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Privately issued money reduces GDP.

Ralph S. Musgrave.

Abstract.

The majority of the money supply is issued by private banks, not central banks. However a system that restricts money creation to central banks has been advocated for many years by leading economists. There is no reason interest rates would not be at some sort of genuine free market rate under the latter system. In contrast, when private bank money is allowed, those banks undercut the free market rate of interest because it costs them nothing to come by the money they lend out: they effectively just print it, much as counterfeiters print money. The result is a sub-optimum or “non GDP maximising” rate of interest and an above optimum amount of debt. An additional misallocation of resources is that if private corporations are to be allowed to create money, there is no good reason why money lenders (i.e. private banks) should be allowed to do that and not car manufacturers or any other set of corporations. I.e. a second reason why letting private banks create money misallocates resources and reduces GDP is that different types of corporation do not compete on a level playing field. In contrast, the field is level if only central banks create money.

1. Terminology, abbreviations and layout.

The phrases “create money”, “print money” and “issue money” are commonly used in connection with this topic. Those phrases are used interchangeably below.

“Central bank” is shortened to “CB”, while private / commercial banks are referred to as “banks”.

The arguments here fall into four main parts as follows.

Part I, sets out the basic argument, namely that there is no case for bank money.

Part II checks the latter arguments by looking at three basic functions performed by banks to see if in fact bank money has any saving graces in respect of those three functions. Those three functions are, 1, providing bank customers with daily transaction money, 2, providing them with money for long term loans, and 3, making it easier for interest rate adjustments to work.

Part III sets out some fundamental theoretical flaws in interest rate adjustments. Those flaws cast doubt on the latter possible “saving grace” for bank money, namely that such money possibly makes it easier for interest rate adjustments to work.

Part IV deals with the practicalities of banning or curtailing bank money.

Part I. The basic argument.

2. Introduction.

The large majority of money nowadays is issued by banks rather than CBs. A description of how banks create money is set out in a Bank of England article: McLeay (2014).

Several economists, including at least four Nobel laureates, have long advocated a system where the only form of money allowed is CB money rather than bank money, for example Milton Friedman (1960, Ch3), Irving Fisher (1936), James Tobin (1985 & 1987) and Lawrence Kotlikoff (2012). That system is sometimes called “full reserve” banking, though Friedman uses the phrase “100% reserve”.

There is no obvious reason why interest rates would not settle down to some sort of genuine free market rate under such a system. One reason is that under full reserve the fact of lending imposes a cost on lenders. To illustrate with a very simple example, if the only form of money is dollar bills (which are a form of CB money) and person X lends \$Y to person Z, X no longer has access to those dollars, thus X will cut his or her consumption. And that is similar to an eminently reasonable and common sense aspect of loans made in simple barter economies: to illustrate, if Robinson Crusoe lends his fishing rod to someone, Crusoe does not have access to the rod as long as the borrower has it. (More realistic lending scenarios are dealt with below).

However, allowing bank money changes everything. Banks are free, at least to some extent, to simply print the money they lend out. In that scenario, the lender and borrower do not pay the full cost of the loan, thus the lender can lend at a “below free market” rate. Certainly it is widely accepted principle in economics that GDP tends to be maximised where consumers of every product pay the full costs of providing those products, except where there are good

social reasons for thinking otherwise, as is the case for example with kids' education. Thus if lenders can simply print the money they lend out or at least some of it, those lenders will not forgo as much consumption as where the latter printing is not allowed, thus those lenders (and relevant borrowers) do not have to pay the full cost of providing the relevant product: borrowed money.

Moreover, if bank money is introduced to an economy which has hitherto just employed CB money, the latter new money will be spent, which raises inflation, assuming the economy is already at capacity, which in turn means the state has to impose some sort of deflationary measure, like raising taxes and confiscating CB money from the private sector. As mentioned above, borrowers do not pay the full cost of borrowing under a bank money system: the people who do pay some of the cost are a random selection of taxpayers!

Alternatively, deflation can be imposed by raising interest rates, but that general rise in interest rates will not on the face of it have much effect on the **difference** between the rate that would prevail under a "CB money only" system and a system where bank money is allowed. Thus such an interest rate rise will do little to stop bank money displacing CB money.

Moreover, interest rates are normally raised by having the CB sell government debt: i.e. CB money is removed from the private sector, thus contributing to the displacement of CB money by bank money.

As distinct from the above mentioned extra demand that stems from lending new money, there is a more permanent demand increasing effect as well. The amount that saver / creditors want to save presumably varies with the interest they receive. But when banks succeed in cutting interest rates and raising the total amount loaned out, saver / creditors will then have what they see as an excess stock of savings, part of which they will therefor try to spend away. In

contrast, borrowers given a lower rate of interest will be happy to borrow more. (Indeed, the drop in interest rates over the last twenty years or so has been accompanied by a substantial rise in household debts.) Thus the net effect is the latter “spend away” effect: i.e. a permanent increase in demand, unless some counter-measure is implemented, like the above mention rise in tax and confiscation of CB money from the private sector.

The effect of allowing bank money was dealt with by Huber (2000). As he put it, “Allowing banks to create new money out of nothing enables them to cream off a special profit. They lend the money to their customers at the full rate of interest, without having to pay any interest on it themselves.” Or to be more realistic, assuming competitive forces work at least to some extent, then competition between banks will reduce Huber’s “special profit”, with the result that the profit, or at least some of it, is passed on to bank customers in the form of the artificially low rate of interest, which in turn results in an artificially large amount of debt.

A slightly different and additional argument is that there is no good reason for the “money printing privilege” to be enjoyed by banks, rather than car manufacturers or any other set of corporations, thus that privilege distorts the market and hence reduces GDP. I.e. to maximise GDP, money creation needs to be done in a manner that does not benefit one industry more than another, with the result that corporations all compete on a level playing field. And that can be done by confining money creation to CBs. In contrast, Huber’s objection to money creation by banks is that it **privatises** the profits derived from money creation. That is not strictly accurate since commercial banks can perfectly well be publically owned rather than privately owned. Thus, one the of central claims of this paper is that it is the distortion of the market that matters rather than the latter “public private” point – which is not to detract from Huber’s valuable

contributions to this subject. Plus there seem to be plenty of other works, e.g. by Positive Money, which while they advocate a ban on bank money, do not seem to have tumbled to the “GDP reducing” point explained here. Hence the need for this paper.

The reason the money creation business has been collared by banks is that money creation just happens to mesh seamlessly with one of banks’ main activities, namely granting loans (“loans create deposits” as the saying goes) but that is not a good reason for money creation to be confined to money lenders (i.e. banks).

The fact that banks create money while non-banks do not (to any significant extent) stems also from the fact that that privilege for banks is specifically underwritten by law in the UK, as explained by Werner (2014). Briefly, the law allows banks to lend on customers’ money (which is the basis of banks’ money creation trick) whereas non-bank firms are prohibited from doing so (and more on that below).

3. Bank money displaces CB money – George Selgin style.

In contrast to the above scenario where it was assumed that government controls the inflation that stems from introducing bank money, an alternative assumption is that government does not try to control that inflation. Indeed the latter hypothetical scenario was considered by Selgin (2012, para 3 onwards), which is not to suggest he would agree with the arguments here.

As Selgin explains, in an economy where there is only CB money and where bank money is then allowed, banks will issue their money in an amount and at a rate which causes inflation and reduces the real value of the stock of CB money

to near zero. That point of Selgin's is alright as far as it goes. But the actual reason bank money manages to displace CB money (not mentioned by Selgin) is as set out above, namely that banks can undercut the rate of interest that prevails in a "CB money only" economy. The end result of the "Selgin scenario" is that the real value of the stock of CB money is whittled away by inflation to near nothing. So the end result is the same as where government does try to control the inflation by raising taxes and confiscating some of the private sector's stock of CB money: the real value of that stock eventually declines to near zero.

Incidentally, while the above interest rate "undercutting" strategy will have worked for most of the last century and more, the current exceptionally low rates of interest means there is little or no scope for undercutting: hence the muted effect of the current large stock of bank reserves (i.e. CB money).

A second incidental point is thus. Where bank money is allowed in an economy where previously only CB was allowed, there is, as mentioned above, a significant addition to demand stemming from that new bank lending, which will require an equally large confiscation of CB money from the private sector (if "Selgin type inflation" is to be avoided). However, the additional borrowers will clearly repay those loans over the years. Thus it might seem the confiscated money can be returned to the private sector. In fact once bank money is allowed, there is no obvious reason why banks will not continue lending out their money where profitable till the end of time, or till such money is banned. That is, while the latter new borrowers will repay their loans, they will be replaced by new borrowers over the years and decades, in exactly the same way as in the existing 2017 real world economy, mortgagors who repay loans tend to be replaced by new mortgagors (e.g. first time buyers). Thus all else equal, the confiscated CB money is never returned.

4. Higher interest rates will not reduce GDP.

It was claimed or at least implied in the foregoing argument that since the free market rate of interest is above the rate that prevails where bank money is allowed, GDP will rise if bank money is banned and interest rates are allowed to rise in consequence. That might seem to clash with the standard claim that higher interest rates are deflationary, hence on the face of it, higher rates might seem to mean a **fall** in GDP. For example, Vickers (2011, sections 3.21&2) made the latter “fall in GDP” claim.

The answer to that point is that dealing with the latter deflationary effect can be countered with a stimulatory measure which is entirely costless and was set out by Milton Friedman. As he put it, "It need cost society essentially nothing in real resources to provide the individual with the current services of an additional dollar in cash balances." (Friedman (1960, Ch3)). Keynes (1933, 5th para) made much the same point. In short, there are no real costs involved in having the state print extra money and spend that into the economy or simply give away the money, for example in the form of an increased state pension. Thus the fact that all else equal an interest rate increase is deflationary is completely irrelevant, because that deflationary effect can be countered at zero real cost.

Indeed, two processes or scenarios have been set out above which are simply the opposite or mirror image of each other. One (set out in section 2) is “*allow bank money in a hitherto CB money only system, and deal with the inflationary effect by raising taxes and confiscating CB money from the private sector*”. The second is “*ban bank money, let interest rates rise and deal with the deflationary effect by printing more CB money*”. As for other stimulatory measures, interest rates could be cut, but interest rate cuts are defective, and for reasons set out in Part 4 below.

To summarise, the net effect of banning or curtailing bank money is higher interest rates combined with the private sector having a larger stock of CB money, which in turn means less lending based economic activity and more non-lending based activity plus less debt. Given the large rise in private debts in recent years and the frequent complaints about them, less debt combined with higher GDP would seem to be an entirely beneficial outcome.

5. Counterfeiting.

The online Oxford Living Dictionary defines counterfeiting as “Made in exact imitation of something valuable with the intention to deceive or defraud.” The Concise Oxford Dictionary (2004) edition gives exactly the same definition.

The money creation carried out by banks pretty much fits that definition. As to “make something valuable”, clearly when bank money is created and credited to the account of a borrower, “something valuable” is “made”. As regards “with the intention to deceive”, customers are told they have been loaned a certain number of dollars, pounds, etc. That is “deceptive” because borrowers certainly do not borrow genuine CB issued money when they obtain a loan from a bank. What they obtain is a promise by the bank to pay a number of dollars. And those promises issued by banks themselves serve as money: they are widely accepted as being the same thing as CB money (as explained by Wolf (2014a)). But there is a clear difference between those two forms of money because creditors are under no obligation to accept bank money in settlement of a debt because that form of money is not legal tender.

And imitation dollar bills produced by traditional backstreet counterfeiters are similar to bank money in that those imitation bills are widely accepted as being the same as the real thing.

A further piece of deception is that banks give the impression (even if what appears in the small print is more honest) that their home made money is entirely safe. As millions of families and businesses discovered in the 1930s when around \$6billion worth of bank money in the US suddenly became worthless, bank issued money is certainly not entirely safe (unless of course it is backed by some sort of state run insurance system like the FDIC).

A further similarity between bank money and traditional counterfeiting is as follows.

As explained above, when bank money is introduced to an economy which has previously just had CB money, approximately one dollar of CB money has to be confiscated from the private sector for every dollar of bank money created and spent into the economy. And exactly the same applies when backstreet counterfeiters print and spend imitation dollar bills!

And finally, the claim in this section that bank money creation has similarities to traditional counterfeiting is not new. Hume (1742, II.III.4) made that point, as did the French economics Nobel laureate Maurice Allais. See Phillips (1999).

6. Can non-bank firms access base money?

It was suggested above that when banks create new money, the state has to impose some sort of deflationary measure which could take the form of confiscating an approximately similar amount of base money from the private sector. Some readers may object to that idea on the grounds that base money is a form of money to which banks have access, while non-bank firms or households do not. That idea is in fact flawed and for reasons which can be illustrated as follows.

If as part of QE a central bank prints \$Z and buys \$Z of government debt from a selection of non-bank private sector entities (i.e. households and non-bank firms), those entities get a check (or the electronic equivalent thereof) from the CB, which they deposit at their banks. Those entities' accounts at their banks are credited and those banks then pass the check on to the CB, which in turn credits those banks' account at the CB.

The net effect is that the latter entities then have a stock of base money at the CB, with banks acting as agents or “go between” when those entities want to access their base money. Indeed, the latter is pretty much what happens when anyone withdraws money from an ATM. So to summarise, CB money lodged at a CB is very much money which is circulation and available to normal bank customers (households and non-bank firms).

Part II. Three functions performed by banks.

7. Double checking the arguments - daily transaction money.

Various arguments have been put so far against bank money: e.g. that it reduces GDP and amounts to little more than counterfeiting. Thus the obvious conclusion is that GDP would rise if bank money was banned or at least curtailed, as argued by Wolf (2014a).

However, with a view to checking on whether the arguments put here are right, the various functions performed by banks will now be examined to see if bank money performs any genuinely useful functions.

One of the main functions of banks is to supply customers with a stock of money. However, bank customers require money for a variety of reasons. One is to enable them to conduct daily transactions, and the second involves long term loans, e.g. mortgages. Those two will be considered in turn.

Daily transaction money.

As to daily transaction money, CB money is clearly better than bank money. To repeat, CB money costs next to nothing in real terms to issue, as pointed out in the above Friedman quote.

In contrast, banks incur significant costs when creating daily transaction money: for example checking up on the credit-worthiness of customers, taking collateral off customers as necessary, and allowing for bad debts.

The latter point on the costs of creating bank money might seem to clash with the earlier claim that banks can create and lend out money at below the going rate of interest. In fact there is no clash and for the following reasons. In the case of loans in a CB money only system, lenders have to earn or borrow the money they lend out, in contrast to banks, which can simply print some of that money. But separate from that, there are the costs that are involved in loans of every type, namely checking up on the credit-worthiness of borrowers, allowing for bad debts, etc. Thus so far as lending in a CB money only economy versus lending in a “bank money allowed” economy goes, those “credit-worthiness” type costs apply in both cases. Thus bank lending gains its edge from the right that banks have to print money as compared to the CB money only scenario where lenders have to earn or borrow money they lend out. In short, so far as loans go, banks can undercut CB money because of banks’ “right to print”, while in the case of transaction money, bank money is more expensive than CB money because bank money involves credit-worthiness type costs.

A hypothetical “no borrowing” economy.

To illustrate some of the above points, consider an economy where there is no borrowing or lending but people do understandably want a form of money to enable daily transactions. CB money would work perfectly well there.

To make that easy to envisage, it could even be assumed that CB money in such a hypothetical economy came only in PHYSICAL FORM (e.g. dollar bills and coins). That would work perfectly well, if we ignore the problems involved in large transactions, which would require security vans delivering bundles of money from one firm to another. I.e. in such an economy there would be no particular need for bank money.

A possible weakness in the claim that CB money is costless is that there are arguably **indirect** costs associated with CB money. One answer to that is that, by the same token, there are arguably indirect costs associated with bank money. For example banks act in a pro-cyclical manner. That is they expand the amount of money they create and lend out in a boom thus exacerbating the boom. Then come a recession, bank lending slows, thus exacerbating the recession.

Those sort of “indirect” points could occupy an entire book. Thus for sake of brevity, “indirect arguments” are largely ignored here: i.e. it is primarily **direct** costs that are considered.

To summarise so far as direct costs go, creating daily transaction money is relatively expensive when done via banks rather than CBs.

8. Is there a role for bank money in connection with long term loans?

Having dealt with “daily transaction” money, a second basic function of banks is to provide customers with money in respect of long term loans like mortgages. So are there any big merits in bank money in that connection?

Well the fact that in the existing 2017 real world economy banks create money when they lend (“loans create deposits” as the saying goes) does not mean that lending in a “CB money only” economy is not possible. Indeed it is precisely such an economy (a full reserve banking economy) that Milton Friedman, Irving Fisher, James Tobin etc had in mind – referred to in section 2 above.

Assuming lending in the latter sort of “CB money only” or full reserve economy is person to person rather than via a bank, the fact of lending means the lender loses access to money as long as the money is loaned out. I.e. the lender has to abstain from consumption as long as the loan lasts (as is the case in the Robinson Crusoe economy mentioned above). Thus extra spending by borrowers will be approximately balanced by reduced spending by lenders.

Note that the fact that lenders lose access to their money as long as it is loaned out does not mean that in the latter sort of economy, those lending to fund say twenty year mortgages would lose access to their money for twenty years. Reason is that for every lender who had loaned out their money, but then decided they wanted it back, chances are there would be someone else who decided they wanted a sum of money loaned out for a fairly long period. Thus it would be easy to have an economy of the latter sort where no lender lost access to their money for an excessive amount of time.

9. Lending via banks.

In contrast to direct person to person lending, there is lending via banks. There again, if lender / savers put their money into term accounts, then reduced spending by them will approximately balance extra spending by borrowers. But to the extent that banks fund loans from checking account money (i.e. to the extent that they engage in maturity transformation), aggregate demand will rise. Thus government will have to impose some sort of deflationary measure of the sort mentioned above, like raising taxes and confiscating base money from the private sector. Thus contrary to the claims made for it in most economics text books, maturity transformation does not achieve anything. On the face of it, it creates liquidity / bank money. In fact any such money creation is stimulatory, which means, given constant GDP, the state has to withdraw CB money from the economy. To that extent, bank money does not serve any useful purpose in connection with long term loans.

For more on the nonsense that is maturity transformation, see Musgrave (2015). Plus as Diamond (1999) pointed out in the abstract of his paper, it is precisely the fact of private banks engaging in liquidity / money creation (aka maturity transformation) that renders them “subject to bank runs” as he put it. Wolf (2014a) makes much the same point in his first paragraph. In short, if bank fragility and bank runs are the order of the day, then allowing bank money is good way of bringing about that entirely undesirable outcome!

Incidentally, as to the above mentioned term accounts, obviously there is no sharp distinction between term accounts and checking accounts. That is, where money is put into term accounts, the **tendency** is for reduced spending by saver / lenders to balance increased spending by borrowers. But if the term is one week, then clearly there is almost no distinction between a so called term account and a checking account. In contrast, if the term is six months, there is a

significant difference. Thus the above claim that increased spending by borrowers is balanced by reduced spending by savers would be true given a relatively long “term”, but not otherwise.

Part III. The flaws in interest rate adjustments.

10. A role for bank money in connection with interest rate adjustments?

Having dealt with money for daily transactions and for long term loans, a third scenario where there might seem to be scope for bank money arises where the economy is NOT AT capacity. Indeed, bank money in this case appears to be costless, and for the following reasons.

The traditional way of raising demand (e.g. in a recession) is to cut interest rates. That results, at least in theory, in banks lending more, and certainly there are costs involved in doing that: those are the costs mentioned above, like checking up on the credit-worthiness of borrowers. But where long term loans are involved, those costs derive from the process of lending, not from the fact of creating money: to illustrate, those costs, as mentioned above have to be born even where loans are made in a “CB money only” economy.

Thus it might seem that where there is additional lending as a result of an interest rate cut, private money is created as a free by-product of the extra lending. However, there are major flaws in that argument, and as follows.

First, interest rate cuts would clearly work in a “CB money only” economy, thus there is no need for bank money where the object of the exercise is to influence demand by adjusting interest rates. However, it could certainly be argued that allowing bank money **augments** the effect of interest rate cuts. But the big

problem with that argument is that the whole rationale of interest rate adjustments is extremely questionable and for the following reasons.

The purpose of the economy is to produce what people want.

The basic purpose of the economy is to produce what people want both in the form of the items they normally purchase out of disposable income, and the items that the state normally supplies (infrastructure, health care, education, etc). Thus given an economy with spare capacity, the obvious solution is to give people more of the stuff that enables them to increase what they purchase out of disposable income, and that stuff is called “money”. Plus public spending probably needs to be increased.

The relative size of the latter two forms of stimulus (increasing private versus increasing public spending) is of course a purely political question, but certainly the obvious solution, given spare capacity is to expand one or both of those forms of spending.

In contrast to that method of economic expansion which (to repeat) is in line with the basic purpose of an economy, cutting interest rates is very much an oddity. That is, there is no obvious reason why, given inadequate demand, the cause is inadequate lending and investment rather than a deficiency in some other element of aggregate demand, like inadequate consumer spending or a fall in exports for example.

Interest rates are sensitive to market forces.

Furthermore, there is no prima facie reason to assume interest rates do not adjust in response to recessions, booms and so on. Certainly it would seem from the large drop in interest rates over the last twenty five years or so that interest rates are indeed sensitive to market forces. So to the extent that interest rates are

indeed sensitive to market forces, there is no case for artificial interference with interest rates.

Put another way, aggregate demand can of course be increased by giving an artificial boost to the money lending industry (i.e. banks). But equally, demand can be increased by an artificial subsidy for car manufacturing or any other set of industries. The resulting expansion of those industries would trickle down to the rest of the economy just as artificial boosts for banks (i.e. artificial cuts in interest rates) trickles down to the rest of the economy.

Confidence.

A final possible argument for bank money where the economy is not at capacity might seem to arise where there is an increase in consumer and/or business confidence (or “exuberance” to use Alan Greenspan’s phraseology).

In that scenario, a ban on bank money would doubtless hinder the tendency for that increased confidence to translate into increased economic activity.

But the trouble with that argument is that expansions and contractions in confidence are unpredictable and erratic: we cannot rely on them to get us out of recessions. And that is precisely why nowadays we look to governments and CBs to provide the stimulus that gets us out of recessions. Moreover, if bank money speeds up growth in the event of increased confidence, then presumably it also speeds up the onset of recessions in the event of falling confidence.

11. The free market’s cure for recessions: the Pigou effect.

While there is, as argued just above, no obvious reason why interest rates are not sensitive to market forces, there is a very obvious reason why another free

market cure for recessions is very definitely thwarted or blocked, and thus needs to be bolstered. Plus it turns out that dealing with that “blockage” involves the use of CB money, not bank money. That free market cure is as follows.

In a totally free market in a recession, prices and wages would fall (in money terms) which would raise the value of money (base money to be exact).

Incidentally the real value of government debt would also rise, but base money and government debt are much the same thing, as pointed out by the chief economics commentator at the Financial Times, Martin Wolf. As he put it, “Central-bank money can also be thought of as non-interest-bearing, irredeemable government debt. But 10-year Japanese Government Bonds yield less than 0.5 per cent. So the difference between the two forms of government “debt” is tiny...”. (Wolf, 2014b).

The result of that increase stock of money would be to encourage spending by the private sector. That phenomenon is known as the “Pigou effect” after the economist, Arthur Pigou.

However, in the real world there is a well-known obstruction to the latter cure for recessions: Keynes’s “wages are sticky downwards” point. I.e., while in a free market wages would fall in terms of money, in the real world, employees strongly resist wage cuts. That resistance to wage cuts is illogical in that in a free market and given a recession, prices would fall at about the same pace as wages, leaving employees no worse off. But of course, employees’ resistance to wage cuts is very understandable.

This is a clear case of market failure, i.e. the failure of the market to work properly. And where market failure exists, it is widely accepted in economics that there is a case for government intervention. Indeed, that is precisely what was advocated just above: i.e. that where there is inadequate demand, demand

should be raised by having the state create and spend more money into the economy, and one of the effects of that is to increase the value of the private sector's stock of CB money, which is very much what the Pigou effect consists of. The only difference is that where the state prints and spends CB money into the private sector there is a fiscal effect as well as the longer lasting monetary / Pigou effect. The fiscal effect is simply the fact that if the state prints and spends money on say more education, the immediate effect is the employment of more teachers, and that effect comes BEFORE the "money supply increasing" monetary effect.

Incidental points.

Incidentally, there are various scenarios where, even if wages were not sticky downwards, the Pigou effect might not work. For example, when prices fall, the real value of debts rise, which in turn is bound to cause a finite drop in spending by debtors, and it is possible that drop in spending overwhelms the above mentioned increased spending that comes from increasing the overall real value of the private sector's stock of liquid assets. On the other hand the Pigou effect certainly ought to work given a relatively small total amount of debt plus a relatively even distribution of those debts amongst the population. So to summarise, the Pigou effect is one that would certainly work in some circumstances, if not in all circumstances.

Another and final incidental point worth a mention is that while the arguments for interest rate adjustments are fundamentally flawed, that is not to rule out their use in an emergency. But that "emergency" role (i.e. when an economy needs a sudden and drastic dose of stimulus or deflation) is about the only valid excuse for using interest rate adjustments.

The 1800s.

There might seem to be a flaw in the argument so far, which is that bank money clearly plays a useful role where there is a grossly inadequate amount of base money and bank money makes up for that. That situation arguably existed in the 1800s in Britain where there was rapid economic expansion combined with a stock of base money (gold) which could not be expanded fast enough to keep up: digging gold out of the ground is time consuming and expensive.

The answer to that is that given that shortage of base money, bank money may well play a positive role: better to have the economy at full employment with interest rates below the optimum level than endure grossly excessive levels of unemployment. However, the latter gold standard point is just not relevant to the real 2017 world since we now have a flexible monetary base.

Conclusions.

The conclusion of the two sections just above (10 & 11) is that there is a clear logic behind creating and spending extra CB money into the economy where stimulus is needed, and an equally clear **lack of logic** behind artificial interest rate adjustments. Hence the argument that bank money is justified because bank money comes into being at no real cost given artificial interest rate cuts is very questionable.

And the conclusion of sections 7 to 11 is thus. Three of the main functions of banks have been examined to see if bank created money serves any useful purpose. It seems that it does not. Thus the entire case for bank money would seem to have collapsed.

Part IV. The practicalities of banning bank money.

12. How can privately printed money be banned?

Having argued that there is no useful role for privately issued money, it is relevant to say a little about how the production of such money would in practice be banned or at least curtailed: after all, a theory may look good on paper, but if there is no practical way of implementing it, the theory loses some or all of its relevance.

The first point to make in this connection is that there is no need for a total and complete ban on all forms of private money. Local currencies like Ithaca hours in the US, or the Lewis pound in the UK are a form of privately issued money. Local currencies are pretty harmless, and arguably bring benefits.

Second, in the world's financial centers (London, Wall Street, etc) there are numerous strange pieces of paper exchanged between banks and similar organisations which amount to money or quasi money. A complete ban on that sort of money is doubtless not practical. In contrast, a drastic curtailment of privately issued money for most transactions **outside** those financial centers is not difficult.

In fact Milton Friedman thought there was no big practical problem in switching to a "CB money only" system (Friedman (1960, Ch3)). As he put it, "There is no technical problem of achieving a transition from our present system to 100% reserves easily, fairly speedily and without any serious repercussions on financial or economic markets."

Funding loans via equity.

Third, a significant curtailment of privately issued money is easily achieved simply by making it illegal to fund loans via deposits, as explained by Friedman, Kotlikoff and others, that is, making it compulsory to fund loans via equity, or bonds that can be bailed in or similar. And that sort of law or requirement has actually been imposed recently on the money market mutual fund industry in the US. That is, funds which put depositors' money into anything more risky than US government debt are not allowed to promise depositors they will get their money back: i.e. the value of depositor / savers' stakes in such funds has to float in just the same way as does any mutual fund which puts customers' money into corporate shares and the like. Thus the latter deposits effectively become equity.

That effectively blocks one of the “money creation” or “money multiplication” process that banks have traditionally engaged in.

13. Would funding loans via equity raise interest rates excessively?

To summarise the argument so far, GDP would rise if bank money was banned or curtailed, and one way of doing that is to fund loans via equity, which amounts to a large increase in banks' capital ratio. And that leads to a finite rise in interest rates because loans can no longer be funded via money which banks have created in a costless manner via simple book-keeping entries.

However there is a separate route via which it is popularly thought that raising bank capital ratios raise interest rates which if valid might suggest that the latter rise in interest rates could be excessive. That route is that shareholders allegedly demand a higher return than depositors, thus it might seem that for that reason

that raising capital ratios increases the cost of funding banks. The basic flaw in that idea is that the main reason shareholders demand a higher return than depositors is that shareholders “self-insure”, whereas depositors are insured via the FDIC or similar deposit insurance schemes in countries other than the US. And since there is no fundamental reason for the cost of insurance being any different as between shareholders and depositors, there should not be any difference between the total cost of funding loans via equity rather than via deposits. Indeed that is the basis of the Modigliani Miller theory (MM) as it applies to banks.

There are of course various criticisms made of MM, but they do not seem to be of much significance: that is, the basic idea behind MM, namely that insurance for depositors and shareholders ought to be much the same is a powerful point, if not 100% valid.

Certainly one of the most popular arguments against MM is patent nonsense. That’s the argument that the tax treatment of interest and dividends is different, thus MM does not work out in the real world in the way that MM theory predicts, and results in increased capital ratios actually increasing banks’ costs. The simple answer to that is that tax is an entirely artificial imposition, and thus should be ignored for the purposes of working out real costs and benefits.

To illustrate, if government placed a very high tax on bananas for no good reason, that would not be an argument for having everyone consume fewer bananas. The logical course of action would be to abolish the banana tax. Likewise, if taxes in the case of banks are distortionary, the logical course of action is to remove the distortion, not let the distortion remain in place and use that distortion as an excuse for artificially low levels of bank capital. (That none too clever “tax” criticism of MM is made for example by Elliot (2013), Birchler (2012), Miles (2011, p.9) and Vickers (2011 section 3.45), and it is

only one of two criticisms cited by Ratnovski (2013) and the ONLY criticism cited by Kashyap (2010)).

14. Banks cannot fail where loans are funded via equity.

An incidental merit of funding loans just via equity is that under that system it is plain impossible for banks or “lending entities” to go insolvent. In short, a by-product of funding loans via equity is to solve or at least ameliorate a problem which caused massive problems in 2007/8, and caused a large loss of GDP for the following decade or so. Of course the capital ratios of banks / lending entities do not need to be raised to 100% (which is what is involved here) in order to obtain a near totally safe bank system: the 25% or so ratio advocated by Admati (2013) and others would probably be enough to give us a totally safe banks. Nevertheless, a totally safe bank system is an important by-product of funding loans entirely via equity. Moreover, the rule “loans shall be funded via equity” is simplicity itself compared to the Dodd-Frank regulations which run to well over ten thousand pages.

15. Integrating CB and bank computers.

In contrast to curtailing private money creation by having loans funded via equity, an alternative is to have bank computers sufficiently integrated with CB computers that it is impossible for a banks to engage in their traditional “loans create deposits” trick. Some details on how that “computer integration” might work are set out by Jackson (2012) Ch6.

The latter point really amounts to saying that banks could be sufficiently tightly audited that they cannot engage in money creation.

An advantage of the latter system is that it would avoid the additional costs (if there are any) dealt with in section 13 just above of funding loans via equity rather than deposits. Moreover, banks could be allowed to choose which of the above two methods of curtailing private money creation they wished to abide by.

The conclusion of Part IV is that a significant curtailment of bank money is perfectly feasible.

16. Conclusion and summary.

The right to create or “print” money enjoyed by commercial / private banks is an unjustified subsidy for banks: it results in an artificially low or non-GDP maximising rate of interest, and an artificially large amount of debt. GDP would thus be maximised if money creation was confined as far as possible to central banks.

Put another way, GDP is maximized where customers of every industry pay the full cost of producing relevant products: in contrast, if one particular industry (money lending) is subsidised by being allowed to print money, interest rates will not be at the free market rate. Plus there is no good reason for just money lenders (i.e. banks) having the right to create money, rather than any other industry or set of industries. Put yet another way, GDP is likely to be maximized where all industries compete on a level playing field, i.e. no private industry has the right to create money.

Three of the main bank activities have been examined to see whether that extra expense inherent to bank money is justified. The first is supplying non-bank

entities (households and firms) with money for daily transactions. For that purpose, there is nothing to be said for bank money.

Second, there is supplying those entities with long term loans. As suggested just above, the drawback of allowing bank money is that it results in an artificially low or “non GDP maximsing” rate of interest.

Third, there is the creation of money for stimulus purposes. Traditionally that is done by interest rate cuts, which enables banks to create and lend out extra money. Unfortunately there are several big question marks over the whole idea of artificially interfering with interest rates. For example, there is no obvious reason why given inadequate demand, the cause is inadequate borrowing and investment rather than a deficiency in one of the other constituents of aggregate demand, like consumer spending or exports.

A fourth significant bank activity is organising the transfer of money between customers. But the simple act of transferring money does not involve money creation, so it is not relevant here.

Another significant bank activity is betting on derivatives and other exotic activities in the world’s financial centers. Certainly that involves banks in issuing strange bits of paper which amount to money or quasi-money. But it is debatable as to how much relevance that is for the real economy. As Adair Turner, former head of the UK’s Financial Services Authority put it, much of what banks do is “socially useless” (Monaghan (2009)).

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