Virtual gold as currency, to bring finance closer to the real economy

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1 Introduction

The monetary policy of the ECB is directed to inflation control. They aim at reaching a situation where the buying power of the euro decreases yearly with slightly less than 2%. But inflation is difficult to control. The efforts appear to be insufficient. Why so stubborn? Why not introduce a new type of currency that facilitates the control of the buying power of all individual euro balances, instead of controlling the buying power of one euro? This is possible by applying a form of full reserve banking. Here I build on the proposals of Positive Money[2].

The suggestion here is that only the ECB creates money, and that this money is only digitally available. To prevent confusion I call it "virtual gold" (VG). It is measured in euro's. VG is the only legal tender. That means that all government and government related organizations pay with VG and accept only VG. Each economic unit has one or more VG accounts. These accounts are organized such that the balances are coupled with to the (nominal) GDP. To that end a daily updated estimate of the (nominal) GDP is made available. For a hard coupling with the GDP, the available balance could be multiplied daily with the relative increase or decrease of this estimate. So, if between yesterday and today, the estimate increases 0.01%, all balances are multiplied during the night with a factor 1.0001. Instead of a hard coupling I propose to apply a taxed coupling instead, to realize that the buying power of the balances grows less than the GDP. One could choose, e.g., a reduction of the buying power of 2%.per year. That is about 0.00006 per day. To imply such a taxed coupling, all balances have to be multiplied during the night with 1.0001 – 1.00006 = 1.00004 (assuming that the GDP growth is 0.01%). This reduction of 0.00006 is a form of taxation indeed if it is added to the VG account of the government. And that is how it is proposed to be organized.

This note sketches the application of a monetary system with VG as legal tender and a taxed coupling of the VG balances with the nominal GDP. The claim is that such a monetary system fits the actual needs better than the current system does. And also better than a pure full reserve banking system. The insensitivity for inflation is an important element here.

The next section introduces the type of full reserve banking that is proposed here and the taxed coupling of VG balances. Cash does not quite fit in this monetary scheme. How to deal with cash

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[2] See Jackson, A. en B. Dyson, "Modernising Money", Positive Money, 2013.

is discussed in Section 3. It is important that people feel comfortable in using VG to settle their transactions, and do not keep searching for different forms of near-money. This is given attention in Section 4. Section 5 is a first exploration of the monetary tools and parameters that are available in this system. It is also a suggestion for further research. Section 6 is about implementation and concludes.

2 FULL RESERVE BANKING AND TAXED COUPLING

The oldest full reserve banking proposal is known as the Chicago plan[3]. In the proposal here, I refer to the version of Positive Money. Only the central bank(CB[4]) creates money. Here, this money is only digitally available: VG. Each economic actor has one or more VG accounts. The accounts may be facilitated by the banks, but the coupling with the (nominal) GDP is prescribed by the CB.

The VG balance on such an account is owned by the account holder and has no effect on the balance of the CB. It is only possible to use the balance for payments as long as it is positive. Borrowing from another actor (A) is possible. It means that part of the VG balance of A is transferred to your account. Borrowing from a bank is (of course) also possible[5]. Compare the investment pool in the proposal of Positive Money.

To prevent that getting a credit gets too difficult, banks are allowed to borrow VG from the Central Bank, under certain conditions. That means that the VG balance of a bank may be negative. This corresponds also with the Positive Money proposals.

Allowing VG-loans to banks does not mean that the control of the CB is as weak as in the current monetary system. In the current system a bank can give a bank credit without the CB even knowing it. Only when the credit is used for a transfer to an account with another bank, it may affect the balances of the banks with the CB. And by the system of intra-day clearing, there is frequently no effect at all. That is different in the system proposed here. A bank can only give a VG credit if the corresponding amount of VG is transferred at the same time. The CB knows immediately what credits the banks give. And is able to put effective conditions. Credits for a new mortgage can be judged in another way than investment credits.

The main difference of this proposal with the Positive Money proposal is the taxed coupling of VG balances with the GDP That necessitates the availability of a daily updated estimate of the

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[3] Fisher, I. "100% Money and the Public debt" Economic Forum, Spring Number, April-June 1936, 406-420.

[4] I switch rather easily from the European situation to a general situation. The proposal is generally applicable, but I refer to the European situation for specifics and examples.

[5] If an account is overdrawn, the bank has to refuse the payment or has to add own VG. It is possible, and looks attractive for banks to devise a scheme where these extra units of VG can be borrowed from the receiving bank.

GDP. Let $V(t+1)$ be the estimate of the GDP that is available at the end of day t. A taxed coupling with the GDP means that the VG balances at the end of day t are multiplied with a factor $\mu(t) = V(t+1)/V(t) - \tau$, with τ the tax rate (per day). Let $SV(t) = \sum_i V_i(t)$ be the total sum of VG balances (all accounts). If the total tax, $\tau \cdot SV(t)$ is added to a VG account of the government, the total of all balances remains constant as fraction of the (estimated) GDP. By adding less or more VG to the government account the total amount of VG can be reduced or increased.

The result is a monetary system with two main parameters, the tax rate τ and the total amount of VG as fraction of the (nominal) GDP (f). These two parameters can be set, independent of each other. Next to that there are the conditions under which the banks can borrow VG from the CB. In section 5 we come back to these parameters.

The tax is an anti-hoarding tax. It can be made budget neutral for the government by determining that it is compensated by a reduction of the income tax or of the value added tax.

Note that instead of measuring the VG balances in euro, they may be measured in pico GDP. The GDP of the Eurozone was in 2015 about equal to 10^{13}. So 10 euro is about equal to 1 pico(GDP). In case of 2% tax per year, 1 pico VG will be equal to 0.98 pico at the end of the year. Prices remain in euro. But goods and services are bought with pico's. The exchange rate is determined by the daily updated GDP estimate.

3 CASH?

Because of the daily adaptation of the VG balances, cash (coins and paper money) does not fit well in the system. As long as there is cash needed it has to be a kind of voucher. A voucher is a temporarily valid claim on VG. It looks as a normal bank note of course, except that it has a clear date, indicating the end of its term, e.g., valid until the end of 2017. When a voucher is purchased the tax has to be paid in advance. A voucher can be returned for the full amount of VG on it. Banks are going to organize and administer the issuance of vouchers. Because of the tax on it, it is necessary to issue rather frequently new vouchers (once a year at least). A lot of fuss and a good reason to switch to completely cashless.

This incentive for completely cashless is in my opinion and extra advantage of the proposed system. The disadvantages of cash are so clear that it is more effective to give the "advantages" as expressed in a report published by G4S, an organization representing companies working in cash transport and security. They mention: lawful, anonymous, a safe possibility to hoard, direct (no third actor involved), insensitive for system failure and a contribution to being conscious of the value of money[6]. Only the insensitivity for system failures is something to give some positive attention. It may require some effort, but if we really want to resolve this, it is possible of course. The “advantages” explain why it is rather difficult to comprehend for a reasonable citizen why we don’t have a cashless system yet. Cash is an expensive anachronism for each socio-economic system.

4 NEAR-MONEY

VG is the only legal tender. It is meant to be a dependable and attractive form of money. The coupling with the GDP may be expected to be appreciated, but the tax will make it less popular. This tax is necessary however, to prevent that VG is hoarded. The tax has to be kept low (2 or 3% per year?), but, of course, alternatives will be explored: dollars, gold, bitcoins, ….. . For all these possibilities the disadvantage of a risky exchange rate is heavy. This is probably sufficient to let the average prefer to use VG.

A more serious possibility is that a bank or the joint banks are going to issue claims on (VG-)euro’s. If there is sufficient trust, and the joint banks may be expected to be trusted, people can use these claims to settle their transactions as if it were (VG-)euro’s, without ever executing the claims. The advantage is that there is no tax on these claims. One could even go one step further and issue claims on (VG-)pico’s, so guaranteeing the coupling with the GDP as well. The access of banks to VG credits could make this possible in principle.

An important threshold however is that the government and all government related organizations only accept payment in VG. This makes it inevitable that all salary payments are also in VG. The consequence of this is that the claims are going to be executed very often. That makes it very complex for the banks to issue such claims. By putting further restrictions on the availability of VG credits for banks, it can be made even more difficult. The banks need high VG reserves to cover the risks and have to pay taxes on these reserves. For non-banks it is anyway impossible to issue such claims, because they have no access at all to VG credits.

An important issue of the monetary policy is to keep the tax high enough to make it effective in anti-hoarding and not too high, to make the search for near-money not too tempting.

5 THE TOOLS OF MONETARY POLICY

Money and capital market are going to function very different from what we are used to. The claim is that the proposal leads to more transparency of these markets and hence to better

[6] Cash Report 2016, Europe

possibilities to direct them. But, of course, this has to be investigated in more detail. This is only a first exploration.

The first difference is that the total amount of money and the credits provided by banks are better controlled. Choosing f fixes the total amount of VG as fraction of the GDP. Banks can get VG credit, making their VG balance negative. This makes the total of VG balances of the other actors larger. But by introducing the right conditions on these VG credits, the CB can control the resulting credit expansion well.

It is important to be conservative in controlling the f. Changing the f implies changing the buying power and will easily lead to more instability with respect to prices. Also instability with respect to prices of real estate and other assets that banks like to use as security for loans. And hence to credit instability. Keeping the fraction f constant or almost constant looks best. And f has to be small, as small as possible. The government should not bully the citizens by putting first too much money in the economy and then tax that money.

The capital markets work only if it is possible to switch from one asset to another. Money (VG) is the lubricant in the system. Only little of it is needed. It is needed because selling and buying are not completely synchronized. Suppose the assets of a portfolio are replaced (in average) every two years and a switch requires (in average) a period of two weeks. Then the quantity of VG that is necessary for switching is (in average) equal to 2% of the total value of the portfolio. If the sum of private wealth is equal to 6 times the GDP (compare Piketty[7]) the total quantity of VG that is necessary for switching is equal to 12% of the GDP. Of course it is possible to switch in another and probably smarter way (with less use of VG). This is just to sketch that only a limited amount of VG is required to realize capital flexibility.

To estimate the total quantity of VG that is necessary, one has to include also the demand from businesses because of investments that cannot be paid from the normal cash flow[8]. And some VG is necessary for working capital and housekeeping money.

The VG credits to banks help to make the capital market flexible. That makes it less necessary to be very precise in estimating the VG need. The type of credit that is demanded by the banks helps also to see what VG requirement may be underestimated. It is a matter of trial and error to monitor this demand and make new estimates.

Next to the choice of f, so small as possible please, there is the choice of τ, the anti-hoarding tax. This has to be chosen sufficiently large, to be effective in anti-hoarding. But not so large that people get uncomfortable with it and start looking for alternatives. Let ρ be the average growth

[7] Thomas Piketty, "Capital in the Twenty-First Century", Harvard University Press
[8] Sorry for this term. Even the money language is outdated.

(per year) of the *real* GDP. If an inflation of 2% is acceptable in the current system, then it is acceptable in the system proposed here to choose the anti-hoarding tax τ such that $365 \cdot \tau - \rho = 0.02$. So one may choose $\tau = (\rho + 0.02)/365$, or a little smaller. Estimating $\rho = 0.01$ leads to an anti-hoarding tax of maximally 3% per year.

One may expect some inflation, also in the system proposed here. Everybody has the tendency to overestimate his or her contribution to the GDP and prices go easier up than down therefore. That mechanism will work here as well. But the value of a VG balance is independent of that. It may be measured in pico's. And it is straightforward to extend this inflation independence by having all loans and bonds also in pico's. Measuring all financial products in pico's makes them transparent and boring. And that is quite an advantage. The adventures should be sought in the real economy.

Summing up, the system proposed here is expected to lead to more stability of the capital market, less interference of the central bank with quantitative easing, less severe financial crises and complete insensitivity for inflation. And in between a constant incentive to spend, because of the constant anti-hoarding tax. But, of course, more research is required to be able to make these expectations more specific and check them.

6 Implementation and conclusion

It is a radical change of the monetary system that is proposed here. But technically it is relatively easy. And it can be implemented gradually.

The full reserve banking system proposed here can be introduced, starting with the acceptance of M1 money as VG and by transferring this to newly established VG accounts. Thereafter the relationship of the banks with the CB is adapted gradually. Banks have to guarantee their demand deposits by providing sufficient VG or borrowing this from the CB. Tariffs and conditions for this borrowing can be stabilized in due time.

The coupling of the VG balances with the nominal GDP is a matter of having available a daily adjusted estimate of the GDP and to organize the accounts such that the daily multiplication with the right multiplication factor is automated.

Laborious and time consuming is probably the replacement of coins and paper money by vouchers. But not really complicated.

Transferring the economy of the Eurozone to such a full reserve system does not necessitate that other economies transfer to the same kind of system. Businesses from the US who want to buy in the Eurozone, can acquire a standard VG account and participate in the Eurozone economy with this account.

Technically it may be relatively easy, socially and politically it is huge. The proposal goes much further than the Tobin tax, and the proposals with respect to that strand already in European politics.

One of the main objections against full reserve banking in general is that the role of the government is too large, that governments may not be trusted, since they are going to use the monetary decision freedom for budgetary purposes. In my opinion this critic is based on a too trivial image of "government". As if the government is just one single, homogeneous "beast". Western governments are much more complex, organized conglomerates of powers and institutions, rules and checks and balances, integrated with a widely present civil society. A transfer to such a full reserve banking system necessitates to reconsider the role and position of the CB in that (broad) government. But that is doable. This anti-government argument does not make any sense.

Nevertheless, this is a major problem with respect to all discussions about full reserve banking. The arguments about content are poisoned with this underlying conflict about an adequate role of the government. Since the financial crisis the ideas about the role of the government have shifted a little into the direction of more government. It is questionable, however, whether that is sufficient. Bankers are by definition against full reserve banking. And reading the book of Nomi Prins[9] about the connections between bankers and politicians does not give much hope.

But yet. Full reserve banking is on the table again. This note shows that the potential of full reserve banking is much larger if we accept this idea of coupling. Just like a car appeared to be more than a coach with an engine. So why not include it in the discussion? And hopefully, the image of a really adequate monetary system convinces more people (economists, bankers and politicians) that the current system is indeed worn out. That conviction will remove conservatism and lead first to a more open discussion and eventually to real changes.

[9] Nomi Prins, "All the Presidents Bankers", Nation Books, 2014