

Sustainability and the Governance of the Financial System: What role for full reserve banking?

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ABSTRACT

The financial crisis demonstrated the importance of money and finance for the key concerns of ecological economics: inequality, wellbeing and the conditions for sustainability transitions. To cope with the combined challenge of economic and environmental crises, one of the most popular governance proposals within the ecological economics community is to introduce full reserve banking, where retail banks are required to fully back demand deposits with reserves of government-issued money. Banks can have separate investment activities where they lend funds from time deposits and equity capital, but they are no longer allowed to create new money. In principle, money creation is left to the state and the central bank. Proponents argue that such a system would increase economic stability, remove the undue profits that banks earn due to money creation and make this money available for social purposes instead. However, the idea has met substantial criticism from Post-Keynesians, who are seen as natural allies of ecological economics. The purpose of this paper is to explore the usefulness of the proposal as a response to the combined challenge of governing economic and environmental crises. First, the roots of the present economic crisis are sketched out, and the key ecological economic concerns related to the crisis are outlined. Then, the main arguments in the debate on full reserve banking are explored, concluding that an intermediate position that combines tough restrictions on finance with increased public money creation is a better option. Finally, the discussion is put into a broader perspective. Copyright © 2017 John Wiley & Sons, Ltd and ERP Environment

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Introduction

THE FINANCIAL CRISIS STARTING IN 2007 AND THE ENSUING ECONOMIC CRISIS ENCOURAGED INTENSE DEBATES ON THE ROLE OF MONEY and finance in the economy. The wake-up call also reached those research communities that focus on the environment and economics but which hitherto had taken limited interest in topics related to money and finance. There were exceptions, such as early contributions on full reserve banking (FRB), limits to international capital flows and complementary currencies. New topics had emerged in relation to payment for ecosystem services and the role of the financial sector in relation to the market for carbon emission quotas, but in general,

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the interest in finance was limited. The crisis demonstrated the importance of finance for the key concerns of ecological economics: inequality, wellbeing and the conditions for sustainability transitions. The time had come to conduct more research on money and finance and to develop ideas for governance from an environmental perspective as an integrated part of the development of ecological macroeconomics.

This is a considerable challenge: firstly, because the financial systems have developed an extreme complexity; secondly, because money and finance are specialist topics that are discussed in an impenetrable language; and thirdly, because the debate in the popular media is dominated by insiders with vested interests. Simultaneously, the debate is couched in terms of societal interests, and it can be difficult to see through this and identify the vested interests. This is also a huge democratic problem because few policy-makers have a chance to look beyond the intense lobbying from powerful actors. Academically, most studies of finance have moved to business schools where the purpose usually is to serve practitioners. For decades, mainstream economists had paid little attention to the inherent causes of financial crises, and the models of mainstream macroeconomics did not allow for systemic crises (Colander *et al.*, 2009). There are important exceptions to this picture as Post-Keynesian research and the emergence of social studies of finance demonstrate. However, what the responses to the crisis should be in terms of governmental change are far from obvious.

Environmentalists face the challenge of forming opinions on how to cope with the financial and economic crises in ways that are compatible with the promotion of sustainability. In the search for proposals, one of the most popular within the ecological economics community (of which I consider myself to be part) is the introduction of FRB. In brief, the idea of FRB is to require retail banks to fully back demand deposits with reserves of government-issued money (cash or reserves in the central bank), ready for immediate withdrawal. Simultaneously, banks can have separate investment activities where they lend funds from time deposits and equity capital, but they are no longer allowed to create money. In principle, money creation is left to the state and the central bank, which are then supposed to be able to provide stability. FRB has a long history going back to David Ricardo (Goodhart and Jensen, 2015; Lainà, 2015), and in the 1930s an elaborate proposal, the Chicago Plan, was formulated in response to the then financial crisis and was supported by famous economists such as Irving Fischer. In relation to the present crisis, Benes and Kumhof (2012) have published an International Monetary Fund (IMF) paper arguing that the Chicago Plan should be revived.

The popularity of the proposal within ecological economics may be explained by the fact that it was introduced to the community by the nestor Herman Daly (1980, 2013). Paradoxically, however, the present discussion on FRB seldom refers to Daly's basic arguments which go back to Frederick Soddy (1877–1956), one of the early forerunners of modern ecological economics (Daly, 1980; Martinez-Alier, 1987). The point of departure for Soddy – and ecological economics – is that humans live from the continuous flow of energy from the sun. We can also rely on the stored sunshine in fossil fuels, but this is a passing phase. Since there are limits to the possibilities for storing the flow of energy for future use (most useful goods rot or decay over time), humans mainly have to live from the concurrent flow. The distribution of this flow among individuals depends on social conventions, which may create serious problems. Since an individual cannot store goods, for instance, for old age, the social convention of loan and debt enables him/her to let others consume or invest his/her present surplus of real wealth – in the form of humanly useful matter and energy – in exchange for the right to share in the future flow of energy. Sometimes the real wealth is invested in technologies that increase the usefulness of the future flow of sunshine, but even when this is the case, the real energy revenue cannot grow at compound interest for long. When debt is allowed to grow at compound interest, it increases much more than real wealth, and at some point this results in social conflict. Based on this reasoning, the monetary system constitutes a problem: when banks are allowed to create money out of nothing and lend it at compound interest, an increasing gap between debt and real wealth will emerge. To avoid this problem, Soddy suggests a 100% reserve requirement for banks, along with a couple of other reforms. Since Soddy's framing plays a very limited role in the present debate, the details of his arguments for FRB will not be included in this paper, but in the conclusion, I will return to the relevance of his basic perspective.

Another cause of the popularity of FRB may be that a detailed proposal has been developed by the non-governmental organization Positive Money in close cooperation with the New Economics Foundation (Jackson and Dyson, 2012; Jackson *et al.*, 2013), which is well respected in the environmentalist community. The book with the proposal includes praise from Herman Daly and Tim Jackson. Furthermore, Josh Farley has promoted the idea (Farley *et al.*, 2013), and it has been discussed in the degrowth community (Mellor, 2010, 2016). As in the 1930s,

the proposal is also gathering support from established actors, while in the UK, several prominent professionals and debaters have addressed issues related to FRB, such as Mervyn King, Adair Turner, John Kay, Martin Wolf and Ann Pettifor (from a critical perspective). The topic has been the focus of a debate in the British Parliament; in Iceland, the government has commissioned a report on the proposal (Sigurjónsson, 2015); and in Switzerland, a referendum on a proposal is on its way. However, the idea has also received substantial criticism not only from mainstream economists, but also from Post-Keynesians, who in some ways are natural allies of ecological economics as they share the concern for distributional issues.¹

The purpose of this paper is to explore whether the proposal is a useful response to the combined challenge of economic and environmental crises, whether it should be combined with other proposals, or whether it is counter-productive. As with most discussion on this topic, the paper concentrates on institutional changes that, although radical, might be implemented within the wider framework of modern capitalist societies. Mellor's (2016) proposal for a transformation of the monetary system intertwined with a radical transformation of society's systems of economic decision-making is thus not covered. The conceptual discussion here is based on a literature review, supported by insights from a hearing on FRB held in Copenhagen in September 2014 and from participation in related conference sessions. To discuss whether FRB is a useful proposal, it is necessary to consider the roots of the problems that the proposal is intended to solve. Therefore, the following starts with an account of the crisis, mostly relying on a Post-Keynesian understanding combined with political economy. Then, the key ecological economic concerns related to the crisis are outlined, before the main arguments in the debate on FRB are explored. Following on this discussion, it is suggested that an intermediate position that combines tough restrictions on finance with increased public money creation is a better option. The concluding remarks return to Soddy's biophysical considerations that may call for more radical interventions, such as debt cancellations and, finally, I discuss whether deliberation on these issues can come to influence actual outcomes.²

Understanding the Crisis

This section presents the theoretical understanding of the present situation that underlies the following discussion on FRB. First, a general perspective on financial crises is introduced, inspired by Minsky's description of the emergence and course of financial crises (Kindleberger, 1978; Minsky, 1986). Minsky had been a key inspiration for several of the heterodox economists who had foreseen the 2007 crisis (Bezemer, 2010). Second, the general perspective is supplemented by a historical account of the development of finance in relation to the change of capitalist growth models that started in the 1970s. The process of financialization that gained momentum in the 1980s forms an important background for discussing the present challenges.

General Account of Financial Crises

Although financial crises differ considerably depending on specific historical circumstances, they share some basic features that are captured by Minsky's model (the following account relies much on Kindleberger, 1978). The events leading up to a crisis may start with an exogenous shock to the macroeconomic systems, for example the widespread adoption of an invention with pervasive effects or political events that increase profit opportunities in some areas and close them in others. If the new profit opportunities dominate, a boom results, and if the memory of previous financial crises is vague due to a period of stability, the financial system is ready to feed the boom by expanding credit. This is the point of Minsky's financial instability hypothesis: stability is destabilizing. Credit may come from both the banking system and other sources that may emerge when the stimulus is strong. Credit opportunities attract speculators, and demand for the object of speculation increases. This object may be either a produced good or

¹The communities of Post-Keynesians and ecological economists span considerable internal differences that are mentioned only briefly in this paper.

²Some of the background material in this paper is also applied in Røpke (2017), in which I deal with finance in a sustainable consumption perspective.

an existing financial asset, but in both cases prices increase when demand meets capacity limits. Price increases attract further investors (and sometimes swindlers) in a positive feedback loop, particularly when the asset can be used as collateral. Profit opportunities are increasingly overestimated, and loans are offered in the expectation that price increases of the asset will ensure repayment. The general confidence implies that lenders provide ever more risky loans, and interest rates start to increase. At the peak of the boom, some knowledgeable investors start to withdraw. Initially, they are balanced by newcomers, but asset prices begin to level off. Sooner or later the so-called Minsky moment occurs, when lenders and speculators realize that prices can no longer increase and that it is time to stop lending, sell assets and go for liquidity. Then, the bubble bursts, asset prices decline, loans default and bankruptcies increase. If the panic leads to bank runs, the payment system may run into trouble. The panic is self-reinforcing until one of three things happens: prices fall sufficiently to make it attractive to buy, trading is closed down or a lender of last resort makes a sufficiently large quantity of money available. In the meantime, the impact on the real economy may be considerable. The realization of losses translates into decreasing demand, production and employment, and lending for investment and entrepreneurial projects may dry up.

Public regulation of the financial system and the details of the institutional structure of the system are decisive for the course of events. First, regulation is decisive for banks' opportunities to expand credit and fuel the flames. There is a long history of banking authorities trying to control and limit the money supply, but the process tends to be Sisyphean because money expansion is endogenous. In periods of boom, the velocity of existing money increases and close substitutes of money emerge. Despite this phenomenon, regulation does influence the extent to which banks are able to become involved in the credit expansion and the extent to which society's payment system is intertwined with the speculative activities. Second, regulation is decisive for the way in which the panic is stopped: is the market left to itself to let the panic die down, or does a lender of last resort intervene in some way. Deciding on the reaction to a panic, the authorities face the basic dilemma that, on the one hand, market participants tend to behave irresponsibly and take large risks if they know that they have the backing of a lender of last resort, while, on the other hand, if this role is not institutionalized, market participants will struggle to save themselves by selling as quickly as possible during a panic, thereby exacerbating the situation for everybody.

Minsky's model is formulated for a closed economy, but financial crises tend to spread from one country to another, for instance through psychological infection, commodity prices and capital flows. The institutional set-up of the international financial system is also decisive for the possibility to import liquidity that may fuel the flames nationally. Furthermore, financial crises may have their root in balance of payment imbalances and related currency speculation, in particular during periods when countries try to keep fixed exchange rates.

A Specific Phase of Capitalism

Financial crises and how authorities should react to them has been a contentious issue for more than 200 years, but the specific circumstances have changed considerably over time. After the depression of the 1930s, confidence in market decision-making was low, and extensive regulation of the financial sector was established in most developed countries. In the USA, for instance, this involved functional regulation in the form of segmented markets and 'fire-walls' between commercial banking and speculative activities (Isenberg, 2006). After the Second World War, domestic regulation was combined with the international financial structures of the Bretton Woods system that reflected the American dominance.

From 1940 to 1970, there were few bank failures and bank crises in Organisation for Economic Co-operation and Development (OECD) countries. Some argue that this reflects the effective financial regulation of the time, but Admati and Hellwig (2013: 47) suggest that it should rather be seen as the result of the generally positive economic situation in OECD countries and the stability in exchange and interest rates. When economic stability was replaced by a much more unstable situation in the early 1970s, financial crises began to emerge even before the process of deregulation really gathered momentum. Most heterodox accounts of the long-term development of capitalism agree that the capitalist system, nationally and globally, went through a process of qualitative change from one phase to another during the 1970s. Hein *et al.* (2015) summarize and compare different accounts from the French Regulation School, the American Social Structures of Accumulation approach, various Post-Keynesian authors and Minsky's special perspective. These accounts apply different concepts and emphasize different dynamics, but Hein

et al. argue that they do not differ fundamentally and in many ways complement each other. The following outline includes various aspects from these approaches, but it is far from exhaustive.

During the post-war period, often referred to as the Golden Age, developed country economies experienced a Keynesian virtuous cycle with wage-led growth: increased productivity enabled wage growth, which fuelled demand and economic growth. Full employment provided an incentive to invest, which drove further productivity growth. The role of finance was to provide business with funding of investment at low and stable interest rates, provide insurance services and provide households with means for saving (Dow, 2015; Palley, 2015). The virtuous circle depended on relatively strong unions and the development of welfare states committed to full employment policies and support for the poor, and not least, access to cheap energy and other raw materials (Ayres and Warr, 2005). Furthermore, the indisputable role of the USA as the dominant power in the capitalist world provided stability.

During this period, poverty and inequality in OECD countries were reduced, but the model was vulnerable. The growth in public expenditure as a share of gross domestic product (GDP) was considerable, from about 10–20% in the 1920s to 40–50% in the 1970s, which was accompanied by the development of bureaucracy and in some countries cronyism and corruption (Vercelli, 2011). Full employment over a longer period tended to create an inflationary pressure, and the different inflation rates in different countries challenged the fixed exchange rates of the Bretton Woods system (Vercelli, 2011). Cost inflation was increased considerably by the oil price shocks in 1973 and 1979, and inflation was accelerated by increased public expenditure to combat unemployment. In the USA, the unpopular Vietnam War contributed to increasing public expenditure and social unrest, and the exchange rate of the dollar was undermined, which contributed to the breakdown of the Bretton Woods system.

The economic crisis in the 1970s challenged the dominant understanding of the economy. The traditional Keynesian-inspired recipe did not work, and in the wings old ideas had been revived and changes in macroeconomic theories had been prepared by the monetarists in the late 1960s (Vercelli, 2011). The core ideas of neoliberalism did not take over immediately, but gradually they became more influential in policy-making. The commitment to full employment was replaced by a commitment to stable low inflation, the power of unions was challenged, made easier by high unemployment, and the link between productivity increases and wage increases was broken (Palley, 2015). The monetarist ideas implied that inflation should be controlled through restrictions on the expansion of the money supply. However, the monetarist experiments in the UK and the USA in the late 1970s and early 1980s resulted in tremendous interest rate volatility that negatively impacted the business environment and increased unemployment (Palley, 2006; Dow, 2015). With that experience, the central banks returned to the management of interest rates, but still targeted inflation rather than the investment climate and employment.

With monetary policy focused on inflation and with the neoliberal belief in efficient markets, the ideological foundation was laid for a process of deregulation of finance: financial stability did not have to be a core concern of monetary policy and regulation. The process that led to deregulation had already begun in the 1950s, when corporations and banks found innovative ways to circumvent the regulation, when large banks followed their multinational borrowers abroad, and when the Eurodollar market emerged. Later, when the growth model ran into trouble, increasing instability encouraged innovations in relation to securitization; for example, the use of derivatives emerged in the wake of the collapse of the Bretton Woods system to manage the increased uncertainty (Wigan, 2013). Also, tax evasion was an important driver behind financial innovation (Wigan, 2013). As Isenberg (2006) describes, there has been a continuous interplay between new financial innovations and new regulation, which has gradually undermined the functional regulation of the financial sector and the segmentation of markets. Furthermore, the international cooperation regarding standards for risk management and capital requirements (the Basel Accord of 1988) was, in some ways, counterproductive because it encouraged complex financial innovation in the form of securitization (Dow, 2015). Contrary to the ideas of the dominant theories, securitization created a sort of self-perpetuating process by increasing instability (Turner, 2016). Simultaneously, regulatory oversight was reduced, and the number of financial crises increased considerably from the 1980s (Reinhart and Rogoff, 2009).

The period from the early 1980s until the crisis in 2007 became a golden age for finance, in which the size of the financial sector increased dramatically in terms of its share of GDP, profits and employment. The process has been characterized as financialization, which is broadly understood 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: 3). At the core of financialization was the increased focus on shareholder value maximization that evolved during the 1980s. Since the bargaining power of labour was deteriorating, and since major shareholders

were increasingly powerful institutional investors, management began to respond more to shareholder interests (Hein *et al.*, 2015). The alliance between management and shareholders implied that managers were remunerated according to profits and share prices and motivated through stock options. This encouraged managers to focus on share prices in the short term at the expense of other, more long-term business concerns, and led to an explosion in CEO remuneration. Speculative opportunities in relation to financial assets thus increased while it became more difficult to ensure 'patient' capital in the real economy (Chang, 2011). The increased revenue opportunities in finance even encouraged businesses in non-financial sectors to upgrade their financial activities. In addition, ever more products and assets became subject to speculation. Commodity speculation increased (Scott, 2013), while, more recently, new opportunities have emerged in relation to carbon markets, biodiversity offsetting, etc. (Spash, 2010; Sullivan, 2013).

As barriers to international capital flows were reduced, capital markets became ever more interconnected and complex. Financial theory developed into an engineering science focusing on the construction of new financial instruments, which attracted some of the best brains from physics and mathematics. Ever more complex and opaque constructions were traded, and more transactions took place at the margin of traditional financial institutions in shadow banking. This development was eased by computer technology and later by the Internet that made high-frequency trading possible.

Financialization can be seen as an aspect of a neoliberal growth model that replaced the Keynesian growth model after 1980 (Hein *et al.*, 2015; Palley, 2015). Various authors thus characterize this phase of capitalism as a finance-led growth regime, finance-dominated capitalism or money manager capitalism (Minsky's expression). Based on US experience, Palley argues that the bargaining power of workers came under pressure from unemployment, increased labour market flexibility, globalization and competition related to a new international division of labour, less protection from the welfare state and less public activity. The emerging system was characterized by wage stagnation and widening income inequality that created a growing structural demand shortage because wages could no longer be the engine of demand growth. Filling this gap by lending to consumers and by inflating asset prices became the role of finance. Debt and asset price inflation became the engines of demand growth because deregulation presented the opportunities, not because it was part of a grand plan (Palley, 2015). Hein *et al.* (2015) highlight that finance-dominated capitalism takes different forms in various countries. While the USA and UK are described as 'debt-led consumption boom' economies, other countries, such as Germany, Japan and China, apply a 'mercantilist export-led' strategy. Because export-led growth is only possible because of the debt-fuelled growth in other countries, the strategies are interdependent, and crises can easily spread.

The neoliberal growth model was inevitably unstable and, in many cases, the central banks had to step in with bailouts and reorganization. However, the combination of lobbying from a powerful financial sector and neoliberal ideology helped to ensure the continuation of deregulation, while central banks still filled the role of the lender of last resort. Therefore, the problem of moral hazard increased over time. An aspect of this problem relates to inflation targeting. As inflation is measured by the consumer price index, which does not include house prices or equities, moral hazard is created in asset markets: during the upswing, the rise in asset prices does not lead to tightening policies, if inflation is not induced, while the downturn may have such negative impacts on the real economy that the monetary authorities want to prevent asset prices from falling (Palley, 2006; Vercelli, 2011). Such interventions set the stage for future bubbles, and during the run up to the crisis in 2007–2008, financial institutions took enormous risks and were highly leveraged (King, 2010; Admati and Hellwig, 2013). Simultaneously, global interconnectedness increased with the development of securitization in relation to the housing bubble. When a bubble bursts, the impact on the wider economy depends on how interconnected the losers are with others: either the losses are absorbed by a limited group or defaults will spread. For instance, the impact of the dot-com bubble was relatively limited because most losses were absorbed by the owners of the shares, whereas the toxic assets of the 2007–2008 crisis were widely distributed through various financial innovations, making the crisis much deeper (Admati and Hellwig, 2013: 60). Furthermore, the impacts depend on how well-off the losers are: if the losses are borne by relatively poor people with a high propensity to consume, the decline in overall demand will be relatively large and thus will influence the macroeconomy more, as Mian and Sufi (2014) have highlighted for the burst of the American housing bubble.

The depth of the crisis after 2007 was caused by a combination of factors: the build up of debt over a long period, very high leverage, increased interconnectedness and the fact that the financial markets ceased to fill the demand

gap created by inequality. The large debt overhang encourages increased savings that make it even more difficult to recover from the crisis. In relation to the financial sector, financial stability has reappeared as an important concern and regulation has been tightened. Capital requirements have been increased, and in the USA and UK, retail banking has been separated from investment banking operations. However, as Finance Watch (Hache, 2012) emphasizes, there is more focus on microprudential regulation, i.e. enhancing the resilience of individual banks, than on macroprudential regulation, i.e. focusing on systemic risk and moral hazard. Furthermore, the use of quantitative easing to keep interest rates down constitutes the basis for new bubbles. Little has been done to address the root of the problems.

Problems and Goals from an Ecological Economic Perspective

The crisis causes many social problems – unemployment, poverty and the undermining of welfare state services. While these trends may be considered useful opportunities from a neoliberal perspective – as long as they do not seriously threaten the social order – most heterodox economists and centre-left politicians share a concern to find solutions to these problems. Most of these groups, including the Post-Keynesians, look for ways to restore economic growth, reduce economic instability and inequality, and enhance democracy. Ecological economists share most of the goals, but question the relevance of restoring growth in developed economies. Instead, it is important to set goals for the reduction of the biophysical scale of the economy and to focus on how this can be achieved in combination with reduced inequality and the securing of an acknowledged place in society for all members. Inequality is both a problem in itself and a barrier to sustainability transitions because large inequality makes it difficult to ensure a fair sharing of the burdens of transformation. Economic instability is a problem both for the general conditions of life and because it makes it difficult to plan for sustainability transitions of provision systems and to ensure the necessary funding. Comparing the concerns of ecological and Post-Keynesian economics, it is worth noting that Post-Keynesians seldom realize the importance of energy (or exergy, to be more precise) for economic growth, and when they talk about the Golden Age after the Second World War, they tend to forget about the preconditions of global inequality and exploitation. The growth period was based on conditions that neither can nor should be re-established.

In relation to finance, important goals for both Post-Keynesian and ecological economists are:

- Ensure greater stability and reduce the costly crises in the real economy
- Reduce the financial sector's appropriation of a large share of profits and other incomes (and reduce the attraction of well-qualified labour that is applied for harmful activities)
- Ensure greater transparency and reduce complexity and interconnectedness
- Reduce the political power of finance

In addition, ecological economists emphasize:

- The provision of funding for green investments and sustainability transitions of provision systems, and the removal of funding for environmentally and socially destructive activities
- The prevention of problematic forms of commodification of environmental goods and bads.

Certainly, translating these goals into a programme to restructure finance is a considerable challenge.

Conflicting Positions on Full Reserve Banking

FRB is used as a heading for several different proposals, such as the revival of the Chicago Plan (Benes and Kumhof, 2012), Positive Money's proposal for a 'sovereign money system' (Jackson and Dyson, 2012), Narrow Banking (Kay, 2009) and Limited Purpose Banking (Kotlikoff, 2010); for surveys, see Dixhoorn (2013) and Lainà (2015). In the following, the focus is on Positive Money's proposal because this is the most popular with environmentalists. The core

idea is that banks should no longer be allowed to create money through making loans. The activities of banks would include two functions that have to be organized separately from each other:

- 1) The administration of payments based on demand deposits in transaction accounts. In the original FRB proposals, the deposits should be fully backed by government-issued money, but Positive Money takes this a step further by suggesting that transaction accounts should be held at the central bank. Commercial banks only administer these accounts on their customers' behalf.
- 2) The provision of credit based on equity and savings in the form of time deposits in investment accounts. Providing credit simply by setting up an asset (a loan) and a liability (a deposit) at the same time should not be possible.

The main motivation for the proposal is that it would prevent banks from creating large funds during credit booms – feeding the flames – and, conversely, destroying funds during contractions. It would thus be easier to avoid the build up of bubbles and the related crises in the real economy. Furthermore, there would be no risks related to the payment system, which would reduce the problem of moral hazard. When the payment function is intertwined with the provision of loans, banks can expect to be saved if they run into trouble, and since loans are typically more profitable the more risky they are, banks then have a strong incentive to run risks. With the separation of the two functions, banks would be allowed to fail, and the role of lender of last resort and deposit insurance would not be needed: demand deposits would automatically be safe, and if savers place time deposits in investment accounts, they should be ready to run the risk of losing their money.

When private banks are not allowed to create money, there would be a need to increase the money supply in another way to keep pace with economic activities. The Positive Money proposal implies that the central bank creates money that is either spent into the economy through the government budget (increased spending, tax cuts, direct payment to citizens, eventually paying off government debt) or lent into the economy through loans from the central bank to commercial banks. The loans could be combined with the restriction that banks can only lend this money to businesses that contribute to GDP and not for speculation or consumer finance. Alternatively, central bank loans could be passed on through public investment banks.

The proposal has been met with considerable critique from Post-Keynesian economists, although they share most of the concerns motivating the proposal. Post-Keynesians agree that it is important to prevent bubbles and to ensure the safety of the payment system. They find that deposit insurance and the function of the central bank as lender of last resort in the clearing system between banks are useful institutions for ensuring the safety of the payment system, although they acknowledge that these institutions imply moral hazard. Post-Keynesians, therefore, argue that these institutions have to be complemented by other regulation, but they find the idea of completely abolishing the banks' capacity to create money inappropriate. They question whether the proposal would actually work as intended and they are concerned that it would have unintended costs. In the following brief account of the arguments, advocates of the Positive Money position are referred to as PMAs, while PKCs are a group of Post-Keynesian contributors, who do not necessarily agree on all issues (Kregel, 2012; Pettifor, 2014b, 2014a, 2014c; Wray, 2014; Dow *et al.*, 2015; Sawyer, 2015; Fontana and Sawyer, 2016). Within the Post-Keynesian community, there are many nuances regarding theories of money, which are far too complex to be reflected in the following.

Turning first to the question of whether FRB is helpful in the prevention of credit bubbles and bailouts, PKCs argue that FRB cannot in itself contribute much to the avoidance of financial crises. Some of the arguments are:

- If banks cannot create money through loans, other forms of money creation will emerge. Some assets will function as near-monies, and the shadow banking system will blossom. For instance, some forms of investment accounts may be used as media of exchange and means of payment. PMAs suggest that this can be counteracted by prohibition, while PKCs argue that such regulation would be difficult to enforce (Dyson *et al.*, 2016; Fontana and Sawyer, 2016). Depositors will have an incentive to use investment accounts because having deposits in transaction accounts becomes relatively costly when banks, due to FRB, require higher fees to run the payment system. The creative actors in the shadow banking system may also develop other alternative near-monies.
- Since investment accounts are not supported by deposit insurance, savers would have to run larger risks to ensure the value of their savings. PMAs argue that savers would have an incentive to assess whether their banks are reliable when their deposits are not protected, while PKCs argue that savers would seldom be in the position or have the capacity to make such an assessment: 'It is totally unreasonable to expect the general public to undertake this

- kind of assessment and bear the consequences of a financial failure without deposit insurance' (Dow *et al.*, 2015: 8–9). This would increase overall system risk. At the hearing in Copenhagen, it was also argued that the proposal has a slight taste of market fundamentalism because the savers are left with no protection and are expected to act as well-informed market actors. The proposal is based on too much trust in the desirability of market outcomes.
- The restriction on credit creation would not prevent the herding behaviour that tends to create bubbles. Bubbles may still emerge on the basis of investment accounts. In fact, many of the financial institutions involved in creating the 2007–2008 crisis were not taking deposits, and several of these institutions were bailed out because they were considered systemically important. Although bailouts are not needed to protect the payment system if FRB is introduced, bailouts may still be needed to protect the real economy. FRB may reduce the access to liquidity for other financial institutions, but it is not sufficient to limit their risky activities.
 - Most of the discussion is carried out in relation to national systems, but international capital movements may undermine national restrictions. At the hearing, it was argued that this may be particularly relevant for small countries, but the issue has more general relevance and seems to have received little attention in the debates on FRB.

The arguments above suggest that FRB may not be as effective in the prevention of bubbles as PMAs expect. But if the proposal does make a contribution to curbing the inflation of bubbles, it might be useful anyway, and it could be combined with other measures. However, PKCs argue that the proposal would be outright harmful and would entail considerable costs.

A fundamental disagreement concerns the question of whether banks being able to create money is a good or a bad thing. PKCs argue that it is useful. In a historical perspective, the fact that it is possible to initiate new productive activities without having to wait for available savings and without having to rely on borrowing from the wealthy can be seen as a great social invention (Pettifor, 2014b). In this way, access to credit is democratized because everybody who has an innovative idea may get the chance to realize it if he or she can persuade a bank that it will be profitable. That credit is not limited by a finite money supply is a great spur for innovation and entrepreneurship: money is created endogenously in response to demand and the banks' willingness to run the risk. Furthermore, credit is usually much cheaper in societies with a well-functioning banking system than it is in societies where the wealthy can charge usurious interest. If credit in modern societies was limited by available savings, it would lead to deflation (Kregel, 2012). In response to this worry, PMAs argue that FRB does not imply a lack of credit since the central bank can lend reserves to private banks if the demand for credit exceeds the banks' equity and available deposits in investment accounts. PKCs then argue that such a system is too inflexible and that it would be very difficult to manage credit reasonably from the position of a central authority. Commenting on the idea that 'the central bank would create new money as needed to promote non-inflationary growth' (Wolf, 2014), Dow *et al.* (2015: 11) argue that, 'This assertion assumes that the central bank has a *correct* model of the economy and this can be used to make *correct* decisions about the level of money injected in the economy. However, from a Keynesian perspective, there cannot be a "correct" model or "true" risk measures because of fundamental uncertainty.' When PMAs imagine a construction where a central monetary committee is in charge of the amount of money created, it is suggested that monetary policy is a technical rather than a political issue. Since PKCs problematize this technical view, they consider the construction to be undemocratic.

In addition to the question of the amount of credit, how FRB would influence the allocation of credit has also been discussed. Banks would still make decisions regarding lending based on investment accounts, while government may place restrictions on lending based on the reserves that the central bank makes available to the private banks. More importantly, PMAs' idea is that most credit creation should take place through public deficits. PMAs find it desirable as it would increase the likelihood of fulfilling public goals, whereas PKCs argue that private investment purposes are also important and may need more finance than could be made available within the PMAs' framework (Wray, 2014). Some also argue that government influence on lending may open the door to undue political considerations (Dow *et al.*, 2015: 11). Furthermore, I would worry that credit creation through public deficits could lead to increased private consumption (because of tax cuts or direct payments to citizens) rather than investments.

Concerning the allocation of credit, the hearing in Copenhagen brought forward an argument that I have not seen in the literature. Lars Pehrson, the CEO of a small green bank, Merkur, argued that deposit insurance is decisive for the willingness of savers to make deposits in such a bank. If activities are split into transaction and

investment accounts, little money would be available for small-scale green investments because they would be considered too risky. It is paradoxical because the bank has not been involved in speculative activities and is better capitalized than many other banks, but small savers cannot run the risk of losing their money, and idealistic investments are considered more risky. This argument also questions other proposals for separating the payment systems from other forms of banking (e.g. the revival of the postal saving system, as mentioned by Wray, 2014).

In the discussion on whether banks being able to create money is desirable or not, PMAs argue that it provides the banks with an undue advantage because they can earn profit by creating money out of thin air. Sometimes this is compared to the seigniorage that governments can achieve by creating money. However, PKCs argue that this account is misleading. Banks create assets and liabilities in the same process, and they earn money through the interest margin. This is not comparable to the seigniorage related to fiat money where a state can issue money and buy something in the real economy just by guaranteeing that it will accept the money as payment for taxes and fines. Although the banks cannot be said to earn seigniorage in the same way as governments can, everyone agrees that there are considerable advantages related to their ability to create money, which would disappear with the introduction of FRB (for an overview of the advantages and a discussion on the possibilities for quantification, see Zeddies, 2015). First, banks can achieve a high interest margin because their assets are balanced by demand deposits with very low interest rates, in particular when the deposits are safe due to insurance. Banks are also assured other cheap sources of funding because they have access to the central bank as lender of last resort, and because lenders and buyers of equity expect that banks will be saved in case of failures because they are too big or too numerous to fail. Simultaneously, the interest margin is raised because these conditions encourage banks to engage in risky commitments with high returns. The implicit government subsidies make it easier for banks to earn money by fuelling asset bubbles and then to socialize the losses during the downturn. During the period of deregulation, when banks increasingly engaged in other activities than lending to the real economy, such as proprietary trading, they even sometimes speculated against their own customers. PKCs agree on the need to regulate against these undue advantages and problematic activities, but rather than abolishing banks' privilege to create money, they suggest macroprudential regulations such as increased capital requirements and restrictions on proprietary trading (see the next section).

According to the PMAs' proposal, increasing the supply of money should, to a large extent, be achieved through public deficits. PKCs argue that it is problematic that fiscal policies in this way become subordinated to the control of the money supply. PKCs agree that government can run deficits and that such deficits do not necessarily have to be 'financed' through loans, but the size of the deficit should not be determined on the basis of monetary concerns. In their opinion, the government budget should be based on concerns related to the provision of public services, distributional issues and the management of effective demand to ensure full employment. Furthermore, they find it important that the built-in automatic stabilizers through taxation and income transfers are allowed to counteract fluctuations in economic activity. PKCs thus want decisions regarding the composition of the government budget to precede decisions regarding the monetary impacts, i.e. whether the liquidity impacts should be neutralized. They argue that the PMAs' approach may even be procyclical, for instance, if the automatic stabilizers during a recession increase the budget deficit by more than is desirable from a monetary perspective thereby leading to contractionary measures (Fontana and Sawyer, 2016). Dyson *et al.* (2016) have responded that this critique is misleading because the state would still be allowed to issue bonds in the PMAs' proposal.

A related disagreement concerns the relationship between money supply and inflation. PMAs tend to take a monetarist position and argue that it is possible to control inflation by regulating the money supply. PKCs disagree on two points: first, it is not possible to regulate the money supply, and second, the relationship between the money supply and inflation is dubious. Regarding the first point, PMAs and PKCs agree that the present monetary system should be described based on the endogenous money approach. However, PMAs argue that it is possible to replace this system with exogenous money managed by central authorities, while PKCs argue that this is impossible: which money supply should be targeted is far from obvious, and management is complicated by the changing velocity of money, the development of near-monies and other factors. Regarding the second point, PKCs argue the causation often runs the other way round: inflationary processes (e.g. cost-push and imported inflation) increase the demand for credit because more money is needed for financing production processes, and this is then followed by an increase in the supply of money. Probably for political reasons, PMAs are not comfortable with being lumped with monetarism and argue that Positive Money is not only concerned with inflation, but also with employment, and that

the relationship between money creation and inflation is not that simple. However, it is difficult to see this view reflected in the proposal (Sawyer, 2015).

As the arguments above demonstrate, PKCs are concerned with the deflationary impact of FRB. Interest rates may be expected to increase because FRB implies greater risk related to lending, and the volatility of interest rates may be expected to increase when the quantity of money is the focus of regulation (Dittmer, 2015). This volatility is problematic for the real economy as well as for financial institutions dealing with, for instance, pensions and insurance. Rather than adding to stability, FRB may thus contribute to larger economic fluctuations. Furthermore, the allocation of credit may be influenced by higher risk: while large firms may obtain funding by issuing bonds and may be better able to offer collateral, credit may become less accessible to smaller firms. Such impacts can be counteracted by requirements attached to the reserves provided to the private banks from the central bank, or by establishing public banks to make money available for socially desirable purposes at low interest rates.

In the discussion on FRB and growth, PMAs tend to be opportunistic and to use different arguments depending on the context. On the one hand, PMAs disagree with PKCs that FRB will have a deflationary impact, as this depends on public policies, and inflation targeting can be counterbalanced with employment targeting. On the other hand, PMAs agree with the point made by some contributors (often environmentalists) that the present system with debt-based money creation by private banks necessitates growth and therefore should be replaced by FRB. This idea has been heavily criticized by PKCs who argue that the drive for growth comes from the profit motive and the continuous search for investment opportunities in capitalist economies. The monetary system supports growth, but it is not the reason for growth.

Cutting across these positions, there seems to be general consensus that banks' ability to create money supports growth and that FRB can be used to limit growth. Is FRB then a useful measure from an environmental perspective for this particular reason? I do not think so. Surely, the unilateral focus on growth as a measure of progress needs to be replaced by a wider set of goals for macroeconomic policies (Røpke, 2013), but to strive for a reduction in growth makes little sense in itself. Simple deflation through the use of FRB would not be helpful for a transition to a sustainable economy as this involves considerable investment, which requires large amounts of available capital, low interest rates and stability. Ensuring that funding is directed towards the real economy rather than speculation in existing assets and towards the investments in sustainability rather than increased consumption and environmentally destructive activities will be decisive for the transition. FRB does not influence the direction of the lending from investment accounts, and if the money supply is increased by tax cuts or direct payments to citizens, it may fund unsustainable consumption increases (of course, it may also reduce inequality). The FRB proposal opens up for increased use of the government budget to fund sustainability investments, but this does not necessarily rely on the abolishment of banks' privilege to create money.

An Intermediate Position Combined with Other Measures

The discussions between PMAs and PKCs are being conducted against the background of a shared understanding concerning a need for radical measures to ensure profound structural changes to the financial system. So far, the measures have been completely insufficient, in particular when they are considered in relation to the goals outlined above. More radical intervention needs popular support, and it can be argued that FRB has the potential to mobilize critique of the financial sector, because it plays on moral concerns. It seems highly inappropriate that banks can 'create money out of thin air' and that the payment system is intertwined with the creation of a mountain of debt. However, this approach is problematic, partly because it is misleading – although debt increased far too much, it does not follow that all private money creation is bad – and partly because FRB tends to be presented as a panacea that draws attention away from the many other potential measures.

The opposite extreme of the panacea is the 'impossibility theorem' that may emerge from Minsky's statement that 'stability is destabilising'. In Minsky's model, policy-makers are endogenous, and if they actually succeed in tightening regulation, the process will just start all over again and deregulation will reappear: 'the problem with real reforms of our financial system is that, if successful, they will be abolished' (Keen, 2011: 396). No doubt, ensuring well-functioning money and finance is a never ending struggle. As Kregel (2014) and Dow *et al.* (2015) emphasize,

macroprudential regulation has to be dynamic and constantly reassessed to remain effective. But during the period of financialization, the struggle was largely given up. To change this situation, both PKCs and many others have come up with proposals to reform the financial sector (this also applies to the New Economics Foundation that, in contrast to Positive Money, deals with many other financial issues than FRB). Drawing on several contributors, who share concerns but do not all declare themselves as Keynesian-inspired (Palley, 2006; Chang, 2011; Keen, 2011; Admati and Hellwig, 2013; Mian and Sufi, 2014; Fontana and Sawyer, 2015; UNEP, 2015; Kay, 2016; Turner, 2016), it is possible to outline some key potential elements in a broad programme. There is no panacea, but the proposals go some of the way towards FRB and add a number of other measures.

Although the proposals do not include the abolishment of banks' privilege to create credit, it is considered absolutely necessary to restrict this process and to manage the direction of credit. Excessive private money creation leads to large systemic instability, increased inequality and too much credit for buying existing assets. Furthermore, the large debt overhang results in a long period of stagnation. Proposals to restrict private credit creation include measures on both the supply and the demand side. Starting with the supply side, Admati and Hellwig (2013) suggest much higher capital requirements: all financial institutions, not just banks, should hold at least 20–30% equity capital as a share of the gross unweighted value of their assets. This would reduce moral hazard considerably and thus the incentive to engage in risky lending. This incentive can also be reduced by the regulation of bonus programmes that encourage CEOs and employees to engage in risky activities, for instance by increasing personal responsibility for senior management (Kay, 2016). To constrain the availability of credit, banks should also hold much larger reserves at the central bank, and the reserve requirements should be based on social rather than private risk, implying relatively high requirements in relation to loans for the acquisition of existing assets (Turner, 2016).

While measures regulating the individual financial institutions may be useful, Kay (2016) emphasizes the need for a more structural approach to reform. He argues that the main systemic problem relates to the interconnections within the system. To make the system more robust and resilient, regulation should ensure functional separation between different activities, not only between retail and investment banking, but also within investment banking. Thus, the large financial services conglomerates should be dissolved and replaced by specialized institutions. Also, UNEP (2015) and Fontana and Sawyer (2015) suggest structural changes that ensure diversity and specialization in the financial sector and reduce the degree of concentration. They argue that this could improve the allocation of credit by bringing finance closer to the needs of the real economy. For instance, smaller and more localized banks may be useful for local economies. From a sustainability perspective, it could be useful to improve the conditions for values-based financial institutions, to establish green investment banks and funds, to strengthen sustainability in the mandates of pension funds and sovereign wealth funds, and to apply guided lending and quantitative regulations (Fontana and Sawyer, 2015; UNEP, 2015). In recent years, the issuance of green bonds and climate bonds has increased rapidly, and UNEP (2015) proposes a series of measures to scale up the market. The initiative may seem attractive, but the measures involve, for instance, securitization that played such an important part in the build up to the crisis. It will be a challenge to increase funding for green investments without being captured by the incumbent institutions.

On the demand side, the demand for and access to loans should be reduced. The most important measure is to remove the tax incentives to borrow for both households and businesses to reduce the present bias in favour of debt finance. Furthermore, tougher constraints on mortgage borrowing are needed. Mian and Sufi (2014) come up with the interesting proposal (influencing both demand and supply of credit) that debt contracts should be changed into shared-responsibility mortgages where lenders get to share both gains and losses. In addition to housing, the risk-sharing principle can be extended to other kinds of loans, including student debt and sovereign debt held by other countries. The demand for credit could also be reduced by changing other incentives that encourage people into debt, for instance by reducing the attractiveness of speculating in various assets. Thus, Keen (2011: 398) suggests redefining shares so that they only last for 50 years when they are bought on the secondary market. Speculation in land and property could be discouraged by taxing capital gains effectively. At the less radical end of the scale, restricting high-interest unsecured consumer lending and limiting advertising for loans have been proposed (Turner, 2016).

A large amount of credit is internal to the financial sector and relates to processes where the sector extracts resources at the expense of other parts of the economy. To change this situation, it would be necessary to reduce the complexity of the financial system and to ensure transparency. For instance, Chang (2011) suggests regulating

securitization by banning complex derivatives and by demanding that financial instruments be approved before they can be introduced, just like pharmaceutical drugs and electrical products. Furthermore, to make trade in derivatives more transparent, trading over-the-counter should be prohibited. Other measures to reduce speculation include restrictions on high-frequency trading, restrictions on proprietary trading, the introduction of a financial transactions tax (Tobin tax) and the banning of short-selling. Since the effectiveness of measures to reduce speculative credit creation depends on whether capital is mobile across borders, other measures such as taxing cross-border capital flows and constraining the use of tax havens would be necessary complements to reduce this mobility. More generally, it is important that regulatory reform of the financial sector results in a dramatic simplification of the regulation without exceptions, complex weighting procedures, etc.

In addition to regulating finance, the proposals are concerned with aiding recovery from the long-term stagnation that follows from the private sector's attempt to de-leverage. The contractive impact is counteracted by public deficits, but when these are funded by the issuance of bonds and complemented by quantitative easing (QE) whereby central banks buy up securities, the public debt builds up. Since the outburst of the crisis, debt has been shifted from the private to the public sector and between countries, but the overall debt overhang has not been reduced, and QE increases the risk of building up new bubbles (Turner, 2016). It is increasingly acknowledged that the debt overhang has to be reduced and that the real economy needs to be stimulated more directly through expansionary fiscal policies. Both goals call for the creation of more public money, thus following one of the key aspects of the FRB proposal. Fiscal deficits could be matched by the creation of fiat money, and the public debt overhang could be reduced through monetization, i.e. by buying up some of the government securities with newly created fiat money. In addition, private debt could be reduced by a modern debt jubilee, whereby the central bank injects money 'into the bank accounts of the public – but on condition that its first function must be to pay debts down' (Keen, 2012). Rather than this form of 'helicopter money', the New Economics Foundation (Ryan-Collins *et al.*, 2013) has promoted 'strategic quantitative easing' where central banks purchase bonds issued by agencies such as green investment banks that invest productively in the construction of housing and retrofitting, infrastructure, and small and medium enterprises. For years, such proposals have been put forward by marginal groups, but now they are being increasingly discussed in mainstream media such as the *Economist*.

Overall, a programme along the lines sketched above could be seen as an attempt to overturn the neoliberal era of financialization and restore a Keynesian growth model. However, it is neither possible nor desirable to re-establish the model of the Golden Age, which relied on cheap fossil fuels and other resources as well as large global inequalities. A new Keynesian model could be greener in the sense that investments could be made in sustainability transitions of provision systems, but a return to a growth model that also implies increasing material living standards in developed countries is not compatible with sustainability and more equal conditions at the global level. No doubt, restrictions on finance and a more Keynesian approach to government deficits are necessary elements in a sustainability transformation, but more radical institutional changes will also be needed before the contours of a new phase will begin to emerge.

Concluding Remarks

The paper set out to explore whether FRB is a useful response to the combined challenge of governing economic and environmental crises. In conclusion, I tend to side with the critics although I appreciate the intentions of the FRB proponents and their efforts to encourage public debate of the monetary system. First, I agree with the Post-Keynesian position that FRB will hardly be effective in the prevention of bubbles and financial crises. The tendency to promote FRB as a panacea should make way to a broader and more effective programme for regulation of finance, including structural reforms relating to both supply and demand. Second, the environmental challenge calls for more focus on governing the direction of investments. Third, financial reform must be seen in relation to the phases of capitalist development and potential new models. This involves issues of distribution and power as well as the question of whether a capitalist model is compatible with a green agenda. It is difficult to include these issues when FRB is promoted in general terms that could just as well apply to the 1930s as to the present day. Cutting across

these points, the main problem is that the FRB proposal draws attention away from discussing the need for broader and deeper changes of governance.

It is a paradox that FRB has received so much attention among environmentalists despite the fact that environmental concerns really only figure on the sideline of the debate. Soddy's approach is an exception that highlights how debt that grows with compound interest creates a gap in relation to the development of real wealth. Like the modern proponents of FRB, Soddy argues that the state can solve the problem by creating or destroying money to keep the purchasing power of money constant. However, as the Post-Keynesians argue, the economic system does not work like that – the state cannot determine the money supply, and the money supply does not determine the price level. Furthermore, FRB does not restrict compound interest. The gap between debt and real wealth persists and leaves us with a real problem: 'Since wealth cannot continually grow as fast as debt, the one-to-one relation between the two will at some point be broken – i.e. there must be some repudiation or cancellation of debt' (Daly, 1980: 475). Instead of using Soddy's biophysical considerations as an argument for FRB, they can be seen as a call for discussing how to organize debt cancellations and how to limit compound interest and other ways of extracting rent.

Graeber (2014) provides an interesting historical take on this issue. He distinguishes between long periods (hundreds of years) with virtual credit money – which was the original and most predominant form over time – and periods with tangible money as, for instance, coins. Periods with credit money often see the application of compound interest, which leads to the build up of debt and results in crises. However, societies with credit money also tend to develop institutions to protect debtors and to cancel debt periodically, such as debt jubilees. In Graeber's perspective, a new era of credit money gathered speed when Nixon cancelled the convertibility of the dollar into gold in 1971, but this was not followed by institutions to protect debtors. In fact, the opposite happened, for instance, with the IMF as protector of creditor interests at the global level. Unavoidably, this leads to debt crises, and Graeber concludes that some sort of debt cancellation is the only way out. Graeber does not discuss how a modern debt jubilee could be organized, and it is beyond the scope of this paper, but it seems promising to combine historical experiences with a biophysical perspective when discussing governmental change. Put simply, debt cancellation is a process that results in a new distribution of claims to real wealth.

As a final point, it may be questioned whether explorations of FRB and discussions on a wider set of potential measures for governance can influence actual outcomes. At present, the prospects seem bleak. Despite the economic crisis and the increasingly urgent environmental crises, the interests of finance are still extremely powerful. As an illustration, shadow banking is now reframed as resilient market-based credit intermediation, and light-touch oversight is recommended. Securitization is promoted as a solution for the European credit crunch, supported by 'cosmetic exercises to render securitized assets simple, transparent, and standardized' (Aalbers and Engelen, 2015: 1600). Before the crisis, financial elites were powerful for many reasons. For instance, contributions to election campaigns, effective lobbying supported by storytelling about the social benefits of finance, and the offer of lucrative revolving door jobs were helpful (Engelen *et al.*, 2011, 2012). In addition, the near monopoly of expertise on complex finance made the sector's own actors indispensable during the process of coping with the crisis. This process made the states even more dependent on finance, as they needed to fund the deficits related to the costs of saving finance and the subsequent economic crisis. In some countries, tax payers have become temporary shareholders in failed banks and thus seem to share interests with the sector in maximizing shareholder value. More importantly, QE implies that much risk ends up with the central banks, so states and finance become intertwined in new ways (Engelen *et al.*, 2011: 229f). Considering the electorate, the power of finance relies on a long period of mass financialization with the spread of owner-occupied housing and pension funds. For instance, it may be a barrier to reforms that both home owners and pension holders, who have invested in securitized assets through the funds, have an interest in rising housing valuations (Aalbers and Engelen, 2015). Counter-trends are also visible, particularly in the USA where student loans and sub-prime mortgages have brought many people into serious trouble, and where animosity against Wall Street is clearly expressed in public. Also at the level of the elites, the uneasiness about the present course is reflected in a changing discourse about inequality, tax evasion and tax avoidance, regulation of capital flows, and the need for more Keynesian measures. Probably, we are still far from a situation where we can have a really transformative reform that downsizes and simplifies finance and brings it under democratic control (Engelen *et al.*, 2012). But it makes good sense to discuss the elements of such a reform. Although I do not agree with Wolf (2014) on the desirability of FRB, his concluding remark is worth sharing: 'When the next crisis comes – and it surely will – we need to be ready.'

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