A Parallel Currency Proposal for the Stronger Euro-States

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Abstract

It is argued that the stronger member states of the European Monetary Union should find their way out of the Euro in order to avoid being dragged into a disastrous course of inflation and over-indebtedness by the weaker members. A sudden exit would presumably cause financial turmoil as well as political damage and is, thus, no realistic option. However, by creating a parallel currency called "Hard-Euro" as an intermediate solution, there would indeed be a way of separating the EMU into two parts, with a weaker Euro in the southern countries and a stronger Euro in the northern countries. Using a small macro-model, the paper discusses this idea and its economic consequences in more detail. Following the early idea of separating the functions of money by Eisler (1932), the Hard-Euro is invented in the form of a pure book-money, while the Euro is still the only cash money until further notice. The Hard-Euro is designed as an index-currency such that its exchange rate exactly compensates for the inflation rate of the common Euro. Hence, it is absolutely stable in terms of consumer prices, and at the same time the exchange rate can never overshoot. By this means, savers in the stronger member states are protected from both inflation and financial repression, while the weaker member states can improve their competitiveness by inflating the Euro. It is shown, that this approach is likely to increase both investment and total output in the EMU. Later on, this intermediate regime could be substituted by the definite separation of the Euro-Zone into a stronger northern and a weaker southern part.

1. Introduction

Less than 15 years after the Euro has been invented as the only cash currency in originally eleven (and meanwhile 17) European countries, the European currency union has come into serious trouble. Not only all rules which had been agreed on (including the non-bailout clause, the prohibition of monetizing public debt, the debt limits of the Maastricht treaty and the independence of the European Central Bank) have meanwhile been virtually abandoned, but there is also a severe debt crisis along with hard burdens on both the weaker and the stronger member states. While the former suffer from deep recessions coming along with their struggle on more fiscal soundness, the latter saw themselves forced to commit on huge guaranties and also direct payments in favor of those member states who had formerly misused the currency union to live beyond their means.

Even worse, the mal-incentives and insufficient sanctions for misbehavior which had led to this dilemma are still unsolved, in spite of the so-called fiscal pact and other institutions which have newly been established. Hence, although some progress is currently observably concerning current account balances and interest spreads, there is little hope that things will go better in future. On the contrary, there are now even stronger incentives in favor of excessive debt taking and living on the cost of other countries than before:

- The extremely expansionary monetary policy of the ECB greatly facilitates the Euro-states to bear their debt burden, but at the same time effectively expropriates private savers by the way of financial repression. Because private savings are more and public debt is less in the solid than in the weak countries, the ECB-policy implies a huge redistribution at the cost of the former, which is currently calculated at 14 Billion € for German savers alone. The same applies to the purchase of government bonds by the ECB, which is equally asymmetric. Hence, in contrast to similar programs of the FED or the Bank of Japan, monetizing public debt is much more problematic in a currency union. This is the more the case as the so-called Target balances, which reflect another redistribution means in favor of the weaker countries, need not be balanced in hard currency in the EMU, other than in the US Fed-system. So there is no incentive to avoid excessive current account deficits, because these can conveniently be financed by the Target balances, i.e. by printing fresh money at the expense of the other EMU-members.
- With the OMT-program, the ECB has now officially committed itself to buy unlimited amounts of distressed government bonds if necessary. Although this promise is formally dependent on obeying the ESM-reform requirements, this binding is not at all believable. Nobody can really imagine that the ECB would drop e.g. Italy only because they declare themselves unable to follow such requirements. Not only would this contradict all experience with the previous so-called Euro-rescue policy (eg. concerning Greece), but it would also mean the ECB to invert their present standard argument that the fallacy of one member of the currency union would inevitably cause extremely dangerous contagion. As a consequence, the OMT program effectively provides unlimited range for further debt taking. Indeed, literally no progress has been made up to now concerning public debt ratios despite of the ongoing crisis.
- Moreover, the originally temporary rescue umbrella EFSF has meanwhile been supplemented by the ESM which is unlimited both in terms of duration and volume. It is not even legally possible for any member state to dismiss the ESM, and the formal limitation of each country`s

maximum contribution (which is 190 Billion € in the case of Germany) is equally unreliable as the limitations of the OMT program are, for the same reasons which were given above. So it is much more likely that the ESM will, sooner or later, be substituted by Eurobonds, implying an unlimited liability of the stronger Euro-states for the weaker member states´ debt.

- The debt limits of the Maastricht treaty (a maximum of 3% current deficit and 60% total debt in relation to GDP) have never really been taken seriously and are meanwhile not even worth the paper they have been written on. On the contrary, even the German Council of Economic Advisors has proposed a so-called debt pact which effectively implies that all debt which is in excess of the 60% limit should be pooled in a common pot. Admittedly, they also propose the obligation for each country to gradually redeem its excess debt. However, in the light of previous empirical evidence, this appears to be pure eye washing. Once the excess debt is socialized, no effective way to enforce redemption is available, if it were economically possible at all. So the plan of the council appears economically elegant, but politically naive.
- Last not least, with the so-called banking union, another and even more giant redistribution in favor of the weaker countries and on the expense of the stronger countries is on its way. While the common public debt of the weaker countries amounts to approximately 3200 Billion €, the common debt of their banks is another three times as high. Again, while the stronger countries hope to make the financial sector more robust by socializing theses immense risks, the weaker countries mainly aim to rescue themselves by sharing it with those who have acted more responsibly and solidly than they did.

For any unknown reasons, the German Government seems to believe that these problems can be resolved by a fiscal union, with more power for centralized fiscal authorities at the EMU level and binding common rules in the spirit of the German passion for debt brakes and price stability. History tells quite another story. In pre-Euro times, elements like these never played any role in the politics of Italy, Spain, France or Portugal, not to mention Greece. On the contrary, permanent inflation along with excessive public debt taking and continuous depreciation of their currencies prevailed. For example, between 1963 and 1999 (when the Euro was invented) the Italian Lira lost more than 80% of its value against the German Mark, and the French France lost nearly 70%. To make a long and sad story short: Whenever the governments of these countries needed more money, they simply printed it. Neither have their central banks been independent like the German Bundesbank, nor had price stability any priority. It was only after the Maastricht treaty that things temporarily changed, because there was no other way to get rid of the German currency dominance but inventing the Euro. Soon after this aim had been reached, however, solidity in the policy of these countries vanished again and the Maastricht treaty was forgotten.

So what can we expect from a fiscal union with these countries? Even today, Germany is widely isolated in the ECB board. Both former Bundesbank-president Axel Weber and former ECB-chief economist Jürgen Stark precociously resigned, and current president Jens Weidmann is regularly overruled in the ECB-board. There is little hope that this would be different with former institutions for a centralized fiscal European policy. It is much more probable that such a policy would follow the same way which the majority of member states had gone in pre-Euro times. Obviously, this is just the contrary of what Germany and other stability oriented member states like the Netherlands, Austria and Finland had in mind when they agreed to build the Eurozone.

Nevertheless, leaving the Eurozone is not a realistic option for any of these countries, least of all for Germany with its precarious history. Even if the economic turmoil which would presumably be unleashed by such a step could be handled with, the political damage caused thereby would presumably be irreparable. Anyway, the vast majority of politicians all over the EMU is in strong favor of preserving the Euro as a means of European integration, strongly believing that the crisis can be overcome by the current rescue policy in combination with structural reforms in the weaker countries. So it seems that there is only a choice left between Scylla and Charybdis, i.e. either the erratic breakdown of the Eurozone or its transformation into a kind of "Liro"-Zone where the formerly stable countries are inevitably dragged into a swamp of uncontrolled debt and inflation.

2. Historical Examples and Current Proposals for a Parallel Currency

Even at the very beginning of thought about a common European currency, the idea of parallel currencies was raised by well-known economists like von Weizsäcker (1971), Vaubel (1972), Graumann (1979), Giersch (1975) and others.[1] A similar proposal was also made by the Bank of England as an alternative to the Euro (Leigh-Pemberton 1990), but did not gain acceptance. The general idea of a parallel currency is the combination of a common means for payments and, at the same time, separated mediums of both saving and making contracts, as was already proposed by Eisler. As Meyer/Schüller (1976) have shown, spontaneous parallel currencies with the same motivation have regularly emerged in the middle ages as well as in more recent times, wherever the official currency was inflated by the monetary authorities. For instance, during the German hyper-inflation in 1923, people used a virtual parallel currency called "Goldmark" which never existed physically, but was nether-the-less an extremely useful virtual unit which spontaneously substituted the German Mark as the standard monetary unit (Meyer/Schüller 1976, 38). Similar parallel currencies had already emerged in the 17. Century. They were a spontaneous response to the permanent counterfeiting of legal coins, among them the so-called Bancomark which was emitted by the Hamburger bank since 1619 (Meyer/Schüller 1976, 14). By this way, tradesmen and savers successfully protected themselves against the inflation which was caused by their rulers in order to enrich themselves at the cost of their folks already in that time.[2]

Given that, it is no surprise that the idea of supplementing the Euro by one or more parallel currency has received fresh attendance in recent times.[3] Although there is still no inflation at the consumer price level in the Eurozone, more flexibility at the currency side is seen as advantageous by many authors, although for different reasons and with differing models respectively:

- Some authors including Kennedy/Schuster (2011), Lucke/Neumann (2012), Vogelsang (2012) and Mayer (2012) argue that the weak states – in particular Greece - should invent their own currency in addition to the Euro in order to improve their competitiveness and, thereby, their current balances. However, apart from many problems in detail, it appears that there is simply no willingness to do so at their side. Moreover, it is also argued that the intentional invention of a weak currency has never been proved successful in history.

[1] See Peeters, T. et al, All Saints Day Manifesto for European Monetary Union: A Currency for Europe, >The Economist 1. Nov. 1975, 33 – 38.
[2] For more examples of parallel currencies in history see Vaubel (2012, 62).
[3] For an overview of recent contributions, see Meyer (2011), Meyer (2012) and BVMW (2012)

- Other authors like e.g. Mayer/Sinn (2011) and Kerber (2012) suggest a parallel currency for strong members like Germany. Here the main hope is that this would protect the savers from being disowned by inflation and, at the same time, would allow to inflate the Euro in order to help the weaker members to cope with their double deficits. However, it is at least unclear how this idea could work in detail and if it was legally possible at all.
- There are also some proposals which seek to combine, in a way, both of these ideas. For example, Hankel (2013, 137 pp) propagates a plan where the Euro is the only and absolute stable money, while each member state can have its own parallel national currency which can only depreciate, but never appreciate against the Euro. However, it is not at all clear how this could be guaranteed in practice, and no details of the plan have been published up to now.

In this paper, a proposal is made which is, in a way, just the opposite of Hankel`s plan. The general idea is the invention of a parallel book money by strong EMU member states like Germany which can be used for both saving and contracting purposes, while the Euro is still the only cash money and all prices are still exclusively designated in Euro.

In contrast to existing, similar proposals, no one is forced to use the additional currency, nor is there any enforced transition of currencies. The only "official" step which is needed is the offer of a stable financial investment medium for savers by the respective national central bank, i.e. by the Bundesbank in the case of Germany. The rest can broadly be left to the markets, allowing for an evolutionary process of currency competition. This approach, which is explained in more detail below, has substantial advantages, not at least with respect to political acceptance:

- No official new currency is needed, but only a "hidden" one, in the form of a saving medium with guaranties absolute price stability and, hence, can serve as a shield against Euro-inflation.
- Each member state can independently decide on inventing such a saving medium, without approval by the ECB or any other European institution.
- Both the extent of use of the new saving medium and its exchange rate against the Euro can be left to the market.

In the sections below, we discuss the invention of such a parallel currency in Germany by the Bundesbank, which we call "Hard-Euro" from now on (for any labeling such as New DM should be avoided for political reasons).[4] It should be noted, however, that this is only an example. Other member states, in particular the stronger ones, could (and should presumably) do something similar. Even the weaker member states could, in principle, invent their own stable parallel currency in order to protect their savers from inflation. However, in contrast to the stronger countries, they should avoid to make their contracts in terms of the parallel currency, because this would further deteriorate their current balances. Moreover, as the value of any currency lastly depends on the trust which it receives at the markets, it is quite unlikely that a stable parallel currency could be successfully invented by e.g. Greece. So in the following we concentrate strong EMU members like Germany.

[4] The "Hard-Euro" label was also used by Mayer/Sinn (2011).

3. A Parallel Currency Plan following Eisler´s Idea of Separating the Functions of Money

Our plan for a parallel currency follows Eisler`s proposal from 1932, which was later picked up by other authors including Einaudi (1953), Gaitskell (1969) and Buiter (2005).[5] It is also quite close to the proposals by Vaubel (1978/1990) and by Mayer/Sinn (2011), although the latter refers to indexed government bonds instead of an indexed currency like in Eisler´s proposal. Eisler´s basic idea, which was even tried out successfully in Chile in the 1960ies, is protecting savers and contractors from the negative consequences of inflation by the way of separating the functions of money. In particular, there are then two forms of money, legal tender (called 'current money' by Eisler), and ´contract money´, which serves as a unit of account. While all monetary obligations, wages, contracts, taxes and accounts are marked in contract money, current money serves as a unit of account for petty trade, as prices of commodities of daily consumption are denominated in current money. The decisive trick in Eisler`s plan is guaranteeing a stable purchasing power of the contract money by determining its exchange rate to current money by the cost-of-living index. So with any increase of the consumer price index (measured in current money), the exchange rate of contract money automatically increases with the same rate.

The adaption of Eisler`s idea to the EMU is benefited by the fact that there are still national central banks beside the ECB in the EMU, which are more than pure ECB-offices. In particular, they have still both the right and the task to trade with their respective national financial sectors. As long as they do not contradict the ECB`s monetary policy thereby, they do not even need any permission to use this right. Indeed, nothing more is needed in order to realize Eisler´s idea. The key idea is that they can issue their own ´contract money´in addition to the existing, common current money (which is the Euro) and, hence, separate the functions of money according to Eisler`s idea: While smaller payments are then still made in Euro, both savings and contracts could be made in the parallel contract money. By this way, the advantages of a common (although weak) European money can be combined with the protection of savers and contractors from both inflation and financial repression.

In the case of Germany, this could run as follows: The Bundesbank offers a new kind of reserve medium called Hard-Euro (H€) which can be bought by commercial banks and insurance firms located in Germany at the initial price of 1 € for each H€. The H€ can either be simply exchanged for already existing Euro-bank reserves (e.g. in the form of Target balances) or for other assets like e.g. public bonds.[6] The Bundesbank guaranties to buy back the H€ at any time at a price which is at least 1 € plus the consumer price inflation rate which has emerged since emitting the respective tranche of H€. If the ECB´s interest rate on Euro reserves is positive, the Bundesbank pays in addition an interest on the H€-deposits which is equal to the respective ECB`s real interest rate.[7] Hence, with this guarantee, the holder of Hard-Euro reserves is never worse off than the holder of Euro reserves in normal times, and clearly better off in times of financial repression.

[5] For a more detailed description see van Suntum/Kaptan/Ilgmann (2011).

[6] In the latter case, there is the additional advantage that the commercial bank system gets less vulnerable by future debt crises, although at the expense of the Bundesbank profits.

[7] In principal, the interest on H€ could also differ from the interest on €. However, for political reasons it should be made sure that the Bundesbank policy is always in line with the official ECB policy.

The amount of H€ which can be bought by German financial institutions is unlimited. Thus, the H€ is absolute stable in terms of consumer prices, with the exchange rate against the Euro being

$w_0 \equiv [€ / H€] = \prod_{t=0}^{n} (1+\hat{p}_t)^t$ in Period t for a Hard-Euro € emitted in Period 0.[8]

While insurers will normally pass the extra-profits from the H€ to their customers (either by competition or by regulation), this is less clear for commercial banks. Therefore, they should only be allowed to participate in the hard-Euro program if, for each H€ bought from the Bundesbank, they offer their customers an account in H€ at the liability side as well. With this requirement, competition will also force them to pay the same interest on these accounts as they receive for their H€-deposits themselves, because they need the customers to get hands on the Bundesbank-offer at all.[9] Hence, with this arrangement, the purchase of H€ is neutral with respect to the bank`s balances and profits, while the savers are benefited by a real interest rate which is always above zero. So the Bundesbank lastly offers the H€ to the savers rather than to the banks, although there are no direct Bundesbank-deposits of private customers.

Because the Euro is still the only cash money available, consumers will ordinarily still hold part of their deposits in € in order to provide for their daily liquidity needs. Moreover, all cash must necessarily be held in Euro. Hence, in the end we have two parallel currencies, an absolutely stable one for saving purposes (which is the H€) and a less stable one for liquidity needs (which is the Euro). Obviously, this was exactly Eislers Idea.

Before going into more detail, the merits of such a “hidden” parallel currency shall be briefly stated:

- The savers in the respective country (here: Germany) are widely protected against suffering from Euro-inflation.
- This in turn is quite probable to increase (real) savings and to decrease pure hoarding, which in turn decreases the capital market interest rate and thereby increases real investment.
- Last not least, it is now easier for the ECB to decrease the prime rate or even to inflate the Euro in order to help the weaker EMU-members to regain competitiveness, because the stronger members like Germany can now protect their savers from financial repression.
- Nevertheless, the Euro remains the only cash currency in the EMU and is, thus, still a convenient exchange medium for foreign trade and tourism.
- Concerning contracts and wages, both firms and private persons in stronger countries can at any time make their own choice which currency they want to use. While private home-contracts are presumably made in H€ more and more, export-oriented firms and unions may find it more attractive to stick with the Euro. Intermediate solutions of all kinds are also conceivable.

Of course, a vague idea of what would happen with a parallel currency is not enough. Some obvious questions must be answered, such as: How does the parallel currency affect the commercial banks behavior? What about their balances and reserves? What would the effects of a parallel currency be on the (Euro-) price level, on the capital market interest rate, and on total output? Who exactly

[8] This guaranteed minimum exchange rate is not even necessary in the long run, as will be shown below, but it may help to create trust into the new reserve medium at the beginning.

[9] In practice, a certain margin would exist of course which must cover the bank`s administration costs.

benefits, who suffers from the invention of a parallel currency? To what extent is an autonomous monetary of the ECB still possible? Would the Bundesbank (or any other central bank of a strong country) run the risk to get swamped with Euro, or is there even the danger that they run out of Euros because of the redemption guaranty?

Obviously, one needs at least a small, but consistent macroeconomic model in order to tackle these issues. In the next sections, such a model is presented, along with some simulations concerning the most relevant questions raised above. Because we cannot yet provide an analytical equilibrium solution of the model, no general proofs can be provided, so the results below are only preliminary. On the other hand, only such results are presented which can be given a plausible, intuitive explanation for, and which have been verified by numerous simulation-runs without any exception as well. Therefore, the model might well help to understand what would really happen with a parallel currency in the spirit of Eisler`s idea.

4. The Plan in More Detail: A Simple Parallel-Currency Model

In order to make the effects of the Eisler-plan more explicit, we employ a simple macro-model which was recently published by the author (van Suntum 2013). Like the base model, its parallel-currency version is also fully micro-based as well as stock-flow-consistent, with the optimization of private wealth being of key importance. In particular, we assume the following utility function with respect to private wealth:[10]

$$(1.1) U = \left(\frac{D€}{p}\right)_H^{1+i_€} \left(\frac{DH€}{p}\right)_H^{1+i_{H€}} \left(\frac{L€}{p}\right)_H^{1+i_l}$$, if hard-Euros are available.

$$(1.2) U = \left(\frac{D€}{p}\right)_H^{2(1+i_€)} \left(\frac{L€}{p}\right)_H^{1+i_l}$$, if there are no hard-Euros available.

The index H stands for private households, $D€_H/p$ and $DH€_H/p$ are their real deposits in Euro and Hard-Euro respectively, and $L€_H$ is their liquidity (which is always held in € as was stated above). The exponents refer to the respective real interest rates i which are paid on Euro and hard-Euro deposits respectively. For simplicity, it is assumed that there is no difference between the interest rates on deposits and liabilities respectively. Concerning liquidity, i_l does not represent a monetary interest rate but a measure of non-monetary liquidity preference. Because of the absolute term in the exponents (which is arbitrarily chosen as unity) it is well possible that a real interest rate is negative, i.e. we then have financial repression.

When total private wealth (in real terms) is called V, for its optimum composition its follows for the case with Hard-Euros:

[10] In contrast to the base model, we here neglect the flow-part of private utility and fully concentrate on the optimization of stocks.

$$(2.1)\left(\frac{D€_H}{p}\right)=\frac{(1+i_€)V}{3+i_€+i_{H€}+i_l}$$

$$(2.2)\left(\frac{L€_H}{p}\right)=\frac{(1+i_l)V}{3+i_€+i_{H€}+i_l}$$

$$(2.3)\left(\frac{DH€_H}{p}\right)=\frac{(1+i_{H€})V}{3+i_€+i_{H€}+i_l}$$

Analogously, with no Hard-Euros being available, we have for the optimum wealth composition:

$$(3.1)\left(\frac{D€_H}{p}\right)=\frac{2(1+i_€)V}{3+2i_€+i_l}$$

$$(3.2)\left(\frac{L€_H}{p}\right)=\frac{(1+i_l)V}{3+2i_€+i_l}$$

In simple words, the optimum share of the respective deposits and liquidity is the higher, the higher the real interest rate is, but it is normally not zero with an inferior or even negative interest rate.

For determining the capital market interest rate i, we need a production sector. For simplicity, we neglect the labor market by choosing a production function which depends only on the firm`s real capital input K_F:

$$(4)Y=aK_F^{0.5}$$

With the depreciation rate set to unity, we have for the profit-maximizing input of real capital

$$(5)K_F=\left(\frac{0.5a}{1+i}\right)^2$$

Obviously, the capital market interest rate i is related to the money market interest rates $i_€$ and $i_{H€}$. The respective link is the commercial banking sector. Neglecting equity, for the balance sheet of commercial banks (measured in Euro) we have

$$(6)K_B+L€_B+wLH€_B=D€_H+wDH€_H+D€_{CB}$$

where K_B is the capital which is lend out to firms by the banks, w is the exchange rate [€/H€], $L€_B$ and $wLHE_B$ are their liquidity reserves (held in Euro and Hard-Euro respectively), $D€_{CB}$ is the amount of Euro which the banks lend from the ECB in addition to private deposits $D€_H$, and $DH€_H$ is the amount of Hard-Euro-deposits held by private households.

We assume that banks have to hold a total of liquidity reserves which is a fraction l of private deposits:

$$(7)L_B\equiv L€_B+wLH€_B\overset{!}{=}l\left(D€_H+wDH€_H\right)$$

While the liquidity held in Euro ($L€_B$) does not earn any nominal interest, their Hard-Euro-reserves (held with the Bundesbank) earn real interest $i_{H€}$, which is the respective nominal interest paid by the Bundesbank minus the Euro-inflation-rate $\hat{p}$.

We assume that bank-profits are zero in equilibrium, i.e. receipts from lending (including interest on reserves held with the central bank) equal their interest expenses. Concerning the Hard-Euro items, our parallel currency plan requires symmetry in the balance sheet both with respect to volume and interest, so these are neutral with respect to profits. Hence we are left with the zero-profit condition

$$(8)(i+\hat{p})K_B = (i_€ + \hat{p})(D€_H + D€_{CB})$$

where we have the respective nominal interest rates (including Euro-inflation) on both sides of the equation.

The demand and supply of Euro-cash must be equal in equilibrium. From the ECB-balance sheet we have

$$(9)M€ + D€_{CB} - L€_{BB} = L€_H + L€_B = p\left(\frac{L€_H}{p} + \frac{L€_B}{p}\right)$$

where M€ is Euro cash brought into circulation by the ECB without lending[11], $D€_{CB}$ are ECB-deposits with the commercial banks, $L€_{BB}$ is the amount of Euro which is held by the Bundesbank in exchange for Hard-Euro, and $L€_H/p$ and $L€_B/p$ are real liquidity held in Euro by private households and commercial banks respectively. Hence for the price level we have

$$(10)\,p = \frac{M€ + D€_{CB} - L€_{BB}}{p\left(\frac{L€_H}{p} + \frac{L€_B}{p}\right)}$$

By inserting the demand for real Euro-liquidity by private households (equation 2.2 or 3.2 respectively) and by commercial banks (equation 7), the price level can be calculated without having to make any further assumptions (such as the quantity theory of money or any mark-up hypothesis).[12]

Next we introduce the equilibrium condition for the capital market:

$$(11)K_B = K_F + K_G$$

K_B is the (real) capital supplied by commercial banks, while K_F and K_G denote (real) capital which is demanded by productive firms and the government respectively. Because the depreciation rate was set to unity, KF must be renewed in every period and is, therefore, identical to gross investment. In order to simplify matters, we assume that public debt has also a unity-duration, so it must be renewed in every period as well. Moreover, we assume that public debt K_G finances public

[11] This could be any initial equipment with cash Euro for the economy, or cash which is created by spending the ECB´s profits.

[12] To be more precise: In a consistent model, any such assumptions would automatically be reflected in the respective demand for liquidity, i.e. (10) is a most general equation for determining the price level in the economy.

consumption only, but not investment, so total output is only dependent on the firm`s capital input K_F. However, because both demands compete for the capital offered by banks, there is a crowding out effect, so lastly total output decreases in K_G.

Finally, for total real wealth in the economy we have

$$(12) V = K_B + M€ / p$$

i.e. private wealth is mirrored by the real capital stock of firms on the one hand and that part of the real value of money M€/p which has been brought into circulation without thereby creating a corresponding debt of the private sector. Note that, with a rising exchange rate of the Hard-Euro, the respective revaluation surplus would also be part of private household`s wealth. For simplicity, we assume a fixed value for the demanded volume of real private wealth V, although it would also be possible to relate it to other variables like e.g. real income (as in van Suntum 2013).

5. What Happens to the Economy with an Eisler-style Parallel Currency?

In the following we present a numerical example which has been calculated by numerical methods from the model above.[13] We compare two states of the economy (see Tables I and II):[14]

- "Without" is the initial equilibrium before the parallel currency (i.e. the Hard-Euro option) is invented.
- "With" means the status after the Hard-Euro was invented and all equilibrium conditions (including the optimal structure of private wealth) are fulfilled.

The general assumptions in our example are these:

- The (expected) Euro-inflation rate is $\hat{p} = 2\%$.
- The nominal Euro-interest rate at the money market is 1.5%, so we have a negative expected real Euro interest rate $i_€ = -0.5\%$.
- The nominal Hard-Euro interest rate is equal to the inflation rate, so the real Hard-Euro interest rate is $i_€ = 0\%$.
- The advantage of holding liquidity is $i_l = 3\%$.
- The liquidity ratio of commercial banks (see equation 7 above) is 60%.
- The amount of non-debt issued money M€ (see equation 9) is set to 10.
- Total factor productivity in production function (4) is set to 10 as well.
- Private demand of real wealth V (see equation 12) is set to 50.
- Real public debt K_G is set to 3.

Note that the example does not claim any empirical relevance because our model is far too simple to be empirically applicable anyway. It is just meant as an illustration what the qualitative results of the parallel currency would be. Nevertheless, the parameters concerning interest rates and inflation are chosen close to their current valus in the EMU.

[13] The calculations were made by using the Excel solver tool. Because of non-linearity, sometimes the solver did not immediately find an equilibrium solution and had to be run again with varying starter values. Hence, one cannot rule out multiple equilibriums, although we did not find actual examples. An analytical solution of the model might be also possible, but was not yet worked out.

[14] The complete tables with all variables are given in the appendix.

Table I: Before the Hard-Euro is invented

	A) Bundesbank`s balance sheet [€] without Hard-Euro				
	assets			**liabilities**	
	other	7,83	7,83	bank reserve	$L€_B$
$L€_{BB}$	Eurocash	0,00	0,00	bank reserve	$LH€_B$
	total	**7,83**	**7,83**	**total**	

	B) Commercial Bank`s balance sheet [€] without Hard-Euro				
	assets			**liabilities**	
pK_B	credits	9,81	13,05	€- accounts HH	$D€_H$
$L€_B$	reserves €	7,83	0,00	H€-accounts HH	$DH€_H$
$LH€_B$	reserves H€	0,00	4,59	ECB credits	$D€_{CB}$
	total	**17,64**	**17,64**	**total**	

In Table I, we see the initial equilibrium before the Hard-Euro is available. So private households do only hold deposits and liquidity in Euro, and total bank reserves are in Euro as well.

After the Bundesbank has invented the Hard-Euro-option, both private households and commercial bank readjust their balances according to equations (2), (7), and (8) and we arrive at a new equilibrium shown in Table II:

Table II: After the Hard-Euro has been invented

	A) Bundesbank`s balance sheet [€] with Hard-Euro				
	assets			**liabilities**	
	other	1,32	1,32	bank reserve	$L€_B$
$L€_{BB}$	Eurocash	6,68	6,68	bank reserve	$LH€_B$
	total	**8,00**	**8,00**	**total**	

	B) Commercial Bank`s balance sheet [€] with Hard-Euro				
	assets			**liabilities**	
pK_B	credits	10,21	6,65	€- accounts HH	$D€_H$
$L€_B$	reserves €	1,32	6,68	H€-accounts HH	$DH€_H$
$LH€_B$	reserves H€	6,68	4,88	ECB credits	$D€_{CB}$
	total	**18,20**	**18,20**	**total**	

Because the Bundesbank trades one Hard-Euro against one Euro without any limits, the initial equilibrium exchange rate must be $w_0 = 1$ [€/H€]. However, because the interest on Hard-Euro accounts exceeds the interest on Euro-accounts, both commercial banks and private households have an incentive to shift part of their wealth towards Hard-Euro (with the H€-deposits in the bank-balances always having to be equal to the respective H€-loans as described above). As can be seen from Table II, there are nevertheless some deposits and reserves in Euro left, with all private liquidity

being still in Euro anyway because there is no Hard-Euro cash available. So in the new equilibrium we are definitely left with two parallel currencies, one for liquidity needs (which is the Euro) and the other for the purpose of saving and holding reserves which are price-stable (which is the Hard Euro).

While Tables I and II show only selected nominal values, it is also possible to calculate the whole set of resulting real variable values from the equations given above. This enables us to clarify the consequences which the invention of a Hard-Euro would have on core economic variables such as inflation, the capital market interest rate, and total output. Table III gives an overview (for more details see the appendix).

Table III: Comparison of Key Variable Values without and with the Hard-Euro

Variable	Without the Hard Euro	With the Hard Euro	Change
Exchange Rate w [€/H€]	1,00	1,00	0,00%
Price Level in Euro p	0,396	0,404	2,02%
Nominal Private Liquidity $L€_H$	6,75	6,88	1,85%
Real Private Liquidity $L€_H/p$	17,05	17,02	-0,17%
nominal capital market interest rate	2,70%	1,69%	-0,010
real capital market interest rate i	0,70%	-0,31%	-0,010
Real Productive Capital K_F	24,65	25,15	2,03%
Total Output Y	49,65	50,15	1,01%

The effects are of course dependent of the chosen parameter values but, as numerous simulations suggest, seem to be quite general in sign. Intuitively, they can be explained as follows:

Exchange rate

Because the Bundesbank trades one Euro against one Hard-Euro at unlimited amounts, the exchange rate w_0 = [€/H€] initially keeps at unity. However, after the first period has ended, it changes to $w_1 = (1+\hat{p})$ because the Bundesbank has committed itself to compensate for the Euro-inflation when buying back Hard-Euro. Hence, the nominal, implicit interest on Hard-Euro is 2% in our example, even when the Hard-Euro is not actually presented for redemption. In terms of welfare shifts, private households benefit from the appreciation of their Hard-Euro deposits, while the Bundesbank suffers a respective loss. Nevertheless, from the national point of view, there remains a benefit for Germany, because the Bundesbank-losses are devided by all EMU-members.

Price Level (in Euro)

In our example, as a consequence of inventing the Hard-Euro, the Euro price level rises by 2%. This effect is independent of (and additional to) the “normal” inflation that the Euro would experience anyway. The reason for the extra price increase is not that the households reduce their Euro-deposits, because the respective decline in the demand of Euros is exactly compensated by the Bundesbank´s Euro-purchases. However, also the private demand of real Euro-liquidity $L€_H/p$ declines because, on average, deposits now earn more interest than before. This is the ultimate reason why the Euro-price level goes up.

Private Liquidity Demand

Although the rising price level tends to increase nominal Euro-liquidity demand, it must decrease in real terms because of the rising attractiveness of holding deposits (see equations 2 above). This result is confirmed in Table III.

Capital Market Interest Rate

Because the real Euro-money market interest rate i€ was assumed negative and the corresponding Hard-Euro interest rate was set to zero, the zero-profit condition for the commercial banks implies, of course, a negative real capital market interest rate, which is i = -0.31% in our example. Note that this implies dynamic inefficiency, but not at all an infinite capital demand. What really happens is real overinvestment in the sense that gross capital returns are less than gross capital investment.

Anyway, also with positive money market interest rates, the invention of the Hard-Euro implies a decline in the capital market interest and, thus, a rise in both real investment and total income in our model. The reason is quite simple: With private Euro-deposits being substituted by Hard-Euro-deposits, the bank`s refinancing costs decline (because the interest on their Hard-Euro deposits is effectively paid by the Bundesbank). Hence zero bank profits imply that c.p. the capital market interest must decline as well.

Could not the banks be induced by the Hard-Euro to increase their reserve rate l above its previous level? If so, there would be a crowding out of private capital demand by the Bundesbank, and the capital market interest rate would be increased, possibly even above its former level. However, this scenario can be ruled out, because of the requirement for the banks to symmetrically increase their Hard-Euro positions at the liabilities side of their balance sheet. For this means that they cannot increase their profits by increasing their Hard-Euro reserves but, on contrast, would suffer a decline in their loanable funds.

Productive Capital and Total Income

From the decreasing market interest rate it follows directly that the level of both productive capital and total output increase. Thus, the invention of the Hard-Euro does not only protect savers, but in addition has a positive impact on the real economy. The intuition behind this result is very simple: A stable currency makes it more attractive to save, and this in turn spurs investment and growth.

6. Conclusions

We have argued that the EMU cannot work with its current institutional setup. Neither can the weaker members regain competitiveness with their definitely fixed exchange rates in relation to the stronger members, nor are there reliable rules and sanctions for those countries which persistently live beyond their means. On the contrary, the EMU is on its way to a huge “Liro”-zone where excessive debt, permanent inflation and living on the costs of both other members and future generations will prevail, like it was the case in Italy, French, Spain and Greek all the centuries before the Euro came.

On the other hand, one cannot simply turn back the hands of time. A sudden break of the EMU or a German exit (which would mainly be the same) is indeed likely to cause financial turmoil worse than

in the 2009 financial crisis. Moreover, far and wide no political acceptance for omitting the Euro is seen. On the contrary, while the weaker EMU-members seek to further use it as a tool for massive redistribution in their favor, even the stronger members would really like to keep the Euro as a convenient and cost-effective means of trade and tourism.

The parallel currency-idea could indeed be a way out of this dilemma. It is not by chance that it has been already proposed in the first discussions on European monetary integration. Although it is not possible to simply turn back the clock, we have tried to show that there is still a way to make the EMU more flexible by allowing for additional currencies. Our proposal does not require any legal coercion with respect to the use of one of these currencies, but broadly relies on the voluntary decisions of market participants. Moreover, the Euro remains still the only cash money in circulation, so there is no need of printing new banknotes or coins, nor is there any need to convert currencies in daily routine. Nevertheless, with the Hard-Euro-option for contracts and savings, financial repression and expropriation of savers by inflation are no longer possible. Thus the Euro inflation rate can readily be allowed to increase, as it is suggested by some economists in order to help the weaker members of the EMU to regain competitiveness.

Never-the-less, the invention of Hard-Euro tends to lower the capital market interest rate and, thus, spurs capital accumulation and real production. Therefore, the parallel currency plan does not only benefit the labor markets of the weaker EMU member states, but is likely to increase both welfare and employment in the stronger countries too. The reason is quite intuitive: With less threat of inflation and financial repression, more is saved and less capital is wasted in unproductive usage such as Gold and idle real estate.

In principle, a parallel currency along the Hard-Euro plan is consistent with the continued existence of the Eurozone. In contrast to the return to a pure national currency like a New D-Mark, there is no danger of an overshooting exchange rate, because the latter is definitely bound to inflation. So, even with respect to political acceptance, the Hard-Euro plan could be a realistic option.

Lastly, the invention of the Hard-Euro by the stronger EMU-members means that they re-collect the excessive Euros which have been created by the weaker member states in exchange for their more or less worthless government bonds. So it is only fair that the costs of inventing the Hard-Euro (in the form of central bank losses created thereby) are divided by all member states as shareholders of the ECB. Moreover, this is an elegant way of gradually separating the Eurozone into one weaker and one stronger part. Sooner or later, the parallel regime could be ended by allowing for cash in Hard-Euro as well. The stronger states would then be left with their own currency, while the weaker states could inflate their “old” Euro at whatever extent they want. In the end, we are likely to see a relatively strong northern “Hard-Euro”-zone and a weaker southern “Old-Euro”-zone. Thus the parallel currency regime would and should surely not last forever, but would only serve as a vehicle to make such a separation possible without too much financial turmoil and political damage.

Appendix:

Overview of equlibrium variable values		**without Hard-Euro**	**with Hard-Euro**	**change**
exchange rate	w	1,00	1,00	0,00
price level	p	0,3961	0,4041	0,01
household`s deposits in Euro	DH€ nominal	13,05	6,65	-6,40
household`s deposits in Hard-Euro	DH€H nominal	0,00	6,68	6,68
household`s liquidity in Euro	LH€ nominal	6,75	6,88	0,12
houshold`s total real wealth	Vnom	19,81	20,21	0,40
houshold`s total nominal wealth	Vreal	50,00	50,00	0,00
household`s real Euro-deposits	DH€ /p	32,95	16,45	-16,50
household`s real Hard-Euro deposits	DHEH /p	0,00	16,53	16,53
household`s real Euro-liquidity	LH€/p	17,05	17,02	-0,03
check of private wealth	sum - V	0,00	0,00	
household`s Euro-deposits	DH€	13,05	6,65	-6,40
household`s Hard-Euro deposits	DH€H * w	0,00	6,68	6,68
central bank`s Euro deposits	DZ€	4,59	4,88	0,29
sum of bank`s liabilities	total	17,64	18,20	0,56
bank´s lendings	KB nom	9,81	10,21	0,40
bank`s Euro reserves	LB€	7,83	1,32	-6,51
bank`s Hard-Euro reserves	LBH€*w	0,00	6,68	6,68
sum of bank`s credits	total	17,64	18,20	0,56
Bundesbank`s Euro reserves	L€BB	0,00	6,68	6,68
real capital market interest rate	i (from equation 8)	0,01	0,00	-0,01
nominal capital market interest rate		0,03	0,02	-0,01
				0,00
bank´s lendings in real terms	KB	24,75	25,25	0,50
public debt in real terms	KG	0,10	0,10	0,00
firms capital in real terms	KF	24,65	25,15	0,50
real production	Y = aKF^0,5	49,65	50,15	0,50

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