Public and Private Money Creation:

Reform the Banks, not the System

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Abstract

Along with regulatory proposals, the response to the financial crisis of 2008-9 has included some more radical proposals to remove or severely curtail the ability of private-sector banks to create additional money in the form of deposit liabilities. This paper examines some of these, including the public money scheme outlined by Mellor in the November 2010 RWER and Kay's 2009 'narrow banking' proposal. The paper seeks to demonstrate that these proposals are based on misunderstandings about the nature of money and its creation. In particular, nearly all money is issued as the result of implicit or explicit contracts to provide inputs in exchange for the benefit of future outputs. Whether created by the state or by private banks, adjusting money stocks to reconcile the needs of production and the needs of exchange requires mechanisms to withdraw created money from the economy. These 'burdens', that must generally come into existence with any form of money, take the form of taxation and bond issue for state-created money, and take the form of loan repayment and debt write-offs for private bank-created money. State money can in principle be no more burden-free than private money. Moreover, the decentralised issue and burdens associated with private money can improve efficiency by allowing welfare-enhancing contracts between a relatively small number of agents to take place without requiring the existence and matching of pre-existing money surpluses. The prospect of regulatory evasion and the welfare benefits of private money suggest an alternative approach is required. This paper proposes reform of the governance of private money-creating and borrowing institutions.

Introduction

The financial crisis has not surprisingly renewed interest in the money and banking system and possibilities for its reform. The official response is focussed on regulatory issues.[1] These

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[1]Such as the Independent Commission on Banking in the UK, the US Dodd-Frank Act and Basel III proposals of the Committee on Banking Supervision.

might include the quantities and types of capital required to support banking activities, the transparency with which certain assets are traded and the sort of risky activities that will be allowed by banks that have access to central bank and government liability insurance and reserve support. There are also questions about whether and how it is possible to spot and burst asset-price bubbles before they do the sort of damage we have seen on this occasion. The most telling criticism of such moves is that they are 'fighting the last war'. The next crisis may not take the same form as the last, nor even any form that is currently predictable as the financial sector works to evade existing regulations (Wolf 2010). Even if the regulatory framework were broad enough to allow the regulators to use their judgement to detect signs of problems in the system in the future there would be extraordinary pressure on them not to intervene (Volcker 2010).

These problems have prompted or revived radical proposals for monetary and banking reform that go beyond regulatory measures and actually remove the discretion of private banking institutions to create money as they issue loans to borrowers. Mary Mellor, in her article in the November 2010 Real World Economics Review (RWER) (Mellor 2010b) and in her book *The Future of Money* (Mellor 2010a), explicitly proposes that all money should be issued as a public good by the central bank on behalf of the government. Private banks would, as far as they were allowed to lend at all, be restricted to intermediating pre-existing money balances. These proposals are similar to those of Huber and Robertson (2000), which have been taken up in a campaign by the New Economics Foundation (NEF) and others (New Economics Foundation 2010) and those that form the core of a joint submission to the UK Independent Commission on Banking from the NEF, monetary reform pressure group Positive Money and the Centre for Banking, Finance and Sustainable Development at the University of Southampton (Dyson et al 2010). All these proposals emphasise the greater public control of

the quantity and the use of money that restricting private money creation would give. Mellor claims exclusive state money creation would bring a reduction in the pressure to create debt and for excessive accumulation, and of the ability for risky speculation under state guarantees. Huber and Robertson have claimed public money would bring a transfer of revenue from the private sector to the government which could either reduce taxes or be used for social purposes.

Apparently more mainstream proposals for 'Narrow Banking' (Kay 2009) or 'Limited Purpose Banking' (Kotlikoff and Goodman 2010) would separate the operation of the payments system and the basic intermediation of existing money from the more risky activities banks have carried out. The latter proposals have even seen some support from the Governor of the Bank of England (King 2010). The main emphasis of these proposals is the avoidance of banks benefiting from the 'moral hazard' of explicit or implicit guarantees from the state.

While the schemes of Mellor and of Huber and Robertson are self-avowedly radical and explicitly favour public uses of money over private ones, those of Kay and of Kotlikoff and Goodman claim to strengthen *market* incentives to produce better social results. A proper analysis of all these schemes, however, shows that by preventing the decentralised issue of money their main result is to significantly remove flexibility and decision-making power from the private sector, and so limiting its ability to take advantage of value-creating opportunities. While this in itself would presumably be less of problem from Mellor's or from Huber and Robertson's point of view, since they have a much wider critique of the private sector, than it would be for Kay or Kotlikoff and Goodman, it turns out that many of the other benefits claimed for a transfer of money creation from the private to the public sector are illusory.

These apparent benefits are based on misunderstandings of the working of the monetary system and how it facilitates value creation in the real economy. The claims of Mellor and of Huber and Robertson rely on applying different models of the costs and benefits of money creation to publicly and privately issued money. I demonstrate in this paper that this is mistaken, and that the same model applies to both. The apparently more mainstream proposals are arguably even less coherent, since they fail even to fully acknowledge the current role of private sector money creation, and so appear to ignore the efficiency losses that would offset any gains from their proposals, without justifying this by the prioritising of public over private spending.

I argue here that these findings follow from the fact that the existing *structure,* if not the operation, of the existing monetary and banking system is perfectly suited as a response to the role of time and uncertainty in the creation of value and its exchange. Were the private money-creating part removed there is a likelihood that a similar but unregulated structure equivalent to the existing private banking system would simply rise up in its place. The instability and risks associated with this would make the cure likely worse than the disease. The real causes of banking failure both in stability terms and in the provision of social value lie in the motivation, incentives and information available to lenders (creators of money) and borrowers (immediate recipients of money issue). So much are these misaligned with the appropriate balance of costs and benefits of the monetary and banking system that their very *identity* needs to change.[2]

The structure of this paper is as follows. Firstly I shall describe the 'radical' criticisms of the existing system of money and banking and the reform proposals made by Mellor and by

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[2] Other participants in monetary exchange also play a part as indirect recipients of money issue.

Huber and Robertson. I then analyse the claims of these authors, demonstrating that many of their criticisms are misdirected, much of the benefits they claim from their proposals are not realisable, and that they seriously underestimate the efficiency costs of their proposals. The next section considers the apparently more mainstream proposals of Kay and of Kotlikoff and Goodman, demonstrating why in effect they are also proposals that transfer all ability to create new money away from the private sector and to the state alone. The efficiency losses discussed in the previous section thus apply to their proposals also. The final section of the paper summarises the arguments made and suggests a different approach to monetary reform that accepts that the existing structure of banking and its power to create money is both efficient and probably inevitable in a tolerably free economy, but could undoubtedly be made to better serve social purposes. Thus my alternative reform suggestions concentrate not on the structure, but on the nature of the components within that structure. The purpose of the system of money and banking is to serve the purposes of the real economy of people and production, yet financial service businesses have increasingly come to serve their own ends even when these are orthogonal or even contradictory to those of the real economy. The change required is therefore within these businesses, in terms of internal structure, governance and leadership, and in terms of the character, motivations and accountability of their personnel.

'Radical' Reform of the Monetary System

Mellor: Public Money and Provisioning

In her RWER article (Mellor 2010b) Mary Mellor explains the lesson of the financial crisis as being that

> …deregulated privatised finance proved not to be a source of wealth for all, but a drain on the public economy...a destroyer of personal economic security as savings were threatened, jobs lost and homes repossessed (Mellor 2010a, p1)

She goes on to state that it has turned out that '...money is a complex phenomenon whose economic functioning relies on social trust and public authority' and that this can only be achieved 'through public action and social solidarity, not through the market'. She argues that since the market purpose is to make profit rather than meet needs, the private control of finance should be challenged to create a money system enabling 'comprehensive provisioning of human societies in an ecologically sustainable and socially just way' (Mellor 2010a, p4). Because money depends on social trust and public authority it should not be owned by and serve capitalism, she argues; in particular, banks should not be able to make profits from the issue of money that ought to belong to the state.

Beyond this general point Mellor believes that the consequence of privately issued money and debt creation is to drive increasing expansion of economic activity, whether or not this is desirable. This comes about because of the need to monetise profits: '...customers also need credit to be able to purchase goods…[because]…workers' wages are much less than the value of the goods they produce.' (ibid, p82) and because '[i]f capital is to accumulate there must always be new money coming into the system... The desire to extract more money than is put into the process through wages and other costs is a dilemma for capitalism' (ibid, p83). Included in this issue is the problem of how interest can be paid on loans without itself requiring the creation of new loans. She also sees the privatisation of money creation as the cause of the increasing debt of the state to the private sector. Private money issue is also a promoter of financial activity that is risky to the real economy of the production and exchange

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of goods and services.

Mellor's proposal for reform is that money should be 'returned' to public control for expenditure on goods and services that would support a 'provisioning' approach to human and social needs and environmental constraints. The private creation of money would be prevented. The rationale is summarised as follows:

> Money is a public resource that should be used to provision human
> societies on the basis of future social well-being and environmental
> responsibility. A steady-state economy would be possible if the money
> system was not driven by the demands of debt-based money, financial
> accumulation and profit-driven growth (Mellor 2010a, p175).

Mellor also claims that '[s]uch a system would not require growth other than to meet need because most money would be issued free of debt' (Mellor 2010b, p86). There is though an acceptance that 'tax could be used to regulate the money supply if it got out of hand' (Mellor 2010a, p168) and that any private project needing an initial injection of money would have to wait for some of this money to become available from elsewhere.

Huber and Robertson: Public Money and Seignorage

Huber and Robertson's criticisms are that the existing monetary system is 'opaque, inherently unsafe, almost impossible to control and too expensive' (Huber and Robertson 2000, p1). They identify an 'anomaly' in

> ...95% of new money being issued, not by governments as cash (coins
> and banknotes) but by commercial banks printing credit entries into
> the bank accounts of their customers in the form of interest-bearing
> loans (Huber and Robertson 2000, p2).

As a consequence Huber and Robertson quantify the gains of public money creation in terms

of billions of pounds in 'seignorage' revenue (by which they mean the value of the public goods and services that could be obtained by the spending of a quantity of money into circulation) and the avoidance of the 'special, supernormal profits' of the private banks, earned because the money they lend is apparently obtained free of charge (Huber and Robertson 2000, p31). They assume that the annual increase of M4 (£38 billion per annum on average for the UK in the 1990s and £123 billion per annum for the UK on average for the 2000s) represents a quantity that could be created by the government bringing a net public 'seignorage' gain equal to that additional spending. Working with figures up to 2000, they estimate the seignorage potential as being £47 million per year and they also calculate excess bank profits as £21 million per year (ibid, p84). According to Huber and Robertson the predominantly private issue of money also results in the government carrying a larger debt burden. They state that under exclusive public money issue,

> ...governments will no longer borrow and pay interest on money from the banks, which they have allowed the banks to print for the purpose of lending to them (Huber and Robertson 2000, p12).

The lost 'seignorage' would thus be reclaimed and the banks' excessive profits ended. Existing deposits would be converted into the new money and only the central bank will subsequently be able to create new money, which it will do so 'as debt-free payments – outright grants – not as interest-bearing loans' (Huber and Robertson 2000, p9). They also argue that a purely state-created money will be easier to control in quantity and so make it easier to control the price level and prevent inflation (ibid, p35). This latter view is shared by Dyson at al (2010) who also anticipate greater economic stability from their scheme.

Assessing the 'Radical' Proposals

Money Creation and Production

The fundamental weakness of Mellor's, Huber and Robertson's and similar proposals is that they do not acknowledge the critical role of *money creation* in a monetary economy, which is prior to and as important as, money's roles as medium of exchange and store of value. Mellor has clearly read widely in the heterodox monetary literature and does understand the nature of money as a claim on future production as well as a token that obviates the need for barter. And she draws the correct and important conclusion that it is social credibility given through trusted authorities and institutions that gives money its universal acceptability in the payment of any debt or liability by any bearer. Mellor accepts that in issuing money 'the authority of the state rests ultimately on its ability to tax back, and therefore recirculate its money' (Mellor 2009, p17) but also claims that 'unlike the state which can issue money that does not have to be repaid, banks issue money as debt' (ibid, p29). But clearly, if state money requires taxation for its acceptance, it may impose a burden at least as much as bank-issued money does. Huber and Robertson, along with Dyson et al (2010), also make the misleading claim that future government spending, or at least that part making up the annual 'seignorage' gain, could be in the form of 'debt-free' spending power.

The creation of money is almost always a contract to share the benefits of future output with those providing the inputs required for the *production* of that output.[3] Any production process, or indeed any value-enhancing transaction in general, that involves a delay and consequent uncertainty in the arrival of final output, is likely to be greatly facilitated by such a contract. In such a contract the benefits from future output can be represented and transferred ahead of

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[3]The only general exception is 'money' whose intrinsic value equals its face value. This money is thus itself part of current output.

the completion of production and in the form of general purchasing power that can be redeemed against the output of that production. Money creation is involved in initiating production not because money and debt are unique and particularly pernicious features of capitalist economies, but because money and debt creation is a rational social response to the natural phenomena of time and uncertainty (Fontana 2009). It is a mechanism from which all participants (including the credit-money guarantor or banker) can gain on average in that it allows the credible sharing of future value from *new* value-creation opportunities spotted by any agent or agents, including the state.[4]

It is therefore misleading to claim that money is created *ex nihilo* or 'out of thin air' as Mellor claims (Mellor 2010b, p79). Since Mellor is otherwise correct in describing the primary nature of money as a social construct, it does not in fact require any physical process to create money. The creation of money is, in general, not the creation of a tangible object, but the creation of a contract. One could always say that a contract arises 'out of thin air', but this is as true of any conceptual, rather than tangible, object. This leads to confusion over the relationship between the quantity of money created and the associated new real value which it helps to create. I go into this in more detail below.

Money Creation and Value Creation

Failure to fully grasp the nature of the money-creation contract leads both Mellor and Huber and Robertson to misunderstand the relationship between the quantity of money created and the associated real value of production output. Abstracting from pre-existing capital and collateral considerations, the quantity of money creation required to initiate a production

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[4] For further descriptions of this 'circuit' approach to monetary flow see eg: Fontana (2000), Graziani (2003), Rochon (1999) and Weir (2008), Chapter 3.

process depends on the efficient quantity to be produced between batches of output being marketed and revenue received, and the length of the period in which this is achieved. This will vary according to the nature of the production process and the type of market existing for its output. It may also vary over the lifespan of any particular process – in particular the initial lag time for goods to first enter the market may be considerably longer than that which prevails once production is established. Other fluctuations may arise due to variations in input availability, as well as process and market conditions. The period and quantity of outputs (and therefore inputs) may range from being very long and very large in the case of construction and civil engineering, to being almost instantaneous and very small for continuous production of small household items. In any single production cycle (ie: all production is completed before goods can be purchased), the quantity of money M_P required for the production process is given by

$$M_P = L_P = \sum_{i=1}^{n} P_i N_i + W, \tag{1}$$

where L_P is the money-creating loan required; the total payment for n non-labour inputs is given by $\sum_{i=1}^{n} P_i N_i$ (the sum of prices P_i multiplied by quantity N_i for all n non-labour inputs), and the total wage bill is given by W. M_P is therefore the payment required in this cycle to compensate the owners of all inputs for losing them to the production process. We can now represent net real value creation ΔV^T in this cycle in an externality-free production process as

$$\Delta V^T = V(\phi) + V(\pi^E) + V(\pi^B) - \sum_{i=1}^{n} V(N_i) - V(L), \tag{2}$$

where $V(\phi)$ is the welfare value of the produced outputs ϕ to their purchasers (excluding any 'purchases' of own output made by the entrepreneur or banker); $V(\pi^E)$ the welfare value of

any entrepreneur's surplus π^E and $V(\pi^B)$ the welfare value of the banker's surplus π^B.[5]

$\sum_{i=1}^{n} V(N_i)$ represents the sum of the welfare value of the quantities N_i of all n productive non-labour inputs under their best possible alternative uses other than in this production process, and $V(L)$ is the welfare value of total utilised labour L under its best possible alternative use, including use (or non-use, ie: leisure) by its owners. The first derivatives of all the welfare value functions in equation (2) are positive,

$$\frac{\partial V}{\partial \phi}, \frac{\partial V}{\partial \pi^B}, \frac{\partial V}{\partial \pi^E}, \frac{\partial V}{\partial N_i}, \frac{\partial V}{\partial L} > 0. \tag{3}$$

There is a welfare value increase as long as $\Delta V^T > 0$, but incentive compatibility implies production will not take place unless $V(\pi^B) \geq 0$ and $V(\pi^E) \geq 0$ also. Suppliers of each non-labour input i each have the incentive compatibility condition $V(P_i N_i) \geq V(N_i)$, where $V(P_i N_i)$ is the welfare value of the payment for those inputs, and $\frac{\partial V}{\partial (P_i N_i)} > 0$. Suppliers of labour have the aggregate incentive condition $V(W) \geq V(L)$, where $V(W)$ is the welfare value of the total wage bill W, and $\frac{\partial V}{\partial W} > 0$. The important point to note is that the fulfilment of the incentive conditions and a positive value for ΔV^T have no direct implication for the value of ΔM. In particular, in a production process where both total inputs and outputs in a cycle have large money values a small overall welfare value gain can be compatible with a large money issue. The main additional purchasing role of the new money issue is essentially ended when the inputs, or in the case of non-reusable inputs output to the value of these inputs, has been released for sale and are available for exchange. The failure to ensure the withdrawal of most

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[5] It is immaterial here whether the entrepreneur's and banker's surpluses, wage payments and payments for non-labour inputs are regarded as shares of own production output or whether these have been monetised and/or exchanged for different goods. If they are in the form of real production output then labour providers and non-labour input providers will overlap with purchasers of output.

of this money from circulation by the discharging of a monetary burden in the form of a debt or tax liability may leave an increase in the quantity of money greater than any additional real value now available in the economy. As this consequence works its way through ongoing exchange in the economy, it may tend to lower the exchange-value of money throughout the whole money-using system, leading to the familiar welfare problems associated with inflation. The overall welfare effect of spending additional money into the economy therefore depends on both the additional welfare generated by economic activity initiated by that spending and the relationship between the net change in the money stock and that direct additional welfare. This is a much more complex relationship than Mellor or Huber and Robertson would have us believe. This relationship will be further examined below.

Private Money and Public Debt

There are also misunderstandings over the role of bonds in the monetary system; Mellor arguing that the dominance of private money means that 'rather than issue money, governments issued bonds' (Mellor 2009, p35). Huber and Robertson too, chart a connection between private money issue and government debt. This is mistaken, since the power to tax is not diminished by the existence of private money creation; indeed to the extent that private money creation enhances the productivity of the economy it may well be increased. To understand further the actual relationships between money, real goods and services and government bonds we need to construct balance sheets for the economy, and examine how assets and liabilities match across the balance sheet of the economy. This I do in the next section.

[Insert Figure 1 here]

A Public Money Economy

I start by considering the situation where all money is state-issued (**Figure 1**). I count as *assets* of the economy, firstly the real goods and services currently available and purchasable for money Y^C and secondly those goods and services currently tied up in production processes and so not immediately available for exchange Y^U. I use the term 'tied-up' to indicate goods and services that are either inputs in use or are unfinished outputs of production. Total economy assets are therefore given by

$$Y^T = Y^C + Y^U. \tag{4}$$

I count as *liabilities* of the economy existing claims on assets. As a stock these claims consist firstly of the money which is immediately useable either to pay taxes due to the state or to purchase currently available goods and services (including capital goods). This money is likely to exist in two forms – physical notes and coins (cash) *C*, and ledger entries (deposits) $M^S - C$, where M^S is the total quantity of state created money. The latter may exist as direct deposits with 'state banks' or more likely as liabilities of private sector institutions, with these liabilities backed in turn by state liabilities. Money is issued in part to acquire the inputs for state-directed 'production' (whether of services such as education and healthcare or material production) and in part as direct monetary benefits.[6] It also serves as a means of exchange for the available goods Y^C. The part of the money issued to acquire inputs can be said to represent the tied-up goods and services Y^U, coming into existence as those goods and services are acquired for state production and due to disappear when those goods are 'paid for' through taxation. The second group of claims is in the form of bonds *B* which once converted into money by surrender to the state can be used for the same purposes as money.

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[6] To do true justice to the dynamics of *continuous* money creation and production would require a rather more complex discussion than I am prepared to enter into here.

The total liabilities of the economy cannot exceed its assets without the risk of their devaluation, since there would then exist total claims of a nominal value greater than real assets.[7] It is important to remember that asset and liability 'stocks' are always a snapshot at a point of time that results from continuous flows of produced goods and of money.

It should be noted that under a state money regime, tax revenue and the issue of money and bonds are all under the control of the government. But they are not independent, since taxes are paid by returning money to the government and bonds are purchased for money and redeemed from the government for money. I assume here that the main addition to the money stock is a consequence of government spending. I ignore the effect of central bank lending since this automatically creates a loan asset to match any additional money liability, and so always expands the balance sheet symmetrically. I express the total nominal money stock M_t^T, which in this case is equal to the stock of state money M_t^S, at the beginning of some period t as follows:

$$M_t^T = M_t^S = M_{t-1}^S + G_{t-1} - T_{t-1} - \Delta B_{t-1},\tag{5}$$

where G_{t-1} is nominal government expenditure in period t-1, T_{t-1} is nominal taxation in period t-1, and ΔB_{t-1} is the net change in the nominal stock of government bonds in period t-1. We can generally assume that the relevant period is 1 year. For the sake of simplicity interest payment on bonds is included in G_{t-1}.[8]

Public Money and Inflation

What is the interaction between currently available real goods and services Y_t^C and the

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[7] We are only considering primary claims, ie: claims on current real goods and services. Equities and corporate bonds are secondary claims in the sense that they are claims on *future* income streams.

[8] Note that equation (5) is thus exactly equivalent to the standard government financing constraint (see eg Leslie 1993, p8-9).

current nominal money stock M_t^T once these are determined by the mechanisms so far outlined? This is complex, since it depends on factors that influence the proportion of currently available goods to those tied up in production and the extent to which economic agents are willing to delay transactions (including the exchange of bonds for money) until currently unavailable goods become available or are converted into new production goods. But if we regard all of these factors as being encompassed by the velocity of money circulation, and assume that institutional factors keep this more or less constant, then we can invoke the quantity equation and anticipate that an increase in the stock of money in the absence of changes in other assets and liabilities implies a likely rise in the prices of goods and services.[9] Avoiding inflation, where money issue is solely the responsibility of the state, is then a balancing act between the flow of money into the economy from government spending, and money that flows out of the economy as taxation and in exchange for bonds. If these flows are not in balance, then the stock of money in the economy will rise or fall. So governments do not issue bonds to obtain money; the issue of bonds is an *alternative* to tax-raising in lowering the pressure on prices by reducing the quantity of money on the liability side of the balance sheet. Bond sales substitute bonds for money on the liability side of the balance sheet. [10]

Under the assumptions above we can express the overall relationship in a state-money economy between the price level, government expenditure, taxation, government bond issue,

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[9] The quantity equation can be stated in transactions form as $MV = PT,$ where M is the money stock, V the velocity of money, P the average transaction price and T the number of transactions in the relevant period. With a velocity of money that is between zero and infinity and constant $P \propto M / T$. If the stock of available goods as defined here is exchanged at a constant transaction rate then $P \propto M / Y_t^C$.

[10] Under a purely state-issued money the state alone is ultimately responsible for converting claims into real goods and services. Its power to do this is through its power to tax. It can tax production (both inputs and outputs) and it can tax exchanges, but there is almost certainly a limit to its maximum ability to tax that falls some way short of the total value of real resources in the economy. (See Buiter 2010).

and the value of goods and services by the following equation:

$$P_t / P_{t-1} = \frac{\left[M_{t-1}^S + G_{t-1} - (T_{t-1} + \Delta B_{t-1}) \right] / M_{t-1}^S}{Y_t^C / Y_{t-1}^C}$$ (6)

where P_t / P_{t-1} is the proportionate change in the price level from t to t-1; M_{t-1}^S is the state

money stock at the beginning of period t-1; T_{t-1} the tax revenue raised in period t-1; ΔB_{t-1} the

net bond issue in period t-1 and Y_t^C / Y_{t-1}^C the proportionate change in goods available to

purchase, from period t-1 to period t.[11] Equation (6) indicates that when a state money

increase is not matched by a proportionate increase in available goods and services it needs to

be offset by taxation or bond issue, if a likely effect on the overall price level is to be

avoided.[12] Note that this is particularly relevant to the vision of Mellor who anticipates a

'steady-state' economy where overall growth of economic activity was no longer necessary or

even desirable (Mellor 2010a p7). In this case flows of money into the economy would have

to exactly match flows out to maintain a more or less constant money stock (assuming

velocity of money and the rate of transactions constant). Since we can assume Mellor does not

want to see government debt rise, this requires a balanced budget where tax revenue exactly

matches government expenditure.

A Private Money Economy

When we allow the creation of private money, based on state money (referred to now as High

Powered Money or HPM) and deriving its initial acceptance and value from that state money

by its easy and costless exchange with it, then we are allowing the creation of private

contracts to which there are three parties, of whom one may be an implicit party. There is a

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[11] Note that we are abstracting from further changes in money and real goods and services that occur within period t, but since we are interested in an overall trend exactly which period changes are ascribed to is not critical to the argument being made here.
[12] The *general* price level here includes consumer prices but may also refer to the effects of changes in asset prices.

borrower, who accepts an obligation to provide a flow of deposit to a bank at some time in the *future*, in return for the bank creating a *current* deposit liability in the borrower's name. The borrower then has the right to arrange a transfer of that deposit to a third party or parties with the purpose of acquiring some productive good or service, with which he or she may hope to create the revenue to repay his or her loan.[13] This contract depends on the borrower anticipating his or her revenue, the bank anticipating the borrower's ability to repay and the subsequent deposit recipients' willingness to accept the money created with the loan in exchange for the productive goods or services required.

The loan or debt thus created on the asset side of the bank's balance sheet is an obligation on the part of the initial recipient of money issue to bring about the eventual withdrawal from circulation of that money by repaying the loan. It is the private money equivalent of the citizen's obligation to pay taxes in state money. The critical difference between debt repayment and tax liability is that there is no assumption with the latter as there is with the former that the liability rests exclusively with the immediate recipient of the money. A borrower of money always acquires a debt – but a recipient of state funds does not automatically acquire a tax liability.

[Insert Figure 2 here]

Figure 2 shows the relationship between money and real goods and services in an economy with private banks that can create new money as liabilities on their balance sheets, and where state and bank money are fully inter-convertible on demand for recipients of bank money. The latter stipulation means that direct recipients of state money (government employees or

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[13] Other motivations for borrowing will be discussed at the end of this section.

suppliers or the recipients of monetary benefits) can immediately have that payment represented as a bank deposit for their convenience in ordinary transactions. Yet at the same time, if they wish to convert that deposit into state-issued notes or coin, or back into state money for the payment of taxes or for the purchase of government bonds this can be done freely and more or less costlessly. The non-cash money in the economy is now the sum of the deposit liabilities $M^S - C$ representing the state-money produced by the government (which itself remains on the *asset* side of the private banks), and those deposit liabilities $M^B - M^S - C$ (where M^B is the total quantity of private bank deposits) created by the banks themselves, although there is no operational distinction between the two sets of liabilities. In the same way that we said that the money issued by the state to acquire inputs could be said to represent those inputs and/or the outputs they produce while they are 'tied-up' in the production process, we can say that the quantity of private debt money $M^B - M^S - C$ *represents* the inputs acquired with private loans and/or the outputs produced with them while they are tied up in the private production process and before the loan that created the money is repaid.

Deposit transfers and State Money

When a payment is made by a deposit-holder with one bank to a deposit-holder with another bank, a transfer of deposit liabilities takes place, this time from one bank to another. Accounting rules ensure that along with this transfer of liabilities must go a transfer of assets, or the balance-sheet position of the recipient bank would be impaired. This transfer of assets takes the form of a transfer of state money (HPM) to the exact quantity of the transferred deposit. Banks therefore always receive or give up the equivalent quantity of state money whenever they receive or give up a net deposit liability. They must therefore ensure that what

they have on the asset side of their balance sheet at any time is adequate to meet any likely demand to give up state money as a result of deposit-holders' transactions.[14] This requirement isn't quite as onerous for banks as it initially appears, however, as we will see below.

While the banking system as a whole has no problem accessing HPM since it is constantly entering the economy with government spending and bond issue, individual banks are in competition for it. Generally, their cheapest source of HPM is the acquisition and maintenance of deposits from individuals and firms. Deposits are attracted by the payment of interest and the provision of branch and other banking services to deposit-holders. Although deposits themselves are on the liability side of the bank's balance sheet, any net addition to deposits for an individual bank is accompanied by a transfer to that bank of HPM entering on the asset side of its balance sheet (see **Figure 3** below). But it is important to note that this does not mean that all the state money banks receive need be held in this form, because the constant transfers of state money between banks with deposits in day to day transactions mean that the value of *gross* deposit transfers is many multiples of the *net* flows of state money between banks.

Consider a situation where there are two banks, A and B. If banks A and B both lend £1,000,000 on the same day, and each loan quantity is immediately transferred to the other bank, there has been £2,000,000 created and exchanged. Yet because the transfer of deposits nets out exactly over the day, no actual holdings or transfer of state money are currently necessary. To support these transactions, neither bank A nor bank B needed to have access to any state money at all. Clearly such exact matching is unusual, and this doesn't take account

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[14] For further description of the monetary interactions between the government, central banks and the private banking sector see Gray and Talbot (2006).

of cash withdrawals or transfers to or from government, which also require transfer of state money. But as long as flows to and from banks are reasonably balanced, the need for banks to hold stocks of state money will be limited. These gross transfers will only get netted out, however, by dint of banks attracting each other's deposits, and in a competitive banking environment this is not costless. While current accounts rarely pay much interest, they usually come with a full panoply of payment services as incentive. In circumstances where inadequate levels of deposits are obtained to provide for existing depositors' cash needs and transfers, individual banks can obtain additional HPM by direct borrowing from other banks or by borrowing from the central bank at cost, with or without the collateral of safe securities. Any such loans add to the liabilities of the bank. Any discrepancy between a bank's calculated assets and liabilities represents the 'value' of the bank to its shareholders – the *equity* of the bank. Clearly this must be a positive discrepancy (ie: assets exceed liabilities) or the bank is insolvent.

[Insert Figure 3 here]

Private Money and Inflation

Against the advantages of private money issue we have to place a risk. Again, from the quantity equation and assuming constant velocity we can anticipate an inflation risk;[15]

$$P_t / P_{t-1} = \frac{M_t^T / M_{t-1}^T}{Y_t^C / Y_{t-1}^C},$$
(7)

where

$$M_t^T = M_t^B + C_t = M_{t-1}^B + C_{t-1} + \Delta L_{t-1} + G_{t-1} - T_{t-1} - \Delta B_{t-1},$$
(8)

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[15] This now relates to the holding of balances – so assumes a constant relationship between current and anticipated future output.

and is the nominal stock of money at the beginning of period t, where M_t^B is the quantity of bank deposits at the beginning of period t and C_t is the quantity of circulating notes and coin. We assume now that the stock of state money is constant, which implies that $G_{t-1} - T_{t-1} - \Delta B_{t-1} = 0$. If the impact of a net increase in loans ΔL_{t-1} in increasing the total money stock M_t^T is greater than its impact on the quantity of available goods and services Y_t^C because of the failure of loans to be repaid then $P_t / P_{t-1} > 1$. In this case some offsetting mechanism is required to prevent the loss of value of money. Inspection of the private bank balance sheet in **Figure 3** reveals the solution in the form of the adjustment in monetary value of bank equity E. Bank equity represents the bank's shareholders claims on the future income of the bank. When these claims are ultimately realised they generally do so in the form of the transfer of deposit liabilities. Like any deposit transfers they are associated with the transfer of an equivalent quantity of HPM.

When a discrepancy between addition to the stock of money and addition to the total wealth of the economy becomes apparent in the form of a bank loan that is unlikely to be repaid, accounting rules dictate that the bank must reduce the claims due to its shareholders by a charge to its profit and loss account equivalent to the value of the 'bad' loan.[16] This limits the quantity of state money it can transfer out of its reserve account and so effectively replaces the failed loan asset with the equivalent quantity of state money. In effect the shareholders repay the loan out of their own future earnings, and in this way inflationary pressure is avoided at the cost of the bank. This means that it is the *bank* and its shareholders that bear the initial cost of any loans that turn out to be in excess of production potential. So when Mellor claims that 'commercial debt exchanged for bank money that is recognised as legal

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[16] For full details of the accounting treatment of 'bad and doubtful loans' see Hitchins et al (1996), Chapter 17, pp411-432.

tender, is a liability on the state' (Mellor 2010b p83), this may be *ultimately* true, but should rarely be true in practice.[17] Firstly, bank money in the form of deposits is not in fact legal tender, although it can of course be freely exchanged for legal tender in the form of state-issued notes. The consequence is that deposits are only guaranteed by the state to a specified limit (currently £50,000 in the UK). Secondly and more importantly banks do indeed have responsibility for making good the consequences of 'bad loans' irrespective of whether these loans are issued in legal tender notes or in non legal tender bank deposits. The state's liability only becomes automatically effective when the bank as a whole fails because it has bad loans exceeding its equity capital. It should be noted once again that this has not been the primary feature of this most recent crisis, which has been more about recapitalisation in the face of severe asset devaluation (Hellwig 2008).

We should note that, contrary to Mellor's claim (Mellor 2010b, p84), consumption loans and loans for 'speculation' are no more problematic than production loans, as long as the additional welfare value from bringing forward consumption or from a change of ownership covers the overall cost of providing the loan. No doubt many such loans currently issued fail to achieve this, but this is a specific rather than a general objection to such loans and each such loan must be considered on its merits.

Money Issue always Entails a Burden

What the foregoing analysis indicates is that *any* increase in money issue, whether state or private, must be associated with a debt or burden of some sort. There must be some pre-

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[17]Some failed banks in the UK (eg: Northern Rock) have had their liabilities (along with their assets) wholly transferred to the state. Others have seen the government become a major shareholder. To date it is anticipated that these liabilities will eventually be recouped from the assets of these banks. The state has had to support the money-issuing *institutions* (for various reasons) rather than the money they issued.

determined obligation on some party or parties to the original money-creating transaction to give up money for withdrawal from circulation to avoid an inflationary imbalance between money and real goods. This burden is in the form of tax or bond issue for state money, debt repayment or equity write-off for bank-issued money, or failing these it is replaced by a cost in the form of a reduction in the value of money holdings as a consequence of an increase in the price level. This burden then falls willy-nilly on anyone with a positive money balance.

For a purely state-issued money, the 'shareholders' of the central bank are the citizens and some or all citizens must have their purchasing power reduced to make up for any excess money issue that occurs. If $\Delta M^T / M^T$ exceeds $\Delta Y^C / Y^C$ when all else is equal the excess purchasing power can only be worked out through increases in taxation or through inflation. So it is important to note that 'bad' money issue, whether or not accompanied by debt, is costly to its issuer, whether through the accounting process for private banks or through accounting and economic processes for citizens of the state. State money may be interest-free, but this simply means that the entire burden of risk stays with the issuer – in this case the state and ultimately the taxpayer. Note that whatever the value of overall value of ΔY^C for a loan contract a private bank that fails to obtain repayment of a loan must make it good within its own balance sheet. As a result, any deliberate permanent adjustment of the money supply can only be done by adjustment of the state's tax liability or bond issue. To the extent that the tax liability or new bond issue is set at less than government expenditure to allow a rise in the money stock to match an increase in Y^C, the state already claims any possible seignorage that is available. The apparent seignorage opportunity that arises from the addition to the stock of *private* money is accompanied by a matching liability increase – private debt. Eventually those liabilities must be discharged. The same would be true of the *implicit* tax liability that

would accompany an increase in state money that was not matched by an increase in goods for exchange. Continuous growth in economic activity does however mean that an increasing quantity of money in circulation with its associated increase in burdens may be consistent with a zero or low rate of inflation. This money stock increase may be brought about by a rate of new loans by private banks that exceeds the rate at which previously issued loans are repaid, or by a constant shortfall of taxation relative to government spending.

Banks and 'Excess' Profits

Both Mellor and Huber and Robertson believe that banks are making money out of their ability to issue money, and since this money is ultimately backed by the state, that this is an 'undeserved' profit. While not disputing the possibility that banks can and may earn excessive profits unjustified by their social benefits, the question is whether this is an inevitable result of the existing structure of money and banking. We have looked at the balance sheet (stock) implications to banks, now we move on to consider this from a revenue/cost (flow) point of view to demonstrate that banks' profits are not automatically excessive.

As we see from the balance sheet in **Figure 3** a private bank's main assets will consist of loans L, government bonds B_B, other securities O_B and HPM M_B^S. The HPM takes the form of cash in the bank's vaults and of accounts held by banks with the central bank. These accounts with the central bank provide a ready source of further cash should this be demanded by bank deposit-holders and a means for deposit-holders to pay government liabilities as well as the medium of exchange for inter-bank settlements of day-to-day discrepancies in the flow of deposits. HPM enters the economy with government spending or with loans to private banks from the central bank (often collateralised with government bonds) in its 'Lender of

Last Resort' capacity. HPM flows out of the economy with taxation and with purchases of government bonds. As we have noted previously this constant, large, and usually annually increasing flow means that the banking system *as a whole* has easy access to HPM, although individual banks must compete to capture it. In calculating the profit potential and other advantages to private banks, it appears that both Mellor and Huber and Robertson are misled by the small *net* quantities of HPM required to balance out banks' transactions. Let us consider the consequences if bank A simply issued a loan which was immediately paid to an account with bank B, and bank A made no attempt to capture any part of the £1000 in gross deposit transfers to the second bank. In this case there would be no offsetting of bank A's £1000 HPM obligation and they would have to find the full £1000 of HPM in loans from other banks or the central bank. The apparent costlessness of banks' credit-creation is therefore just that – it is apparent, not real.

Apart from deposit liabilities M_B^B the private bank's other liabilities consist of loans I from other private banks or loans R from the central bank, and its shareholder equity E, on which we assume for simplicity that no dividend payments are made. Using the information shown by the bank balance sheet in **Figure 3**, and assuming a given holding of securities and level of equity, we can see that to maintain its reserve level even in the face of zero loan defaults, the bank must aim to achieve the following equality in any period:

$$\Delta L = \Delta M_B^B + \Delta I + \Delta R, \qquad\qquad (9)$$

where ΔL is the quantity of new loans, assumed to be paid by the borrower into an account held with another bank and so involving gross HPM transfers[18]. ΔM_B^B, ΔI and ΔR are the quantities of new deposits, inter-bank loans and central bank loans respectively. While both

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18 Of course there are exceptions, such as overdrafts and payments into accounts held at the same bank, that
    tend to reduce this requirement in part.

Huber and Robertson and Mellor downplay banks' balance sheet maintenance costs, they completely ignore the costs to banks of loan defaults and the charge to equity that may result, with its potential risk of insolvency. The assumption seems to be that since the money created by banks is apparently 'out of thin air' then its loss by the borrower is of no consequence to the lender. But the real cost of loan default is the charge to equity that results, with the period loan default risk given here by *d*. The various interest rates are given as *i* with appropriate subscripts, apart from the deposit interest rate which is denoted by i_D. I can then derive an expression for the profit/loss π^B a bank obtains from an issue of new loans (that is to say to its creation of new money) at the beginning of any period (generally we can assume the period to be a year):

$$\pi_B = i_L \Delta L - i_D \Delta M_B^B - i_I \Delta I - i_R \Delta R - d \Delta L . \tag{10}$$

If we insert some values (for more normal times) into this equation (see **Figure 4**) we find that with some plausible interest rates and an annual loan default rate of 5% a bank might make only a small profit on a much larger loan. It is thus by no means impossible for banks to make losses from its lending and money creation, even when we consider only those costs involved in maintaining its balance sheet and ignore all overheads such as staffing costs and the costs of acquiring and maintaining physical capital, such as premises and IT equipment.

[Insert Figure 4 here]

Therefore the idea that banks are being gifted a 'natural resource' that has been created or made possible by the state and society at large is not strictly accurate.[19] Interest payments on loans must be enough to offset their various costs. There is still some work to be done by

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19 Although when costs in the form of taxes and interest on central bank loans are low relative to the level of state support, it may be that banking profits are being *subsidised*. If interest rates are low for policy reasons then tax adjustments may be warranted.

banks to make their profit.

Is a Steady-State Economy Possible?

Mellor argues that should a steady-state (zero growth) economy be desirable, private money creation makes it unattainable. She argues that new money creation allows capitalists to pay workers wages that are less than the value of the goods their labour goes to produce. The additional debt associated with this money drives further economic activity. But none of this is necessarily true. It is hardly a surprise that wages (as monetary payments for labour inputs into production) are less than the value of the total outputs of production processes. Whatever we think about the exploitation of labour by capital, we cannot anticipate that the provision of capital goods and entrepreneurial input will be entirely costless.[20] Where the payment of these factors is not in kind, then some of the sale price of the produced goods must go to their compensation. (How much should go to them, and thus whether the distribution of money revenue labour between labour and capital is correct is a related, but nevertheless separate, issue.) The power to purchase goods with money need not lie with the wage-labourers alone but with all those who receive an ultimate share in the money revenue of the firm. The problem of inadequate demand, when it arises, is thus not only soluble by the issue of additional credit but also by altering patterns of demand.

Neither profit from activities facilitated by money issue nor interest on debt need drive increasing monetary issue as Mellor claims - although they may do if money issue is poorly managed. Both profit and interest are circular flows. Profit from production is a flow of money that initiates from a bank and returns to a borrower twice – the first time as payment for goods from wage earners and suppliers of inputs, the second time as payment for goods

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20 In any case, they are of course largely (if not wholly) the products of labour themselves.

from shareholders or investing firms – before returning to the bank. The extent to which this total flow exceeds that required for loan repayment and bank interest represents the borrower's profit. Interest is a flow of money that initiates from a bank loan and returns to the bank only to flow out again as payments for the bank's costs and to their shareholders, before ultimately returning to the bank once more to extinguish the loan. Any stock of money can, theoretically, support any flow depending on the flow-rate and the time period specified, so the stock of money puts no *theoretical* limit on the profit earned by borrowers or the interest earned by banks.[21]

A monetary economy that is reliant on ever-increasing quantities of credit to maintain demand is therefore a monetary economy with a particular form of dysfunction, rather than the only type of monetary economy that can exist. But a form of dysfunction that can certainly exist (and almost inevitably will periodically) is where there is excessive accumulation of money stocks by non-bank entities. But this is not to say that profit must always lead to capital accumulation. Profits are *current* revenues exceeding *current* costs – eventually most of this surplus leaves the firm to fund investment or to be paid out as shareholder dividends. But when unexpectedly large money accumulation does occur, it reduces the revenue of firms and renders debtors unable to repay. Economic activity may be reduced. A *continuous* tendency for individuals and/or firms to accumulate increasing quantities of money is a further problem for capitalism, since this will tend to reduce economic activity *in the long term* (unless the state compensates), but this is not a necessary result of firms earning current profits, but of an imbalance of power within the economy.[22] There is clearly no social benefit in consumers

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[21] There are of course *practical* limits relating to the efficiency of the payments mechanism and the desire for intermediate money-holders to hold variable levels of money balances.

[22] A formal attempt to demonstrate a growth imperative driven by debt-money founders on the assumption that banks are constantly increasing reserves (Binswanger 2009). In fact, where this is true it is only contingent on

paying prices that allow firms to accumulate wealth in the form of money or otherwise in excess of that needed to increase production efficiency, so the extent that they do so indicates asymmetries of economic power and/or information.

Money does not generally flow spontaneously – there need to be goods and services to flow in the opposite direction, but the quantity of goods and services flowing opposite to a specified flow of money is entirely determined by the money price of those goods and services. If a firm has the power to determine the price of the goods and services it creates then it can also determine the total flow of money, ensuring that this is adequate to cover both its desired profits and interest payments due to the bank. The ability to determine prices to this extent is therefore likely to be a deciding condition of any production taking place. No additional money creation is therefore *necessarily* required to reward entrepreneur and banker, although it may well be that the additional creation of money makes these rewards easier to obtain, and this fact may well lead to abuses. To the extent that there *is* a growth imperative in capitalist monetary economies, it probably originates from the motives and incentives intrinsic to the ownership and control of capitalist firms (and those delegated to manage that ownership and control) (Gordon and Rosenthal 2003).

A monetary system incorporating public and private banks is thus *theoretically* compatible with providing a productive economy that grows and distributes according to the preferences of its participants. To the extent that it does not, this is not a result of the money and banking system in place, but of the distribution of power and information to the nodes of the system

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conscious decisions by a bank's management. Under appropriate competitive pressure, a bank's prudent reserves, all else equal, will depend on the level of loans. If the level of loans is constant, so will be the prudent level of reserves.

where decision-making about the issue of credit and the creation of money takes place. This distribution is not determined by the system, although of course the system may alter the way that these factors are ultimately expressed. I will come back to this issue and a possible solution in my conclusion.

Private Money and Public Debt

Once we understand that the small amount of the *stock* of HPM does not imply that *flows* of public money currently play a small role in the monetary system, it should be apparent that the existence of private banking does not directly restrict the ability of the public sector to issue money for its own expenditure, although the existence of additional money from private banks may lower the threshold at which public money issue leads to an excess where this issue is out of step with value creation. And this is important because control of significant monetary flow through the economy gives the government the power to incentivise particular behaviours, redistribute wealth and to provide goods and services to individuals and sectors that are unlikely to be able to attract monetary incomes and revenues. The ultimate basis for this power in a democracy is popular consent. But there is no ongoing reason why the public sector should have to 'borrow from the private sector' as Mellor seems to believe. So why do governments 'borrow', by selling their own bonds in exchange for money? If we consider that government bonds can only be purchased with HPM, then it is obvious that bonds are simply an alternative (albeit temporary) method for withdrawing state money from the economy and not an alternative method for creating money or for the government to acquire it. The role of bond issue is complex. It is in part to smooth changes in fiscal balance as these result from unexpected expenditures or falls in revenue. It also serves to facilitate the central bank's manipulation of interest rates, by providing an alternative safe but interest-bearing asset to be exchanged between the central bank and private banks. There may also be a

political element to some bond issue, in that it is politically easier in the short-term to withdraw money from circulation by selling an interest-bearing asset to residual money-holders than by taxing them or other groups. This latter consideration would suggest that government bond issue may be greater than is economically justified, but this does not arise (at any rate not directly) from the existence of a private banking sector.

Efficiency Losses under Public Money

Private Risk-absorbing Contracts

So far I have concentrated on countering arguments *against* private money creation, but what does private money creation bring to the economy? Mellor and Huber and Robertson assume that only the issue of money by government can be socially beneficial. But this takes no account of productive contracts *between* firms and households where benefit is assessed privately. Moreover, there is no guarantee that the flow of public money alone to firms and households will be adequate, appropriate and available to members of those sectors to maintain all the exchanges of pre-existing goods that they desire. Where private money is created for production, and where the risk is borne within that contract, there is no necessary public cost from the financial part of the transaction. The bad debt write-off mechanism by which bank equity is reduced confines the risk to the contracting parties as long as the bank remains solvent.

There is no easy way for the state to allocate *additional* claims to goods and services, when the cost of productive inputs exceeds the existing quantity of available claims, unless the state too imposes a debt burden. Claims to goods and services are then limited to the quantity of state money that the government is willing to issue at any time. This is constrained by its tax-raising potential and other primarily political factors. Much of the productive potential of the

economy may then be impossible to pre-allocate because there is no mechanism that is credible enough to do so. In balance sheet terms there is the potential to expand the asset side of productive potential, but this may be limited by the inability to issue acceptable liabilities that represent goods to be produced. This greatly increases the difficulty and uncertainty involved in initiating production processes, either because the new output must draw purchasing power away from other output, or because the government must be relied on to produce new purchasing power in time for the new output becoming available. So it's not clear that there is a justification for *limiting* privately agreed money-creating transactions between firms, banks and households, although that is not to say that the basis on which they currently take place is fully satisfactory on all respects.

Intermediation v Credit Creation

Preventing the issue of money by private banks leads households' and firms' ability to start new welfare-enhancing projects to depend on earlier earned surpluses or government funds. The use of surplus funds may delay repayment of debts elsewhere. For the government to correctly calculate the optimal quantity of new money both to get new projects started and to ensure the optimal quantity of money for the exchanges of households and firms without a decentralised private banking system seems a very tall order. The opportunity for experimenting in production is obviously limited. It will be almost impossible for a new firm with a new product to start trading. This approach would also seem to assume an extraordinarily efficient market for surplus capital – otherwise it is likely that only the most profitable projects would be financed, and these would by no means coincide with those that were most welfare-enhancing.

Flexibility of the quantity of the means of exchange

From issue to extinction by debt repayment or tax payment money flows through some agents who have no debts to repay or taxes to pay and so can opt to delay spending. Where this tendency is constant loan contracts can anticipate it, but if it changes unpredictably borrowers may become unable to repay loans. An autonomous credit-creation system can respond to this situation by increasing the issue of loans temporarily or even permanently as long as the projects for which credit is issued are viable. In a private credit creation system money can be issued for a purpose and with a limited life-span. The quantity of private money circulating tends to expand with increasing production and shrink with decreasing production. As a result it also tends to rise and fall with the quantity of privately produced goods and services, ensuring that medium of exchange is available to purchase them. A further feature of a private credit-creation system is that extensive search to match investor and investment is not necessary. If a project is thought viable, no pre-existing money surplus is necessarily required to fund it.

In contrast, a purely intermediary banking system deals with pre-existing money that was created for some *other* purpose, in the proposals here for the purpose of government spending, and whose life-span is not necessarily limited. All lending, therefore, is secondary to accumulation by some other agent. Lending will not take place unless the opportunity cost of the *lender's* alternative use of his or her money is less than his or her share of the net value of a proposed project, even though the welfare gain identified in equation (2) and the incentive compatibility conditions favour the project going ahead. Thus some viable projects will not take place because potential investors have alternative uses for their purchasing power. Moreover, even to maximise the efficiency of the use of potential investors' surplus funds in funding new production requires extensive and accurate matching.

Government Spending Decisions

When government spending does not achieve gains in widely exchangeable wealth the burden of adjustment falls on all taxpayers. This may make it difficult for the government to justify spending that benefits relatively narrow sectors of society. There will continue to be a large obligation on government to balance out the benefits, and this will tend to limit the further spending required to make up for the absent money creation by private banks. For better or for worse the number of private firms is bound to shrink as a consequence of restricting private money creation, with difficult to foresee impacts on money holding. As a consequence it is impossible to predict what the right quantity of money will be following such changes and how that quantity will change from year to year. Any discrepancy between desired public spending and the optimal quantity of money will still, as now, have to be corrected by taxation and bond issue. For this reason, Huber and Robertson's numerical estimates of 'seignorage' benefit are meaningless. Huber and Robertson's estimate of the gains from public money issue (as described on p6) depend on continual addition to the money stock. They treat the current money stock as if it were a fixed quantity that only changes when deliberate and discrete additions or subtractions are made to it. But this is quite wrong. As Equations (5) and (8) show, the published figure for the stock of money is a residual that is a snapshot of the effect of flows of money from 'creation' to 'destruction'. The government is already responsible for a large quantity of the creation in the form of its spending (£600 billion in 2009) and for destruction in the form of taxation and government bond issue. The private banking sector accounts for the rest. The relationship between the creation and destruction of money and the residual stock is a complex one that depends on the level of government spending, the willingness of private banks to lend and for what periods, and the choices of money recipients as to how much they want to spend and how often.

Huber and Robertson treat M4 as a more or less fixed stock, and ignore most of the existing money creation effect of government spending in assuming that cash is the only state-created money (Huber and Robertson 2000, pp8-9). They thus conclude that the annual increase of M4 (less the cash increment) represents a quantity whose creation, entirely in the form of public spending, could simply be taken over by the government with no other consequences. This leads to a net public 'seignorage' gain equal to that additional spending. In fact this could only be correct if it mobilised otherwise completely unused resources (labour, physical resources, entrepreneurial zeal, etc) to produce exactly the *additional* exchangeable goods and services to match the *additional* spending (given current prices), and that those resources remained equally valuable for as long as that money was in circulation. Apart from anything else, in general the role of government is in the production of *non*-exchangeable goods and services, so this seems highly improbable. In which case, to avoid rapid increases in inflationary pressures, this additional spending would have to be removed by taxation or bond issue, so to describe these payments as 'debt-free', as Huber and Robertson and the other writers do, is highly misleading. Moreover the taxation required in these situations may tend to appear arbitrary in its quantity and incidence. Private money issue is not *automatically* profitable as Mellor and Robertson and Huber claim (although it usually is, and may earn excessive profits), nor is money issue by the state *automatically* costless and burden-free. The implication of this is that it is not inevitable, as their reasoning would suggest, that society gains from shifting money issue out of private hands and into public hands.

'Shadow' Banking

The final objection to a purely state money, with private banks prevented from issuing money-creating loans, is that part of the gap thus created will in any case be filled, but in a way that produces more problems than private banking. Can we legislate to stop firms issuing IOUs to

initiate production? Can we legislate to stop these IOUs being traded? If the answer to these questions is in the negative then how can we legislate to stop abuses and fraud in the market for these IOUs without introducing a system of central and private banking very similar to that we have now? All our previous experience with 'shadow banking' suggests not. The true story of 'free-banking' in 18th and 19th century Scotland (the mythical one being popular with libertarian economists) is salutary in this regard, as it indicates the necessity and inevitability for some central regulating banking authority in relationship to private competitive financial instruments (Dow and Smithin 1992).

'Mainstream' Reform of the Monetary System

Kay: Narrow Banking

John Kay's proposal for 'Narrow Banking' fits with the proposals described above implicitly rather than explicitly. His criticisms of the existing banking and monetary system are mainly aimed at how the risks of financial speculation can be transmitted to the real economy, and at the lack of genuine competition in the provision of financial services. In his view the existing capital adequacy regulations failed to protect banks and produced perverse incentives that increased complexity and diminished transparency in the financial system.

> The lesson for regulators generally is that regulation which is not well directed and not effectively enforceable is not harmless simply because it is useless. Such structures impede the development of market solutions and internal processes designed to address the problems which regulation itself fails to handle (Kay 2009, p10).

Banks' speculative dealing in wholesale financial markets was supported by borrowing that was implicitly backed by the government guaranteed liabilities of their deposit base rather than their own capital. Moreover, financial services are particularly prone to several sorts of market failure such as fraud, systemic risk and information asymmetry, which it should not

generally fall to the taxpayer to compensate. When these issues become linked to the provision of basic banking services such as deposit accounts and payment services, however, it may prove politically very difficult for governments to keep out of the way.

Kay advocates separation between the culture of financial services trading and dealmaking – 'buccaneering, entrepreneurial, grasping' in Kay's words - and the 'conservative bureaucratic approach' of retail banking. In his view the former has won out over the latter where they have been in conflict within individual institutions, and has then taken advantage of access to the retail deposit base with its explicit or implicit government guarantee (Kay 2009, p43). Institutions are thus created that are 'too big to fail' because of the implications of these guarantees, and are no longer accountable either to the market or the electorate.

According to Kay, the 'utility' of deposit taking and the payment system must now be separated from the risks of proprietary trading. He advocates the creation of 'narrow banks', that would specialise in the former and have unique access to the principal payments systems (CHAPS and BACS) and to government deposit protection. They would be prohibited from issuing securities and from trading them for any purpose other than narrow banking objectives (ibid, p54). He wants to see the retail deposits of narrow banks have 100% backing with 'genuinely safe liquid assets', preferably government bonds. To the extent that narrow banks engaged in retail lending funding for these activities 'would have to come entirely from wholesale markets, and the banks' own capital' (ibid, p62). In effect deposit-taking would be completely divorced from lending.

The reality is that Kay's proposal ignores the general rarity of bank runs for cash. This rarity shows that the deposit guarantee succeeds in making the perceived risk of holding deposits

almost always marginally less than or equal to the inconvenience of holding cash other than for immediate transactions. As long as retail deposits can be freely and costlessly substituted with HPM by users of bank money the relationship between them is flexible in quantity but fixed in exchange. Kay's proposal would introduce an additional distinction between retail deposits backed by government bonds which can fluctuate in price, and HPM 'wholesale money' whose value is ultimately be determined by the power of government to tax. Presumably his vision of narrow banks is of institutions that hold bonds on behalf of their customers, and in return for pocketing most of the interest on those bonds would provide payment services, and possibly very small interest payments. Although Kay does not make this clear, transfers of deposits between their customers would presumably be accompanied by transfers of bonds between the banks. I will come back to the implications of this.

Kotlikoff and Goodman: Limited Purpose Banking

Kotlikoff and Goodman's approach is rather different to that of Kay, although they identify the same problem. This is (from the US perspective) 'letting financial companies gamble, resting easy that Uncle Sam will cover their losses' (Kotlikoff and Goodman 2009). They want to limit banks

> to their legitimate purpose: connecting, and intermediating between, borrowers and lenders and savers and investors….[Financial corporations engaged in such intermediation] would never, themselves, own financial assets. Banks would only be allowed to operate as 'pass-through mutual funds (Kotlikoff and Goodman 2009).

According to them '[c]redit is ultimately supplied by people, not some magical financial machine'. Since these mutual funds would hold only 'cash' (presumably meaning deposits backed 1:1 with High-Powered Money) there would effectively be 100% reserves on these 'accounts'. Thus there would be no requirement for Federal deposit insurance, or indeed for

capital requirements.

Kotlikoff and Goodman believe that depository institutions would be able to immediately transfer all their checking accounts into cash mutual fund shares, since they have 'massive excess reserves' with which to do this.

Assessing the 'Mainstream' Proposals

The common feature of Kay's and of Kotlikoff and Goodman's proposals is that banks would only be able to lend money that they have acquired from other sources. In Kay's proposal, they would only lend money they have themselves borrowed or have acquired from shareholders; in that of Kotlikoff and Goodman some lending of depositors' money is permissible, but only where the risk of this lending is fully and transparently remaining with the depositor. It is clear that both proposals prevent new money being created by private banks, and so the sole source of money is that created by the central bank on behalf of the state. In this sense, these proposals are open to precisely the same efficiency criticisms as Mellor's and Huber and Robertson's proposals. Economic activity will be constrained, even when it is assessed by private contractors as viable and where they themselves are willing to take on the risks. This constraint will operate irrespective of the overall social desirability of that economic activity.

[Insert Figure 5 here]

Kay's proposals in particular seem incoherent. He wants to see bank deposits backed by government bonds. Bank deposits will no longer play any part in banks' intermediation activities as indicated in **Figure 5**. In balance sheet terms, this means that retail loans are

replaced by bonds on the asset side, and the part of the balance sheet on which retail deposits appear would be an entirely self-contained and very restricted entity. There would seem to be little logic in combining this activity with any other except on the grounds of shared administration costs. What are the implications of this, and how would this be achieved? It seems unclear why banks would offer to hold deposits at all without charging a fee, since deposits no longer act to bring High-Powered Money to the bank. In fact providing deposit accounts would require the bank to use some of the HPM to which they have access to purchase relatively low-return assets in the form of government bonds. When banks do acquire HPM to lend, and this money is then spent by borrowers, does it remain as HPM or does it become deposit money? If the former, presumably it continues to be directly backed by the state's ability to tax, but do recipients have to have money-market funds in which to store HPM? If the latter, will the subsequent conversion rate from HPM and retail deposits remain constant or might it fluctuate according to bond yields? And if it becomes deposit money there must be some mechanism by which it can become HPM again otherwise no borrower can repay their loans. The transparency and security benefits of such a system would have to be great indeed to outweigh its inefficiency.

It is difficult to envisage the transition to Kay's system. Banks' loan assets will have to be converted to bonds. It is likely that banks would expect compensation for losses incurred. Presumably it would hardly be acceptable to simply cancel the outstanding loans, and so the government would have to take over the loans and the right to repayment and interest. Assuming the current money stock is approximately appropriate to the current level of economic activity, and since most bank deposits are currently created by bank loans, the government would have to issue new money to fill the gap as these are repaid. In this case the government would indeed earn additional 'revenue', either in interest payments if this

additional money was lent to banks, or in the form of an immediate tranche of new money that would not need immediately to be balanced by taxation. Kay has nothing to say about any of this.

Kotlikoff and Goodman's proposal is more coherent, with all money essentially becoming High Powered Money and banks simply taking on the role of money-market fund providers. As a result the cost of money's support falls wholly and unequivocally on the taxpayer without the need for insurance or reserve mechanisms. But when they say that depository institutions have 'massive excess reserves' with which to replace deposits, it would seem that they are confusing bank reserves of HPM with equity reserves that belong to shareholders and will be in the form of revenue-earning financial assets held on their behalf. As loans and bank deposits are run down on banks' balance sheets, it will be up to banks and their shareholders to decide what they do with these equity reserves. It seems unlikely that using them to back 'cash funds' will bring them much income unless fees charged for providing these funds are fairly high. Again, as with Kay, it seems likely that the government will have to step in with a one-off boost to the money supply to allow current levels of economic activity to be maintained. This may well have political implications apart from the economic ones.

Conclusion and Alternative Reform Proposals

Given the difficulties of regulating private money creation and the severe inefficiency of an exclusively state money or proposals that severely restrict private money creation, perhaps we need to look elsewhere for a solution. Complex dynamic systems such as the money and banking system can be changed at various levels. The proposals described in this paper all propose changing its structure. They propose changing the relationship between the different components – banks, firms and households. I have argued that in fact the existing structure

has evolved for good reasons, has the *ability* to operate efficiently for the provision of social benefit, and if abolished would probably resurrect itself *less* safely. In support of this I have shown that proposals to change the structure of the banking and monetary system, even when coherent, are unlikely to be able to produce the benefits claimed for them and would impose major efficiency costs. For Mellor to propose 'a system of money allocation…[where]…most money would be issued free of debt' (Mellor 2010b, p86) is neither possible nor even meaningful. Money has no purpose if it is not a claim; yet a claim must have something over which it can be exercised. Whoever or whatever institution is ultimately responsible for fulfilling that claim carries a burden, whether it is in the form of a debt, a tax liability, or a risk of seeing equity claims written off or money-holdings being inflated away.

 Yet it is clear that the existing system is failing to produce the results we would like and has played a major part in economic devastation. Mellor claims that 'the ability to issue money in a society creates the ability to define what is to be seen as valuable (in money terms)' (Mellor 2010b, p86). But this is only half right. Since the issue of money is a contract between at least two parties, it is not just the issuer of money who is defining value but its recipient as well. So reform of the economy to bring it closer to Mellor's provisioning ideal cannot be confined to the banks alone. The conditions on which firms and household accept money in loan contracts are also part of the story.

The problem lies not with the structure of the economy but with the components that fit into that structure, in particular with banks and firms that are purely focussed on earning monetary surpluses. The pursuit of such surpluses is a double-edged sword. It is a highly efficient motivator of dynamic economic activity, but with anything other than the perfect information and foresight of many neoclassical economic models, it can fail to discriminate between

economic activity whose benefits and costs are shared fairly between that agent and others in society, and those whose benefits largely accrue to the profit-seeking agent whilst the costs fall elsewhere. This is particularly so when we are dealing with 'trade' in a good which is as mysterious and powerful as money. The scope for regulatory arbitrage, regulatory manipulation, information asymmetries, numerical obfuscation, the abuse of market power and ultimately fraud is probably beyond any cost-effective authority to fully control. The opportunity will always be there to make profits at the expense of other economic agents and ultimately to risk bringing down the system. But what we can do is mitigate the motive, by making banks utilities operating not on behalf only of return-seeking shareholders, but also on behalf of the individuals and communities that ultimately reap the benefits or otherwise of the economic activity they facilitate. This is not to say that banks should not be vehicles for investment – safe, steady, guaranteed returns are attractive to many – or that constructing and negotiating their governance will be straightforward, or that some areas of banking activity may be less 'efficient' than they are now. But if we want to strike a balance between the instability, moral hazard and inequity of the current system and the serious loss of efficiency entailed by a purely state-issued money then the way ahead may be to shift the focus from the structure of the system to the make-up and motivation of its components.

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Figure 1 - Whole-economy Balance Sheet with Exclusively State-issued Money

Assets	Liabilities
Currently Available Goods and Services (Y^C)	Notes and coins in circulation (C)
Goods and Services tied up in production (Y^U)	Deposits deriving from State Money ($M^S - C$)
	Government Bonds (B)

Figure 2 - Whole-economy Balance Sheet with Private Bank-Money

Assets	Liabilities
Currently Available Goods and Services (Y^C)	Notes and coins in circulation (C)
Value of Goods and Services Currently Tied-up in Production (Y^U)	Deposits derived from State Money ($M^S - C$)
	Deposits derived from Private Loans ($M^B - M^S$)
	Govt Bonds (B)

Figure 3 - A Private Bank Balance Sheet

Assets	Liabilities
State Money (HPM) – Notes and coins in vaults and accounts with Central Bank (M_B^S)	Bank Money Deposits (M_B^B)
Securities $(B_B + O_B)$	Borrowing $(I + R)$
Loans (L)	Bank Equity (E)

Figure 4 – Example annual profit calculation for a private bank loan

Addition to Assets		
New loan (ΔL)		£1000
Addition to Liabilities		
Deposits (ΔM_B^B)		£650
Inter-Bank Loans (ΔI)		£300
Central Bank Loans (ΔR)		£50
		£1000
Revenue from Assets		
Loan Interest (i_L)		9.0%
Costs from Liabilities		
Deposit Interest (i_D)		3.0%
Inter-Bank Rate (i_I)		5.0%
Central Bank Rate (i_R)		4.0%
Default Risk on new loan (d)		5% per annum
Annual Loan Revenue	0.09 x £1000	£90
Annual Liability Costs	0.03 x £650 + 0.05 x £300 + 0.04 x £50	- £36.50
Annual Default Cost	0.05 x £1000	- £50
Annual Profit on this loan		£3.50

Figure 5 – A Private Bank Balance Sheet under Kay's 'Narrow Banking' Proposal

Assets	Liabilities
Government Bonds backing Retail Deposits (B_B^D)	Retail Deposits (M_B^B)
HPM Reserves (M_B^S)	HPM Borrowing ($I + R$)
HPM Loans (L^S)	Bank Equity (E)
Other Bonds and Securities ($B_B^O + O_B$)	