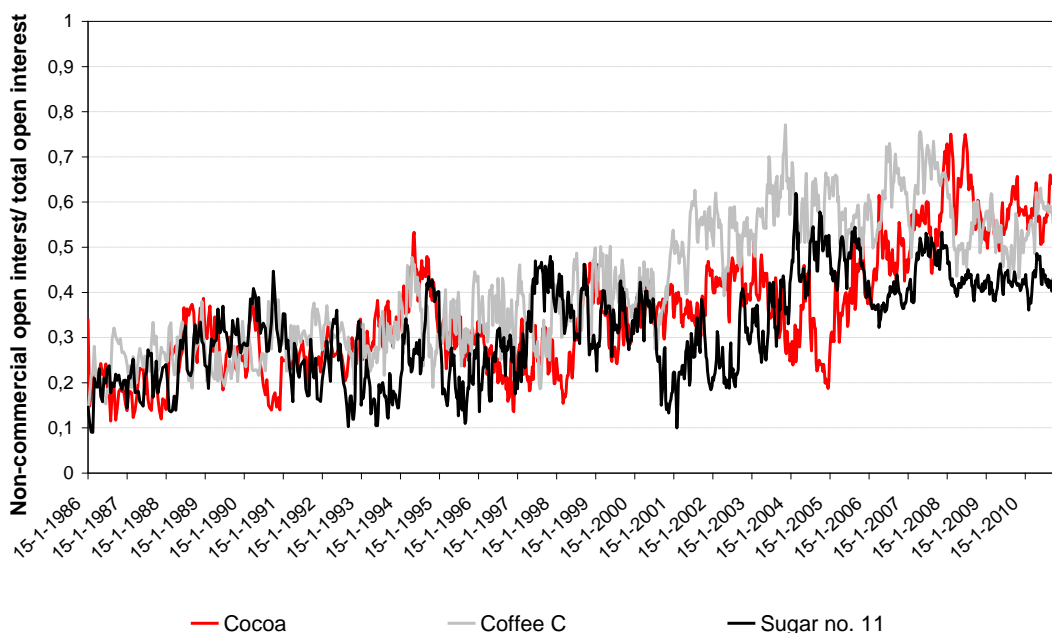
3.2. Changes in financial markets

These changes on physical markets were complemented (and indeed exacerbated) by changes on financial markets. As outlined above, financial markets have expanded drastically over recent years with an increasing number of actors looking for more and more areas of applications with increasingly complex financial instruments. These changes can be divided into (1) changes in the nature and operations of the actors in those markets; and (2) changes in the instruments used¹².

3.2.1. Changes in Actors

A first manifestation, but also mechanism of financialisation is the increased presence of financial operators in commodity and natural resource markets. One indicator of the increased participation of financial, speculative, actors is the evolution of speculative trading in futures contracts provided by the New York Mercantile Exchange.

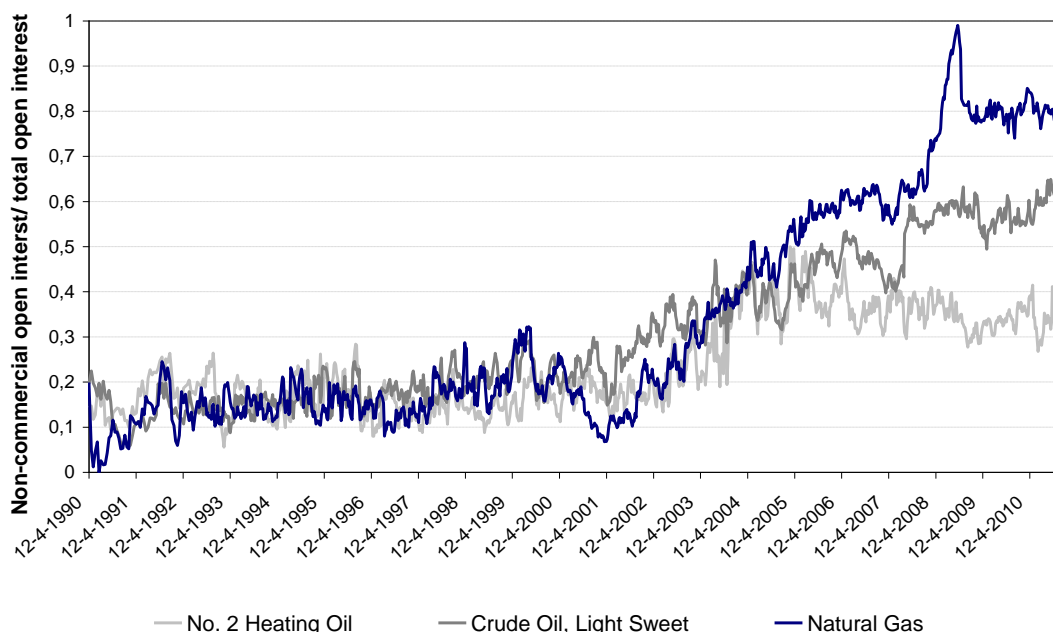
Figure 1. Evolution of speculative trading of a number of commodity futures contracts on the Chicago Board of Trade, ICE futures exchange in New York, and the New York Mercantile Exchange¹³



Source: CFTC 2011

¹² This division broadly follows Hardie (2007).

¹³ It should be noted that we have used the ratio of non-commercial to total open interest as an indication of speculative activities. This measure will tend to underestimate the level of speculative trading in the market. A better measure might be the ratio of the volume equivalent of contracts traded to total supply of the physical commodity.



Source: CFTC 2011

Another indicator of the rising importance of commodities and natural resources for international financial markets is the share of commodity derivatives of total derivatives traded. Between 2004 and 2007 the gross value of commodity derivatives traded on over-the-counter (OTC) markets increased from US\$ 176 billion to US\$ 690 billion, which represents an increase in the relative share from 2.8% to 6.2% (BIS, 2007).

Table 1 gives an overview of the main types of financial operators and their trading strategies in commodity/natural resource markets.

Table 1. Summary of distinguishing features for the three main types of investment vehicles active on international commodity exchanges

Investment Vehicle	Trading strategy	Market conditions conducive to trading	Time frame	Net position in futures market
Commodity trading advisors / Specialised financial traders in commodity markets	Seek to exploit arbitrage opportunities that arise as a consequence of commercial investors seeking to hedge their production or consumption in futures markets. Arbitrage trades typically involve taking long or short position in forward markets for specific commodities and offsetting positions in spot markets.	Thin or less liquid markets	Medium /short-term	Neither net-long nor net short

Index funds	<p>Index funds buy a forward position, then sell this as it approaches expiry, and use the proceeds from this sale to buy forward by one or two months again. A process known as “rolling”</p> <p>The rolling of futures positions can result in a profit or loss for these funds depending on the structure of the forward curve at the time. If the market is in backwardation (forward price lower than spot) index funds earn a positive ‘roll return’, if the market is in contango (forward price higher than spot), the roll yield is negative.</p> <p>Index funds are particularly attractive to longer-term institutional investors such as pension funds as a diversifying asset since commodity prices move in line with inflation, but are not positively correlated with the price of equities.</p>	<p>Positively trended commodity prices.</p> <p>Futures market in backwardation.</p>	<p>Long term</p> <p>Typically two years</p>	<p>Long-only positions</p>
Hedgefunds	<p>The distinguishing factor of a typical hedge fund trading commodities are its ability to sell short (to bet on falls in the market and profit from them).</p> <p>Hedge funds buy or sell at any price position along the forward curve based on fundamental views.</p> <p>Of the funds in commodities markets, an estimated 80% are looking for higher-than-market-following returns (alpha). Only 20% of hedge fund money is likely to be looking for the market-following returns typically offered by indices (beta). The alpha money is short term and will quickly move into and out of the market. (Doyle, Hill and Jack 2007)</p>	<p>Liquid markets</p> <p>Volatile prices</p>	<p>Short-term</p>	<p>Net-short</p>
<p>Synthetic Commodity Exchange Traded Funds</p>	<p>Traded on stock exchanges</p> <p>Intraday trades possible</p> <p>Can sell short and therefore benefit from falling prices in the same way as hedge funds.</p> <p>Commodity ETFs were traditionally index funds and passively managed.</p> <p>A small number of ETFs are also actively managed in an attempt to earn higher returns than passively tracking the return on an asset.</p>	<p>Positively trended commodity prices.</p> <p>Futures market in backwardation for passively managed funds.</p> <p>Actively managed funds can also benefit from volatile and falling prices.</p>	<p>Can be either long term as in index funds, or short-term as in hedge funds</p>	<p>Depends on the conditions in the market and whether the fund is actively or passively managed</p>

The increased presence of financial players on commodity and natural resource markets is not only a characteristic of financialisation but has also exacerbated this process. Heterogeneous players with different trading strategies act as counterparties to each other, thus providing liquidity and stimulating further trading. For example, more long-term oriented index fund might provide liquidity to hedge funds who are aiming to quickly divest themselves of positions in a certain market.

The increased presence of different financial investors in commodities and natural resources has also implied that these assets have become general portfolio assets. This implies that commodities/natural resources might not only be held to speculate on price developments in commodities themselves but hedge financial institutions' positions in other assets. In a similar vein, financial operators might trade commodities as a "proxy" for other, less liquid asset classes. For example, emerging market currencies and commodities have been increasingly traded as similar – risky – asset classes. However, very often positions in emerging market currencies might lack liquidity, which means that these strategies are "overlaid" or "hedged" with a liquid commodity class. Both strategies have crucial implications for price dynamics, which might become entirely unrelated to development or even price expectations in commodity markets.

Commodity/Natural resource markets have not only seen a considerable expansion in financial operators, but also physical players have become increasingly involved in financial/speculative operations. With the notable exception of Milberg (2008), Palpacuer (2008), and Newman (2009a and 2009b) there has been very little work published on the financialisation of transnational corporations and global supply chains. Physical commodity traders have increased their volume of derivatives trading for hedging as well as speculative purposes. Newman (2009b) finds that commodity trading firms have also become financialised. More and more trading companies resemble financial holding companies with a spectrum of financial services and financial investments. The proportion of company revenues coming from such financial investments has been growing with respect to revenues derived directly from the trading of the physical commodity. Commodity trading companies have increasingly placed "risk management" at the centre of their core competencies, referring to in-house research departments and futures brokerages that cater for traders of physical commodities as well as financial investors looking to diversify their portfolios. The shift towards greater financial activity of commodity trade houses has reinforced the level of industrial concentration.¹⁴ Newman (2009)

¹⁴ Large lot sizes on commodity futures exchanges and the potential losses associated with adverse changes in the futures price prevent smaller trading companies from engaging in these types of financial activities. In a way, this is a continuation of a trend observed by Clairmonte and Cavanagh (1988), who shows that the industry has been characterised by a smaller number of operators, each with larger balance sheets. In addition, there has been a

also finds that transnational commodity trading companies have increasingly engaged on speculative hedging. Speculative hedging, in contrast to routine hedging associated purely with the mitigation of price risks associated with physical trading of commodities, requires that the hedger takes a position in the market based on his anticipation of how prices will evolve in the future. Derivatives trading by, so called, hedgers and financial investors have become increasingly similar in terms of the techniques employed in analysing the market and the motivations behind their trades. This is evident from the increasing transfer of personnel between trading houses and fund managers.

3.2.2. Instruments

Probably the main factor which contributed to the financialisation of natural resources/commodities was the proliferation of sophisticated financial instruments which helped at turning physical commodities into tradable assets. Financial instruments standardized and homogenised physical assets and made them liquid for them to be traded on international financial markets. In the case of commodities/natural resources these financial instruments aimed at securitising the expected future physical output of the project/company – and not simply the expected cash flows as would be in traditional project financing – by issuing securities which are tradable on financial markets.

As hinted at above, by far the most important financial instrument for the financialisation of (not only) commodities/natural resources has been financial derivatives. Indeed, a number of authors have noted the central role of derivatives in the process of securitization as a key instrument of financialisation (Bryan and Rafferty, 2005; LiPuma and Lee Year, 2005) that promote short-term investment that “short-circuit flows of production and trade, garnering an immediate profit at the expense of what might have been long-term social surplus” (Blackburn 2006, p.67) and dramatically expanded the scope and extent of this financialised or fictitious accumulation (Leyshon and Thrift, 2007).

Derivatives “liquefy” underlying real assets and make them widely tradable. According to Kaldor (1939) for a good to be suitable for speculative operations, it has to have two properties: low carrying costs and a “perfect or semi-perfect” market in the sense of perfect marketability. These properties, in turn, require that a good has to be perfectly durable and its value has to be high in proportion to bulk. In addition, the good must be capable of full standardisation and an article of general demand. While these conditions are not given by the underlying physical assets, the use of derivatives can create these conditions.

Furthermore, derivatives seemingly allowed converting pervasive uncertainty in international financial markets in manageable and reducible risk. Unlike uncertainty, risk is on average knowable and can be assigned a stochastic probability function. These theoretical probability

transition from single-line commodity traders into multi-commodity traders. In addition, and something which could be seen as an early element of financialisation, trading houses have increasingly forged links with transnational financial institutions or were acquired by large financial houses.

functions could then be repackaged into a one-dimensional structure of spreads above conventional benchmark prices and traded according to the risk preferences of financial investors. For this, the development of derivatives markets was essential: by breaking down risks into their generic parts, derivatives enable investors to decide which type of risk they wish to assume and to what degree (Aglietta and Breton 2001: 439). Thus, the new derivatives products were created largely by disentangling from their previous contexts uncertainties (ranging from credit risk to default risk) “so that they could be quantified, sliced, diced, liquefied and circulated around the world as independent, fully fledged commodities” (Lohman, 2011: 88). LiPuma and Lee (2005) also refer to this process as “objectification of abstract risk”¹⁵.

Finally, derivatives have been crucial for financial investors to be able to expand their balance sheets more generally through allowing them to hedge their exposure on other markets.

A second main instrument on commodity/natural resource markets are commodity indices. As discussed above, commodity index funds can be a type of investor. Alternatively, commodity indices can be used as financial instruments by a wide range of financial operators, such as banks and hedge funds.

In very general terms, commodity/natural resource indices pool several commodities/natural resources into one financial instrument. They represent a composite of future contracts based on a broad range of commodities. Financial investors gain exposure in commodity indexes by entering into bilateral financial agreement, usually a swap, with a bank or another large financial institution. The investor purchases part in a commodity index from the bank, and the bank in turn hedges its exposure resulting from the swap agreement through futures contracts on a commodity exchange. As outlined above, financial investment in commodity indexes involve only “long” positions (i.e. pledges to buy commodities) (UNCTAD, 2011).

This “buy-only” strategy of index funds has led several authors to argue that these instruments contribute to the large price swings experienced in commodity markets experienced over recent years. In addition, the prices of seemingly unrelated commodities have become increasingly correlated (Tang and Xiong, 2010).

In addition to exacerbating price trends and increasingly synchronizing the price movements of apparently unrelated commodities, it can be argued that commodity indices also contributed to the financialisation of commodities/natural resources. By bundling different commodities into one asset class, commodity indices convey the notion that commodities have a unique risk premium and present a homogenous asset class. This, in turn, facilitates the risk-return assessment of commodity/natural resource instruments beyond the individual informed investor and makes them accessible to a wide range of different investors. Moreover, it considerably

¹⁵ A similar process could be observed through the use of similar investment models, such as Black-Scholes, by a wide range of financial market participants. These models helped expand financial markets by offering a streamlined, academically-sanctioned way of calculating prices for uncertainty (Bryan and Rafferty, 2005).

lowers the amount of resources investors have to invest in gathering information about the characteristics of specific commodities – again facilitating the investment/trading process. For example, Lohman (2011: 88) argues for the case of carbon markets:

“Just as mortgaged backed securities concealed from distant buyers and sellers the economic realities bearing on lower income neighbourhoods in Detroit or Phoenix, so too such financialised carbon-commodity packages, with their even longer value-chains, conceal the heterogeneous climatic and social impacts and conditions of assemblages of say, hydroelectric projects in India, cookstove projects in Honduras, or schemes burning off methane from coal mines in China and industrial pig farms in Mexico”. He goes on to argue “Integrated into index funds, carbon could come under the influence of speculative activity in other sectors, while also affecting food prices and thus subsistence”

The other two main asset class with which derivatives are traded are exchange traded products and structured products. In simple terms, exchange traded products, either in the form of funds or notes, are traded on equity markets and replicate either the return on a single commodity or track entire commodity groups (UNCTAD, 2011). Without entering too much into the technical details of these instruments, it is important to point out that exchange traded products are traded on equity markets. This, in turn, makes them easier available to smaller investors and more widely tradable as countries are more likely to have an equity exchange than a derivatives market. Finally, commodities and natural resources are traded in the form of structured products in over-the-counter markets which emerged in 2006. These products combine an underlying asset with a derivative which aims at protecting the capital whilst taking the advantage of the price trend (UNCTAD, 2011).

The introduction of commodity exchange traded funds (ETFs) has further increased the scope for financial investment in commodities.ETFs are investment vehicles that are listed on stock exchanges and can there for be traded intraday. Commodity ETFs are backed by either physical assets or, in the case of synthetic ETFs, by derivatives of the underlying asset, and track the price of the underlying commodities. While about four-fifths of investment in commodity ETFs occurs through physical replication (e.g. buying and storing gold bars to track the spot price of gold), these are concentrated in precious metals which are easily stored - 80% of investment in physically backed ETFs is in gold (Kosev and Williams, 2011). Owing to the difficulties in storage for many commodities, ETFs tracking commodities other than precious (or base) metals are backed by derivatives of the underlying assets. Traditionally, commodity ETFs were index funds, and these still make up a large proportion of synthetic commodity ETFs (see figure 3). Both energy and agricultural products make up a large share of synthetic commodity ETFs. The further extension of ETFs into natural resource, where the underlying asset defies physical trade (e.g. water and carbon) is likely to take the form of synthetic ETFs.

While the trade of synthetic ETFs do not require the holding of physical commodities, spot prices are likely to be affected by increasing financial investment activities owing to the price discovery role of derivatives markets and hedging strategies used by physical traders that cement the relationship between futures and physical prices. (see for example Newman 2009 and Gilbert 2010)

Figure 2. Physical commodity ETFs (From: Kosev and Williams 2011)

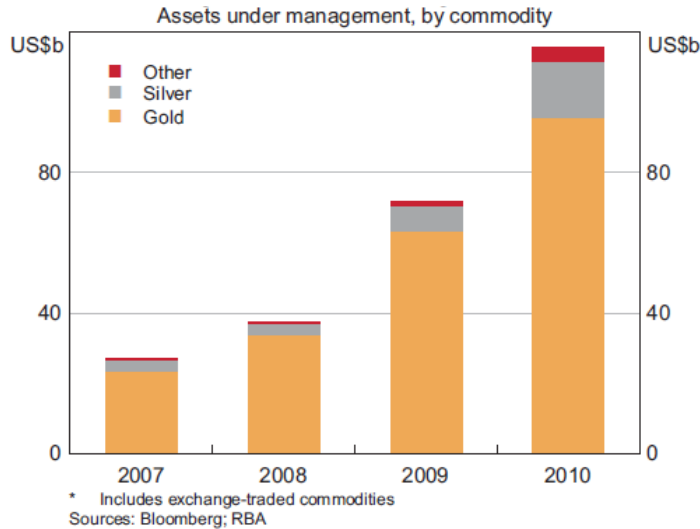
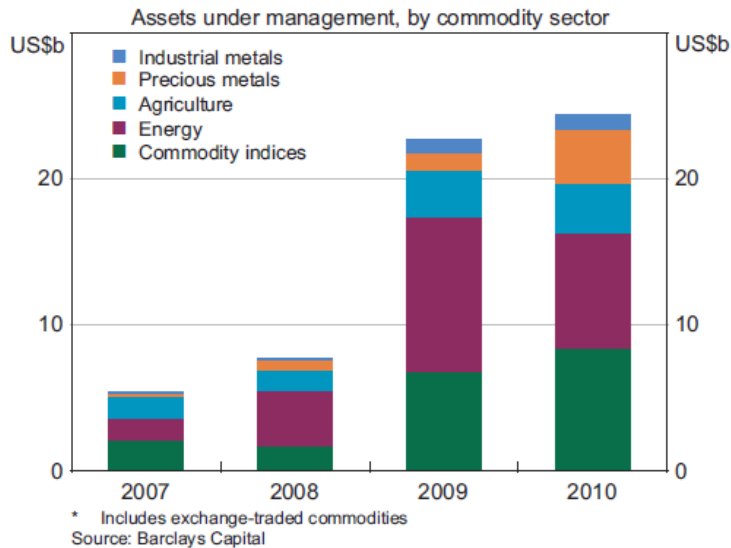


Figure 3. Synthetic commodity ETFs (From: Kosev and Williams 2011)



3.2.3. The State

However, the financialisation of commodities/natural resources has not happened in a vacuum. The operations by nation states have played a crucial role in promulgating the financialisation of

commodities and natural resources. On the one hand, we have seen a massive retreat of the state and increased prominence of the market in large parts of society. Liberalization, deregulation and privatizations have caused a massive expansion of the market and indeed of finance. For example, the financialisation of a number of agricultural commodities and natural resources has been enabled by the removal of state-owned enterprises or parastatals and domestic market liberalisation under structural adjustment. At the global level, the collapse of a number of multilateral price stabilisation agreements for commodities also opened up these markets to increased speculation and volatility.

On the other hand, the state has been an active supporter of financialisation through selective regulation, increased intervention in some aspects of the economy and a tighter relationship between state and the private sector. This is most evident in the privatisation of public utilities across the industrialised and developing world through Public Private Partnerships and other forms of state-private sector relationships with the state serving to enable the operation of private corporations in the provision of water, electricity etc. (McDonald and Ruiters, 2005). In the same vein, the adoption of neoliberal macroeconomic frameworks focussing solely on price stability under open capital and trade accounts in developing countries, reflect the shift in the balance of power between the state and private capital across developing countries. Macro policy has been formulated so as to serve dominant sections of domestic, and international, capital at the expense of industrial development and employment (Ashman, Fine and Newman, 2010).

Similarly, financialisation has seen the increased role of the state in the creation, maintenance and regulation of markets for complex financial derivatives and commodity derivatives. Lohman (2011) argues that derivatives, and indeed also carbon markets, are both underpinned by an especially close state-corporate relationship. The intangible commodities that both markets trade in depend for their existence on regulation. For example, the explosive growth of trade in complex derivatives owes a great deal to the setting up of exchanges, where commodity derivatives can be traded in an orderly and homogenous fashion, to legislation that removes interest rate caps, allows banks to use derivatives to offload loan risk, accepts banks' own mathematical models as a way of calculating risk etc. In a similar vein, Wray (2008) argues that the Commodity Futures Trading Commission (CFTC) is partly responsible for encouraging financial investments into commodities futures when it actively promoted the notion that commodity futures should be seen as an asset class and an important instrument for portfolio diversification (even as late as 2007 when it was clear that the commodity price boom was under way!).

However, the state played another important role for the financialisation of commodities, particularly in the case of natural resources. As outlined above, an important element of the commodification of natural resources is the existence of private property rights. Only if clear rights of properties exist, natural resources can be traded as commodities. This commodification, in turn, is a precondition of financialisation. Financial contracts are written on an underlying

commodity. It is, however, the responsibility of the state to guarantee and secure these private property rights, if necessary with violence. As such, Zeller (2010) argues that even the most advanced and intricate financial instruments ultimately rely on the existence of private property rights over territories/natural resources. In this sense, the enforcement of capitalist property rights – by the state – is a precondition for the commodification and financialisation of natural resources.

At the same time, Lohman (2011) argues that in derivatives, and in particular in carbon markets, the state is highly dependent on private sector judgments about how products should be regulated, and highly vulnerable to private sector lobbying regarding commodity design. This is particularly evident in the continuing importance of private rating agencies.

3.3. The financialisation of “virtual” commodities - Carbon Commodities

A particular, theoretical, challenge is posed by carbon markets. Whereas in the case of other natural resources physical commodities are actually present – and the state issues property rights on them – in the case of carbon markets the commodity is created by the state. However tenuous the relationship, the value/price of commodity derivatives are seen to be derived from the value/price of the underlying asset which itself has a market and can be traded on the spot. By contrast, new derivatives based on ‘nature’, e.g. weather derivatives, the carbon market for pollution, have no tangible underlying asset. Thus we experience a commodification and marketization of nature beyond physical commodities.

However, markets require scarcity. In the case of carbon markets, scarcity is created by the state itself. Thus, according to Lohman, the distinction between the state and private simply disappears.

In addition, in contrast to other natural resources, in the case of carbon emission rights production process rather than territorial ownership again enters the capitalists’ interest (Zeller, 2010). One particularly important aspect of property rights is that of territorial control, acquired if necessary with the means of violence. Indeed, the appropriation of nature and natural resources has always been an essential feature of capitalism as discussed in section 2. For example, Zeller (2008; 2010) argues that only through their access to petrol sources and mineral commodities in the Middle-East, Africa and South America – often acquired through economic or political pressure - could the globally operating European and American commodity-groups build their dominance on the demand side of the trade. Indeed, even behind the most complex financial instrument ultimately stands the ownership of territorial property rights. In this vein, Serfati (2004) argues that the geopolitical strategies to gain access to natural and energy resources are closely linked to the rise of finance-capital.

However, like the new derivatives, carbon commodities work through a process of radical radical disembodiment – in this case disembodiment of the climate issue from the historical question of how to organize for structural, long-term change capable of keeping remaining fossil fuels in the ground. Thus, just as complex derivatives markets lost touch with what they were advertised as being about (the provision of certainty), carbon markets have taken the climate issue and decontextualized, reengineered, and mathematized it until little of relevance to global warming is left (Lohman 2011: 88).

4. Some Implications of the Financialisation of Natural Resources

As discussed above, the financialisation of natural resources is part of a broader process of financialisation as a central characteristic of contemporary capitalism. Financialisation in general has a number of important implications including the tendency towards widening income and asset inequality, preference for short-term speculative over longer-term investments, a shift in the relations between the state and capital in favour of the latter, a move towards greater conservatism in economic and social policies that favour private capital and worsen conditions for ordinary people and the poor.

The effects of the financialisation of natural resources have uneven implications for producers, traders and consumers of the resources and vary across the resource in question. The most obvious impact of the financialisation of natural resources is that of the dislocation of commodity prices from the supply and demand of the underlying commodity. Commodity prices have increasingly been driven by portfolio choices by investors, reflecting broader global economic conditions. This was most clearly seen in the food price crisis of 2008 when an asset bubble appeared in commodity markets as investors shifted funds from falling equities towards commodities. (Ghosh, 2010)

In addition, the financialisation of commodity markets has seen the exacerbation of price volatility with serious implications for producers in general, and small scale producers of agricultural commodities in particular. Smallholder coffee farmers in Tanzania and Uganda, for example, face new challenges associated with price volatility at the international level resulting from the collapse of multilateral price stabilization schemes, liberalization of domestic marketing systems and increased speculation on international commodity exchanges (Bargawi and Newman, 2009).

Increased vulnerability of small holder farmers in an environment of increased volatility has been well recognized by the World Bank whose approach to the problem is to encourage the use of hedging instruments, namely futures and options contracts, the very instruments for the financialisation of commodities. The use of hedging instruments by smallholders comes with a number of practical challenges including the financing of margin calls, and the size of exchange traded futures and options contracts compared with production volumes. While these challenges can be partially dealt with through the introduction of special derivatives instruments and the organization of smallholders into cooperatives or consortiums, for example, this strategy fails to

address the challenge of producers' bargaining positions in relation to multinational commodity trading companies. Moreover, dealing with short-term vulnerabilities associated with volatile prices through the wholesale use of hedging instruments can itself produce new vulnerabilities to producers in the longer term. Breger-Bush (2010) argues that the use of hedging instruments by farmers can potentially lead to a situation of oversupply as the protection afforded by hedging boosts their incentives to increase output following a process along the lines of the 'tragedy of the commons' as described by Keynes.¹⁶

The financialisation of commodities has also increased industrial concentration at the international trader level of commodity chains with an associated rise in, what Gibbon and Ponte (2005) describe as, 'trader drivenness' where the structure, operations and distribution of surpluses along commodity chains are governed by international commodity trading companies (Gibbon and Ponte 2005; Newman, 2009). While this concentration was initially driven by the erosion of marketing margins associated with improvements in communications technology, it was further consolidated as the need to engage in derivatives markets became precedent. Small to medium traders were simply wiped out of the market when the market moves suddenly against them, or when the financing of margin calls becomes impossible during long periods of cotango^{17, 18}.

MNCs have also become the agent of financialisation along global commodity chains. Milberg (2010) shows how the financialisation of multinational corporations have driven US offshoring and the vertical fragmentation of production processes in-order for a transfer of surplus to take place from off-shore units in favour US multinationals. Newman (2009) shows shifts in the social relations along coffee chains have been driven by the financialisation of multinational trading companies.

Lohman(2011) points to a number of serious implications of the financialisation of nature associated with its marketization under the auspices of reducing pollution and environmental preservation. As discussed above, the financialisation of natural resources has been based upon their enclosure and the creation and allocation of property rights as the basis for primitive accumulation. The race to benefit from these types of primitive accumulation are clear in the case of "avoided deforestation" credits, where their mere mention has encouraged land grabs in Africa, Asia and Latin America. (ibid : 97)

¹⁶ This argument is based on the idea that price is a common good for producers of agricultural commodities who collectively benefit from higher prices. In a situation of falling demand for commodities, each rational individual pursuing his own self-interest faces the incentive to release stocks into the world market as storage costs become relatively more expensive. This puts further downward pressure on prices and lead to a suboptimal outcome for producers as a whole. So, individual action based on self-interest has as negative outcome of the collective. (Breger-Bush, 2010)

¹⁷Such as that experienced in the commodity price boom between the early 2000s and 2008.

¹⁸Cotango refers to a situation when the futures price for the contract closest to maturity is lower than that for the following maturity date. Backwardation occurs when the price of the futures contract closest to maturity is higher than that of the following maturity date.

In addition, the ability to trade the right to pollute in the future through carbon market produces a number of perverse effects. According to Lohman (2011) Kyoto carbon markets might well have contributed to increasing global emissions as nations or corporations face incentives to stay dirty or even to roll back pollution regulation.

The creation of private property rights, in the form of emission certificates, has made pollution – or the right to pollute – a commodity which can be traded across borders. In principle, each country has the same right of a certain degree of pollution. However, it be assumed that for industrialized countries – with a much higher degree of industrialization – the cost of reducing CO₂ emissions is much higher than for developing (and maybe even emerging countries). Thus, one can assume a tendency of developed countries to buy emission rights of developing countries to continue their industrial production. The resulting reduction in their ability for CO₂ emissions, however, might have serious consequences for the industrialization process of developing countries. Similarly, it could be argued that it creates an uneven playing field for newly industrializing countries trying to catch up.

5. Some final considerations and policy recommendations

There is a need to roll back the process of financialisation of natural resources and curb the process of their commodification. In locating the financialisation of natural resources within the broader political economy of contemporary capitalism we can identify three broad realms in which policy can be targeted, namely in the sphere of circulation, the sphere of production, and in the mediation between circulation and production. Recent policy debate has revolved around the regulation of commodity exchanges, i.e. regulation within the sphere of circulation. In July 2008, the CFTC was given new authority as overseer to regulate futures contracts. Its first action was to close the ‘Enron loophole’, which exempted most OTC derivatives from regulation, and limit the number of contracts investors can hold on the Inter Continental Exchange (ICE) in New York. The “Over-the-Counter Speculation Act” was passed in July 2008, giving the CFTC authority to direct a trader to reduce its position in the over-the-counter market. The debate on regulation of commodity exchanges has continued along the lines of tightening position limits in order to curb excessive speculation. Such a policy would indeed reduce the extent to which commodity prices are driven by portfolio investors and possibly recouple commodity prices with supply and demand conditions. This policy would not, however, fundamentally change the structure of commodity chains and the relatively weak positions of agrocommodity producers in developing countries, nor will it erode the market power of multinational oil and mining companies. Nor, does limiting the extent to which speculation can take place solve problems associated with derivatives based on virtual assets such as future CO₂ emissions or future deforestation where a pricing paradox exists and the enclosure of the right to pollute lies in the hands of state institutions reliant on private capital.

As an intermediate step, if private ownership cannot be avoided – e.g. due to a lack of financial resources in developing countries – strict regulation on the ownership of resources should be

exerted. This includes, for example, limits on the ownership of natural resources by private investors, particularly financial institutions; rules for governance, to avoid the participation of the same investor in different sources of energetic natural resources; local private ownership.

Moreover, from a Marxist perspective, the regulation of the circulation sphere would not be sufficient. From a Marxist perspective the key to policy intervention is to focus on its mediating role between the spheres of circulation and production and the sphere of production itself.

As to the mediation between the spheres of circulation and production, one way to improve the bargaining position of agrocommodity producers in the global South could be the reintroduction of marketing boards as a consolidated national marketing unit with which international trading companies trade¹⁹. The reintroduction of multilateral price stabilisation mechanisms along the lines of the international commodity agreements can also play a role in mediating between production and circulation.

However, from a Marxist perspective the most important focus is the sphere of production. Here, the commodification of natural resources through creating private property rights has to be rejected. Natural resources are common goods and have to stay common good. And this does not only mean that the natural resources should be public goods, but common goods. This implies the active participation of civil society and stakeholders when it comes to the exploitation of natural resources, e.g. the exploitation of a mine, water etc.

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¹⁹ Vietnam currently operates a coffee marketing system where the state maintains coffee stocks and an export sector that is dominated by state owned enterprises. Here, the state is also responsible for price hedging at the national level.

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