The Wolfson Economics Prize

"If member states leave the Economic and Monetary Union, what is the best way for the economic process to be managed to provide the soundest foundation for the future growth and prosperity of the current membership?"

Introduction of a complementary demurrage currency to stabilise the Greek economy, the European Monetary Union and the euro

by

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Summary

Using Greece as example, this essay presents a simple and practicable way for a country to leave the European Monetary Union efficiently – with minimal hardship for the population – without endangering international financial stability. The corresponding measures can be implemented relatively fast and show effect quickly. This approach is also possible for all other members of the European Monetary Union and even points the way for completely abandoning the euro, should this be generally desired.

By describing inflation and deflation in the economic history of mankind, money supply control by interest, inflation, and economic growth requirement, we demonstrate how a small constructional fault in the monetary system contributes significantly to our current financial system problems.

For Greece to leave the European Monetary Union in a manner both economically and socially acceptable, it is absolutely necessary to first rehabilitate the economy and put Greece in a position to gradually pay back its sovereign debt by creating full employment. We consider leaving the European Monetary Union right now and without these measures as dangerous.

If Greece as a country would declare bankruptcy, this could give a devastating signal to the markets (investment domain): government bonds are not secure! The impact could lead to a domino effect with smaller countries being driven into bankruptcy first because they could not obtain refinancing in the market. This would cause significant troubles for the larger countries. The possible deflation spiral resulting from the austerity measures in the countries could lead to serious social tensions.

To establish a firm basis for future economic activity and prosperity of the current European Monetary Union members, it is also of utmost importance to stop the exponential growth of the debts.

In the last 64 years after the German monetary reform in 1948 it became evident that a constant positive interest of more than 7% leads to a duplication of assets and liabilities

approximately every ten years. In 2000, the total indebtedness in Germany of private households, enterprises, and the state was about 7 trillion euro. The total assets were roughly equally high. It would be only a matter of time until all the assets are concentrated in just a few hands, but the monetary and financial system will collapse before that, due to the exponential growth of debts and assets. Exponential growth is impossible in a closed system like the German or European economy.

We show that Greece, or any other country of the European Monetary Union, could leave the Union in a manner both economically and socially acceptable by implementing an additional function in the monetary system, with only a few accompanying measures.

The authors consider the main problem to be the inadequate possibilities of the central banks to regulate money supply. Due to the two contradicting, justified functions of money, as means of exchange and store of value, there are massive disruptions of the economic cycle. If economic growth drops below 2.5% and interest tends towards zero due to market saturation, the compound interest effect is reduced, but money retreats from the economic cycle and gives up its function as means of exchange. If no sound debtors can be found among private households, enterprises, and the state, flooding of the real economy with money by the central banks does not produce results. But a real economy based on division of labour needs a functioning means of exchange.

To be able to reasonably adapt money supply to economic performance of an economic area even in times of deflation the authors suggest implementing an additional function for the money supply issued by the central bank: a demurrage on cash and deposit money. The rate of demurrage is continuously adjustable by the central bank and thus enables the shift of emphasis from money as store of value to money as means of exchange. Demurrage will vary in percentage per year and be defined and charged by the European Central Bank.

For Greece it is necessary to install an additional, complementary currency with demurrage below the level of euro. This complementary currency, called “drachma” in our example, will have a conversion rate of 1:1 to the euro and be issued with aid of the European central bank and the Greek commercial banks, tradespersons, government, and population. Demurrage enables the issuing central bank to perfectly regulate the money

supply of the new drachma and thus keep the Greek economic area free of deflation and inflation.

Issuance of the right amount of complementary currency in Greece will stop the current deflationary tendencies in Greece. The preferred emphasis of the drachma as means of exchange will keep the money in the economic cycle in spite of deflation, boost the markets and stimulate economic growth up to full employment. Boosting the Greek real economy by the drachma and the derived, justified hope for redemption of government bonds by the Greek state, i.e. debt reduction, leads to stabilisation of the market and support for the banking system, resulting in a backing of the euro.

Accompanying measures:
The drachma will have a 5% re-conversion fee to prevent receivers of the demurrage-carrying drachma from instantly changing it back into euro.
Greek government bonds will be frozen with a guaranteed interest of 1.5% per year. Redemption will begin with the onset of a national budget surplus, expected already after one year. The cost of implementing the drachma will be assumed by the European Union, as well as all cost in relation to Greek government bonds. There will be no debt conversion of Greek government bonds.

We expect the following long-term effects among others by introducing the drachma:

- price level can be controlled exactly and kept free of deflation and inflation
- pressure for growth is reduced
- redistribution by means of compound interest is decreased
- taxes and general price level can be reduced
- non-wage labour costs are reduced, as well as unemployment rate
- functioning of the social security system is ensured
- exponential growth of debt in government, enterprises, and population is stopped
- reduction of sovereign debt becomes realistic
- the banking system is supported
- the euro as worldwide surrogate currency is preserved

Biography Winrich Prenk

Born 1958 in Münster, Germany. Engineer (UAS), established merchant since the age of 21. Diploma thesis in 1982 on biogas plants, further studies in alternative energies. Studies in psychology and economics, specialized on currencies since 1993. In 2002, precise prediction of bankruptcies of Fanny Mae and Freddy Mac for 2007, collapses of automobile companies for 2008, and state bankruptcies for 2010. Since July 2003, implementation of a complementary currency as service backed voucher in Giessen, Hesse, Germany. Since 2005, lecturing on complementary currencies and regional chairman in Hesse, Germany of the Party for Humane Economics.

1. Introduction

“Hilmar Kopper, former Chairman of the Board of Deutsche Bank, asks politicians for stronger regulations of the financial markets: “Unfortunately, today it is not sufficient to hope for decency”, Kopper says in an interview with SPIEGEL. “The participants need laws. **Money needs laws**. And laws are the responsibility of the state.”[1]

“In a crisis, one should not help the banks but the weak and poor, in order to enable them to give new consumer impulses with their demand”, says Joseph Stiglitz. This reasoning is in the tradition of Karl Marx. In his major work “Capital”, Marx wrote: “**The ultimate reason for all real crises always remains the poverty and restricted consumption of the masses ...**”[2]

“**The aim is to gain control over a debt deflation spiral.**”[3]

„**At the moment, the ECB is the last authority in Europe that can effectively contain the euro crisis.** Accordingly, it is abandoning its principles one after the other – justifying that with the acute danger in the euro zone.”[4]

“The exact definition of the money supply is a matter of taste as much as a matter of economic necessity. **And even today, the central banks disagree about which money supply should be regulated: because there is no positive and consistent definition of money, there are also different definitions of money supply.**”[5]

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1 “Ex-Deutsche-Bank-Chef fordert schärfere Regulierung” Spiegel online, www.spiegel.de, 22.12.2011

2 Marx, Karl (1894). Capital Vol. III Part V, Division of Profit into Interest and Profit of Enterprise. Interest-Bearing Capital. Chapter 30. Money-Capital and Real Capital.

3 „Notausgang Inflation – auf der Suche nach einer Krisenlösung“ RBS Märkte und Zertifikate Oktober/November 2011, www.http://markets.rbs.de/MediaLibrary/Document/PDF/Newsletter/MonthlyNewsletter/MuZ_Okt_Nov_2011_mid.pdf

4 “Top-EZB-Mann rät zu neuer Geldflut” Spiegel online, www.spiegel.de, 23.12.2011

5 Deutsche Bundesbank 1/92

„We should not act as if understanding of economic relations is limited to the keepers of the Grail that argue their entrenched position academically on one side, demagogically on the other. No, **every citizen of our country has to know the economic relations and must be qualified to make a judgement, because it concerns questions of our political order, whose stability we are assigned to secure."**[6]

"**Inflation does not come over us like a curse or a tragic fate; it is always caused by thoughtless or even criminal politics.**"[7]

[6] Ludwig Erhard, Federal Minister of Economics in Germany from 1949 to 1963, German Chancellor from 1963 to 1966. He said this in the context of communism and socialism.

[7] Erhard, Ludwig (1957). Wohlstand für Alle. Düsseldorf: Econ-Verlag

2. Basics

2.1. Problems of the current monetary system[8]

2.1.1. „Emergency exit“ inflation – in search of a solution for the crisis

The industrial nations are working with high pressure on a solution for the problems. But high debts and slow economic growth could lead to deflation in spite of all efforts. In the end, there might be only one way out: inflation.

“The progress of the enormous debts which at present oppress, and will in the long-run probably ruin, all the great nations of Europe has been pretty uniform.”[9] The man that said this is not a contemporary, he died in 1790. It was the Scottish philosopher Adam Smith, who severely criticized governments taking on debts in his main work “An Inquiry into the Nature and Causes of the Wealth of Nations“, first published in 1776. However, his statements are highly topical and could even be considered an omen for our time. He went on: “When sovereign debts have once been accumulated to a certain degree, there is scarce, I believe, a single instance of their having been fairly and completely paid. The liberation of the public revenue, if it has ever been brought about at all, has always been brought about by bankruptcy; sometimes by an avowed one, but always by a real one, though frequently by a pretend payment.”[10]

2.1.2. Traditional solutions have failed

Thus, Smith anticipates the debate that is currently occupying the public and politicians alike: How can western industrial nations reduce the mountain of debt accumulated in the last decades in a manner that is compatible with common welfare? Those mountains of debts have increased even more due to the financial and economic crisis in the period

[8] This chapter (2.1.1. – 2.1.9.) was first published as an article called “Notausgang Inflation – auf der Suche nach einer Krisenlösung” in: RBS Märkte und Zertifikate Oktober/November 2011, www.http://markets.rbs.de/MediaLibrary/Document/PDF/Newsletter/MonthlyNewsletter/MuZ_Okt_Nov_2011_mid.pdf (permission to print from the author)

[9] Smith, Adam (1776): The Wealth of Nations. Book V. Chapter 3. Of Public Debts. Paragraph 10

[10] Smith, Adam (1776): The Wealth of Nations. Book V. Chapter 3. Of Public Debts. Paragraph 60

from 2008 to 2010 and have brought countries like Greece and Portugal to the brink of ruin. This question is even more pressing as all the “traditional solutions” applied so far to stimulate the economy and thereby allow for a reduction of debt have failed. Neither economic policy measures aimed at the suppliers nor those for the consumers have so far shown the desired sustainable effect in the real economy. There has been a period of rally in which the economy could grow stronger, but the latest economic data from many European countries as well as the USA cause doubt about the sustainability of this recovery.

2.1.3. Missing diagnosis

Additionally, there is the difficulty that the experts disagree on the diagnosis of the problem situation, not to mention the right way to deal with it. For example, the question is disputed whether the multitude of problems that western industrial nations have to cope with are the result of a “normal” economic crisis or rather the impacts of some sort of systemic crisis. The latter would also explain why the “traditional solutions” of an economic policy aimed at suppliers and consumers have not taken effect so far. One well-known supporter of this distinctly critical view is Mohamed El-Erian, Chief Executive Officer of the world's largest bond fund manager PIMCO. He sees the distortions as part of a unique, historical change in the balance of power between East and West, with Europe and North America on one side and Asia on the other. He demands: “In the current situation, investors have to get rid of their history books.” His instructions for politic and economy is to no longer consider the crisis as a liquidity crisis, but rather as a solvency crisis and therefore to radically reduce the burden of debt. Countries that cannot accomplish this, like potentially Greece, have to leave the euro zone.

2.1.4. Death spiral of debt

El-Erian is supported by the Organisation for Economic Co-operation and Development (OECD). In its economic outlook from May 2011, the organisation emphasizes that

especially the economies in countries with a high debt level grow slower than those of countries with lower debt. But the question remains: How can debt be reduced if the economy remains static or even declines? A drastic reduction of government spending and an increase of taxes would only put more strain on the economy and thwart a sustainable reduction of debt, in which case further reduction of public spending and more tax increases would have to follow. “The US-economy is hardly growing any more, the buying public is in a bad mood, the country is on the brink of a new recession. An austerity programme would push the economy off the cliffs”, estimates Barry Eichengreen, a US-economist who teaches in California. This way, over time, a “death spiral of debt” develops, concludes US-economist Nouriel Roubini. To escape from it, the affected countries generally have three options: firstly, a strong deflation combined with a long-lasting recession; secondly, a profound structural reform to improve the productivity of the economy and thirdly, a currency devaluation to increase competitiveness of the products.

2.1.5. More or less debts?

No matter which option or combination of options is chosen, it will take some time and be painful. This view is shared by Norbert Walter, the former chief economist of Deutsche Bank. In an article for the investor's magazine “Der Aktionär”, Walter wrote “2012 and 2013 will be painful years as a consequence of the administration of drugs over many years, if not decades, and its increase following the Lehman-crisis.” Thus, he explicitly protests against the intention to reduce the mountain of debt with more debt. This intention is promoted by Keynesian economists like Joseph Stiglitz. In contrast to monetarism, Stiglitz emphasizes that a capitalistic economic system has to be subject to severe regulations. Furthermore, in a crisis one should not help the banks but the weak and poor, in order to enable them to give new consumer impulses with their demand. This reasoning is in the tradition of Karl Marx. In his major work “Capital”, Marx wrote: “The ultimate reason for all real crises always remains the poverty and restricted consumption of the masses ...”[11]

[11] Marx, Karl (1894). Capital Vol. III Part V, Division of Profit into Interest and Profit of Enterprise. Interest-Bearing Capital. Chapter 30. Money-Capital and Real Capital.

2.1.6. Debt deflation spiral

How desperate the attempt to escape from the crisis can be is shown by the example of Japan. In spite of years of reflationary monetary and fiscal policies, the country has not yet managed to induce sustainable economic change. In addition, Japan is the industrial nation with the highest debt: it has a government debt ratio of 230% of the gross domestic product (GDP). In Japan, two factors are relevant that have a devastating effect when combined, according to economist Irving Fisher: over-indebtedness and deflation. In his famous article „Debt Deflation Theory of Great Depressions“ that appeared in 1933 and analyses the outbreak of the Great Depression in the USA in 1929, Fisher claims that, if a country shows such a constellation, this causes enterprises and consumers to try with all means to pay back their debts. This process results in a general decrease of demand that puts even more pressure on the prices. Every attempt to reduce the sovereign debt in this situation will fail, because a reduction of government spending makes enterprises and consumers even more careful. Increasing government spending, however, is also problematic, because that will not necessarily make enterprises and consumers willing to consume more. Especially not if assets, deposited as security for credits before the crisis lose value as well (deflation of asset prices). The result is a wait-and-see position of the market actors, waiting for bottoming out, and a real increase in debt that causes more efforts to save. By and by a debt deflation spiral is started that is hard to stop.

2.1.7. The USA fights deflation

This is a scenario that the western industrial nations could face, too. After the collapse of the real estate bubble in the USA and some countries in Europe, many home-owners are over-indebted. In the USA, for example, the prices for real estate have fallen by more than a third on average since their peak in 2006. Therefore, many private households have suffered a considerable economic loss. The real burden of debts has increased enormously. In addition, governments have borrowed a lot of money to fight the crisis. What is missing now is a general price deterioration thwarting every governmental attempt to motivate the people to consume. Fundamentally, all the preconditions of Fisher's debt deflation spiral would be fulfilled.

That a deflationary development is feared more in the USA than inflation is understandable when history is taken into account. The Great Depression, resulting from the stock market crash in 1929, governs the actions of US-politicians until today, just like the hyperinflation in the 1930s governs German politics until this day. With this background, it is comprehensible why Timothy Geithner has so vehemently argued to fight the crisis with more money when visiting the members of the European Monetary Union in Poland in September 2011. His demand can be seen as an indicator that the USA see much more danger in deflation than in inflation. The Chairman of the Federal Reserve, Ben Bernake, is probably of a similar opinion. As early as 1995, he published his work “The Macroeconomics of the Great Depression: A Comparative Approach”. The assumption formulated by the economists Anna Schwartz and Milton Friedmann in 1963, that the Great Depression was extremely aggravated by the cautious monetary politics of the Federal Reserve, is generally shared by Bernake. This is a reason for his oft-cited 2002 speech where he announces to grant as much cash to the economy as is needed to stimulate growth. This is a recipe that Irving Fisher would use too. According to him, reflation is, apart from bankruptcy, the only way out of the debt deflation spiral.

2.1.8. The ECB becomes a bad bank

In Europe, the view on the matter is changing as well. The resignations of Dr Axel Weber as president of the German Federal Bank and of Jürgen Stark as “chief economist” of the European Central Bank (ECB) have weakened the cause of those who give monetary stability the highest priority for a sustainable central bank policy. Like Weber, Stark is a vehement opponent of purchasing government bonds by the ECB. The ECB now instead increasingly follows the politics of the US Federal Reserve (Fed) and not, as intended at its foundation, that of the German Federal Bank. In contrast to the German Federal Bank, that feels obliged to safeguard monetary stability, the Fed is also supposed to strive towards low unemployment rates and sustainable growth. This made it, according to critics, a “servant of politics”. “I have never before witnessed so much anger about the Fed”, declares Allan Meltzer, economist at Carnegie-Mellon and recognised expert for the Fed. For many Americans, the Federal Reserve has become a symbol for bailouts with tax

money. And the ECB is in hot pursuit. At least since the resignation of Jürgen Stark, the ECB hardly enjoys public confidence any more. “This way, the ECB as a guardian of the euro develops into a bad bank for the euro-system where the European banks can dump their junk bonds”, Matthias Brendel and Christoph Pauly conclude in an article for “Spiegel online”. However, not only editors and columnists raise an alarm, also experienced economists like Thomas Mayer, chief economist of the Deutsche Bank, see danger for the institution ECB. He criticises that the ECB is evolving into a “lender of last resort”, a credit grantor for all those who cannot get credits elsewhere.

2.1.9. Politically desired inflation potential

Additionally, experts argue about the consequences that the purchase of government bonds – which hardly anybody else wants to buy – by the central banks will have on the economic and financial world. Some fear that a considerable potential for inflation is created this way. The ECB emphasizes that such a development is not likely, because money is taken from the market in return, but many experts doubt exactly this one-to-one calculation. The financial system and the economy are not machines that work completely predictable. Not to mention that there are no mathematical models to explain them completely or even help to plan them. The problem is increased by the fact that the purchase of Greek and Italian government bonds itself cannot be planned. The current development shows that at least Greece will have to be restructured for years. Accordingly, support for Greek bonds will have to last equally long. If measures for sterilisation, i.e. neutralising of additionally issued money, can be undertaken at any time remains uncertain. And what happens if the ECB has to discover one day that it cannot sell the multitude of government bonds it has purchased? Up to mid-August 2011, the Securities Markets Programme (SMP) totalled 96 billion euro. Now, at the latest, the character of the ECB as bad bank should become obvious. In order to make up for the losses, the euro countries would have to inject money to improve the ECB balance sheet.

All this might even be politically desired, as the aim is to gain control over a debt deflation spiral. Therefore, a “reasonable” inflation is required. Olivier Blanchard, chief economist at the International Monetary Fund (IMF), advises an inflation rate of 4% for western

industrial nations in a study published in 2010. And Gregory Mankiw, former economic advisor of George W. Bush, even suggests a price increase of “six percent over several years to defuse the debt bomb”.

We are reminded of the above mentioned quote from Adam Smith: “The liberation of the public revenue, if it has ever been brought about at all, has always been brought about by bankruptcy; sometimes by an avowed one, but always by a real one, though frequently by a pretend payment.”[12]

2.1.10. “Euro crisis: leading ECB man advises new flush of money

The ECB has just nursed the financial institutions with half a billion euro, and already one of their top people is considering new measures. Bini Smaghi, Member of the Executive Board of the ECB, advocates in an interview to open the floodgates even more if necessary. (...)

In a deflation, the consumer prices drop. This can slow down consumption because customers postpone purchases, hoping to pay less in the future. This way, a dangerous downward spiral can be set in motion.

With their increasingly massive interventions, the ECB is acting more and more like the US Federal Reserve that has already flooded the markets with 600 billion dollars last year. This money is for example used by US private banks to grant more credits to enterprises and households in order to stimulate the economic activity. The ECB has long refused to act this way – in contrast to the Federal Reserve, its primary aim is to fight inflation, and increasing money supply can lead to a rapid rise in consumer prices.

At the moment, the ECB is the last authority in Europe that can effectively contain the euro crisis. Accordingly, it abandons its principles one after the other – and justifies that with the acute danger in the euro zone.

[12] Smith, Adam (1776): The Wealth of Nations. Book V. Chapter 3. Of Public Debts. Paragraph 60

Fear of credit crunch

The European Systemic Risk Board (ESRB) at the ECB warned about intensification of the financial and debt crisis. The economic situation has worsened in general, the board consisting of central bankers and financial supervisors said. There are indications that the rising nervousness has reached the real economy now. “The dependency of the central banks has increased and there are signs that the difficult financial conditions have effects on the real economy”, they said. Chair of the ESRB is Mario Draghi, the new president of the ECB. (...)

To avoid an expansion of the debt crisis, the resilience of the financial sector has to be strengthened, the board advised. To do this, the banks have to restore their balance sheets without reducing the granting of credits.

The European Banking Authority (EBA) fears that the European banks do not supply the economy with enough credit any more. Many banks try to fulfil the higher EBA capital requirements they have to comply with from mid-2012 on with credit rationing. However, it would starve the economy if enterprises and private individuals do not receive loans any more.”[13]

To understand how a financial crisis like the current one could happen – and has happened time and again in the history of mankind – we have to provide some background information and some facts that are rarely considered. We will hardly touch the subject of cash generation because we consider it not relevant for the crisis. Due to the complexity of the scope of this work, we can touch some economic aspects only briefly.

[13] “Top-EZB-Mann rät zu neuer Geldflug” Spiegel online, www.spiegel.de, 23.12.2011

2.2. Problem area interest: the compound interest effect[14]

2.2.1. Prosperity and economic growth

It is common knowledge that a sufficient economic growth is a prerequisite for a rising level of prosperity. But the dependency of prosperity on economic growth is much bigger than you might think. It is even true that if you don't go forward, you go backwards: a stagnation of the economy leads to a decrease of the level of prosperity. This is the reason why there is a “law for stability and growth” in Germany that orders politicians to enable an adequate economic growth and thus at least a stable level of prosperity by passing legislation or other measures. This leads to a constant necessity for economic growth. But why can a stagnating economy not lead to a stagnating level of prosperity? The answer to this question can be the basis of radical change.

2.2.2. Reason for the economic growth requirement

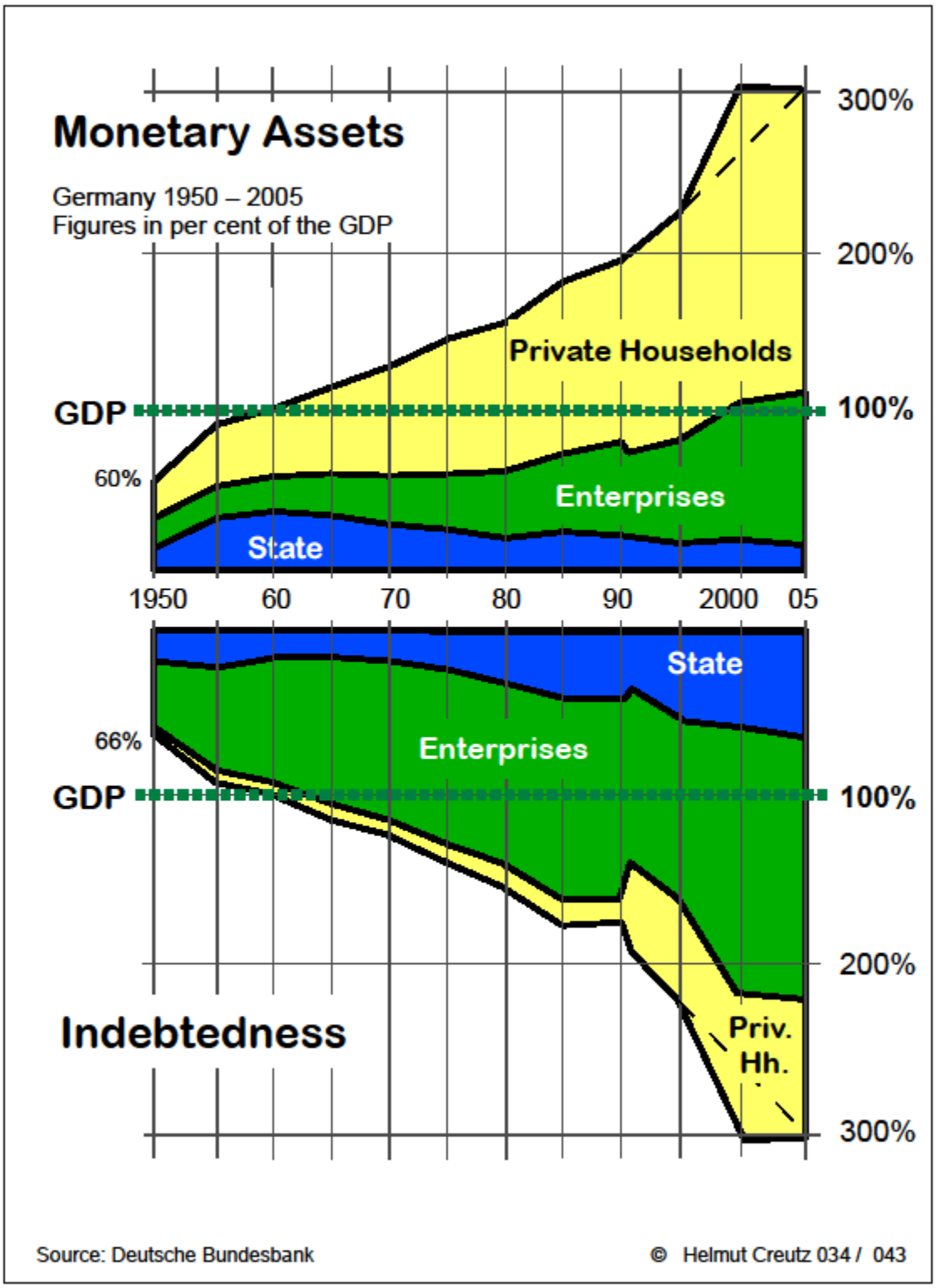
The necessity for constant economic growth is a result of our financial system, more specifically of the interest mechanism.

If somebody owns a lot of money, he can make an interest-bearing investment in the economy. For his deposit he earns annual interest and thus becomes richer. The invested money will be granted as credits on the other side. This way, the assets of one person are the liabilities of someone else (consumer, tradesperson, state). Assets and liabilities are always on the same level. Normally, interest has to be paid for a credit. The main part of this money goes to the investor. Because interest does not grow on trees, it has to be earned by the debtor. The interest of investors with big assets grows exponentially due to the compound interest effect (a part of the interest earns more interest in the future because not all of it can be spent); the debts on the other side have to grow exponentially as well. This effect is commonly known and normally referred to as “the increasingly

[14] This chapter 2.2 (including the first three paragraphs of chapter 3), written by Wolfgang Ramming, was first published in 2002 in an article called “Die Problematik des Zinssystems” (“The problem of the interest system”) on the website www.justusbuendnis.de/info/zinsHack

widening gap between rich and poor” or between assets and liabilities.

The following visualisation by the German Central Bank illustrates this gap.



You can be a winner in this system if you earn more interest than you pay. And you pay a lot of interest: on sovereign debt in the form of taxes, on debts of enterprises through higher prices (the average share of interest in product prices was approximately 40% in 2002), and if you are currently paying off your house, you pay interest on your private debts, of course. In the year 2000, every household in Germany had to surrender an average of 17,000 euro of its income to guarantee the interest of capital. If you have not managed to accumulate an amount of money that earns you at least 17,000 euro annual interest, you are de facto a loser in this system and you will have to pay an even bigger part of your hard-earned income to the people that already own a lot of money and assets, whether you want to or not. The interest that commercial banks officially paid to investors in 2003 was 369 billion euro, according to the German Central Bank. In 2010, due to the financial crisis, there was “only” an interest transfer of 309 billion euro. Rental fees paid by tenants to owners of apartments or houses free of debt can be considered interest on invested capital as well.

This is the gist of the matter: Because you have to pay more and more for the interest burden, your income has to increase at the same rate to maintain your standard of living. The same applies for a national economy: the gross national product has to grow at least as much as the interest increases to keep the achieved level of prosperity. This is the reason for the economic growth requirement. And because the assets and liabilities grow exponentially by more than 2.5% annually, the gross national product must grow at least 2.5% a year as well. This means that not only stagnation or negative economic growth leads to a reduction of the level of prosperity, but also an economic growth of less than 2.5%. At this point, you should consider what exponential growth means and which consequences it has for example in regard to the environment.

2.2.3. Economic growth requirement and saturated markets

Intuitively, it should be obvious to everybody that in a limited world, an unlimited and accelerated (exponential) economic growth is not possible.[15] There will always be a

[15] The German growth acceleration law is a current example of how politicians ignore this fact.

restricting factor, for example a scarce raw material, limited space for the cultivation of food or just saturated consumers. In contrast to the naïve assumption of an infinite and accelerating economic growth, the growth will slow down corresponding to the saturation curve. As soon as the growth rate goes below 2.5%, this results in massive problems: the purchasing power is reduced, which leads to sales difficulties and decrease of prices and thus to loss in revenues and profits of businesses. The consequences are cost reductions of the labour factor (lay-offs, reduction of wages), because the costs for the factor capital are fixed. This leads to a further decrease of the purchasing power. This way, a self-intensifying, deflationary downward spiral of decreasing prices and wages combined with an increasing amount of business bankruptcies is set in motion. It will be especially tough on debtors that are unable to pay the interest on their debts due to unemployment or reduced wages. In many cases, compulsory auctions do not produce relief because here the price level drops as well. The debtor will lose his property (e.g. real estate) and still has debts that are no longer collectible. There will be bank failures that result in the loss of savings. To flood the economy with money is unsuccessful: there are no sound debtors, neither in the private nor the commercial sector.

2.2.4. Saturated markets and interest rates

Interest is the price for capital on the money market. The interest rate is a result of supply and demand of capital, following the laws of the market economy. If the markets for goods are increasingly saturated, there is no reason for enterprises to invest; therefore the demand for capital will drop towards zero, resulting in an interest that drops towards zero as well. This way, the effect of compound interest is reduced and the economic growth requirement progressively suspended. Is this the way out of the imminent deflationary downward spiral?[16]

[16] See example of Japan mentioned above in chapter 2.1.6

2.2.5. Function(s) of money

In short: no! Money has, apart from its actual purpose as means of exchange and indicator of value, two additional functions: namely as a store of value and a means of speculation. The big problem is that money can only fulfil one of these purposes at a time. In order for a real economy based on division of labour to operate, the money (as means of exchange) has to be kept in circulation at all times. This is achieved by spending it or lending it to somebody else with the interest acting as incentive (circulation-guarantee). If the interest drops towards zero, there is no appeal for investors in lending their surplus money, it will be kept (in its function as store of value) or used for speculation (because the expected yields are higher than in the real economy) and is no longer available as means of exchange. This results in a massive disruption of the economic cycle: due to lack of money, the offered goods can no longer be bought or sold, a demand gap develops. This, in turn, is one of the definitions of deflation.

2.2.6. Our current problem

The seemingly hopeless situation described above can be summarised as follows: a monetised economy only works if a sufficient amount money can act as means of exchange. The interest acts as circulation-guarantee, but it causes the redistribution of wealth from poor to rich and the economic growth requirement, thereby significantly damaging the environment and endangering the social cohesion of society. If the economic growth drops below 2.5%, the compound interest effect leads to deflationary tendencies.

If the interest rate goes towards zero due to saturation of markets, the negative effects of the compound interest (redistribution of wealth, growth requirement) decreases, but the money retreats from the economic cycle and relinquishes the desired function as means of exchange. The result is a lack of money in relation to the offered goods – that leads to deflation.

With mathematical logic, our interest-based monetary system regularly results (and has

resulted) in a disaster. And it is a man-made disaster.

2.2.7. Political countermeasures

As is generally known, the most important measure to prevent an economic crisis is to constantly push economic growth in order to keep pace with the compound interest effect. If the interest rate is sufficiently high, the economy can be stimulated by lowering the interest rate (debts get cheaper), with the decisions about interest being taken not by politicians, but by the European Central Bank at its sole discretion. If the interest has already dropped significantly due to market saturation, there is no leeway for further reduction of interest if the money shall keep its function as means of exchange. Apart from war, turning saturated markets into unsaturated ones, there is only one possibility left to delay imminent deflation a bit: sovereign debt. The state acts as demander on the money market to finance big projects and thereby averts a further descent of interest rates. As futile as these projects might seem in times of limited funding, it is absolutely necessary to keep the interest rate at a sufficient level to keep the economy running. As mentioned above, the assets grow exponentially due to the compound interest effect. Therefore, debt has to grow exponentially too. Increasing sovereign debt is not the result of wrong political decisions of a certain party, but necessarily arises from a flaw in the construction of our monetary system.

How can an impending national bankruptcy be responded to? One possibility is drastic austerity programmes that mainly affect the socially disadvantaged and endanger the welfare state. The results are growing poverty and social tensions that increasingly erupt into violence and endanger democracy more and more. Another possibility is to fill the gap in the national budget with additional cash by printing money. This leads to an even stronger increase of the money supply in relation to the offered goods and thus to an accelerating inflation. The winners of inflation are, as is commonly known, the debtors that can pay back their debts elegantly, while the monetary assets of the savers is devalued more and more and virtually destroyed.

2.2.8. Solution for the problem

While politicians of all parties concentrate exclusively on generating enough economic growth or postponing the negative effects of lacking growth into the future, there seems to be no party that wants to eliminate the economic growth requirement as the root of all evil from the system. It would not require a socialistic revolution to save us from the next worldwide economic crisis or even worse. All it takes is a small adjustment: introducing a holding fee on money to guarantee constant circulation of money even in saturated markets. This could be a demurrage, a sort of “parking fee” for money that is kept from the economic cycle. The fee is supposed to encourage money-owners to either use it for consumption or to deposit it at a bank without demanding interest (or investing it directly) in order to evade the otherwise due demurrage. This way, the capital market would receive more money, the supply of credits by the banks would rise, and the interest on credits would automatically, following rules of supply and demand and increasing market saturation, drop towards zero without ever reaching zero. This is due to the fact that interest rates on credits consist of different components.

2.2.9. Components of interest

1. actual interest
2. inflation component
3. risk premium
4. profit share
5. cost component

The actual interest is a result of the advantage of money over goods and labour. The owner of a perishable heap of potatoes has to hurry to exchange his goods for the value-stable and universal means of payment, money. The owner of money can wait any desired amount of time before he buys the goods. The owner of the goods has to grant the owner of the money a rebate; otherwise he might not invest the money and wait for better conditions. This enforced price-reduction is not a result of the market forces supply and

demand, but of the superiority of money. With the demurrage, money will be put at par with goods, thus creating similar conditions for owners of money and of goods and let investor and debtor meet as equal partners. This way, the actual interest goes towards zero.

In order to avoid that an investor gets back less purchasing power than he lent, the rate of inflation is included in the interest on credits. Due to the fact that the price-level can be kept stable relatively simple after the introduction of a demurrage, this component of interest can be omitted.

What will remain are the fees for credit brokerage charged by the banks that consist of a risk premium (it happens time and again that issued credits are not collectible or only partially collectible), a component for costs, and the profit margin. According to economic situation, an interest on credits between slightly below zero and approximately plus 3% will be reached.

2.2.10. Consequences of a demurrage currency

- the price level can be controlled exactly by increasing or decreasing money supply and demurrage rate, this means that inflation and deflation are a thing of the past
- the economic growth requirement is omitted, which helps the environment as well
- the redistribution from poor to rich is stopped
- the taxes are lowered as well as the overall price-level, which increases purchasing power of the general public considerably
- the non-wage labour costs are reduced as well as the unemployment rate, which is in turn a prerequisite for the functioning of the social security systems
- many government subsidies can be reduced
- the permanent, exponentially growth of the debt of government, enterprises and population is stopped
- the reduction of sovereign debt becomes realistic

Please consider that the point is to enable the interest to oscillate around zero. The interest is needed in any case due to its allocation function. An abolition of interest would disrupt the economy considerably.

3. Complementary currencies

You think these are revolutionary or even fantastic ideas? Not at all!

Condemnation of interest has a long tradition in Christianity. At countless early synods, the prohibition of interest was decided and affirmed. The peak of the ban on interest in Germany were the Early Middle Ages around the year 1100. At this time, 12 old pfennigs were exchanged for 9 new pfennigs twice a year. This way, the hoarding of money was not profitable any more. The result was the biggest development period of the German history. The social differences were levelled out better than at any other time in history. The minimum amount of non-working days was 90 per year. Often it was even more than 150. Soon, Monday was introduced as a day off, which meant that craftsman had to work only four days a week. Around 1300 there was a historically singular peak of foundations of towns. Monumental minsters and cathedrals were financed exclusively by voluntary donations. Around 1500, in the Late Middle Ages or Dark Age, the century-old ecclesiastic ban on interest was increasingly dissolved and money was lent more and more often only for high interest. This way, for example the Fugger could become one of the most powerful families of the world in those days. The redistribution of assets changed so dramatically within few decades that all over Central Europe the Gothic buildings were stopped for 300 years due to shortage of money. The economic situation of the population deteriorated so drastically that it led to bloody peasant wars at the beginning of the 16th century. These developments gave impetus to the reformation of Martin Luther, who vehemently opposed interest, as can be seen in several of his works. Around 1600, the protestant church inconspicuously corrected Luther's general rejection of interest to account for the developing monetised economy. 1983 the ban of interest was also deleted without replacement from the catholic ecclesiastical book of law. The continuing criticism of interests in history of mankind surely must have its reasons.

In the 1930s, during the big world economic crisis, different experiments were made with the introduction of demurrage currency (e.g. the “Ulmer Wära” in Germany) following the reform proposals by Silvio Gesell (1862 – 1930). Gesell suggested dividing a banknote into different areas where, at a given date, a paid label (like a stamp) had to be affixed in order for the notes to stay valid. He called this new currency, which was interest-free in the long run, “Freigeld” (free money) and the economic order that based on it “Freiwirtschaft” (free economy). After the Freigeld began to spread fast, the government in Berlin banned it by emergency decree.

In the following chapter, different field-tested models of complementary currencies or voucher systems from various countries are described that have shown positive economic and social effects in their own ways.

3.1. Bethel-euro

Perhaps the oldest complementary currency still valid in Germany is the Bethel-euro that was called Bethel-mark before the introduction of the euro. The name refers to the place Bethel in Bielefeld, where the “Bodelschwingh Foundation Bethel”, an institution for epileptics and young people with social problems, was founded in 1867.

The introduction of the Bethel money on 1st September 1908 intended to ensure that the money would be spent within the institution and not in shops outside. The Bethel euro enables residents and employees of the Bodelschwingh Foundation to shop in the stores in Bethel.

Strictly speaking, the currency consists of merchandise credits that are issued by the local savings bank. For a deposit of 100 euro, 105 Bethel-euro are disbursed. For purchase, the exchange rate of euro to Bethel-euro is 1:1.

“Approximately 10 to 15 percent of the money used in the shops in Bethel is Bethel-money. The bank notes are issued with the seven different values of 50, 20, 10, 5, 2 and 1 euro

and 50 cent. There are no coins. The bank notes have three different sizes and seven colours. They are adorned with prominent or historic buildings in Bethel like *Sarepta*, *Gilead*, the *Bethel-gate* or the *Mamre-Patmos-School.* Altogether, there are approximately 110.000 Bethel-euro notes in circulation with a total value of nearly one million euro."[17]

In 1948, the Bethel-money was withdrawn from circulation and could be exchanged into D-Mark at a rate of 10:1. The currency was reinstalled starting on the 1st January 1955. Two months after the introduction of the euro in Germany, the Bethel-mark was replaced by the Bethel-euro on the 1st March 2002.

3.2. The Wörgl experiment

The probably best-known historical example for the use of a complementary currency occurred during the Great Depression at the beginning of the 1930s. In the small Austrian town Wörgl, 500 of the 4200 inhabitants were unemployed. Michael Unterguggenberger (1884 – 1936), mayor of Wörgl, knew the theory of "Freigeld" by Silvio Gesell and convinced merchants and politicians to try it.

The local authority issued the "Wörgeler Freigeld" in 1932. These were so-called labour vouchers or "Certified Compensation Bills" that were guaranteed by the same amount of Austrian shilling. The new currency was used for various building projects within the town of Wörgl, such as the extension of the water supply, the building of a ski jump and a bridge.

At the end of each month, a stamp worth one percent of the denomination had to be affixed to the voucher for it to stay valid. This demurrage encouraged anyone paid in Freigeld to spend it again. Therefore, the money circulated much faster than the Austrian shilling and created enough work for everyone. Many citizens even paid their taxes in advance in order to evade the demurrage.

It is interesting that the bulk of employment was not connected directly to the municipal

[17] German article on Wikipedia: "Bethel-Euro", www.wikipedia.de, as of 08.01.2012

projects. The major part of the work was created by the Freigeld circulation after the first workmen hired by the major had spent it.

“In fact, every Freigeld shilling created 12 to 14 times as many jobs as the normal shillings that were still in circulation as well! The anti-hoarding mechanism proved to be an extremely effective work creation scheme. At the time (…) the unemployment rate in Wörgl dropped by 25% in only one year. The annual fee of 12 percent taken in by the municipality was used for public purposes, thus serving the common good.”[18]

The Wörgl experiment was so successful that there soon were copycats, for example the neighbouring town of Kirchbichl in January 1933. In June of the same year, major Unterguggenberger presented the model before an assembly of representatives of 170 towns and villages that took place in Vienna. When many of them wanted to adopt the model, the Austrian central bank intervened with prohibition. A legal dispute followed that went as high as the Austrian Higher Administrative Court in Vienna and that was finally lost by Wörgl in November 1933. This way, the promising success of a complementary currency in times of economic need was destroyed. Soon, the unemployment rate had risen to 30% again.

3.3. WIR circle

Since 1934, there is a nationwide barter circle in Switzerland with the purpose of granting low- or no-interest credits to medium-sized business and to create higher turnover and increased yields for its members. The WIR (abbreviation of “Wirtschaftsring”, economic circle, but also the German word for “we”) was founded by supporters of the Freigeld theory and also pursued the goals of money reformation during the sales crisis in the 1930s. As a barter circle, WIR works with a cash-free settlement between the members by means of centralised accounting. There is no cash withdrawal of assets. The key element is that credits are granted with no or very low interest. In 1936, the economic circle was put under control of credit and monetary supervision according to Swiss federal law.

[18] Lietaer, Bernard A. (1999). Das Geld der Zukunft. Munich: Riemann-Verlag

The economic circle expressly considers itself as a means for self-help of small and medium-sized businesses in their competition with large enterprises that are strong on the market and have much capital. The institution is organised like a bank with a head office in Basel and seven regional offices.

“Deposits in WIR do not earn interests, debts in WIR are charged with small fees depending on the amount. The “money creation” occurs by issuing of credits. In 2002, the economic circle had 60,000 members (20% of the small and medium-sized businesses in Switzerland) and a turnover of approximately 1.7 billion WIR – an accounting unit equivalent to the Swiss frank.”[19]

The complete costs of the WIR-organisation are covered by the participation fees and the transaction fees. Every member has unrestricted access to the accounting units on his account.

3.4. The Fureai kippu system

During the Japanese economic crisis in the 1990s, it became obvious that the society would hardly be able to permanently ensure care for the growing number of elderly people. Therefore, the idea emerged to collect labour hours of younger people who regularly helped the aged with simple services (like shopping, accompanying for walks, help with eating, reading, and so on) in time accounts. This developed into the Fureai kippu system (“caring relationship ticket”). Younger people can redeem these time vouchers either for themselves at a later date – when they are sick or old or in need of care – or they can give it to their own parents who might need care in a different part of the country. The time currency is not subject to inflation, because one hour stays one hour today, tomorrow and surely also in 20 years. The system spread in Japan and over South Korea into Asia. At the moment, it is introduced in the Vorarlberg region in Austria, where the state guarantees for the long-term value of the hours.

“In Germany, Herbert Henzler and Lothar Späth have made a similar suggestion in their

[19] Kennedy, Margrit (1990) Geld ohne Zinsen und Inflation. Steyerberg: Permakultur-Publikationen

book “The generation pact. Why the elderly are not the problem, but the solution”. Here, they argue for a care time currency as third official pillar of retirement provision. The recommendation is already discussed widely and could probably be the first complementary currency that is officially introduced by the state”[20]

What is crucial is that such a currency design helps everyone, it is simple to introduce, transparent, and easy to control. After all, it is based on a valuable commodity – our time. All this cannot be said about our current monetary system.

3.5. The chiemgauer

After the idea of a voucher currency as regional means of payment had been discussed at a conference in Steyerberg, Lower Saxony, Germany, it became the basis of an applied project only a few months later that proved to be the most successful regional currency in Germany to date.

The chiemgauer is a voucher that is issued by the “Regiogeld” initiative of the Waldorf School in Priem am Chiemsee, Bavaria. It was designed by its initiator Christian Gelleri as a complementary regional means of exchange. The voucher enriches the normal customer loyalty programmes – a marketing measure that most businessmen accept today and budget as a cost factor of 5 to 10 percent of the turnover – with the additional function of providing a means of exchange for the region that works like cash and has many more advantages.

In contrast to many other regional currencies, the chiemgauer explicitly supports clubs and initiatives, because his user can decide who gets 3% of the re-conversion fee. This way, particularly club members buy vouchers and thus help their club or a project of their choice and the region they live in to get more solvency. They can use the vouchers as consumers in the shops that accept them and belong to the regional business development association like themselves.

[20] Kennedy, Margit (2011). Occupy Money. Bielefeld: J. Kamphausen Verlag.

The tradespeople now have two options: they can either re-convert the vouchers into euro at the central issuing office and pay a re-conversion fee of 5%, or they can use it for their purchases at other businesses, maybe pay a part of the wages of their employees with it or buy upstream products. This way, they evade the re-conversion fee.

“In addition, the customers accept a circulation-guarantee in the form of a fee of 8% per year. This means that a stamp with 2% of the value must be fixed to the voucher every three months for it to stay valid. Experience shows that this speciality of the regional currencies causes much less trouble with acceptance than most supporters of regional currencies would assume.”[21]

The central issuing office pays its costs from the margin of 2%, which is the difference between the 3% bonus that is granted to clubs and projects and the 5% the tradespeople pay. At the same time, it is a fascinating and instructive project for the senior classes of the Waldorf School.

The majority of participants makes sure that the vouchers are returned to the central issuing office before their due date, which means the circulation-guarantee serves its purpose and offers a small additional income to the projects. In the meantime, an electronic accounting system was introduced that works exactly like a cash card. Since 2010, the initiative grants micro credits in cooperation with the GLS-bank in Bochum, supported by the Federal Ministry of Economics. If the credits are paid back according to the agreed conditions, only a handling fee is charged.

[21] Kennedy, Margrit and Lietar, Bernard A. (2004). Regionalwährungen. Munich: Riemann-Verlag

4. Optimum monetary reconfiguration

4.1. Optimum monetary reconfiguration in theory

4.1.1. Our view

In contrast to mainstream thinking, we are of the opinion that for our model, neither strong regulations of capitalism nor extensive legislation for money is needed. We are speaking in favour of the free market economy – the really free market economy that neither privileges nor disadvantages the supplier or consumer. A market economy that can act virtually without regulations in an ideal economic space, where money supply can be controlled by simple means and whose only regulation is the money supply.

We are also convinced that optimum functionality of the real economy based on division of labour (hereafter referred to as real economy) can be re-established with minimal interventions in our current monetary system. In our model, the real economy becomes completely calculable and predictable. It also has the advantage that members of the European Monetary Union can leave this union in an orderly fashion or remain in it without causing serious consequences. Although our model is easy and inexpensive to implement, it can even support the euro reliably. Also, it takes effect in a relatively short time. Results should be visible no later than one year after implementation. And it finally offers an instrument to the central bank enabling it to regulate the money supply exactly.

Our main focus is on the optimum organisation of the monetary system for the real economy for the supply of the population. Our goal is full employment. The expected influence of our model on the domains of investment and speculation can only be examined cursory in this article due to limited space. We mainly consider the money commonly referred to as “M1”, chiefly cash and, with limitations, deposit money.

“In an (economic) crisis one should (...) help (...) the weak and the poor, in order to enable them to give new consumer impulses with their demand.”[22]

[22] Joseph Stiglitz, as quoted in: „Notausgang Inflation – auf der Suche nach einer Krisenlösung“ RBS Märkte und Zertifikate Oktober/November 2011, www.http://markets.rbs.de/MediaLibrary/Document/PDF/Newsletter/MonthlyNewsletter/MuZ_Okt_Nov_2011_mid.pdf

4.1.2. Ideal economic space

In order to optimally rearrange the monetary system, one first has to describe the ideal economic space.[23] On earth, there are regions that differ in population density and vary strongly in economic performance. It should be clear that these regions need different amounts of means of exchange, adjusted to their economic performance.

If we transfer this fact to the euro zone, it is easily comprehensible that Germany needs more means of exchange than Greece and the Ruhr area more than Berlin. Before 2000, it was possible, among other things, to express the varying economic performance of the different countries now belonging to the Monetary Union by appreciation or devaluation of their specific currency. With the introduction of the euro as single currency, this performance feature was obliterated as well as the possibility of each country to react with its central bank specifically to its inflationary or deflationary tendencies: While Germany had been the economic engine of the euro zone from 2000 to 2010 and needed more means of exchange for its economic activities to work ideally, the southern euro zone countries had the problem of too many means of exchange, which caused permanent inflationary tendencies. This way, Germany brought up the rear concerning increase of salaries and wages for more than ten years, while in the other countries of the euro zone increase of salaries and wages was higher than the inflation rate, which resulted in an rise of actual earnings for the employees.

Concerning size, the ideal economic space would be somewhere between a small country like Greece and a metropolitan region like the Ruhr area. Further ideal economic spaces could be, e. g., Berlin/Leipzig, Manchester/Sheffield, London, Paris, Milan/Turin, Istanbul, and so on. The rural regions around those metropolitan areas use those area's means of exchange. In areas where regions overlap, both currencies will be used by the population. This is no disadvantage to the Monetary Union: in the border regions of the past people have always traded and exchanged with two or even three currencies. Even today, the Deutsche mark is used in so-called weak-currency countries as a store of value and means of exchange.

[23] In theoretical analyses, the ideal economic space is hardly ever mentioned. Only the optimum currency area is discussed (for example by Robert Mundell). In agreement with the theory of optimum currency area, we are of the opinion that the USA is no optimum currency area either. (Wikipedia.org, Optimum currency area, as of 10.01.2012)

4.1.3. Current regulation of money supply

To create the optimum currency system, it is important to analyse which parts of our current monetary system are inefficient. As described above, the euro is used in a poorly defined monetary space: it is much too big. Furthermore, the ECB only has the possibility to stimulate the economy by reducing the prime rate or slow down economic growth by increasing it – but this can only be done if the prime rate is high enough and there is adequate economic growth. The ECB has only very limited influence on the money supply. What can it do, then, if the economy stagnates in spite of growth acceleration laws and the key interest rate can hardly be reduced because it is already lower than 1%? If the general public, enterprises, industry, and government are over-indebted or do not want to take up capital due to missing prospects of growth and innovation or cannot raise capital because they are not credit-worthy? What can the ECB do if the economy has much more money than necessary, but this money refuses to demand goods and services? Buy government bonds of the highly indebted countries and bring even more money into the market that the banks, not trusting each other anymore, would deposit at the ECB? In short, in spite of the glut of money the economy remains in stagnation and the ECB has virtually no possibility left to influence the issued money supply.

4.1.4. Current money design

A reason for this helplessness is, in our opinion, a flaw in the design of our money. Apart from its functions as means of exchange and indicator of value, our money has two more roles, namely as a store of value and a means of speculation. We want to concentrate mainly on the two contradicting purposes of means of exchange and store of value. In its current design, our money can fulfil only one of these purposes at a time. In order for a real economy based on division of labour to operate, the money as means of exchange has to be kept in the cycle at all times. The money acts like a big paddle wheel that constantly moves the stream of goods below it. In the economy, the circulation of money acts like the permanent circulation of blood in the human body that keeps the person alive and fit. If the circulation of money slows down or stops because the money is retrieved

from the economic cycle due to missing yield or low interest rates and instead used as a store of value and means of speculation, the produced goods cannot be bought or sold in a sufficient amount. This creates an excess supply, one of the definitions of deflation.

4.1.5. Optimum money design

As mentioned above, we think the design of the euro needs to be improved. The questions are: How can we enable a central bank to optimally regulate the money supply in every economic situation? How can inflation and deflation be avoided and the money kept stable in value? How can money be kept neutral on the market so that neither consumer nor supplier are preferred or disadvantaged? How can it prohibit excessive increase of the amount of money not causing demand in the real economy? How can the drift of money into the domain of speculation be minimized? How can excessive, exponentially increasing assets and debts be prevented?

Every merchant or craftsman working in an economy knows that customers can be put off easily by the price. Politicians know about the dissuasive effect of fees. When the truck toll was installed in Germany, it was surprising how creative the drivers got when searching for toll-free routes. Or consider the astonishing inventiveness for tax-evasion: fees and taxes have a considerable steering effect, if there are no loopholes.

Just as taxes have to be paid for maintenance of public roads or a fee has been installed for the transmission of power into the houses, we visualise a fee for the governmental institution money. This carrying charge or holding fee will be called demurrage.

The following examples are meant to demonstrate the idea of demurrage for the means of exchange more vividly. For many governmental and communal services like swimming pools, building applications, day-care, car parks and others there are fees charged and paid already. Let us imagine the means of exchange in our economic cycle as a two lane street with parking spaces on both sides. Today it is like this: if somebody parks his car in the middle of one lane, soon a police officer arrives and hands the driver a banknote through the window to make him drive on. We envision that the parking offender will be

charged with a fine for parking on the lane and thus asked to drive on so that he does not obstruct the traffic, i.e. the economic cycle, any more.

4.1.6. The ideal rate of demurrage on cash money

Cash is the mediator between performance and goods. It enables the market actors to exchange goods for money as supplier or money for goods as consumer at any time they wish. It is a universal means of exchange and has created many advanced civilizations in the history of mankind – and overthrown some. Cash is a blessing for humanity and has often been a curse as well. Today, we know a lot more about our cash and money in general and are at the threshold of an era that could make money a permanent blessing for mankind.

In the history of money, there have been monetary systems that have endured longer and some that have collapsed after a short time. When studying these monetary systems and the reasons why some last longer and some shorter, it can be determined that restrictions, fees and prosperous mines of precious metal have resulted in longer lifetime of the money. From this, we deduct that a fee – a fee on money not used, on money drawn from the economic cycle – can be the preferred means. Irving Fisher and others have already gained experience with those fees.

However, it is of utmost importance to find the right rate for the fee and to be able to adapt it continuously. When money, the universal means of exchange, is superior to goods like today and subject to significantly less deterioration, it will be used increasingly as a store of value. As coins and notes, it is small and manageable and can be kept at home or at a bank much easier than any good. If, however, the good is significantly superior to the money due to inflation, people take refuge in goods as store of value. I remember vividly the stories of my friend's grandmother who told us that during the time of inflation and hyperinflation, she invested all her money in bed linen. In this respect, the attempt of Irving Fisher to try a demurrage (stamp script)[24] on cash of 104% per year can almost be used by detractors as evidence of the unserviceableness of a demurrage on cash.

[24] Fisher, Irving (1933). Stamp Script. New York; Adelphi Company

The right amount of the demurrage in an intact economy can, depending on the intended effect, only be slightly higher or lower than the average annual deterioration of all real estate, facilities, infrastructure, goods and services produced by people. We consider this deterioration to be approximately 3.5% per year. This matches roughly the actual interest mentioned above, with the difference that now it is not the interest that lures the money back into the economic cycle, but the demurrage prevents, in a moderate way, the withholding of the means of exchange. With demurrage, the means of exchange is put at equal level with the goods and thus supplier and consumer meet on par while neither of them is favoured or disadvantaged. If the means of exchange is superior to the good, it favours the consumer, and if it is inferior to the good, it favours the supplier. The central bank is obliged to provide the market actors with a neutral means of exchange.

4.1.7. Ideal regulation of money supply

The effect of demurrage on the governmental money issued by the central bank can be influenced in any desired direction. When the market shows deflationary tendencies, i.e. if the economic cycle lacks means of exchange, it can be brought into the market. This can be done by governmental investments, by private investments using credits or by tax relieves granted by the state. When there are inflationary tendencies, if for example after a phase of prospering economy there is too much money in circulation, the state can cut back on investments, curtail the granting of credits to private enterprises or increase taxes slightly, for example those on fossil fuels.

With the rate of demurrage, the central bank can even fine-tune this: By slightly reducing demurrage, the money will be used a little more often as a store of value and taken out of the real economy somewhat. If the central bank has the impression that means of exchange vanishes into the domain of speculation in undesirable amounts and there is not enough in the real economy, it can raise the money supply slightly on the one hand and in addition increase the demurrage etc. As we can see, there are suddenly many possibilities to regulate money supply and even recessions become easily manageable.

It is also possible to react easily and without panic to the economic and thus financial shock waves from other metropolitan areas, countries or continents. Even the amount of demand-generating and non-demand-generating money can be answered precisely. Finally, it is possible to create and regulate a money supply to exclusively back demand in the market.

The demurrage is mandatory in order to account for the two contradicting characteristics of money: the roles as means of exchange and as store of value. The optimum money supply in an ideal monetary space can only be perfectly adjusted with a continuously variable demurrage on the cash in circulation. This can happen in regard to the money supply issued, the inflationary and deflationary tendencies, the stability of value, the velocity of circulation and the demand-generating and non-demand-generating money supply, i.e. the amount of money used as a store of value and the amount used as demanding means of exchange in the real economy.

4.1.8. The optimum monetary system

In order to design an optimum monetary system, we need an ideal monetary space. Every ideal economic space, let us call them metropolitan areas, needs an individual currency or means of exchange. Those means of exchange, produced under government surveillance and subject to the control of the country's central bank, could be kept basically free of inflation or deflation, if based on a basket of commodities (index) and charged with a demurrage. For the first time in the economic history of mankind, a deliberate and exact regulation of the money supply could be realized, because the means of exchange that are charged with a demurrage would tend to be real means of exchange and measures of value rather than means of speculation and stores of value.

The separate governmental institutions issuing the different currencies in the metropolitan areas compete with each other, so that the best regulated currencies will prevail. The way we imagine it, two metropolitan areas in different countries, but both close enough to each other and the border, could be regulated by a single governmental institution later on in the competition. This way, the means of exchange for Amsterdam/Rotterdam could prove to be regulated better than the one from the Ruhr area and could take over the Ruhr currency –

always in the best interest of the people and the real economy. Obviously, metropolitan areas that differ in the strength of their economic performance will have to have their own, separate currencies in order to be able to counterbalance minimal inflationary or deflationary tendencies. The more metropolitan areas are combined in one single currency, the more difficult it becomes to regulate the money supply, thus missing out on the requirement “optimal”.

With circulation-guaranteed means of exchange based on an index (hereafter referred to as demurrage index currency or just demurrage) the different metropolitan areas are kept free of inflation or deflation. As soon as there are signs of inflation, that is, when goods and services become more expensive, means of exchange are taken from the economy, and when there are deflationary tendencies, the economy gets more means of exchange. This can happen in various ways. Again, the optimum method can be found through competition of the note issuing banks. Another advantage of the demurrage index currency and its stable value becomes apparent if one considers that one 1948 Deutsche mark was worth only 23 pfennigs in 2000. The year 2000 euro had a buying power of only 84 cent in 2006. The loss of buying power or inflation has eaten up all increases of income of the normal population in Germany between 2000 and 2010.

At this point, we think it is very important to point out that, in contrast to inflation that eats up the long-term savings of the populace, the wages and pensions, the goods in domestic and external trade and so on, the demurrage only devaluates cash and cheque money. This way, everybody can decide for himself how many fees he is willing to pay for the comfort of liquidity. The ideal means of exchange from 2012 will have the same purchase value in 2062. The savings accumulated up to this date will have approximately quadrupled their value in comparison to the Deutsche Mark.

4.2. Optimum monetary reconfiguration using Greece and the euro as example

4.2.1. Leaving the European Monetary Union or staying

As we have established above, Greece can be considered an ideal monetary space. A further separation of the regions around Athens or Thessaloniki seems superfluous to us, but can be done if the need is proved.

In our model, Greece can stay in the European Monetary Union at first. On the contrary: to avoid the indicated, feared impacts of an inopportune leaving of the euro and the euro zone, we advocate Greece remaining in the Union. Nevertheless, it is possible with our model that every country could leave the European Monetary Union completely in an orderly fashion after a certain time.

Our model is aimed mainly towards measures that ensure the euro and its preservation, because we are convinced that the euro is crucial for the European Union. We even think that the euro could become the world lead currency if other members of the EU adopt our model - that was not only developed for Greece.

4.2.2. The current situation in Greece

Greece was included in the European Community in 1981. In the following years, the Greek economy had considerable advantages from the economic integration to the economy of the European industrial nations. Since the year 2000, the accession of Greece to the euro zone, extensive infrastructural measures and various big events like the Olympic Games in 2004 led to a stimulation of the Greek economy and to an economic boost. This was combined, however, with a high surplus of imports that caused an accumulation of public debts towards other countries that were only openly acknowledged in October 2009 by the new government led by Giorgos Papandreou.

Due to the current austerity measures of the Greek government, the euro has partially

been drawn out of the real economic circuit. A part of the citizens employed by the state have been made redundant. The lack of means of exchange (money = euro) led to a reduction of the people employed in industry. Furthermore, salaries and wages were reduced or the 13th and 14th monthly payment was cancelled completely. People take their money abroad because they are afraid to lose their savings. The survival of the Greek banks is perceived as uncertain by the population. In August 2011 the unemployment rate was 18.4% and increasing. We can establish a de-facto deflation for the region Greece.

The performance reduction of the real economy and the resulting decrease of taxes make it impossible for the government to pay the interest for issued government bonds and pay back borrowed money. A debt cut at 50% was decided for government bonds. Speculators let the rate of return of government bonds with short-term maturity rise to absurd heights while causing extreme risks. No matter how high the deposit rate of interest of the banks might be, it is not sufficient to bring the euro back into the real economy. No investor believes that he will get his money back.

An acceleration of the inflation as a “euro-whip” is impossible: this would cause problems for the other members of the EU.

What kind of development programme in euro could find sound debtors in Greece under these circumstances that invest money from the programme in the real economy and keep it there, without letting it disappear abroad through dubious channels or into secret accounts?

4.2.3. Our model used on Greece: The euro as superordinate currency, the drachma as additional complementary currency

As a way out of this situation we suggest the introduction of an additional currency in Greece to take the function of a means of exchange for the real economy and be installed below the level of the euro. This “complementary currency”, let us simply call it “drachma”, fills the gap that the retreating euro leaves and its value would be linked, in a first step at the date of issue, to the euro 1:1. This is necessary to create a measure of value for the

drachma.

This link of value cannot, however, be of middle or long term duration. As soon as the inflation of the euro has for example veered away by 5% from the drachma that is kept stable in value, this has to be accounted for by use of an exchange rate of 1,00 drachma to 1,05 euro that is communicated by the media. Accordingly, goods and services in the economy have to be labeled with two prices. But that seems a long way off and will not be discussed in detail here.

Obviously, this complementary currency needs some “construction characteristics” to keep it as prime means of exchange in the real economy circuit. These characteristics are basically aimed at the functions the euro assumes. While at the moment the euro is used primarily as storage of value in Greece, the drachma has to take over mainly the function of a means of exchange in the real economy. If the euro is particularly suited for the deposit of money, the drachma will have to incite being spent on everyday commodities. With the money supply of the euro being hard to control, the drachma has to have a characteristic that allows for complete regulation of money supply and it will even have to be able to lure the euro slowly back into the real economy. While the euro can be taken abroad by the population, the drachma has to have a feature that prevents this.

4.2.4. Design of the drachma

The drachma as a complementary currency will be issued by the Greek central bank under surveillance of the European Central Bank (ECB). It will, like the euro, be protected against counterfeiting by all necessary security features. Additionally, it will have distinct identifying features that allow charging and accounting of demurrage. This could be achieved for example by different colours on a quarter of the back of the drachma note that allow the user to see when demurrage is due. It could also be a calendar printed on the note showing the average time the note stays in the economic cycle, with the due date of demurrage indicated by marking or perforation. Printing of the due date itself on the note is also possible, and there are many more options. The drachma will be legal tender, just like the euro: receivers of payment will have to accept the drachma as means of payment if the

payer requests this.

4.2.5. The rate for the demurrage

At the moment (1st January 2012), the average inflation rate in the euro zone is close to 2%. As explained before, there are in fact considerable differences in the level of deflationary and inflationary tendencies: In Germany there is an economic growth of about 0% after subtracting the inflation rate, while in Greece there is deflation – in spite of a common currency. Apart from the cooperation of the population, banks, government, and tradespersons, we need specific construction characteristics to successfully install the drachma.

The main principal is the demurrage and, even more important, the right definition of its rate. Demurrage will always have to be several percentage points over the rate of inflation or deflation in the economic space concerned. With the euro losing approximately 2% of its purchasing power on average over the last eleven years due to inflation, several percentage points over would be about 10%. We suggest a demurrage of 8% per year for the drachma at the moment, 2% per quarter. In spite of elaborate marketing campaigns that will be necessary to launch the drachma as a product on the market the average citizen will only perceive that he has to spend the drachma as fast as possible to evade demurrage. This necessarily entails that the citizen will prefer drachma to euro for his purchases. And this preference will occur in the whole economic cycle.

4.2.6. Settlement of the demurrage: a business transaction

The demurrage will be charged either by the merchant or service provider or by the commercial bank. The merchant or service provider will accept the payment of the customer either in euro or drachma or in both currencies. If there are drachma notes that are subject to demurrage in the payment, the merchant or service provider can subtract the demurrage from the value of the note and charge the remaining amount to the

customer. The commercial bank that accepts the currency will act accordingly towards the merchant or service provider. It will then submit the notes subject to demurrage to the central bank together with the demurrage due and will receive new drachma notes that are not yet subject to demurrage in return.

In order to do business in drachma by bank transfer, every private person, enterprise and institution has the possibility to open a foreign currency giro account at any commercial bank in Greece. The demand fund in this giro account will be subject to a demurrage exactly like the drachma notes.

If commercial banks charge a fee for every transfer, it is possible for the central bank to collect a demurrage at a slightly lower rate than for cash. The cost of transfer charged to the account owner acts as a small demurrage as well. At the moment, commercial banks hide account maintenance charge because the interest for overdraft charges, agreed line of credit, and credits for cars, furniture, kitchen furnishing, etc. are high enough. They advertise free giro accounts while everybody knows that maintenance of a giro account generates costs.

Demurrage for demand deposits in a giro account will be calculated daily according to the present demand fund. Demurrage will be debited once a month and transferred to the central bank. At a rate of 2% per quarter, the monthly demurrage for giro accounts is 0.66% of the assessed demand deposit. Any surplus money that the owners of these accounts have can be paid into a foreign currency deposit account that is subject to an adequate cancellation period. These deposit accounts are not subject to demurrage and the commercial bank has the obligation to keep the money's value stable. To do this, it has two options: it can either bring the drachma back into the economic cycle as a credit, thus imposing the payment of demurrage on the debtor, or it can deposit the drachmas at the central bank to evade the demurrage. The central bank will hand over the received cash to the next commercial bank that demands it. If a prosperous market develops in the metropolitan area, the credit-issuing commercial banks will be able to generate a positive interest for the investor that can be credited to him.

If two business partners, for example merchant and customer, agree on payment by bank transfer in drachma, they can execute this money transfer just the same as with euro.

However, in their own interest to evade demurrage, both partners should clear their giro account after the transaction except for the actual need.

It is important to understand that with a demurrage of approximately 2% per quarter on the circulation-guaranteed currency, it should be easy for the actors on the market to evade demurrage. And even if they do not achieve this for whatever reasons, they should calculate the rate of demurrage in relation to the business conducted. It will be minimal and can be readily accepted by the provider if he can conclude the deal successfully.

4.2.7. The re-conversion fee

Another construction characteristic of the drachma will be a fee for re-conversion. In order to avoid having to constantly pay attention to the demurrage date on the drachma, the average citizen will try, whenever possible, to prefer drachma to euro for purchasing goods and services or to convert it into euro. Converting drachma to euro shall be impeded or averted completely. This can be achieved by a re-conversion fee of 5%, charged by the merchant or service provider or by the commercial banks. The re-conversion fee cannot be controlled if it is charged by the merchant or service provider. However, this is of no concern as one can assume that he will only conduct this re-conversion without a fee if he is convinced that he is able to use the drachma for his own purchases, either private or business-related. And he will be especially motivated to perform re-conversion retaining and keeping the re-conversion fee if he has already found suppliers that will accept the drachma he converted as payment for goods.

4.2.8. Introduction of the drachma

The drachma will be introduced as a complementary currency in Greece below the level of the euro. This can only work if all parties concerned act in concert. These are the population of Greece, tradespersons and industry, banks, central bank and, last but not least, politicians. Like a new product, the drachma must be launched with a marketing

campaign. This does not have to be done as extravagantly as the one for the introduction of the euro approximately 11 years ago, but every new product needs a structure for distribution. If central bank, commercial banks or politicians refuse to support the introduction, the “project” drachma will be doomed to failure. Concerning population and tradespersons, a refusal is less problematic: There will always be merchants that see business opportunities they want to seize and for the population, the saying “He who pays the piper, calls the tune” holds true. And there will always be people who are afraid of change and innovation and oppose it at first.

The Greek central bank will be ordered by the ECB to issue the drachma and bring it into circulation. The ECB will, in order to prevent corruption and favouritism, apply the four-eye-principle. Therefore, it will charge two responsible state secretaries and two bank directors with the introduction: one state secretary and one bank director at both the ECB and the Greek central bank, while at each location only one of them may be a Greek citizen. Subsequently, the state secretary and the bank director at the ECB will assign two non-Greek, European merchants with the reasonable commercial implementation according to market-economic aspects. These merchants will work in honorary capacity and receive an expense allowance. They will be obliged to introduce the drachma by inviting at least three offers for every item that has to be bought from every area that is necessary for implementation. All these services are paid in drachma.

After informing the Greek population about the purpose of the complementary currency with the name drachma and the necessity of a possibility to regulate the money supply, the drachma can be introduced by various methods: by investment of the Greek government in infrastructural measures, by granting credits to merchants, industry or private sector, by initial emission of 20 drachma per capita of the registered Greek population by the Greek central bank, distributed through commercial banks, by partial payment of 20% of all governmental and communal wages, by distribution of 100 drachma to every tradesperson in exchange for a declaration of suretyship (that it will be paid back without interest if necessary) and so forth. Again, there are countless possibilities.

We assume that, due to the much higher velocity of circulation compared to the euro, there will only be a proportionately small amount of means of exchange necessary in drachma and suggest the bit-by-bit strategy with a constant observation of the market. Additionally,

we are of the opinion that due to the demurrage on the drachma, the amount of business transactions per banknote will drastically increase compared to the euro: firstly, because of the demurrage itself, and secondly, due to the nearly complete avoidance of drachma that is not generating demand in the real economy. This task will still be performed by the euro. At the moment, there is at least 50 times more cash euro money in circulation in Germany than is necessary to buy all the products on the real goods market. There is much more non-demand-generating money for the goods in the real economy than demand-generating money. The velocity of circulation for demand-generating money is extremely low.

4.2.9. The support of the euro by the drachma in the metropolitan area Greece

We have established a de facto deflation in Greece. Employees have been and still are laid off, the goods get cheaper, the rate of unemployment is higher than average, and debts in all sectors are extremely high. With the generated gross national product of Greece being as it is the sovereign debt can probably not be paid back. The risk surcharges for Greek government bonds rise, and in the domain of speculation bets on Greek government bonds due in March 2012 promise absurd odds. In case of an expected national bankruptcy of Greece there is the danger of infection of other countries in the European Monetary Union. Their sovereign debt is extremely high, too.

In this situation, the ECB will introduce the drachma as a complementary demurrage currency via the Greek central bank. It is linked to the euro with a measure of value of 1:1. Due to demurrage and re-conversion fee, it is marked off clearly from the euro and takes over the functions of the retreating euro in certain areas of the real economy. With the continuously variable demurrage and the easy possibilities of adding means of exchange to the market or extracting it, it is possible to regulate the money supply of the drachma exactly.

Additionally, the euro can be regulated in the metropolitan area Greece to a certain extent. If for example the additional money supply in drachma is chosen too scarce or the

demurrage is set too low, or both, the deflationary tendencies in the metropolitan area Greece will increase and the euro will retreat from the market even more. If there is too much additional money or the demurrage is set too high, the increased inflation will bring the euro back into the market because the market participants will prefer to invest in goods instead of means of exchange as stores of value. We think that any tendency desired by the ECB can be attained by the Greek central bank. An average inflation of 2% in Greece should be easily achieved.

From introducing the drachma, we expect the following long-term effects among others:

- the price level can be controlled exactly
- the pressure for growth is reduced
- the redistribution by means of compound interest is decreased
- the taxes and the price level in general can be reduced
- an increase of purchasing power of the general public can be obtained
- the non-wage labour costs are reduced as well as the unemployment rate
- the functioning of the social security system is ensured
- many government subsidies can be reduced
- the exponential growth of the debt of government, enterprises and population is stopped
- the reduction of sovereign debt becomes realistic

4.2.10. Accompanying measures for the introduction of the Drachma as complementary currency in Greece

As mentioned above, the sovereign debt of Greece can most probably not be paid back with the estimated gross national product. An imminent national bankruptcy of Greece threatens to infect the other countries of the European Monetary Union, whose sovereign debt is extremely high, too. To provide leeway for countermeasures like the introduction of the drachma as complementary currency, accompanying measures are essential.

With the introduction of the drachma, the interest for Greek government bonds issued in euro will be frozen at 1.5%. Redemption will be postponed until the Greek economy is

stabilised and begins to overcome the recession. Subsequently, it can be decided which amount of the Greek sovereign debt will be paid back. The costs for the introduction of the drachma will be assumed by the European Union, as well as the difference in the interest of Greek government bonds. There will be no debt conversion of Greek government bonds.

4.3. Impacts and effects

4.3.1. Implications for sovereign debt, private savings and domestic mortgages

In our model there is no need for the conversion of sovereign debt, private savings and domestic mortgages to the complementary currency drachma.

All concerned should be well aware that a national bankruptcy of Greece would question all government bonds throughout Europe. Due to the fact that the sovereign debt of all countries has collectively reached levels that cannot be reduced with the current monetary system, this existing system has to be stabilised and reorganised in any case. The optimum reorganisation of the monetary system under the prevailing circumstances was described above, using Greece as example.

As mentioned above, the worldwide assets and liabilities – that are always of equal value – grow exponentially in our current monetary system. Because permanent exponential growth is not possible in a closed system, it is only a matter of time until the system becomes unstable, collapses and the question of a reorganisation of the social system arises. To evade the associated social upheaval, a solution has to be found that is easy to implement and has rapid results.

The interest of government bonds are reduced to a minimum. Exchange of government bonds – replacement of expiring government bonds by issuing new ones – will be conducted under protection of the European Monetary Union. After the measures have taken effect and Greece has come out of the recession, redemption of the sovereign debts

can begin. This redemption can be made in both currencies, as long as buyer and seller agree. Private savings can be kept in the currency the owner chooses. A conversion of private savings and domestic mortgages is not necessary.

4.3.2. Implications for international contracts denominated in euro

International contracts denominated in euro are not affected by the reorganisation of the monetary system as long as Greece stays in the European Monetary Union. We strongly oppose an immediate exit of Greece from the European Monetary Union because the resulting social distortions – and only those count in the end – cannot be estimated. Only when Greece is brought out of recession and starts to pay back its sovereign debt, an exit from the European Monetary Union is possible without damage for all concerned.

4.3.3. Explanation of the connection between an exit of Greece from the European Monetary Union and a conversion of the sovereign debt

After reorganising the monetary system following our model, the exit of Greece from the European Monetary Union is postponed for reasons of economic and social stability. Only after stabilisation of the euro and the Greek economy, and in case of a national budget surplus, Greece can leave the European Monetary Union and start to redeem its sovereign debt. Only then, after re-establishing credit-worthiness of the country, a conversion of the sovereign debt is possible and reasonable.

4.3.4. Different schedules and approaches concerning transition (e.g. “surprise” re-denomination versus announced transition)

In our model, the optimum monetary reconfiguration is promoted to the public. We want to win the population, tradespersons, government, commercial banks and central banks for the implementation of our model. It should be introduced, promoted and implemented as

fast as possible to calm the markets, especially because no one knows for how long the old monetary system will still remain stable.

4.3.5. Effects on the stability of the banking system

In or model, the banking system with its commercial banks has an important function: it will be responsible for the proper issuance of the drachma and explain the reorganisation of the monetary system to the population. The banking system will have to illustrate the concept of complementary currency and brief the people on the construction characteristics of the drachma. This way, the banking system becomes a consultancy system for the population.

Stabilising the euro with a complementary currency also stabilises the banking system. The tasks of the commercial banks are, among others: setting up foreign currency accounts, collection of demurrage and re-conversion fees, issuing of credits in drachma, examination of drachma notes to eliminate counterfeiting and so on. Because the economic operators have no other option if they use drachma – apart from granting credits themselves – than to realise the storage of value by depositing their drachma with a bank, there is nearly no leeway for short-term investments and speculation. This necessarily has the consequence that the drachma remains in the economic cycle.

4.3.6. Approaches to transition

In our opinion, in the short to medium-term, only Greece remaining in the European Monetary Union secures the necessary stability for the euro and the European economy. We have shown a way to bring back Greece to prosperity and growth with target-oriented measures. It was outlined how to realise the transition with a value-stable, indexed means of exchange. We want to stress the importance of our proposition and the fact that others face the same problem by mentioning that the entire global economy has already reached a debt ratio of 100% of the global gross domestic product, approximately 55 trillion dollar.