Printing money for beginners (and experts)

PROLOGUE:

*I**'VE ALWAYS** been fairly sure you can't print money and get away with it indefinitely. But I couldn't well answer the question "Why not?"*

It turns out the recent head of the British financial services regulator is similarly uncertain. He recently suggested the Bank of England write off half of the government's debt, which comes to exactly the same thing as printing money. How wonderfully simple. Of course it must be wrong, but why?

Since people like us are supposed to understand the implications of this sort of thing, and clearly don't, I thought I'd better investigate before somebody found me out. I think I can promise you a sort of Eureka moment here. At last some big confusing things in the financial world make real sense to me. They soon will for you.

Before I start I'd like to introduce Godfrey and Brad. I find it very confusing to talk of debtors and creditors; these two help me avoid it. Godfrey always has money in the bank so he is 'good' with money. Brad is 'bad' with money, and lives on an overdraft. We'll see them in action in a moment or two.

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December 2012

Part 1: From credit to money – and back again

CHIMPANZEES don't barter, but they trade a variety of delayed favours we won't go into here.

South American vampire bats are more sophisticated, and run a small credit economy. The little darlings have such a need for blood that they lend, borrow and pay back amongst themselves rather than let a relative go bloodless for a whole night. They somehow manage to do the whole thing without plastic cards.

A credit card – of course – is a device which creates both credit and debt, and you can spend the credit bit, which unfortunately leaves the debt bit overhanging, though oddly absent from the device's name.

Pure, distilled credit usually arises from us doing some work (labour), or transferring our property to someone else (selling goods). Either way, we generate an unreturned favour. So I'm going to call a unit of credit an 'Uf', and wherever possible I'll use the word 'Uf' instead of credit. Somehow it makes it much easier to understand what the hell is going on.

Chimps and vampires show that credit occurs naturally, just as it would have for the earliest humans. Beyond the smallest number of transactions it would have quickly become hard to agree who owed unreturned favours (Ufs) and to whom. Then somebody had the smart idea of using tokens to represent Ufs.

Cash in all its forms is simply physical tokens representing Ufs. The intangible Ufs are the real thing, the social obligation, and the thing of value. Even a gold coin is a mere representation of an Uf. It's an invention which makes the Uf physical, and which helps us to keep score and to transmit Ufs from one member of society to the next, in a way that we can all understand.

After coins were invented, cashless credit never got close to disappearing, although there are still plenty of people around who think all intangible credit is dishonest trickery and should be banned. Think of them as "Extreme Gold Bugs" who want a world where mere promises-to-pay are outlawed. I think that's too extreme.

If two ancient villagers wished to trade, but lacked cash, could their village elders prevent them from leaving an Uf outstanding? No – at least not in any society I'm interested in living in. The elders have no business interfering in the level of trust extended in a private exchange. In any case, how would the elders know if the two friends carried on with their business regardless, by simply counting the unreturned favours and remembering them, or even inventing their own private system of money? The elders' position would be untenable as well as autocratic.

Like it or not credit arises automatically from free trade between consenting adults. Our wish to exchange favours of labour and goods, and to make up our own minds about the people we deal with (and how we pay) defeats a cash or gold centric dogma every time.

Nevertheless, if we don't use instantly available gold coins then Ufs still need to be tracked somehow, and aside from memory there seem to be two remaining mechanisms of

real importance. The first is printed paper (or printed base metals), and the second is accounts.

Printed paper is much more like gold coins than some Extreme Gold Bugs readily accept. Both are tokens which represent Ufs. Both can be possessed, and the spending power which they both confer passes with possession. Neither is made of a material which is tangibly useful, but a gold coin's raw material is, at least, reliably scarce, which makes it difficult for a government to flood the country with new gold money. Yet this is a question of effectiveness, not a fundamental difference in what they both are – which is physical tokens representing Ufs.

Bank accounts

Reducing the cherished gold coin to a token of unspent, naturally occurring credit will make many loyal BullionVault customers splutter with fury, so I apologise unreservedly. But it is a line of reasoning which seems logical to me, and sets me up well for examining accounts, which is what this article is really about. Accounts will help us understand how money is being created.

Even though we all hate banks we still trust them to do all our Uf record-keeping. They let you add Ufs to anyone's account, but allow only *you* to instruct them to take Ufs away from *your* account. Another sensible thing they do is let us easily transform Ufs from account form into token form, and back again, by making withdrawals and deposits of cash. Sorry if this is all pretty obvious.

A bit less obvious is that, according to a lot of people, banks are able to 'create money' out of thin air using a process called 'Fractional Reserve Banking'. After my introductory paragraphs, which I hope illustrate how free trade creates Ufs (in many forms) the point of my article is to get to the bottom of this mystery.

Can banks really just create money?

Who creates money?

Observers of Fractional Reserve Banking have noticed that your deposit into a bank can cause the bank to offer new loans well above and beyond the size of your deposit. They often object on the grounds that this is new money which shouldn't have been created.

But every one of us can easily create spending power in the same way as the vampire. Do a favour for a friend today and your work created an Uf. Even if you didn't write it down you made a mental note of a social debt, and if your friend returns the favour tomorrow you then mentally release the favour he owed you. A sort of payment occurred.

Vampires bats can't do what we can which is to formalise our simple transaction onto an account by booking two payments through the bank. If your friend were to pay you through the bank for the original favour you did then you could spend your Uf anywhere. Banking is useful, like Uf tokens are, because an Uf you earn from your friend, then record at your bank, becomes available for you to pay anyone who's got a bank account.

Let's suppose Godfrey has opened a bank account and deposited a few Uf tokens. He can do payment transactions both ways through his account with other people in his city who are

account holders at his bank. He could go and do a favour for Fred next door – maybe build him a garden shed. Fred can tell the bank to pay Godfrey, and the bank puts some negative Ufs into Fred's account and some positive Ufs in Godfrey's. If Fred started with a zero (or negative) balance of Ufs then with the bank's help they have created money, because Godfrey now has general purpose spending power where none previously existed.

Is that necessarily a problem? Maybe not, so long as the bank looks warily at Fred. Can he be trusted to return an Uf? The bank wouldn't have let his account go negative without good reason. They probably only allowed it because either:-

- They are holding collateral, i.e. control over some of Fred's non-monetary wealth (property) like the deeds to his house, or his share portfolio; or
- They have information – maybe that Fred's wealthy mother is not long for this world, or that he has just got a job at Goldman Sachs.

Scenarios like these give Fred access to Ufs in the future, and credibility at the bank, which responds – occasionally – by letting him run a negative balance of Ufs now. Meanwhile it is the bank's own reserve of Uf tokens which can be given to Godfrey, if he asks to withdraw.

Part 2: Bank-to-bank transfers

SOMETHING unrelated has happened in the meantime to expand this proto-banking system and make it much more useful.

Godfrey's bank and the next door city's bank have opened bank accounts with each other. This is a simple response to an economic fact: the citizens of the two cities have started doing transactions between each other, and there is a demand for payment services between them.

Brad lives in the neighbouring city. Having built a first-class shed Godfrey starts advertising in yellow pages, and soon enough he finds himself building Brad's shed. When the job is finished Brad gives Godfrey a cheque (or nowadays some sort of modern electronic equivalent, but it's easier to understand the process if you analyse it with cheques).

The cheque is an authorised instruction from Brad to Brad's bank to post negative Ufs to Brad's account, and to post positive Ufs to whoever presented the cheque. The positive side could be to Godfrey's own account (if he banks at the same bank) *or to the bank account of Godfrey's bank*.

The cheque starts its journey at Godfrey's bank, by being paid in. When Godfrey deposits his cheque, his bank only accepts it because it sees that it's drawn on a bank (Brad's) which they now regularly deal with and which has an account with them. So the bank now adds positive Ufs to Godfrey's individual account, and takes them away from Brad's *bank's* account. It uses the routing information (Bank Address) printed on the cheque to send it to Brad's bank as an explanation. So it is Godfrey's bank, not Godfrey himself, which deposits

the cheque which Brad signed at Brad's bank.

Brad's bank therefore adds positive Ufs to the bank account it holds for Godfrey's *bank*, and takes them away from Brad's *personal* account (which he authorised by his signature on the cheque). **Brad's bank now owes Godfrey's bank some Ufs.** They agree (reconcile) on this point.

One bank has a positive, and the other a negative; one bank is owed an Uf, and the other owes it; one bank has an asset on its books, and the other has a liability[1]. It is a balance of Ufs to be set off in future against some Ufs flowing the other way when Brad finally gets up off his ass to do something useful.

Godfrey's ***bank*** has become a depositor at Brad's bank (or a lender to it, which is the same thing). It is a sort of aggregate depositor for all the people in Godfrey's city who don't have an account in Brad's bank, but who have done things for people who do. What everyone hopes and expects will happen is that Brad will do some work for someone in Godfrey's city, then the process will reverse, and the Ufs will switch back. That's what will happen if trade between the cities is broadly in balance.

But what happens if Brad's city is lazy? Then slowly, Godfrey's bank's books will build a large positive Uf balance on their account for Brad's bank. Godfrey's bank is owed Ufs because there are no favours being returned. Brad's bank's books will show large negative Ufs; that is Ufs owed to Godfrey's bank. That means Godfrey's bank manager could amble into Brad's bank and draw its balance down in cash, or write a cheque to move it somewhere else.

Bank managers don't often turn up to each other's main branch demanding a few tens of millions in cash to balance out a long period of one-way traffic. They could, but they don't need to, because in a modern banking system they are both account holders at the Central Bank, which is basically another bank, but one with a monopoly power to create Uf tokens, and the right to make up new rules for bankers to obey.

Nowadays when Godfrey's bank gets edgy about the amount it is owed by Brad's bank, it simply draws a cheque on its account at Brad's bank, and deposits the cheque in its own

[1] If you bought a small PC accounting package and managed your own personal bookkeeping like a bank, your positive balance would match the bank's negative balance. When you had positive Ufs recorded on your package your bookkeeping system would show the bank as DR. They are a debtor, and they owe you money. Meanwhile the bank records its negative Uf balance with you by marking your account as a CR, because you are its creditor. Previously you might (like I did) have thought of CR as a positive Uf balance, which from *your* perspective looking at *their* books it is; but maybe (again like me) you didn't really understand that your bank statement *is a copy of their accounts showing their negative position to you*. They record a CR meaning that they have a negative balance of Ufs with you. They owe you Ufs. You are their creditor.

I was brought up to think a CR balance was good and positive and wholesome. But it's only good if I'm looking at my account on someone else's books. In fact every bank account is both a positive Uf balance (DR) and a negative Uf balance (CR) somewhere. It depends on whose bookkeeping you are looking at. That's why I find it impossible to understand the word "credit" used in the normal way, and have to invent silly words like "Uf" to make sense of it all. Personally I expect most people who go to accounting school think CR means positive money, which is probably the main reason there are so many accounting screw-ups in big corporations. I'm sorry if this is all very obvious to you.

account at the Central Bank, thereby converting all its accumulated Ufs held at Brad's bank to Ufs held at the Central Bank.

This takes Godfrey's bank off-risk with regard to the failure of Brad's bank. Central is acting as – well – a **centralised clearer of risk**. Indeed any bank which accepts a deposit drawn on another bank and credits the depositor's account is clearing the risk. Once Godfrey's account at his own bank is credited he doesn't have to worry if Brad's bank goes bust. Godfrey is now exposed to his own bank's failure, because it cleared his risk. When his bank deposits its balance at Brad's bank to Central, then it clears away its risk of Brad's bank's failure. It is Central which will now be exposed to the failure of Brad's bank.

I expect you are now saying to yourself "Is this what the cheque clearing system is all about?" Alright, maybe you're not, but I'm going to explain it anyway, in one paragraph.

You could set up a cheque clearing system simply by starting a bank called 'The Cheque Clearing Bank'. You would then open accounts with all the real banks on the high street. Then tell all the members of the system that they can accept deposits to their private account holders with any cheque drawn on one of the members of your cheque clearing system. On the high street bank's books the negative Uf goes to the depositor's private account, the positive Uf gets posted to the Cheque Clearing Bank's account, and the cheque is sent to your new 'Cheque Clearing Bank' in explanation, to be routed to the drawing bank, and thence the individual who wrote the cheque.

At each stage of the journey there's a negative Uf and a positive Uf put on the books of the bank which receives the cheque, and the boundary between each bank is composed of one bank's negative balance matching another bank's positive balance, which they validate by reconciling each other's bank statement. Banks have entire reconciliations departments doing this all the time.

Okay, I lied – it was two paragraphs. But I have illustrated that however many layers of banks, clearers and transfers you set up, and whichever way you look at it, the net failure of Brad and his neighbours to do anything valuable for anyone else will ultimately lead to a big balance of Ufs at an account somewhere. It's the accounting inevitability which follows from Brad going shopping with the money created by his bank. It also explains that the last bank in the chain is accepting the risk that Brad's bank can't return the Ufs, and because banks can get off that risk by drawing a cheque on Brad's bank and depositing it into Central, the Ufs created by Brad's bank usually end up owed by Brad's bank *directly to the Central Bank*.

These days Central is feeble, and frightened of the political consequences of any bank failure, so it lets Brad's bank run up an ever growing balance on ever weaker collateral. Other banks can deposit any of Brad's bank's junk at Central. Central's bluff (that it might close down a dodgy bank like Brad's) has been well and truly called. If you are a sound bank you can now do stupid business with a bad bank which you know can never pay you properly, and it won't hurt you.

Because Central's Governor has made it known he won't let banks fail, he has set himself up as the patsy. Just deposit the large Uf balance which Brad's bank owes you onto Central. The Governor can't stop you doing this while he is determined to turn a blind eye to Brad's

bank's insolvency. After all you could – instead – go down to Brad's bank and demand your balance in cash, which comes from Central anyway. It comes to the same thing, which is to force the Ufs issued by Brad onto Central, until such time as Central recognises that enough is enough.

You can now see – I hope – that when the economic imperative of shutting a bad bank gets corrupted by politics it positively invites reckless bankers to create money (and to pay themselves absurdly well) and it encourages the good banks to do silly deals with the bad ones, quickly passing the risk of failure to Central, which becomes a sort of magnet for banking rottenness. This has been happening all around us in a big way.

The resulting huge Uf balances at Central can be made grand and confusing by saying "The Bank of England's Balance Sheet is expanding" which I'm sure makes everyone think it's doing a remarkably important job. What it really means is that the Governor won't demand that a busted bank pays up or shuts down, so Central just runs up an ever bigger deposit balance at an ever weaker bank. While Central permits this Brad's bank really is being allowed to 'create money out of thin air'.

So, to go back to our original question about Fractional Reserve Banking, Brad's bank can create money and spending power by allowing Brad a negative balance of Ufs. But the intuitive idea that electronic money is easily created simply by adding positive numbers to accounts is wrong. It cannot be done without being found out by other banks, as Brad's spending transmits the negative Ufs through the relationships between banks, and ends up leaving Brad's bank owing Central all the money it created.

It is only Central's wimpish ambivalence about its giant Uf balance with Brad's bank which allows this to happen.

Now add collateral

I have left something important out of this explanation: collateral. If Brad is sitting on lots of wealth then the whole problem can be rectified. As Brad's account goes steadily more negative his bank gets more cross, because his negative balance transmits to the rest of the banking world, making Brad's bank look weak and foolish. That's when Brad's bank takes a charge over his assets, sells them, and eliminates both the negative Uf balance and its embarrassment with Central.

That is very important. Provided Brad and his workshy neighbours can make good their collective negative Uf balances by selling previously accumulated wealth (but not to each other) then the Ufs will flow back through the payment accounts in the opposite direction, and balance the deficit at Central. Provided Brad has some assets which are nobody's liability (some 'property') then this can be sold to eliminate his own and his bank's negative Uf balances.

Which means provided there is real property wealth under Brad's overdraft the banking system is safe when his bank creates money. There is *nothing* intrinsically wrong with a well secured negative Uf balance. It just means that Brad's previously untouchable accumulated property wealth has reduced, to be offset by his rising spending power. If his overdraft is well secured Brad has decided to put his personal property wealth back to work; and with the

bank's help he is using his previously accumulated property to create some spending power. Why shouldn't he; and when you invent that wonderful new can-opener why shouldn't you?

That illustrates – I hope – the essence of valid collateral in a money system. There's no problem with creating money on account which is backed by marketable collateral. But wherever someone somewhere is prepared to turn a blind eye to an increasing default risk, where – for example – the collateral is not marketable, then someone in the system **really is 'creating money' that shouldn't exist**.

You agreed with me (didn't you?) that credit creation is the natural consequence of free trade. The next step has been to accept that it looks perfectly rational that money is created on a bank account, provided that it's underpinned by real marketable collateral wealth.

This is simply 're-monetisation'. It converts property (wealth) held outright into a combination of money plus property-held-as-collateral. The overall quantity of wealth does not change through this transformation, but the quantity of money does. Before the Extreme Gold Bugs scream "traitor" at me for permitting this money creation let me show you how normal and uncontroversial this is by doing it in reverse.

Godfrey, who owns a house which he puts up as collateral, borrows 10 Ufs from the bank ("Traitor!") to buy materials to make a table. He gets some wood from a timber merchant, who as it happens currently has an overdraft. Angelina buys the table, with 10 Ufs she already has.

Pouf!! 10 Ufs of Angelina's money have disappeared. Neither Godfrey nor Angelina nor the timber merchant now has a positive balance of money. But Angelina has a table as her property. **Money creation is a two way street of continuous creation and destruction, and there is nothing to fear when it is underpinned by marketable collateral.**

So it turns out there is no sensible concept of a fixed quantity of money, although there should be a reasonable constancy of unencumbered wealth + money. How much wealth is held as money depends on how much people are willing to surrender their outright property to collateralise their money balance. Holding a money balance, as opposed to a property balance, is simply a choice to position wealth in a more easily exchangeable form, and banks are places which specialise in that exchangeable form of wealth. There is nothing weird nor dishonest about the money which is thus created and it doesn't cause trouble, ***provided the collateral is marketable***.

I feel I can now draw some big conclusions :-

1. It is pure nonsense to say that a gold standard means all money should be backed by vaulted gold. Suppose it was. It would prevent a man with a paid up £100 million property portfolio from borrowing £10,000 from his bank to pay someone £10,000 to build a garden shed. A monetary obstruction to this deal just isn't going to be tolerated, and it's a stupid idea to suggest the deal should be blocked simply because the consumer (rich property owner) or his bank currently has no gold at hand. It was precisely this sort of economic blockage that caused people to create money in the first place, and if you try to stop willing and credible exchangers from using one type of money they'll simply abandon your money, and either use

someone else's or create their own.

2. If the shed-buyer turns out to be a bad Uf generator (Brad?) then when that newly-created £10,000 spins through the payment system and ends up as a positive balance of Ufs held by the Central Bank, a polite cough from the Governor will get the balance sorted – in full and without the value of the currency being diluted. Brad's collateral house will be sold. There is no systemic problem while collateral is worth more than the money created.
3. I finally get the 'Gold Standard' (which makes me feel very stupid for not getting it before). I had read that back in 1910 the Bank of England might only store gold backing for 15% of the Sterling banknotes it printed. I thought it was cheating, but now I see it wasn't. The Gold Standard did not require every single banknote, and every single accounted Pound in every single bank account, to be backed with specific gold. If that had been the policy there would have been no money for our rich, property owning shed-buyer, and the gold standard would have been abandoned in a few days to be replaced by something which allowed wealthy people to buy things. There's a huge pool of other types of collateral to support money creation. In 1910 English society (then the richest society in the world) was swimming in wealth assets which weren't necessarily gold. It was sound and reasonable for a bank with no gold to 'create' a spending capability for a successful industrial magnate who owned a couple of factories and country mansions. All that was required was that the collateral remained more valuable than the standardised gold equivalent of the money loan.
4. The point of the Gold Standard (and it was a good point) was to create a yardstick. It tied money to something real and more-or-less stable, but it did not insist on every unit of account, and every banknote, being a unique representation of a specific physical gold stock held by the Central Bank. I was dumb to think it might have been like that. I may even have been an Extreme Gold Bug (which is rather embarrassing). I now accept that paper money is absolutely fine under a gold standard – and indeed there was plenty of it around when we had a gold standard.
5. Becoming merely a normal gold bug again is a bit of a relief. Money is spendable wealth. And because gold is not the only form of wealth which is marketable it is not the only credible collateral for money creation.
6. So we *can* allow banks to support free trade by creating money (even under a gold standard). Banks just need to know that if collateral needs to be liquidated they'd better be very confident it will raise sufficient money on whatever yardstick is being used. Otherwise it's curtains for all their shareholders' equity. Well – it would be – *if their Central Bank wasn't run by a wimp.*

Is Fractional Reserve Banking the problem?

It turns out that Fractional Reserve Banking is not responsible for the bad practice of 'creating money'. It is a ***speed limit*** on money creation, put in place by a Central Bank to stop banks doing too much of what comes naturally to them.

The Central Bank used to leave lending decisions to bankers, and step in to liquidate

them when they screwed up. But in a world of Deposit Protection Insurance and bank bailouts, the Central Bank picks up the tab for excessive money creation. To limit the risk, they impose the 'Fractional Reserve' to try to calm the commercial banks down. But it is only necessary because we have a timid Central Bank which lacks the gumption to swing its axe in the direction of banks like Brad's.

Indeed the current set up – where banks are not allowed to fail – turns out to be even worse than I previously thought. It does much more than offer succour to the odd unfortunate bank which steps over the limit of safety. It actually *forces* banks to be dumb. They have no choice but to approach the safety limit until they are bound to step over it. Any bank which does not step up to the plate will underperform all the others, and be subsumed by a more aggressive competitor. It's how evolution works; the survival of the fittest, where fitness means adapted to the prevailing environment. If you do not compete in the skewed environment where the Central Bank is a wimp you will expire because of it.

That's why banks are forced to make rosy judgments on the value of collateral.

Choosing your collateral

I am on a bit of a roll now. I think I can see how the Governor's turning a blind eye to Brad's bank's unwise money creation is going to lead to monetary catastrophe, and how it's all going to blow up and leave us in a really, really big hole. But we need to understand a bit more about the way money climbs a pyramid of clearers to see what is happening.

Let's see what happens when banks start accepting those sheds which Godfrey built as collateral for new bank loans.

People can now get two uses out of a shed. Sheds are materially more valuable to people who like to use **both** debt **and** sheds. Even people who have no garden tools, but who like debt, can suddenly see how useful a shed really is, even an empty one.

So Godfrey is busy building sheds for lots of people like Brad. They owe their bank a fortune and the bank believes it is making good profits, because it does not regard the loans collateralised by sheds as being doubtful or impaired. For the moment they are considered excellent collateral to 99% of their market value, and no bank in Brad's city will do any business whatsoever if it refuses to recognise the rock-solid resale value of collateralised sheds.

A bad time to own sheds

Godfrey takes on some more employees, and the customers' cheques don't bounce. There's soon going to be a heck of a lot more sheds, and Brad's bank will get a very big negative Uf balance with Central.

Eventually, even with a wimp at the Central Bank, a memo from the Governor to the exuberant bosses of Brad's bank will question the collateralising of yet more sheds. Soon after that the shed which used to have two uses is once again useful only as a store-room for garden tools – which makes it intrinsically less valuable. The abundant supply of sheds extends the problem. It will be a very bad time to own sheds.

That's more-or-less how we got a sub-prime crisis, and all the problems which flowed from it[2].

The expanding balance sheet

You know, I'm starting to get very suspicious of stuff which achieves the bank regulator's seal of approval as tip-top collateral. I mean it's so blinking obvious that as soon as they say "this stuff is rock solid" that banks are going to go out and finance purchases which force its value to a ridiculous level, from which it will eventually fall, to generate huge and unsupported Uf balances at Central.

But there's now a rock-solid approved form of collateral out there. It's already grossly overvalued, infesting the entire *global* financial system, and preparing to deliver us a real financial knock-out punch – not the sort of warm-up act we've just enjoyed with a few sub-prime houses.

But I'm getting ahead of myself. Let's look at the rather more local problem of the Bank of England's 'expanding balance sheet'. That – you will remember – is a pretty way of saying the Bank of England has accumulated all the Ufs which other banks knew would never be paid back by their busted competitors, i.e. those who had been busy creating money against questionable collateral.

Part 3:The central banks' central bank

AS YOU can now see, when there are dodgy bankers out there 'creating money' for the Brads of this world then the good banks choose to draw down all their balances at the dodgy banks, and deposit them at Central, which clears away the risk of doing business with a dodgy bank.

This causes there to be fewer big account balances held between commercial banks, which is what is meant when they talk of the 'inter-bank credit market freezing up'. They're still doing transactional business with each other, but as soon as there's anything chunky on one bank's account with another, the balance gets drawn down and sent to Central. Banks do not want risk with their own kind, so they transfer it to the Bank of England.

That's how the Bank of England has managed to gather all the winners and losers onto its own books. The winners deposit their positive Uf balances at the bank of England by writing cheques drawn on the losers who then get negative Uf balances. Then the Bank of England turns its benevolent (and wimpish) blind eye to the losers' large negative Uf balances, by accepting junk as collateral.

[2] Bank regulation can cause banks to damage themselves by focusing capital on the most dangerous 'approved' sectors. Lots of bank regulation works in this sort of way. It starts off by intending one thing, and becomes a licence not to think, which results in bankers doing ridiculous business entirely within the rules. It will continue to be that way until regulators stop believing their rulebooks can fix these sorts of economic decisions.

That's how the destruction of money known as 'deflation' has been avoided. Of course lots of commentators say deflation is carrying on, but it's not strictly true. They have a point that a contraction of commercial balance sheets would ordinarily define a deflation, but that's because in previous deflations Central wouldn't absorb the contraction by expanding its own balance sheet. It isn't like that any more.

I know you wouldn't doubt me about this, but just in case here is a bit of hard evidence provided by the *Financial Times*, which compares the expansion process at the Bank of England unfavourably with two other offenders – the Fed (USA's Central Bank) and the ECB (Europe's Central Bank) :

> *"... the latest ECB balance sheet size is 2.8 times greater than the mid-2006 level, when it was way above the size of the Fed's at the time. Over the same period, the Fed's balance sheet expanded 3.4 times, and the Bank of England's 3.9 times."*

So, the Bank of England's own accounts now have many more Ufs in them than usual, both positive and negative. It still balances, but with much bigger numbers for debtors and creditors.

If you turn a blind eye to people who can't pay you then that's what's going to happen. Indeed that's what happens to any small business which doesn't collect its debts from the people who owe it money; its balance sheet expands too, until someone to whom it owes money says "Pay me now". When its assets are all in the form of uncollected and uncollectable debts it goes bust. Most small businesses can't find a bank which will turn a blind eye in their direction.

Big banks usually can, thanks to Central; and so can countries. The same process exposes the heart of Europe's malaise. Greeks and others cannot find the EuroUfs to transmit back to German lenders because there is insufficient EuroUf earning power in Greece, and nothing to sell to generate some EuroUfs to send back the other way. Keeping the whole thing 'alive' means the broken Greek banks have to run big negative EuroUf balances with the European Central Bank, and the ECB dutifully honours the cheques which the rest of the world draws on Greek banks.

The ECB now has a monster depositor's balance of positive EuroUfs at Greek banks, having channelled huge quantities of EuroUfs into those Greek banks to prop them up. Once again, the ECB doesn't turn up at Greek banks with its chequebook, and attempt to draw €200 billion in cash which isn't there. It turns a blind eye, and its balance sheet also expands.

You might well expect the people who have big positive balances at Central Banks to draw cheques on them, and shift them somewhere safer. But it turns out the dynamics are a little different, because the Central Bank can print money, so there is nowhere safer to hold your money than Central, *so long as having the right number of Ufs returned to you – regardless of their purchasing power – is all that matters to you*. You will get them. That allows the Bank of England to leave a large open positive Uf balance with Brad's bank, and – when asked by the strong bank on the other side – to print the cash to pay it.

When you know a Central Bank is turning a blind eye to the people who owe it money you soon realise that other depositors at that Central Bank might start forcing it to print – and

trigger a nasty dose of inflation – which motivates you to look where you might yourself offload your exposure; this time to a different currency, rather than a different bank.

The world's financial system has just what you're looking for.

The Bank for International Settlements

When Gottfried produces a BMW for Brad, and when the payments run through the system, they end up with Gottfried's Central Bank. It now has a large positive Uf balance on its account with the Bank of England.

Right at the top of the banking pyramid you have an institution called the Bank for International Settlements (BIS). It acts like a Central Bank for central banks.

Germany can draw down Ufs from the Bank of England and deposit them into the BIS. Again, it just writes the cheque drawn on the importer's Central Bank, and pays it into its BIS account. If you still like using really positive sounding language you could say Germany has placed its 'Foreign Currency Reserve' at the BIS.

Now that we have a clear understanding of the aggregation of these Uf balances to Central Banks we realise that the BIS will grow a monster balance of British Pounds, which could be turned into cash should it choose to wander into the Bank of England with its cheque book.

We are at a crunch point, because after the BIS there is nowhere else to go. At last we're going to find out the permanent resting place for the Ufs which Brad, his bank, his city, his country, and his trading partners in the rest of the world have realised Brad is never going to return, and to which they all turn their blind eye as they pass it on to ever bigger banks.

The BIS does lots of things I don't understand. But I am starting to understand the Special Drawing Right (SDR). It's a sort of 'compost' currency worth – at the moment – about the same as a Pound. You can mix it up yourself in the garden – as a heap of slowly rotting currencies in the following proportions: US Dollars (0.66) Euros (0.42) Yen (12) and Pounds (0.11). The package gets acquired by exporters when they flip all sorts of other accumulated foreign currency.

The BIS's Special Drawing Right allows countries acquiring – say – too many Rupees (that would be exporters to India, like Thailand, who don't want to accumulate the ever inflating Indian Rupee) to flip out of Rupees into this super-solid mixture of 'top' currencies, packaged as an SDR. But the Rupee not being in the SDR, the BIS looks to dispose of it. So the Rupee stays low, which in principle makes it easier for India to export.

The Pound's little-known crisis of 2015

Our careful analysis shows that the SDR composition allows the UK and US to be lazy Brads, and everyone else to turn a blind eye. Brad has no intention of doing anything cheaper than a Thai factory worker, so his negative Ufs have in the meantime been parked with the Thais – within SDRs – as a store of wealth. The Thais are assuming that this makes a good solid base for Thailand's own 'Foreign Currency Reserve'.

For as long as everyone else is buying Pounds as part of a package labelled SDRs (or indeed in their own right) this allows the British to run a big trade deficit for a very, very long

time. Lots of the outstanding calls on the British to get off their collective ass are frozen into those SDRs and held by the rest of the world as a trusted store of value. So the British don't have to bother returning any Ufs.

The Pound is by a long way the most overweight currency in the SDR, being 11% of its value but less than 3% of the world economy. It's an enormous current privilege for us British which lets us distribute Brad's outstanding Ufs all over the world – in sacks marked 'SDR'. The world's financial garden mulch could be legitimately advertised "Now with extra British Pounds!"

I doubt this will turn out well, either for us, or – frankly – for the Thais.

The Pound is now unfit for this purpose

In a way, I suppose, it seems that *all* global trade is always balanced, by the definition of trade. But whereas we have an appetite for American grain, Japanese digital cameras, European fridges and cars, and absolutely anything from China, their manufacturers seem to have an appetite for the security of a store of value that they can in future draw down from us. They don't want our products, they appear to want some savings denominated in our money, which is extra-ordinarily convenient for British shoppers.

Somehow the British got to this situation of being a key component of the SDR. But as it is a component – and from the point of view of the user of SDRs – you'd have to say the Pound is now spectacularly unfit for the purpose.

A bit of thinking about how the SDR is composed, and what it is for, shows that the SDR can be a stabilising force in world trade **when it works to distribute the currency of strong exporters as a reserve for everyone else**. If that is how it is composed it will force exporters' currencies up, make their exports more expensive, and generally retain value for the people who hold it.

This is exactly how the SDR works with Japan, who are exporters, but who find the inclusion of the Yen into SDRs causes their currency to be held artificially high and suppresses their prodigious export power. In the case of Japan the SDR acts as a force for bringing world trade back toward balance.

The inclusion of the Pound, a long time ago, was at a time when the British economy may have merited its inclusion (I really don't know) and, this inclusion being decided by committee, and in the absence of a crisis, it remains the status quo today. But it has helped hold our currency high making it still harder for us to export – even though we run a large trade deficit. It encourages us to enjoy cheap imports, and works to *increase* the imbalance in world trade in goods.

It has also caused SDR holders to hold a chunk of Pounds which they might reasonably see as overvalued, which ought to matter to people like the Thais, and the Chinese, because the whole point of the SDR for them is to store reserves of international purchasing power.

As it happens the recipe for the SDR is re-set periodically. The next re-setting is due in January 2015. Since the last re-set the Chinese have become the world's biggest exporters, and the net Uf balance of the BIS has mushroomed as exporting countries have looked for a

secure store of value. They have been accommodated by ownership of SDRs – and lots of Sterling held directly too.

Where financial chickens go to roost

As a Brit I really don't like looking at the way this could play out. Why would all the voters on the IMF and BIS committees continue to support the Pound being overweight in the composition of the SDR? Why would the Chinese seek an SDR which incorporates Sterling? What would happen if there were a move to make an overdue and substantial reduction in the British weighting or – even – to replace it with Chinese Renminbi.

When push comes to shove, if the Americans and the Chinese are arguing over Chinese suppression of their exchange rate, and the Chinese are *offering* the Renminbi as a replacement for Sterling within the SDR, would the British deserve or get any support from America, or anywhere? No, they would not. The Americans want a more expensive Renminbi, the Chinese want a bigger slice of the international monetary action for the Renminbi, and the Europeans (the other big voting bloc, and a major SDR component) could be absolutely relied upon to support the Pound's marginalisation and a few British financial chickens coming home to roost. In the Eurozone they are starting to understand that this is what financial chickens generally do.

It looks possible that the case everyone will rightly make is that the SDR should be composed of the currencies of strong exporters – because this both secures the SDR as a meaningful Foreign Currency Reserve, and helps to bring world trade into balance. The Pound – I believe – could soon be isolated, marginalised, and eventually ejected from the SDR's composition, leading to a big surplus of ex-SDR pounds being available on international currency markets. I don't think there will be many takers.

So, with all the usual provisos about the danger of making predictions, I say "be ready for an escalation in the cost of your favourite imports, starting soon, and expect it to accelerate as the market prepares for January 2015." It may be only a matter of weeks before Chinese positioning for a seat at the top financial table spells a turbulent near-term future for the Pound.

Part 4: A threesome of convenience

I WENT to some lengths earlier to explain how the creation of money is natural, and how closely it relates to collateral.

Whether you are a building society lending to Brad, or a global investment bank lending to a high street bank, or a Central Bank lending to another Central Bank, you are subjected to the same control over money creation via meaningful collateral.

If you don't get some collateral when you have lent to (or deposited with) someone else, you are holding previously created money which is supported only by their equity (property),

and you are seriously gambling with your own future.

That's why the rapid expansion of balance sheets we see at the top of the banking heap has to be collateralised, but unlike Ufs which have both positives and negatives *the collateral does not balance to zero.*

You can easily imagine a world where the balance sheet of three Central Banks each list gross assets of about 250 billion. If we expand their balance sheets fourfold – like the Bank of England has – we simply leave lots of Ufs on their accounts with each other. Now A is a creditor of B to the tune of a trillion, and B is a creditor of C to the tune of a trillion, and C is a creditor of A to the tune of a trillion.

Nothing has changed in terms of overall net wealth. But because the wealth is now someone else's liability – rather than these banks' property – there are 3 x 750 billion of new balance sheet assets, which need to be collateralised at one side of each boundary. So the balance sheet expansion requires 2.25 trillion of new collateral. **Balance sheet expansion creates an enormous appetite for collateral.**

We have already seen that sheds and sub-prime houses became overvalued, primarily *because* they became valuable as collateral. But I have not yet explained how the enormously expanded banking balance sheets at the top of the pile – at Central Banks and the BIS – maintain the collateral they need. What do they trust and use?

There is total unanimity around the financial world that the king of all collaterals, the undoubted AAA top of the heap, the fiduciary instrument *par excellence,* is Sovereign Debt.

This belief is very much more stupid than anything which you might think bankers have believed in the last 5 or 6 years, and that is a period in which it's fair to say bankers have staked out new ground when it comes to stupidity. Yet what could possibly be more daft than lending more money to an institution which owes well over a trillion Pounds and has no discernible assets?

Sometimes stupidity is temporarily convenient; it can pay handsomely to bury scepticism and be stupid as long as you're not the patsy who ends up paying for your imbecility. Maybe your best bet is to be a good quiet little banker and toe the official line countenanced by the government and the regulators while drawing a nice big salary. Be smart, and keep your head down! The bankers are certainly not the patsy here, and nor is government or the regulator. You are.

First sheds, now bonds

Sovereign Debt is issued by governments. A long time ago all the major democratic governments in the world started issuing bonds to fill the gap between unaffordably high public spending and electorally popular, moderate-to-low taxes.

This debt is supposed to fund capital projects, but deficits have been poured into social projects and left nothing of capital value behind. Governments do this to get re-elected.

Unfortunately what it does leave behind is a vast pile of government liabilities of very dubious value whose credibility is based on a rather obscene threesome of convenience. I can't help myself feeling like a spectator at a financial orgy, in which all three are wriggling

together in gruesome ecstasy.

1. Collateralised lenders of all shapes and sizes – but particularly our biggest and most important financial institutions – have needed an ever larger pool of collateral with which to nominally secure the large Uf balances to which the likes of Brad's bank (and their own derivative dealing desks) routinely expose them.
2. Regulators have fallen in love with bonds, and particularly Sovereign Bonds, as the king of collateral – and indeed investment. They got their bottoms smacked for allowing some strange looking instruments called CDOs to be used as collateral (these were the wacky financial instruments which started the rot in 2008). It is very convenient for regulators to pretend to themselves that Sovereign Debt is the unarguable quality store of value while they cuddle up to their government.
3. Governments have had to find ways of staying popular when there isn't enough money to fund the things they need to get re-elected. They can provide the collateral that goes to the banks and gets approved by the regulators, and in return they get lots of cash.

Sovereign Bonds are tick-the-regulatory-box collateral. They have been issued in mind-blowingly large quantities by governments which are already manifestly bankrupt. This is what underpins balance sheet expansion at the Central Banks and everywhere else.

Bond prices are behaving in exactly the way we have already seen with sheds, and with sub-prime properties: they are experiencing an egregious overvaluation because they alone offer a smooth passage through the form-filling of the modern regulatory environment, as balance sheet expansion follows hot on the heels of Central-Bank feebleness.

All our seriously large institutions, from pension funds, to hedge funds, to high street banks, to the global investment banks, the Central Banks and the BIS and – probably even more importantly – the massive clearing systems which shunt financial instruments from sellers to buyers in the world's financial markets, *all* of them, are up to their eyeballs in trillions of dollars worth of Sovereign Bonds held as collateral.

Only when the whole thing blows up will they say "how could we have known?" Well, they could have read a few history books.

How to fund £700 million every day

These types of bonds are now at record high prices, and record low yields, yet have a history of hard and soft defaults which takes in virtually every major financial crisis there has ever been.

Bonds have never been issued by Sovereigns with weaker balance finances. They will inevitably start descending, and then it could get really ugly. The marketplace eventually claims its right to price things.

Britain in particular could be facing financial immolation. If the market does grab the pricing of money back from the Bank of England (and it has a 100% success rate at doing this over the long term) interest rates would go through the roof, as they did during the bond

market slump in the '70s, and in Greece just recently.

Unlike the Greeks however we are unprotected by robust German opposition to printing new money to get out of the hole. This has been very bad news if you're a Greek Brad – which a very large proportion of them appear to be.

Our solution will be the other way around and it will be very bad for British Godfreys, like you. The use of the Pound as a store of value could be abandoned by people all over the world, including as a starter the committee which resets the SDR. That could even be a trigger. Sterling really could collapse.

With our government unable to distribute new bonds except at punitive rates I think it will choose the printing press over default, and it would start printing some of the £700 million it needs each working day (that's about £220 million of bond repayments, and £480 million of new deficit spending). That augurs a dramatic loss of confidence in Sterling. There are simply so many bonds out there, expecting to be redeemed for cash, that it might take us close, or even into hyper-inflation.

It is that serious. You can smell the collective self-deception here which lines the route to financial disaster. This is the very stuff of economic history being played out in our time, and this is the story which will make our descendents chuckle at our naivete.

We are going to be destroyed by the wimpishness of our Central Banks. They should bust all the banks like Brad's, if only just to teach the rest of us an overdue lesson about creating bad money on account. We are all going to pay a very heavy price.

Winners and losers

Writing like that I feel like an end-of-the-world doomsayer and ridiculous pessimist. Actually I find the whole possibility sort of invigorating. This would be the market doing its work as a correction mechanism – and an overdue punch on the nose for the confused market-deniers in government and the monetary policy committee who want to magic away the losses of a string of financial crises.

Yes, it would decimate the savings of people who hold financial instruments like Sterling cash, deposits and bonds, and it'll be horrible to people on fixed incomes who don't quickly do something about it, but it will also be a leveller, and there will be winners.

The biggest collective winners will – I believe – be educated and resourceful British youth. They are the big victims of current policy. It hardly matters how long they intend to work and save, because after 30 years during which the boomer generation has been protected from asset price slides by artificial monetary stimulation, Britain's youth simply cannot afford homes or savings plans at their protected and elevated prices. All but the absolute richest face a life of renting, high tax and debt repayment.

Indeed the government's nominal obligations can only be paid at full *current* value by holding the next generation in servitude for their whole lives. I'm delighted a financial disaster should stop this happening. Our generation's overpriced assets are going to lose value *with respect to productive work* – reversing that 30 year trend, and homes will again

become affordable to younger and more productive people.

They will be the biggest overall winners because they currently have nothing and don't have to do anything special to benefit; they just keep on doing what they're doing, aggregating skills and knowledge which the future world will find valuable.

I think that private enterprise will also be a winner. Government will struggle to pay salaries which keep up with rapid inflation, and it will not need to, because lots of people will work for very little in the public sector in order to retain their index-linked pensions (although their real value will shrink as they relate to the worker's depleted final salary).

But many won't work for peanuts, and as public sector salaries lag further behind really productive jobs in the private sector people will leave their jobs – allowing our bloated public sector to shrink as they re-deploy. This is good for everyone.

There will doubtless be a small number of brave or lucky souls who will make fortunes by borrowing money (taking care to fix the interest rate) and trusting to luck, or their judgement, on the timing of what they buy. The cost of the money will be ruinous, but with good timing the assets they acquire will rise faster than the value of their debt.

But most of the individual winners will be people like you, who already have assets. You will be in a minority of perhaps one or two percent of savers who have the patience and curiosity to read boring articles like this, and take the trouble to have a wider look around and see what's happening.

Unfortunately most people struggle to exit currency savings when they have already lost a chunk of their purchasing power. Time and again it is the middle classes who stick with their savings as they depreciate first 15, then 30, then 60 then 95%. After a lifetime spent trusting in money it is notoriously difficult to dump it, and especially so when the things people need to buy to avoid the worst of a currency collapse have already risen sharply in price. That presents savers with the very real possibility that they are panicking, and will only lose more money as a result. I expect about 95% of savers will hold on to their money until the bitter, near-worthless end.

How can you defend yourself?

You ought to be able to find a whole myriad of ways to profit by abandoning monetary savings and buying things which have and hold real value regardless of the speed of Sterling's future depreciation.

Personally I still believe that gold offers a sensible protection and I have rather more than a fair share of it[3]. It's not to everyone's taste, but I believe it offers a reliable bridge to a future currency system, and is at its most useful when a currency fails. I find I prefer commodities to businesses through a period of extreme financial dislocation – because crisis forcibly turns a company's finance director into a gambler, and I've no way of picking out the good gamblers.

[3] I must declare my interest.As the founder of BullionVault.com I've been owning and marketing gold for 10 years.If you were to choose to buy gold at BullionVault I would benefit.

Of the commodities I prefer gold because it is *the* monetary commodity, rather than just another industrial one. Because gold is both hard to find and relatively useless it offers the most stable over-ground stock quantity of anything in the world. That's why people choose it as money when the artificial controls limiting the creation of normal money break down. Society has an unshakeable need for a credible monetary medium, and the absence of a workable currency tends to make a (monetary) commodity with a stable stock quantity particularly valuable at times like these.

Of course, the tough bit will be deciding when to exit gold – and that time will come. I don't have any thoughts on that just yet. It is far too early for me to start worrying about that.

Anyway – if you got this far I thank you for persevering through a difficult subject, and good luck.

Paul Tustain
BullionVault

P.S. Do comment on this article by emailing me here. I will be pleased to publish your considered reaction in a follow up.