

# 10

## Local Money as Solution to Capitalist Global Financial Crises

*Felix Fuders and Manfred Max-Neef*

### **Problems inherent in the fractional reserve banking system**

#### **Money is created by debt**

Many people are virtually convinced that money is created by the Central Bank. But this is only true for a small amount of the total money supply in the so-called fractional reserve banking system. Most of our money is created by customers' banks by lending. To understand the problems inherent in our world financial system it is necessary to briefly explain how money creation works. If, for example, someone who possesses 100 € puts this money in a bank as a deposit, "First Bank," then the bank will lend this money to its customers, holding back just a fraction of the original amount as reserve. Banks cannot lend all of their obligations since they have to hold some cash because there are always customers who want to withdraw their money. Let us suppose the First Bank decides to hold a reverse ratio of 10 percent. It will lend 90 € to one of its customers, while the 100 € are still disposable in its cash account. The borrower of the 90 € will spend the money somewhere; maybe he or she will buy a new cell phone. The vendor of the cell phone takes the money and puts it in the cash account of his or her bank: the "Second Bank." The original amount of the 100 € has increased to 190 €. The Second Bank will do as bank A did: it will lend the money to its clients holding back just a small reserve, making the money supply grow further (see Figure 10.1). This well-known mechanism of money creation by fractional reserve banking is called *money multiplier* (e.g., Mankiw 1998, 600ff.; Larroulet 2003, 418ff.). Less known are the implications of this form of money creation.<sup>1</sup>

First Bank	
Assets	Liabilities
Reserve 10	Deposits 100
Loans 90	

Second Bank	
Assets	Liabilities
Reserve 9	Deposits 90
Loans 81	

*Figure 10.1* Bank accounts (fractional reserve banking)

### **The fractional reserve financial system destroys itself at regular intervals**

In the simplified description above, interest was not included. Taking into consideration that loans are not free of charge, it is understandable why the fractional reserve banking system, which is the prevailing financial system in almost all of the economies in the world, destroys itself at set intervals (Fisher 1932, 5ff, 1935, 16, 1936, 8ff.; Kennedy 1990, 22f., 2011, 17ff.; Creutz 1993, 440, 445; Bichlmaier 2010, 6). History proves that big financial crisis occur every 60–80 years.<sup>2</sup> This comes because financial assets double themselves in accordance with interest rates through interest and compound interest in approximately 10–15 years. Any sum that doubles itself over time grows slowly in the beginning but then ever faster with time. Even the fastest calculator in the world someday will no longer be able to keep up with the resulting interest burden for a lack of zeroes. This is the logic of an exponential function (see Figure 10.2).

Such functions are not just an image. Banks even use the exponential growth of deposits (or other financial products) as an argument to gain clients. In an advertisement a big German finance group explains the compounding effect with an illustrative example.<sup>3</sup> Money invested in this institution multiplied like chickens. When chickens lay eggs, chickens hatch again from these eggs, which then again lay eggs. This advertising apparently tries to arouse greed in people. It sounds promising to leave our money to multiply by itself in this way. If in fact out of one hatched chicken just two chicks hatch and later out of these two four hatch, etc., then this flock is, indeed, growing exponentially.

Since money does not work, but it is rather the people who must yield the interest amounts who do, then banks grant loans. In the end, it is the borrowers who pay the interest that the bank later pays on to the deposits held at the bank. The larger the deposits, the faster grows

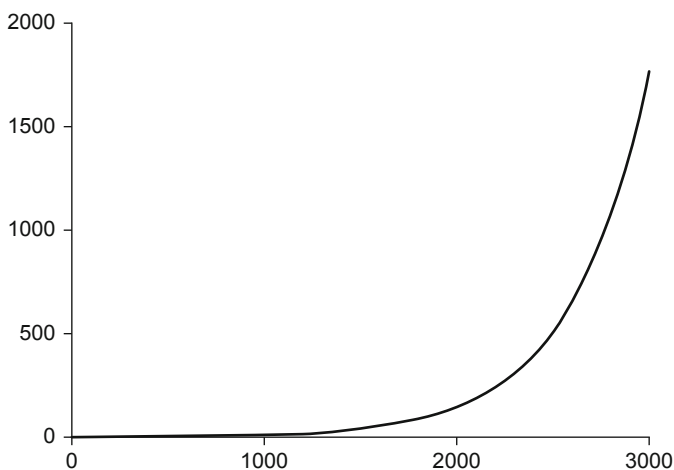


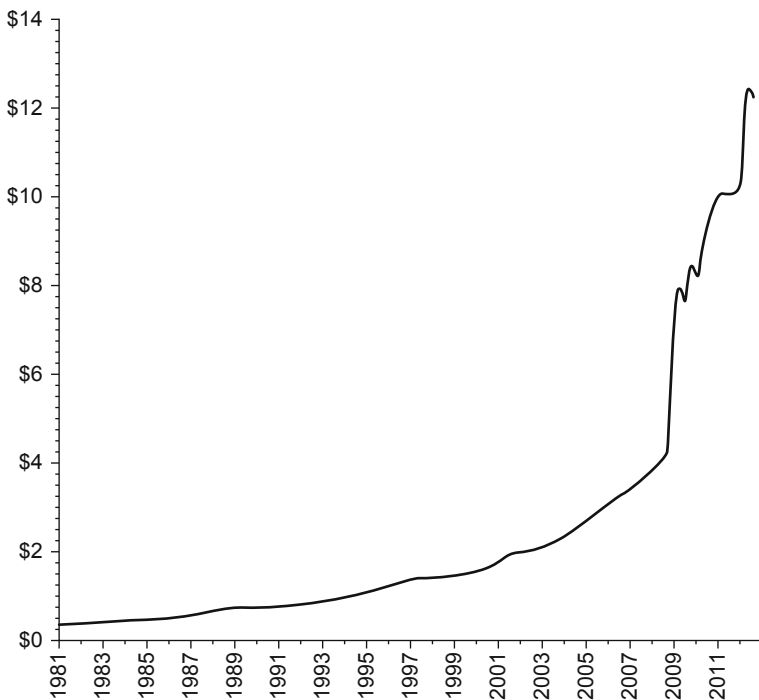
Figure 10.2 Exponential function

the amount of interest to be yielded on these deposits, forcing the bank to increase the loan volume steadily. This increase means that even if the money-interest rate is low, this effect eventually leads to an exorbitantly large volume of deposits, which in turn requires the paying of interest again. Banks therefore do not only struggle to again lend out amortized loans as soon as possible to new customers in order to keep the volume of money loaned out and thus the payment of interest increasing. They must also steadily increase the volume loaned out because the interest-bearing deposits also grow. The longer a financial system exists and the greater the total debt volume already is, that is, the more households, businesses, and the government already are saturated with debts, the more difficult it is for banks to continue to increase the debt volume.

In their struggle to find new debtors, banks therefore begin to lend money even to those borrowers with questionable solvency and at low interest rates. This was happening in the United States until 2008 in the mortgage loan market and as is still happening up to this day in Europe with loans to Member States, loans that are most recently backed up by “rescue funds.” This is why the so-called subprime crisis and the Euro crisis are not two different events, but one and the same crisis: the financial system is once again close to its collapse.

Since, money is created by debt, the total money supply grows in the same manner as the debt volume does. This fact is recognizable

by taking a look at the USD money supply (Figure 10.3) where we can identify the exponential curve. The money supply of any other economy, whose financial system runs long enough, looks similarly. The US Federal Reserve has not been making the money supply M3<sup>4</sup> public since 2006 (Federal Reserve 2006), and for a good reason. People otherwise might notice that the money supply is growing considerably more quickly than the productivity of the United States or even the world economy (Hamer 2004, 1).<sup>5</sup> In the long-run, it is physically impossible to ever improve productivity to be able to keep up with an exponentially growing money supply, which is why at some point the development of the money supply starts to decouple from the development of the real economy. To say it in other words: an economic system cannot achieve a great enough long-term economic performance to satisfy the demands of interest. At some point the financial system collapses. This is when the debt volume cannot be further increased



*Figure 10.3* USD total money supply (trillion dollars)

*Source:* Based on Federal Reserve Statistical Release

and the loans begin to fail on a big scale. In the industrialized world the last time that this happened was in 1929 and it will probably be repeated soon.<sup>6</sup>

### **Money multiplier leads to indebtedness**

As displayed above, in the fractional reserve banking system money is the counterpart of debt:<sup>7</sup> With the exception of the original amount of the Central Bank's money, every unit of a currency someone holds, someone else has to have as debt, a fact that every US dollar bill states: "This note is legal tender to pay all debts, public and private." That means that – with the exception of the original amount of the Central Bank's money – the total money supply equals the total debt of an economy. If the money supply grows on the one side, total debt has to grow on the other side. If it is not the people who are indebted, it has to be the government. Someone has to be indebted. Since political decision-makers do not spend their own money, they are more likely to sign a loan contract than a household. This is why in most countries the state is the best client of private banks. This is the basis of the current debt crisis, not just of European countries but all Western economies.

Meanwhile the size of the total debt volume is relatively moderate compared to the production capacity of an economy, that is, if the total debt does not grow on a faster scale than GDP, the economy as a whole will be able to come up with the payment obligation and everything seems fine. But, if the money supply and the total debt start growing on a faster scale than GDP, more and more debtors will have to declare bankruptcy.

### **Money multiplier leads to inflation**

According to Irving Fisher's famous equation of exchange (Fisher 1922, 26, 48) and in the end as well according to all other theories of inflation, inflation will be caused if the money supply grows faster than production.

Fisher's equation of exchange:

$$MV = PT$$

In this equation  $M$  represents the money supply,  $V$  the velocity of the circulation of the money,  $P$  the price level, and  $T$  the amount of transactions carried out using money. If the amount of transactions (that depends on productivity) does not change, the price level rises as the money supply or the velocity of the money in circulation rises. On the

other hand, if the money supply increases at the same proportion as productivity (measured in  $T$ ),<sup>8</sup> the prices will not rise. That inflation is caused by the money supply increasing at a faster rhythm than the economy's production, is broadly accepted. In addition to Irving Fisher's quantity theory (since Milton Friedman called monetarism), there are two other major theories of inflation: demand and cost inflation. The demand-inflation theory is based on the ideas of Keynes (Keynes 1936, 292ff.). The excessive demand provokes an increase in the remuneration of the production factors in relation to productivity. Cost inflation is also caused by a proportionally greater increase in the remuneration of the production factors compared to labor productivity (Fernández Díaz et al. 2006, 165ff., 169ff.; Cuadrado Roura et al., 2006, 174ff., 185ff.). An increase in the remuneration of the factors of production, which is significant enough so that the price level rises, requires a corresponding increase in the money supply (Cuadrado Roura et al., 2006, 188), which is why both theories in their essence differ little from the quantity theory.<sup>9</sup>

As the growth of the money supply follows an exponential function, it grows relatively moderately at the beginning (flat part of the curve) but ever faster with time. This is why, if a financial system is recently restored as, for example, in Germany after World War II, there is no inflation problem. That is, because the money supply still grows slowly and not faster than production.

### **Money multiplier leads to speculation**

So, inflation is caused by the money supply growing faster than the output of the economy, even though high inflation rates at first might only be seen partially, for example, in investment markets (Schachtschneider 1999, 1). Price bubbles in investment markets could therefore be interpreted as *partial inflation*, but they are not perceived as such, since inflation is measured through the prices of consumer goods.

The speculation, the casino-like gambling and the lack of bank supervision, is not the actual cause of the financial crisis (Lietaer et al., 2012, 53) as is frequently suggested (Shiller 2008; Krugman 2009, 41; Schäfer 2009, 39ff.; Steltzner 2009, 1), but is itself a symptom of the ever-increasing money supply that seeks forms of investments and therefore provokes price bubbles in investment markets. The fact that deposits in bank accounts are independent of the performance of the real economy, the paying of interest forces banks in a saturated industry into risky businesses and lending. This is because the faster bank accounts grow by interest and compound interest; the faster the amount of loans to

be granted has to grow. If more loans are granted, the money supply will grow because as stated above, money in the fractional reserve banking system is created by loans. In addition, the opportunity costs of rising prices in stock and investment markets make the money flow from other markets, like the market for consumer goods into the stock and investment markets. This is fueling the bull market even more. It is even possible that because much money will be drawn out of the consumer goods markets, deflationary tendencies will prevail, as was the case in Chile in 2009 (BCCh 2010d, 9). This situation can be described as an *inflation-deflation-paradox* (Fuders 2011, 34 ff.; Fuders & Belloy 2013, 66ff.). We are even lucky that price bubbles, until now, have been limited to investment markets. If the wave of money one day swaps over to consumer and food markets we will see hyperinflation. There are already signs that the next bubble could be found in the commodities markets (UNCTAD, 2011, 9ff.).

That speculation is not recognized for what it is – a secondary phenomenon of our financial system that is not new. Also, after the crises of 1857 and 1929, the banks and their practices were identified as the culprits of the crises.<sup>10</sup> Nevertheless, the actual cause of these crises was also probably the exorbitant manner in which the money supply had previously expanded (Rothbard 2000, 91ff.).

### **Money multiplier obligates to grow economically**

The fact that the money supply starts growing on an exponential scale is also the reason why all industrialized nations, as well as those wishing to become so, are striving for economic growth (Kennedy 1990, 159; Creutz 1993, 57).<sup>11</sup> One might think that the mechanism worked the other way around, that economic growth made the money supply grow. However, there are only two ways that make the money supply grow: the creation of the Central Bank's money and the described money multiplier effect. An increase in production itself does not increase the amount of money in circulation.<sup>12</sup>

Production must increase every year in order to pay for the interest, and the increase in production is measured in relation to the previous year's level. Consequently the ever expanding (credit) money supply results in the growing percentage of borrowed capital in the balance sheets of most businesses as well as in the growing national debt and the increasing indebtedness of households. The fact that many companies work harder to serve the borrowed capital than for their own benefits is pointed out by Suhr (1988, 66). Even companies not financed through foreign capital are not free from being forced to achieve a return as high as

the interest on borrowed capital. Otherwise, the opportunity costs make production maintenance appear senseless (similarly Suhr 1988, 56).<sup>13</sup> This is probably the reason why some groups earn huge parts of their annual profits through financial investments rather than the production of tangible goods.<sup>14</sup> Also households that are not indebted are held to increase their income steadily, because the prices of consumer goods and capital goods continue to grow by inflation and by the portion of interest contained in the prices. This is no small sum. It was assumed that prices compound 30–50 percent of interest (Kennedy 1990, 25ff.), and this proportion increases with the increasing proportion of debt in the balance sheets of the companies.

The problem is that demand and production cannot be increased indefinitely because there is no unlimited growth due to limited resources in nature, a fact the ancient Greek philosopher *Aristotle* pointed out (Aristotle, 1256b, 35). It is also not understandable why the rate of production should continue to increase despite a high level of prosperity, which has already been achieved in many countries. Extravagance, predetermined breaking points in products, disposable products, “scraping incentives.” the industrializing of agriculture including the application of ever more pesticides and even the apparent invention of diseases (Leitner 2000; Blüchel 2003; Coleman 2003; McTaggart 2005; Lanka et al. 2006; Widmer, Lanka, & Brix 2006; Blech 2005; Engelbrecht & Köhnlein, 2006) are symptomatic of the problem in the system. The economy tries compulsively to maintain economic growth. The neoliberalistic greed is inherent in the system. For these reasons, *John Maynard Keynes* remarked that the various objectionable features of capitalism are produced by interest. This could be overcome by reducing the marginal efficiency of capital to zero (Keynes 1936, 221).<sup>15</sup>

### **Environmental overstraining and pollution**

The fractional reserve financial system is probably a powerful factor behind environmental pollution and overstraining as well. Forced economic growth by necessity accompanies an overstraining of the environment (Kennedy 1990, 160; Creutz 1993, 444). Any environmental protection politics that do not take into consideration that the financial system obligates the economy to steadily grow are therefore a farce. Next to the economic growth constraint there is another environmentally damaging effect. Naturally, there is only as much produced as is actually consumed. The perishability and technical obsolescence of products keep surpluses in check. As long as it is higher than inflation, interest makes job performance retainable. Interest that makes up for inflation makes



possible the hoarding of the value produced, which gives an incentive to produce more than is actually needed. It is worth mentioning that the environmental damage caused by the growth imperative was implied in Goethe's drama *Faust II* (Binswanger, 1985, 68).

### **Widening gap between rich and poor**

Beside the fact that a fractional reserve banking system is self-destructive,<sup>16</sup> it is also the reason that the gap between rich and poor (Suhr & Gottschalk 1986, 56f.; Creutz 1993, 57, 77f., 92, 107f., 119, 215f.; Kennedy 1990, 28ff.; Kremer 2009, 10), and in the end also the gap between rich and poor countries (Kremer, 2009, 11; Kennedy 1990, 85ff.), continues to expand.<sup>17</sup> People within the fractional reserve banking system can therefore be divided into two groups, as German-Argentine economist *Silvio Gesell* points out: those who work and so are genuinely productive, and then those who live off the work of others and whose power continually grows (Gesell 1949, 27). Keynes called this the "cumulative oppressive power of the capitalist to exploit the scarcity-value of capital" (1936, 376). As *Aristotle* did, Silvio Gesell distinguishes between productive work and the business of usury, making money off money (Aristotle, 1258b).<sup>18</sup> According to this point of view the recipient of social welfare is no more taking advantage of others than the one living off interest. That is because, as we pointed out above, money does not actually work; despite what bank propaganda would often have us believe. Instead, it is the people who must generate the interest. As the money supply and therefore the prosperity of those who hold this money grows exponentially, and the indebtedness and poverty also grow at the same rate.

Even people who have taken no loans are not exempt from the redistribution of wealth, since interest is included in the prices of the products as mentioned above. In addition, people suffer from inflation and the growing tax burden due to growing national debt, since ultimately it is the citizens who pay the interest on the national debt. Even the desperate sell off of public facilities in modern terms called "Public-Private Partnership" will come dearly for citizens. Public-Private Partnership means that public property financed over decades or even centuries by taxpayers will be sold to private investors, which will of course raise fees that must be paid directly or indirectly again by taxpayers. This way the taxpayer pays fees for the public facilities he or she has already financed with his or her taxes. The taxpayer pays twice (Lietaer et al., 2012, 49). Public-Private Partnership is ulti-

mately nothing else than a redistribution of the citizens' income to the recipients of interest.

### **The destruction of real capital serves the financial sector**

It has been comprehensibly demonstrated that wars seem to be connected to the world financial system (Gesell 1949, 213ff.; Creutz, 1993, 377). The interest burden of the state's debt could be paid for with captured capital and resources (Creutz 1993, 377). The wars in Iraq and Afghanistan appear to support this supposition. On the other hand, war is a most effective method of destroying values that makes new economic growth and the payment of interest possible (*ibid.*, 370 ff.),<sup>19</sup> all the while increasing the demand for loans. Not only households need to rebuild destroyed homes and replace destroyed goods, it also leads the governments of nations at war to increase their level of national debt. Of course, what applies to the destruction of real capital by war also applies to the destruction that natural disasters wreak.

So, wars and natural disasters, in theory, have the power to delay the collapse of the fractional reserve financial system by enabling further economic growth on the one hand and providing an incentive to borrow on the other. This is precisely what can be observed after the devastating earthquake of February 27, 2010, in Chile. The earthquake hit Chile for three minutes with a magnitude of 8.8 on the Richter scale. The quake was felt over a length of 2,000 kilometers. Worst hit was the region where 80 percent of the Chilean population lives (ECLAC 2010, 7) around the coastal city of Concepción. Buildings that had survived the quake were swept away by the subsequent tsunami. Although by some miracle only 400 people died, the fifth-strongest earthquake ever recorded caused billions of US dollars worth of damage. Yet there was also a beneficiary from the earthquake: the financial system (Fuders 2011, 34ff.; Fuders & Belloy 2013, 61ff.).

Contrary to the predictions of the Chilean Central Bank, whose experts had predicted a worse performance of economic growth than originally expected (BCCh 2010b, 7, 2010c, 8), the earthquake eventually provided additional economic growth: the GDP growth in 2010 reached a level that had not been seen in years (Fierro 2011, 58). While in 2009 Chile's economy had registered a negative GDP-growth-rate of -1.0 percent, the GDP-growth-rate jumped to +6.1 percent in 2010 and +6 percent in 2011. The national income increased 13.6 percent and the domestic demand even rose 20.5 percent from 2009 to 2010 (BCCh 2012b, 8). Moreover, since the natural catastrophe banks in Chile grant more loans than before (BCCh 2010d, 8, 20, 25, 2012b, 19). While in

the beginning of 2010 the loan-granting-rate for all types of loans was as low as it had been since 1999, the approval rate of mortgage loans, commercial loans, and consumer credits have increased until today, and are constantly on the rise (BCCh 2012b, 19). In addition, the increased demand for loans allows interest rates in Chile to rise significantly. Banks can now afford to charge higher interest rates again. Accordingly, the Central Bank discount rate (Tasa de Política Monetaria) rose from annually 0.5 percent in February 2010 to 5.25 percent in June 2011 (BCCh 2010a, 7, 2011, 11).<sup>20</sup>

The moneylenders are quite obviously benefiting from the earthquake (Fuders 2011, 34ff.; Fuders & Belloy 2013, 61ff.). In a saturated economy, however, where there is hardly any economic growth possible, it is difficult for the banks to find borrowers. But they must pay interest on the deposits and are therefore forced to grant loans. If necessary, they will lend to borrowers with poor solvency and low interest rates, a situation that could be seen in the mortgage loan market in the US until 2008 (Fuders 2009, 130). It is also visible in the consumer credit market in Chile, where households with the poorest solvency are incentivized to borrow money to buy consumer goods or even food. In Chile, rebates are not granted if the buyer pays with cash, but instead if he pays with credit card. All department stores and most car dealers encourage households to pay with credit by offering a special rebate that can be obtained only if the price is paid with credit card or by signing a loan contract. This form of marketing has even reached supermarkets. In such a situation, an earthquake with huge destructive potential to incentivize households to take loans is obviously welcomed by the financial sector. The reconstruction after the earthquake now allows new economic growth in Chile and the banks, as mentioned above, to find borrowers more easily, delaying the collapse of the financial system.

### **GDP as indicator for development?**

In this context, it is interesting to explore how “economic growth” is possible after a devastating natural disaster or war, since the reconstruction only reestablishes the *status quo*; that is to say, prosperity compared to the situation before the disaster that apparently was not growing. However, economic growth, generally measured by GDP growth is, according to the prevailing view, an indicator of social welfare. The fact that the destruction provides for GDP growth shows clearly that this indicator is not synonymous with wealth growth and even less with the development of a society (Max-Neef 1991, 6, 16ff., 43, 53f., 58f., 91, 100f., 1986, 40, 46ff., 58ff., 153f., 2007, 48ff.; Daly & Farley 2004, 233ff.;

Lietaer et al., 2012, 83). So, if the economic growth caused by the earthquake does not bring welfare gains, at least for a vast majority of households, but only a restoration of the prosperity before the earthquake, who then benefits in the measurable growth of GDP? The answer to this question is obvious: once the reconstruction is completed, in reality not everyone will be as well off as before. The households who took the loans had to pay or still have interest to pay for many more years. The prosperity after the reconstruction took place is reduced by the amount paid or the amount of interest still to be paid. Any natural disaster or war with huge destructive potential therefore promotes the interest-induced redistribution of wealth (Fuders 2010b, 26ff.).

## **Subprime crisis and the Euro crisis have the same origin**

### **Banks are forced to ever increase the amount of loans**

At first glance, it might seem that the subprime crisis of 2008 and the current Euro crisis are two independent crises. While the first one was originated by irresponsible bank clerks granting loans to customers with poor solvency, the second one was produced by irresponsible governments taking more debt than the economy could afford. In reality, both crises are not independent but the very same crisis: the world financial system is close to collapse.

If the fractional reserve banking system does not pay interest on deposits they will lose those clients and the possibility to gain an interest margin. In the long run they will have to close. Of course, it is impossible to indefinitely increase the amount of loans and the longer the financial system persists, the more difficult it becomes to find new customers. In the long-run this leads to the situation that banks have no choice but to lend money to borrowers with poor solvency and charging low interest rates, a situation that could be seen in the mortgage loan market in the US until 2008 and in Spain until 2010. In the same way banks loaned money to governments of countries with poor solvency like Ireland, Greece, Spain, Portugal, and Italy, probably knowing or at least suspecting that the productivity of those countries would not be enough to back up the resulting interest duty. Nevertheless banks had and have no choice but to keep the system going and ever increase the amount loaned out, otherwise they would not be able to pay interest on deposits and would have to declare bankruptcy. Of course, if borrowers at a large scale or even governments become insolvent, banks also have to close. This is what has happened since 2007, starting off with the

insolvency of private mortgage loan customers and ending up with the bankruptcy of states. Thus, there is no difference between the so-called subprime crisis and the European debts crisis.

### **Money is a credit-debt relation from which none can effectually escape**

Banks are not the direct culprits of the crisis since the system forces them to steadily increase the credit volume. If it is not the banks that are to blame, one might be tempted to blame the debtors, especially the governments for indebting their countries in an irresponsible manner.

But the governments are also not directly at fault for the current Euro crisis. Since money in a fractional reserve banking system is created by debt, as mentioned before, everyone who holds money should be grateful to the one who is indebted, for there is no money without debt. As Nobel Prize winner Frederick Soddy pointed out “money is a credit-debt relation from which none can effectually escape” (Soddy 1934, 25). This is why governments find themselves in a dilemma. There is no way to reduce the debt, because reducing debt means reducing money supply. If the money supply decreases while productivity increases or keeps stable, then deflation occurs. If governments decide not to reduce debt in order to not stall the economy, they face another problem: debt starts growing by itself, independently of the performance of the real economy because of interest and compound interest following an exponential function (Kennedy 1990, 22f.; Müller 2009, 193–203). The growing indebtedness finally leads to the bankruptcy of the whole economic system. It starts off with the weakest debtors, which in 2008 were the private mortgage loans customers in the US, and are now those European countries with the lowest economic productivity. The weakest ones are always the first to not be able to pay the exponentially growing interest.<sup>21</sup>

In this context it is worth mentioning that many countries' actual debt crisis is the direct consequence of the earlier bailout of their banking system, which forced them to take new sovereign loans to help the banks (Lietaer et al., 2012, 40). Governments took these loans principally within the private banking sector as the main creditor, that is to say, within the very same banks they then helped with this money. This way banks received two-fold help. First they received the bailout funds that is nothing more than taxpayers' private equity donations to the bank. At the same time the banking sector was able to sell new loans, which is necessary to keep the system alive (Fuders 2009, 139). Ironically after this perverse situation in which governments borrow money from the financial system to save the system itself from bankruptcy, the financial

sector concludes that governments are now too indebted and need to be “disciplined” (Lietaer et al., 2012, 45).

### **The Euro brings along another problem**

At this point it cannot be forgotten that the Euro brings along another problem, the same problem that used to face Argentina during 1991–2001: the Euro is a basket of European currencies with fixed exchange rates. Fixed exchange rates between countries with huge differences in productivity generate disequilibrium in the trade balance of those economies with lower productivity. Since lower productivity cannot be compensated through devaluation of their currency compared to the currency of economies with high productivity, the products of the industries with lower productivity are too expensive and cannot compete with the products of more productive industries, reducing their exports. On the other hand, the relatively strong common currency provides an extra incentive for those countries to import goods. The resulting deficit in the trade balance has to be compensated for with debt. But this is just an additional problem specific of the Euro-zone. Without the Euro the world would nevertheless face a financial crisis. Economies with high productivity like Germany, Japan, or the United States are close to not being able to pay their duties resulting from national debt. The United States is actually the most indebted nation in the world considering total debt and debt per capita (OECD 2012; Pitzke 2010).

### **Measures that are no solution**

#### **EFSF and ESM**

The European bailout funds EFSF<sup>22</sup> (European Financial Stability Facility) and the recently founded ESM (European Stability Mechanism), which will replace the first one, do not solve the problem but instead add fuel to the fire. Most people are convinced that hyperinflation like that of 1923 in Germany is impossible today, because governments will not make the mistake of printing money again. This is what the history books teach us. In reality, however, in 1923 the Germany was compelled to print money, not only because of the reparations from the Treaty of Versailles, but due to the interest burden of the national and war debts climbing endlessly. The US Federal Reserve and the European Central Bank (ECB) find themselves in a similar dilemma today and have already begun printing money (Steltzner 2009, 1). The ECB recently announced that it will embark on *unlimited* purchases of sovereign bonds from crisis stricken countries (Reiermann 2012; Kaiser 2012). However, as in the past (Fisher 1937,

212f.) governments today do not admit this openly but circumscribe it as the “buying back of national bonds” (e.g., Frühauf 2009, 9).

The buying back of government bonds is comparable to the prohibited bill jobbing, the mutual drawing and redrawing of bills of exchange without any underlying transaction of real goods. Since the bills can be discounted in banks, this was a former commonly used trick by business people to increase each other’s creditworthiness. In the same way, the buying of government bonds through the Central Bank is an artificial expansion of credit money. When the ECB began to buy government bonds, the indignation was great (Steltzner 2009, 1; Trimborn 2010, 43). Meanwhile, the world did not only get used to this fact, but is not even reacting when this business is going to be outsourced in the rescue fund. Originally, we were told the fund was supposed to secure loans to insolvent countries as Greece. Then it was said that the bailout fund could also be used to buy government bonds. In the meantime, it becomes clear that the purchase of government bonds (i.e., printing money) will apparently be one of the main purposes of this pan-European bailout fund. The rescue fund serves to artificially blow up the total volume of debt. This is even true if the ESM was not to be used to buy government bonds (this “job” will also do the ECB as stated above). Since it serves to keep the system alive by making possible the granting of further debts to otherwise insolvent countries it helps as well to blow up the debt volume.<sup>23</sup> The bailout and economy recovery funds of 2008 in the United States had the same goal. The financial reporting company Bloomberg calculated that including all guaranties and commitments, the cost of the bailout programs amounted to 12.8 trillion USD, which almost equals the nation’s GDP for 2008 (Pittman & Ivry 2009). Just in the period of 2003–2011, the US government increased the current total debt more than all of the debt up to then in its history.<sup>24</sup> Similar recovery programs have been enforced in European countries.<sup>25</sup> Here we see again the logic of an exponential function. The total credit volume grows exponentially. The ESM therefore is again bigger than any other debt taken by government before.

### **Austerity**

Unfortunately, few realize that the enormous national debt in most Western economies is not just due to the irresponsibility of governments, but rather follow a mathematical regularity: because the value on deposit accounts grows steadily through interest and compound interest following a mathematical exponential function, total debt must also increase at the same rate since there is no interest without debt. That is a fact that cannot

be changed by anything except by the abolition of interest. Since most of the money in our financial system is created by credit, money is the counterpart of debt. Every bill that someone holds, someone else has to have as debt. This means, if there were no debt, there would be no money. That is the reason why the wealthiest nations are also the most indebted ones (in absolute figures): United States, Japan, and Germany. If the governments really managed to save enough to pay off a large portion of their debts, then it would necessarily be the people who would be indebted. This phenomenon is found in those (few) countries where the national debt is low, for example, Chile. Thanks to its income from copper mining, Chile managed to almost completely dissolve its national net debt (BCCh 2012a, 8). Instead of the government, now the majority of the population finds itself in the debt trap. This is because in our financial system someone has to be indebted. In Chile, banks are so desperate to grant loans that they offer incentives to the department stores if they sell a credit, which is why rebates in Chile in most cases are only granted if the buyer pays with credit card or by signing a loan contract.

Inflating the debt is a necessary trait of our financial system, a fact that is not well understood. If no one, neither the state nor households demanded loans, the economy would stand still. Without expanding the money supply we will see deflation. If the quantity of goods is growing by increasing productivity, but the amount of money in circulation does not, then every unit of money will have a greater purchasing power. This relationship is widely recognized and has been described by Irving Fisher in his quantity equation. When people realize that their money is gaining value over time because prices fall, then they have an incentive to withhold their money in the expectation that it will have even greater purchasing power in the future. But if all hold their money back, it can no longer serve as a medium of exchange. Quickly this leads to the situation where no one buys or sells anything. The economy stands still.

The only way to prevent this deflation is to keep the system running. This is why rescue funds are used and why the ECB, Fed, the Bank of England, and the Central Bank of Japan decided to keep the financial markets liquid by printing money. The risk of even more price bubbles and inflation apparently is estimated to be less bad than a scenario with deflation. But, of course, keeping a sick system artificially alive is not a solution to the underlying problem.



## Working solutions

### The money rate of interest is a liquidity prime

To understand the solutions presented in the following, we have to first understand why the money rate of interest exists. The reason why there is interest is related to an unnatural property of money. Money was invented to facilitate the exchange of goods. Money must therefore circulate as a medium of exchange (see Aristotle 1258b). Due to the psychological penchant for saving, that is, the *preference for liquidity*, as John Maynard Keynes called it (Keynes 1936, 165ff., 194ff.), people like to save money. Hoarded money cannot circulate as a medium of exchange and does not serve the economy. It was Silvio Gesell who was the first to explicitly recognize that the possibility to hoard money to store value results from a special property, a kind of monopoly-position of money.<sup>26</sup> Unlike real goods it is not perishable. While everything in nature succumbs to the rhythmic alternation of growth and decay, only money seems to be free from all earthly transience (Gesell 1949, 237). The hoarding of food or other real goods is possible only in a limited way due to the perishable or technical aging. This unnatural position of money over real goods entices people to keep money for the future or to impose interest on lending that is based on the credit risk. The money rate of interest is therefore a reward not to hoard money at home, a *reward for parting with liquidity* (Keynes 1936, 167). That hoarding is harmful is not to be questioned. Hoarding causes a downward trend, a deflation. If prices sink, households have an ever stronger incentive not to spend money. If households can be prevented from hoarding only by offering the interest rate as a reward, then this leads to the described adverse effects, particularly to the exponential increase of (credit) money and the associated growth constraint of the real economy. Therefore, people must be prevented from hoarding without the incentive of an interest rate.

### Silvio Gesell, Irving Fisher, and John Maynard Keynes

The problems inherent in our world financial system were already recognized by German-Argentine economist Silvio Gesell 100 years ago. Gesell proposed “free money” (Gesell 1949, 235ff.) through tax stamps that were fixed on the bank notes at specified intervals to provide an incentive not to hoard money. This way money loses its unnatural position in relation to specific products, as it is now perishable, just as goods are. The owner of the money can no longer demand interest for lending his or her money (ibid., 205, 344), that is, exploit the scarcity-value of capital (Keynes 1936, 376). Such money is natural money because it

devalues the same way as real goods do. Consequently, pressure on the money supply will increase, leading to interest rates that approach zero (Gesell 1949, 239, 242, 252f., 264f., 270, 273, 284, 329, 342, 344f.). The creditor lends money freely since the borrower promises to repay the full amount, and the creditor is exempted from paying the tax stamp (ibid., 264f.). That means by liberating the money from its inexorable character (ibid., 238), from its unnatural and special position in relation to goods, the likewise unnatural interest rate should also disappear.<sup>27</sup> This way the development of the money supply and productivity can no longer drift apart.

The famous economists John Maynard Keynes and Irving Fisher considered this idea as a possible solution for the Great Depression of the 1930s (Keynes 1936, 234, 353ff.; Fisher 1932, 226ff., 1933a, 17ff.). The former was convinced that “the future will learn more from the spirit of Gesell than from that of Marx” (Keynes 1936, 355).<sup>28</sup> Later, at the Bretton Woods conference, Keynes proposed an international currency of that type called *Bancor* (Keynes 1941, 42ff.). Irving Fisher considered himself a modest apostle of Silvio Gesell (Fisher 1947, 6) and even devoted a book of his own to the concept of free money (Fisher 1933a).<sup>29</sup>

### **Alternatives to Silvio Gesell’s solution**

Alternatives to the stamp scrip have been proposed, such as electronic banknotes that devalue over time (Berger 2009, 13 ff.). This is principally the same as a pure electronic banking system with bank accounts charging a deposit fee (negative interest rate). In order to ensure the circulation of money, the government could regulate bank fees, similar to the way Central Banks set the prime rate today. Progressions would also be a possibility, so that the fee rises in accordance with how much more money, or how much longer the money is out of circulation (Fuders 2010a, 53). In order to protect small investors’ money from devaluation, accounts might be exempted of deposit fees up to a certain amount.

Another alternative might be negative Central Bank interest rates as proposed by Willem Buiter of the London School of Economics (Buiter 2005, 189ff.; Buiter 2009; Buiter & Panigirtzoglou 1999, 2003, 723ff.) and independently also by Harvard Professor Gregory Mankiw (Mankiw 2009, BU7), who both explicitly recognized that negative interest rates are comparable to Silvio Gesell’s solution. The Central Bank’s negative interest rates will mean that commercial banks will have to pay a fee for their deposits to the Central Bank instead of receiving interest. If prime rates are negative enough, loans from commercial banks to their clients will be free, or nearly free, of interest (banks might, however, charge a

commission fee). This means that in the same way as in Silvio Gesell's free-money system, the pressure on the money supply could lead to interest rates falling to near zero. On the other hand, banks will not be able to pay interest on saving deposits and will probably charge a fee on deposits. A bank would become what it used to be and what it was originally named after: an institution in which people deposit their money, because it is safer there than at home. At the same time, there will be a commissioner of free loans charging a commissioner's fee. If loans are free of interest, the economy's money supply cannot further uncouple from the development of the economy's productivity. Thus the danger of a collapse of the financial system will be reduced significantly. The real economy will not be forced to steadily grow.

In summary, to construct a sustainable financial system, money needs some sort of demurrage fee or carrying cost as Keynes called it after analyzing the ideas of Silvio Gesell (Keynes 1936, 357): that is, an incentive not to hoard money. This way money will flow without a positive interest rate – which brings along the destructive potential not only for the financial system itself, but also for society and the environment – being necessary. The way in which this carrying cost is imposed is of secondary importance.

This reveals why the introduction of a gold standard is no long-term solution to the crisis. To go back to a gold standard is a measure often mentioned since the financial crisis started and was even proposed in 2010 by the World Bank's President Zoellick (Beattie 2010). However, the gold standard itself does not change the main problem of our financial system. Money will still have the advantage over real goods because it is not perishable. And, therefore, there will still be an incentive to hoard money. Those who need money will still have to pay interest as a reward for parting with liquidity (Keynes 1936, 167), that is, to give the money holder an incentive to borrow it. Any money-based interest rate, as shown above, will increase the money supply since there is no interest without debt. As the amount of gold in the world is not arbitrarily upgradable, a gold standard cannot persist in the long run. This is the reason why today there is no gold standard in any currency in the industrialized countries. A gold standard might only work if there is a way to encourage no hoarding, like the Bracteates in the Middle Ages.<sup>30</sup>

### **Return on productive investment**

It is worth asking how companies in an economic system in which loan interest approaches zero (whether this is through implementation of Silvio Gesell's solution or the Central Bank's negative interest rates) can

be sufficiently supplied with investment capital. A money holder will probably not want to participate in corporate risks by merely omitting the tax stamp. Similarly, a bank in the case of the Central Bank's negative interest rates will probably not want to participate in corporate risks for receiving merely a commissioner's fee. If there is no interest rate covering up risks, there is less incentive to make capital available for risky productive investments. However, capital can still be invested profitably and yield a return, that is, making an investment in corporate equity capital.<sup>31</sup> Just as loan agreements have a set running time today, so participation in equity capital can also be established for a set period of time in order to give an entrepreneur planning reliability. What is paid back is not the amount paid in, but rather the amount matching the proportion of the net equity. Thus, the investor is naturally participating in the risk of the company, just as with any other participation in equity capital. The possible positive return matches the real economic profit of the corporation. When the equity capital participation is the sole form of gaining a positive return on investment, the money in circulation cannot spin off from the productivity of the political economy.

To also give small investors the possibility of taking part in the equity capital of corporations or to give small and medium-sized companies the chance to find financiers, the guilds (chambers of industry, crafts, etc.) for example, could act as mediators and drive funds in which small investors invest their money for a set period of time. The fund invests the money for an equally fixed period of time in the equity capital of the connected companies. Such funds will also have a risk-reduction function for the small investor. Incidentally, with the loss of the interest burden, the companies will either generate higher profits or lower their prices, bringing profit to either the investor or the consumer. The interest revenues pocketed by banks today will thus end up in the households, which is no small sum. As pointed out above, prices compound up to 50 percent of the interest (Kennedy 1990, 25ff.).

## **Free money was successfully tested**

### **The 1930s experiences**

Silvio Gesell's free money was successfully tested on the German island Norderney and in the cities of Schwanenkirchen and Wörgl in the 1930s. Shortly after its introduction unemployment fell significantly, the municipalities recorded revenues again and soon many people were free of debt. Newspapers called this the miracle of Schwanenkirchen and

Wörgl. Even in the United States, major newspapers reported it (Fisher 1933a, 17ff.; Onken, 1997; Ottacher 2007, 60ff.). Nevertheless, all three experiments were stopped after some time despite their great achievements by the central governments. The official reasons given were the fear of inflation and the fact that the Reichsbank had the note-issuing privilege (Fisher 1933a, 17ff.; Unger 2007; Ottacher 2007, 53ff.). In addition to these three quite well-known examples, it is worth acknowledging that free money was also introduced in some regions in Liechtenstein, Switzerland, France, Spain, and in 20 cities across the United States (Fisher 1933a, 30ff.).<sup>32</sup> Unfortunately not all US free-money experiments showed the expected positive effects. This was probably due to the fact that the demurrage fee was set much too high. It might be suspected that in some cases municipalities did not introduce free money because they really understood the underlying idea but, instead, they saw it as a new way to levy taxes (Ottacher 2007, 66).

### Bracteates in the Middle Age

Probably the most successful form of free money was the Bracteates (Walker 1958, 251ff., 1959, 29ff.; Weitkamp 1993, 85ff.). A bracteate (lat. *bractea* = a thin piece of metal) was a flat, thin, single-sided silver medal produced in Central Europe between the 5th and the 14th centuries but achieved its most extensive circulation in the High Middle Age (1000–1300 AD). The fact that the coin was very thin made for the first time in history a cheap production of a coin possible. That opened a new way of levying taxes. The King or Duke recalled all of the money at certain times, melted the silver coins, and returned to its tributaries new coins with a new face but keeping back a fraction of the silver as a tax. To produce new coins with a new face was necessary to ensure that everyone handed in all of their money. The periodic renovation of the money (*renovatio monetarum*) led to pressure on money supply. Nobody wanted to keep the money for a prolonged period of time since the date for the renovation was not known publicly. Instead people preferred to invest in real goods like solidly built houses, tools, artwork, or anything else that had an intrinsic value. The money circulated rapidly and interest did not exist. It was a time of prosperity (Lietaer et al., 2012, 7; Walker 1959, 36ff., 136f.) that today seems hard to believe: a time when the cathedrals were built; people only worked four days a week; Monday was in many cases a regular holiday, also known as “Blue Monday” (Walker 1959, 71f.); the salary was six to eight pence per day; and people worked only six hours per day. In comparison, a pair of shoes then cost two pence (Weitkamp 1993, 85ff.). This prosperity came to an abrupt

end as the “denarius perpetuus” (the eternal penny) was introduced (approx. 1300–1450 AD).<sup>33</sup> It followed the descent into the dark Middle Age (Weitkamp 1993, 85ff.; Walker 1959, 93ff., 101ff.) with its characteristic pattern of social decay, poverty, and diseases, which probably spread particularly well because of poverty and the associated malnutrition. A reason for the introduction of the eternal penny and thus the poverty of the majority is believed to be the burgeoning banking system (Weitkamp 1993, 62; Walker 1959, 93ff.). Due to the wealth redistribution mechanism of interest, the former distribution of prosperity came to an end (Weitkamp 1993, 62, 89).

## **New regional money experiences**

### **Experiences in Germany**

Fortunately, today the regional money based on Silvio Gesell’s idea has become famous again, especially in Germany. In 2006, the Bundesbank counted up to 65 regional money initiatives (Rösl 2005, 182ff., 2006, 1). The most famous is the “Chiemgauer” in the region around the lake Chiemsee. German television and the press have reported several times about the Chiemgauer (e.g., Seibel & Stocker 2009). It is possible to open cash accounts in any German bank in which the free money or stamp scrip can be deposited. The foundation that issues the “Chiemgauer” bank notes has developed a system of clearing centers that, if appointed by any account holder of any German bank, applies special rules. These rules include, in particular, the withdrawal of a hoarding fee. So instead of keeping the Chiemgauer at home and manually paying the hoarding fee of 2 percent quarterly, one can also opt to bring the money to any bank and the bank will charge the fee automatically. The demurrage fee is donated to local nonprofit organizations such as sports club or residential homes for the elderly etc., a fact that contributes to the acceptance of the currency among the people (Regios 2013).<sup>34</sup>

### **Local money backs up local economy**

The experience of regional currencies in Germany can be described as positive. The regional or local money initiatives report that the local economy is backed up by the regional currency. This is how it works: The “Regios eG,” a foundation that issues the Chiemgauer, charges a fee if someone wants to change it back into Euros. It is not a high fee, just a few cents per Euro, but this is sufficient to give the holder of the local money an incentive to first look for those stores that accept

it. Meanwhile in the region of Chiemgau, most local stores accept the Chiemgauer along with the Euro. They do so because otherwise they will be at a disadvantage. Someone who holds the Chiemgauer will prefer to spend his or her money in a store that accepts it, instead of changing it into Euros and paying the fee. This way small stores gain an advantage against the nationwide operating supermarkets and malls who do not accept the regional money. In contrast to the free-money experiments in Wörgl and Schwanenkirchen, the Chiemgauer is not implemented by local authorities but by a private group of people who understood the problems inherent in the fractional reserve banking system and were trying to show that an alternative can exist.

### **Further advantages**

#### **No bank runs**

The worst case scenario that can happen to a bank in the fractional reserve banking system is when customers want to withdraw more money than the bank has reserve deposits (e.g., Mankiw 1998, 605f.). A bank run occurs when people lose confidence in the solvency of a bank. As a result the bank will have to close, at least for a few days (bank holiday). If people insist on withdrawing their money afterwards, the bank will have to declare bankruptcy. The bankruptcy of one bank might weaken the confidence of clients in another bank and the resulting panic generates a chain reaction of bank bankruptcies. This problem is due to the fractional reserve banking and cannot occur in a 100 percent reserve banking system (Fisher 1935). Since banks within Gesell's solution become what they used to be, institutions in which people deposit their money, bank runs will not occur.

#### **No Speculation against stamp-scrip-currencies**

In the current world financial system, any currency can become an object of speculation. Switzerland is now facing this problem. The Swiss Franc has become so expensive when measured in Euros or US dollars that the Swiss Central Bank decided to intervene, massively lowering the Swiss-Euro exchange rate in order to take pressure of the Swiss export industry (Kaiser & Teevs 2011). Such a scenario is not likely to happen with stamp scrip since it cannot be hoarded over a long period of time without paying the hoarding fee and thus do not serve as an attractive investment or reserve.

## Outlook

The aim of this paper is to show that regional currencies might be a solution to the global financial crisis and, more generally, to a vast array of modern problems, including inflation, asset price bubbles, income inequalities, pollution, and the Euro crisis. If all regional money initiatives were to unite and money based on Silvio Gesell's idea were to be implemented nationwide, such money would not simply back up the whole economy but people would also prefer national goods before imported ones. Money would flow without the interest rate and therefore would avoid the creation of an ever-growing amount of money. It would avoid most problems described, which occur in our current reserve banking system. There would probably be no bank runs, no inflation, no speculation, and no financial crisis. Such a financial system would not be obligated to economic growth, but would not avert it either. Without the economic growth imperative there would be less pollution and environmental overstraining. Without the obligation to grow economically, society can finally start developing at a human scale. The gap between those who work productively and those who receive without working would get smaller. The economy might finally serve people and not vice versa.

North and South American regions seem to be particularly suitable for implementing complementary local money parallel to the existing currencies. This is because in many cases they lack a diversified economic structure. Regarding the possibility to implement a local complementary currency, this could be seen an advantage. In many cases, there are only one or two major local employers. For example, the Chilean regional capital city Valdivia has one major employer, the University Austral. The most difficult task implementing local money is to convince people to accept the new money even though the government does not implement it. In the case of the "Chiemgauer," people change their Euros by free choice into "Chiemgauers," knowing that when they need to change it back they will be charged a fee and they also know that they cannot hoard it for a long time or, otherwise, they will have to pay the demurrage fee. People who do that are idealists who are aware of the problems inherent in our financial system and who want to contribute to strengthen local economy. If many people hold the local money, as is the case in the Chiemgau region, local stores have a strong incentive to accept it, not out of idealistic reasons but out of an economic one: to not lose competitiveness against their competitors who do accept it. However, in the case of a region with one major employer, it seems easier



to implement regional money. If the university as a major employer in the Valdivia region, even paid just a fraction of salaries in local money, let us call it “Valdivianos,” soon local stores will probably accept it and, after some time, other local employers might start to offer to pay salaries either in Chilean pesos or “Valdivianos” too. Nevertheless, independently of the fact of whether or not there is a major employer who starts paying salaries in regional money, the money will only flow if people accept it. Therefore, it is crucial that people understand the dimension of the problems inherent in the actual system. We hope that we were able to contribute to improve such understanding.

## Notes

Economics Institute, Universidad Austral de Chile.

1. See Felix Fuders, *Die natürliche Wirtschaftsordnung als Option nach dem Zusammenbruch*, Aufklärung & Kritik, No. 2/2009, p. 128ff.; id., *Alternative Concepts for a global financial system – an answer to the present world financial crisis*, Revista de Estudios Internacionales (Universidad de Chile), No. 166, pp. 45–56.
2. Ibid.
3. See also, [www.rej.uchile.cl/index.php/REI/article/download/12642/12937](http://www.rej.uchile.cl/index.php/REI/article/download/12642/12937).
4. M1: Cash (bills and coins) and deposits in checking accounts; M2: M1 + all time-related deposits, saving deposits, noninstitutional money-market funds; M3: M1 + M2 + large and long-term deposits (2 years), institutional money-market funds, repurchase agreements, along with other larger liquid assets.
5. For the moderate evolution of the growth of world productivity see *International Monetary Fund*, 2012 (World Economic Outlook, Washington), p. 5; *International Monetary Fund*, 2006 (World Economic Outlook – Financial Systems and Economic Cycles, Washington), p. 1; *OECD*, *Economic Outlook*, Paris, 2 (84), (2008), pp. 6, 12, 15.
6. Many believe that the problem of the 1929 crisis was that money was borrowed for speculation, but then expectations “crashed,” see *Kenneth Galbraith*, 1929 (The Great Crash), pp. 3ff., 128ff., 144ff., 168ff. But, we stress that in fact the interpretation might go the other way around. It is not that prices rise because of speculation, instead the ever-increasing money supply leads to speculation since the money needs to be invested somewhere. Banks made use of the fact that prices grow to sell more loans, encouraging people to buy stocks using loans, which then made the money supply grow even further and fuelled the bull market. This worked until the bubble broke. In today’s world banks similarly encouraged clients to take loans and to invest the money in the real estate market. Since prices seemed to grow forever, mortgage loans appeared to bear little risk. If the debtor were not able to come up with his payment obligation the bank would just auction the property.
7. Also *Aristotle* had already recognized that the macroeconomic interest revenue accurately reflects the interest cost of debt, cf. Ulrich van Suntum, *Die unsichtbare Hand – Ökonomisches Denken gestern und heute*, 3rd ed., 2005, p. 73f.

8. If production increases and more goods circulate, then transactions increases. In many textbooks Fisher's equation is therefore rewritten as  $MV = PY$ , where  $Y$  represents the national income (production).
9. Regarding his demand-inflation-theory this was even recognized by Keynes himself: "Thus the very long-run course of prices has almost always been upward. For when money is relatively abundant, the wage-unit rises; and when money is relatively scarce, some means is found to increase the effective quantity of money" (Keynes 1936, 307).
10. Short positions and speculation were also the supposed causes in the past, cf. "Efforts to Cut Short Selling and Peg Key Stocks among Day's Development on the Exchange," *New York Times*, November 14, 1929, p. 1; "Short Sales Stir Conflicting Views; Some Hold Practice Helpful, Others Harmful to the Stock Market," *New York Times*, November 17, 1929, p. N7; "Asks State Inquiry on Stock Recession – Senator Hastings Wants the Governor to Name Committee of Business Leaders," *New York Times*, November 25, 1929, p. 18. As today, a transactions fee was proposed to defeat speculation and speculators were denominated as parasites, cf. "Asks House to Vote Tax on Stock Sales, Representative Sabbath Introduces Bill for 5% Levy on 'Shorts.' Penalty for Non-Payment Illinois Man Denounces 'Wall Street Gamblers' as 'Rapacious Parasites,'" *New York Times*, December 10, 1929, p. 54.
11. In textbooks of economic policy, economic growth is one of the goals to be achieved, cf. Werner Lachmann, *Volkswirtschaftslehre 1*, 4th ed, 2003, p. 184ff.; Ulrich Teichmann, *Wirtschaftspolitik*, 2nd ed., Vahlen, Munich, 1983, p. 233; Andrés Fernández Díaz et al., *Política Económica*, 4th ed., McGraw-Hill, Madrid, 2006, p. 313; Juan Cuadrado Roura, *Política Económica*, 3rd ed., McGraw-Hill, Madrid 2006, p. 203ff. Even entire books are written on growth strategies, cf. Goerge Stalk et al., *Harvard Business Review – estrategias de crecimiento*, Deusto, Buenos Aires 2004.
12. If in fact an increase in economic output made the money supply grow and a downturn in economic activity made the money supply respectively decrease, then an inflation problem would not exist. The money supply then would automatically develop according to the growth or downturn of economic activity.
13. Similarly, Dieter Suhr, *Das Konzept Rudolf Steiners aus geldtheoretischer Sicht*, S. 56.
14. The car producer Porsche was therefore called "hedge funds with attached sports car department," cf. Raimund Brichta, Ungeheuerlich, available at <http://www.teleboerse.de/1153740.html>.
15. Marginal efficiency of capital/MEC is a Keynesian concept. A nation's output depends on its capital stock. An increase in the stock of capital increases output. Hence, the marginal efficiency of capital is the rate of return expected to be obtainable on a new capital asset over its life time. Keynes defined the marginal efficiency of capital as: "The rate of discount which makes the present value of the prospective yield from the capital asset equal to its supply price." A businessman wanting to invest in a new capital asset will examine the expected profit on it during its lifetime against the cost of the capital asset. If the expected rate of profit is greater than the replacement cost of the asset, the businessman will invest the money in the project.

16. That capitalism is self-destructive is also observed in *Karl Marx* (Marx 1911, 191ff.). Also Schumpeter found “creative destruction” a characteristic pattern of capitalism (Schumpeter 1976, 83ff.). It seems that Marx did not, however, recognize that this is due to the interest based fractional reserve financial system. It was pointed out that both ideologies – communism as well as capitalism – overlooked the problems inherent in our financial system (Lietaer et al. 2012, 8).
17. Some even assume that developing countries are intentionally driven into the debt trap (Perkins 2004, 37ff.).
18. Aristotle rebuked the business of usury, that is to say earning money with money as the third sector next to the legitimate productive work and the – according to his view – also dispraisable commerce as the ugliest form of earning money.
19. Even disarmament treaties may support economic growth because the destroyed weapons in most cases will be replaced by new ones (Creutz 1993, 393f.).
20. The Central Bank discount rate today is still 5.0 percent (BCCh 2013, 7).
21. Later we will take a look on possible solutions to this problem.
22. The European Financial Stability Facility (EFSF) was created by the Euro Member States. The EFSF’s mandate is to safeguard financial stability in Europe by providing financial assistance to Euro area Member States. EFSF is authorized to use the following instruments linked to appropriate conditionality: (1) Provide loans to countries in financial difficulties; (2) Intervene in the debt primary and secondary markets. Intervention in the secondary market will be permitted only on the basis of an European Central Bank analysis; (3) Act on the basis of a precautionary programme; (4) Finance recapitalization of financial institutions through loans to governments. To fulfill its mission, the EFSF issues bonds or other debt instruments on the capital markets. EFSF is backed by guarantee commitments from the Euro area Member States for a total of 780 billion Euros, and has a lending capacity of 440 billion Euros.
23. It should be mentioned that, of course, money does not serve any household in the recipient country but guarantees the paying of the due debt amortization. That is to say, the funds will just circulate in the financial sector; the money goes from one pocket of the banks to the other.
24. The total US public debt (debt held by public + in intragovernmental holdings) June 14, 2013 reached 16.7 trillion USD according to the website of the US Bureau of Public Debt. In 2003 the total public debt was 6.8 trillion (US GAO 2004, 6).
25. The US net fiscal stimulus was even found to be modest relative to European peers (Aizenman and Pasricha 2013, 397ff.).
26. Before him, John Locke had already recognized that money holders in some situations could be seen as monopolists: “By which means there would be less money stirring in trade, and a greater scarcity; which would raise it upon the borrower by this monopoly” (Locke 1661, 8).
27. That interest is contrary to the laws of nature, was already recognized in *Aristotle*, *Politics*, 1<sup>st</sup> Book, 1258b; also *Wolfgang Berger*, *Die Finanzmarktkrise, Hintergrund* January 2009, p. 9.

28. However, Keynes thought Gesell's explanation to be incorrect, because Gesell had not recognized household preference for liquidity (Keynes 1936, 356). This is not true. Rather it is the liquidity preference which generates the special position of money in comparison to goods, which is the starting point for Gesell's deliberations. To abandon these special circumstances and to make the hoarding of money as unattractive as the hoarding of goods is the point of Gesell's stamped money. Conversely, it seems that Keynes did not recognize the underlying reason for the existence of the household preference for liquidity: the monopoly of money over goods (*ibid.*, 194ff.).
29. It should be noted that Irving Fisher took over the idea of free money from Silvio Gesell, as he had seen hoarding as a problem of deflation. The interest rate and the fact that the interest rate as non-hoarding prime arises from the possibility to hoard money is not explicitly discussed (and even explicitly rejected later (Fisher 1937, 117, footnote 56). Rather, in his opinion the main cause of deflation is debt, without recognizing the interest rate as a major cause of indebtedness (Fisher 1933b, 344, 1932, 8ff.).
30. The next chapter is devoted to this topic.
31. Invested money that, in contrast to debt capital, is not repaid to the investors in the normal course of business. It represents the risk capital staked by the owners through the purchase of a company's common stock (ordinary shares). The value of equity capital is computed by estimating the current value of everything owned by the company from which the total of all liabilities is subtracted. On the balance sheet of the company, equity capital is listed as the stockholder's equity or owner's equity. Also called equity financing or share capital.
32. Even several US State governments had taken into consideration issuing stamp scrip money (Fisher 1933, 43f.; Ottacher 2007, 65f.).
33. The exact date when the denarius perpetuus was reintroduced differs from region to region. According to Karl Walker the first eternal penny was coined in Constance 1295 while in some regions the Bracteates were still used until the second half of the 15th century (Walker 1959, 93).
34. For further information see the website of Regios eG: <http://www.regios.eu>. While in Germany we probably find the highest concentration of free-money initiatives, of course, in other countries more and more complementary currencies are also implemented. Especially in Brazil, as of February 2011, there were 52 community banks throughout 12 states in Brazil. It is not clear, however, whether or not they apply Silvio Gesell's idea of a demurrage fee. An in-depth overview of complementary currencies in today's world can be found in Kennedy et al. (2012).

## Bibliography

- Aizenman, Joshua, & Pasricha, Gurnain Kaur (2013). "Net Fiscal Stimulus during the Great Recession." *Review of Development Economics*, 17(3): 397–413.
- Aristotle, "Politics, 1st Book." *Complete Works of Aristotle*. Princeton: Princeton University Press.

- Azkarraga, Joseba, Max-Neef, Manfred, Fuders, Felix, & Larraitz, Altuna (2011). *La Evolución Sostenible II – Apuntes para una salida razonable*, 117 páginas, Lanki (Mondragón Unibertsitatea), Eskoriatza.
- BCCh – Banco Central de Chile (2010a). *Boletín Mensual*, February 2010, Santiago de Chile.
- BCCh – Banco Central de Chile (2010b). *Boletín Mensual*, March 2010, Santiago de Chile.
- BCCh – Banco Central de Chile (2010c). *Informe Política Monetaria (IPoM)*, March 2010, Santiago de Chile.
- BCCh – Banco Central de Chile (2010d). *Informe Política Monetaria (IPoM)*, June 2010, Santiago de Chile.
- BCCh – Banco Central de Chile (2011). *Boletín Mensual*, September 2011, Santiago de Chile.
- BCCh – Banco Central de Chile (2012a). *Deuda externa de Chile 2011*, Santiago de Chile.
- BCCh – Banco Central de Chile (2012b). *Informe Política Monetaria (IPoM)*, March 2012, Santiago de Chile.
- BCCh – Banco Central de Chile (2013). *Informe Política Monetaria (IPoM)*, September 2013, Santiago de Chile.
- Beattie, Alan (2010). "Zoellick Seeks Gold Standard Debate." *Financial Times*, July 11.
- Berger, Wolfgang (2009). "Die Finanzmarktkrise – Ergebnis einer Fehlkonstruktion, die wir korrigieren können." *Hintergrund*, 1: 13–16.
- Bichlmaier, Simon (2010). "Umlaufsicherung vs. Niedrig-Zins-Politik und Inflationsstrategie der Notenbanken." *Humane Wirtschaft*, 2: 6.
- Binswanger, Hans Christoph (1985). *Geld und Magie – Deutung und Kritik der modernen Wirtschaft anhand Goethes Faust*, Edition Weitbrecht Stuttgart.
- Blech, Jörg (2005). *Die Krankheitserfinder – Wie wir zu Patienten gemacht werden*, Fischer, Frankfurt (Main).
- Blüchel, Kurt (2003). *Heilen verboten – töten erlaubt. Die organisierte Kriminalität im Gesundheitswesen*, Goldmann, München.
- Buiter, Willem H. (2005). "Overcoming the Zero Bound: Gesell vs. Eisler – Discussion of Mitsuhiro Fukao's 'The Effects of Gesell (Currency) Taxes in Promoting Japan's Economic Recovery.'" *International Economics and Economic Policy*, 2(2–3): 189–200.
- Buiter, Willem H. (2009). "Negative Interest Rates: Three Ways to Overcome the Zero Lower Bound." Paper presented at Center for Financial Studies at the Goethe University, Frankfurt on May 6, 2009.
- Buiter, Willem H., & Panigirtzoglou, Nikolaos (1999). "Liquidity Traps – Gesell's Solution," in Bank of England (ed.), Working Paper, May 31.
- Buiter, Willem H., & Panigirtzoglou, Nikolaos (2003). "Overcoming the Zero Bound on Nominal Interest Rates with Negative Interest on Currency – Gesell's Solution." *The Economic Journal*, 113(490): 723–746.
- Coleman, Vernon (2003). "How to Stop your Doctor Killing You." *European Medical Journal*, Barnstaple/Devon.
- Creutz, Helmut (1993). *Das Geldsyndrom. Wege zu einer krisenfreien Marktwirtschaft*, Wirtschaftsverlag Langen Müller/Herbig, Munich.
- Cuadrado Roura, Juan R. et al. (2006). *Política Económica*, 3rd ed. Madrid: McGraw-Hill.

- Daly, Herman E., & Farley, Joshua (2004). *Ecological Economics – Principles and Applications*. Washington-Covelo-London: Island Press.
- ECLAC (2010). Terremoto en Chile – Una primera mirada al 10 de marzo 2010, Santiago de Chile.
- Engelbrecht, Torsten, & Köhnlein, Claus (2006). *Virus-Wahn: Vogelgrippe (H5N1), SARS, BSE, Hepatitis C, AIDS – Wie die Medizin-Industrie ständig Seuchen erfindet und auf Kosten der Allgemeinheit Milliarden-Profit macht*, 3rd ed. Lahnstein: emu-Verlag.
- Federal Reserve (2006). PressR. Available at [www.federalreserve.gov/Releases/h6/discm3.htm](http://www.federalreserve.gov/Releases/h6/discm3.htm).
- Fernández Díaz, Andrés et al. (2006). *Política Económica*, 4th ed. Madrid: McGraw-Hill.
- Fierro, Pamela E. (2011). “PIB de Chile llega a los US\$ 200 mil millones en 2010 y supera en tamaño a Israel y Pakistán.” *La tercera*, March 19: 58.
- Fisher, Irving [1963] (1922). *The Purchasing Power of Money – Its Determination and Relation to Credit Interest and Crisis*, 2nd ed. New York: Kelley, 1963 (reproduction of 2nd ed. from 1922).
- Fisher, Irving (1932). *Booms and Depressions*. New York: Adelphi.
- Fisher, Irving (1933a). *Stamp Scrip*. New York: Adelphi.
- Fisher, Irving (1933b). “The Debt-Deflation Theory of Great Depressions.” *Econometrica*, 1(4): 337ff.
- Fisher, Irving (1935). 100% Money; Designed to Keep Checking Banks 100% Liquid, to Prevent Inflation and Deflation, Largely to Cure or Prevent Depressions, and to Wipe Out Much of the National Debt, Adelphi, New Haven 1945. (Page numbers cited in the text refer to the German version of the book: Gauke, Kiel 2007).
- Fisher, Irving (1936). “100% Money and the Public Debt.” *Economic Forum*, April–June: 406–420.
- Fisher, Irving (1937). *Feste Währung – Zur Entwicklungsgeschichte der Idee*, O. Lautenbach, Uchtdorf – Weimar – Leipzig.
- Fisher, Irving (1947). *Feste Währung – Illusion und Wirklichkeit*, Freiheit-Verlag Heidelberg.
- Frühauf, Markus (2009). Die Verstaatlichung des Anleihemarktes, F.A.Z. v. 02.04.2009, p. 9
- Fuders, Felix (2009). “Die natürliche Wirtschaftsordnung als Option nach dem Zusammenbruch.” *Aufklärung & Kritik*, 2: 128–147.
- Fuders, Felix (2010a). “Alternative Concepts for a Global Financial System – An Answer to the Present World Financial Crisis.” *Revista de Estudios Internacionales*, 166: 45–56.
- Fuders, Felix (2010b). “Warum der Zins auch moralisch nicht zu rechtfertigen ist.” *Humane Wirtschaft*, 2: 26–29.
- Fuders, Felix (2011). “Wie Zerstörung von Sachkapital dem Finanzsystem in die Hände spielt.” *Humane Wirtschaft*, 2: 34–38.
- Fuders, Felix, & Patricio Belloy (2013). “Terremoto del 27.02.2010 en Chile – Cómo el sector financiero se beneficia de la destrucción de capital real.” *IADE-Realidad Económica*, 3: 61–75.
- Galbraith, Kenneth (1997). *The Great Crash 1929*, 7th ed. New York: Mariner Books.

- Gesell, Silvio (1949). *Die natürliche Wirtschaftsordnung*, 9th ed., Rudolf Zitzmann Verlag, Lauf. (Translation into English by Philip Pye (1958). *The Natural Economic Order*, London).
- Hamer, Eberhard (2004). "Der Welt-Geldbetrug." *Zeit-Fragen*, 45: 1.
- International Monetary Fund (2006). *World Economic Outlook – Financial Systems and Economic Cycles*, Washington.
- International Monetary Fund (2012). *World Economic Outlook*, Washington.
- Kaiser, Stefan (2012). No Limits ECB President Draghi Reaches for the Bazooka, in *Spiegel-Online*, September 7.
- Kaiser, Stefan, & Teevs, Christian (2011). "Währungsspekulation – Schweiz provoziert die Franken-Zocker." *Spiegel-Online*, September 6.
- Kennedy, Margit (1990). *Geld ohne Zinsen und Inflation – Ein Tauschmittel, das jedem dient*, Permakultur-Verlag, Steyerberg.
- Kennedy, Margit (2011). *Occupy Money – Damit wir zukünftig alle die Gewinner sind*, J. Kamphausen, Bielefeld.
- Kennedy, Margrit, Lietaer, Bernard, & Rogers, John (2012) *People Money – The Promise of Regional Currencies*. Axminster: Triarchy Press.
- Keynes, John Maynard (1936). *General Theory of Employment, Interest and Money*. New York: Harcourt.
- Keynes, John Maynard (1941). "Proposals for an International Currency Union," in Donald Moggridge (ed.), *The Collected Writings of John Maynard Keynes*, Volume XXV, Activities 1940–1944, 1980. Cambridge: Cambridge University Press, pp. 42–66.
- Kremer, Jürgen (2009). "Eine andere unsichtbare Hand des Marktes." *Humane Wirtschaft*, 1: 2 –12.
- Krugman, Paul (2009). *Die neue Weltwirtschaftskrise*, 2nd ed. Frankfurt (Main): Campus Verlag.
- Lanka, Stefan, Niemitz, Hans-Ulrich, Widmer, Veronika, & Krafeld, Karl (2006). *Die Vogelgrippe – Der Krieg der USA gegen die Menschheit*. Stuttgart: Klein-Klein-Verlag.
- Larroulet, Cristián (2003). *Economía*, 2nd ed. Santiago: McGraw-Hill Interamericana.
- Leitner, Michael (2000). *Mythos HIV – Eine Kritische Analyse der AIDS-Hysterie*, Videel, Niebüll.
- Lietaer, Bernard, Arnspenger, Christian, Goerner, Sally, & Brunnhuber, Stefan (2012). *Money and Sustainability: The Missing Link – A Report from the Club of Rome – EU Chapter to the Finance Watch and the World Business Academy*. Axminster: Triarchy Press.
- Locke, John (1661). "Some Considerations of the Consequences of the Lowering of Interest and the Raising the Value of Money: In a Letter sent to a Member of Parliament, in the year 1691," in C. and J. Rivington et al. (eds), *The Works of John Locke*, 9 Volumes, Vol. 4, 12th ed. London: C. Baldwin Printer, 1824, pp. 1–116.
- Mankiw, Gregory (1998). *Principles of Economics*. Fort Worth: Harcourt Brace.
- Mankiw, Gregory (2009). "It May Be Time for the Fed to Go Negative." *New York Times*, April 19: BU7.
- Marx, Karl (1911). *Das Kapital. Kritik der politischen Ökonomie*, Bd. III, 3rd ed. Hamburg: Meissner.

- Max-Neef, Manfred (1986). *La economía descalza – señales desde el mundo invisible*, Editorial Nordan, Stockholm – Buenos Aires, Montevideo.
- Max-Neef, Manfred (1991). *Human Scale Development – Conception, Application and Further Reflections*. New York, London: Apex.
- Max-Neef, Manfred (2007). *La dimensión perdida – La deshumanización del gigantismo*, Icaria editorial, Barcelona.
- Max-Neef, Manfred (2010). "The World on a Collision Course and the Need for a New Economy." *Ambio*, 39: 200–210.
- McTaggart, Lynne (2005). *What Doctors Don't Tell You: The Truth About the Dangers of Modern Medicine*, 2nd ed. London: Thorsons.
- Müller, Dirk (2009). *Crashkurs – Weltwirtschaftskrise oder Jahrhundertchance*, Droemer, Munich.
- OECD (2008). *Economic Outlook*, Paris, 2(84).
- OECD (2012). "National Accounts at a Glance: National Accounts at a Glance 2011." *OECD National Accounts Statistics* (database), Paris.
- Onken, Werner (1997). *Modellversuche mit sozialpflichtigem Boden und Geld*. Fachverlag für Sozialökonomie, Lütjeburg.
- Ottacher, Gebhard (2007). *Der Welt ein Zeichen geben – Das Freigeldexperiment von Wörgl 1932/1933*, Gauke, Kiel.
- Perkins, John (2004). *Confessions of an Economic Hit Man*. San Francisco: Berrett-Koehler.
- Pittman, Mark, & Ivry, Bob (2009). "Financial Rescue Nears GDP as Pledges Top \$12.8 Trillion." *Bloomberg-Online*, March 31.
- Pitzke, Marc (2010). "Amerika schlittert in die Schulden-Katastrophe – Haushaltsmisere im Vergleich." *Spiegel-Online*, May 11.
- Reiermann, Christian (2012). "'Dangerous Territory' – Concerns Mount That ECB Bond-Buying Program Is Illegal." *Spiegel-Online*, October 2.
- Rindebro, Ulric (2010). "BancoEstado prevé crecimiento de 10% en crédito pyme, pese a terremoto y competencia." *Business News Americas*, July 22.
- Rösl, Gerhard (2005). "Regionalwährungen in Deutschland." *Wirtschaftsdienst*, 85(3): 182–190.
- Rösl, Gerhard (2006). "Regionalwährungen in Deutschland – Lokale Konkurrenz für den Euro?" Deutsche Bundesbank (ed.), *Diskussionspapier*, Reihe 1, No. 43/2006.
- Rothbard, Murray N. (2000). *America's Great Depression*, 5th ed. Auburn, Alabama: The Ludwig von Mises Institute.
- Schachtschneider, Karl Albrecht (1999). "Armes Europa – armes Deutschland: Wird Europa eine Oligarchie der Unternehmens- und Parteiführer? – Gedanken zur Grundrechtsproblematik der EU." *Zeit-Fragen*, 62, 1.
- Schäfer, Ulrich (2009). *Der Crash des Kapitalismus*. New York; Frankfurt: CAMPUS Verlag.
- Schumpeter, Joseph A. (1976). *Capitalism, Socialism and Democracy*, 5th ed. London: George Allen & Unwin.
- Seibel, Karsten, & Stocker, Frank (2009). "Chiemgauer statt Euro – Der Siegeszug alternativer Währungen." *Welt-Online*, September 3.
- Shiller, Robert J. (2008). *Die Subprime Lösung: Wie wir in die Finanzkrise hineingeraten sind – und was wir jetzt tun sollten*, Börsenmedien AG, Kulmbach.
- Soddy, Frederick (1934). *The Role of Money*. London: Routledge.



- Stalk, Goerge et al. (2004). *Harvard Business Review* – estrategias de crecimiento, Deusto, Buenos Aires.
- Steltzner, Holger (2009). "Auf dem Londoner Gipfel." *F.A.Z.*, April 2: 1.
- Suhr, Dieter (1988). *Alternatives Geld – Das Konzept Rudolf Steiners aus geldtheoretischer Sicht*. Novalis Verlag, Schaffhausen.
- Suhr, Dieter, & Gottschalk, Hugo (1986). *Optimale Liquidität – eine liquiditätstheoretische Analyse und ein kreditwirtschaftliches Wettbewerbskonzept*. Knapp, Frankfurt (Main).
- Teichmann, Ulrich (1983). *Wirtschaftspolitik*, 2nd ed. Vahlen, Munich.
- Trimborn, Marion (2010). Was den Markt bewegt – Das Zaudern der EZB, October 5, 19: 43.
- UNCTAD (2011). *Price Formation in Financialized Commodity Markets: The Role of Information*. New York: UNCTAD.
- Unger, Brigitte (2007). "Besser Wirtschaften – Regionale Utopie." *Zeit-Online*, September 17.
- US GAO (Government Accountability Office) (2004). *Federal Debt – Answers to Frequently Asked Questions*, Washington August 2004.
- Van Suntum, Ulrich (2005). *Die unsichtbare Hand – Ökonomisches Denken gestern und heute*, 3rd ed. Berlin: Springer.
- Walker, Karl (1958). "Das Geld als Kulturfehler." *Telos*, 2: 39–43. (Reprint in Karl Walker – Ausgewählte Werke, Gauke, Lütjenburg 1995, pp. 251–255.)
- Walker, Karl (1959). *Das Geld in der Geschichte*. Rudolf Zitzmann Verlag, Lauf.
- Weitkamp, Hans (1993). *Das Hochmittelalter – ein Geschenk des Geldwesens*. HMZ-Verlag, Hilterfingen.
- Widmer, Veronika, Lanka, Stefan, & Brix, Susanne (2006). *Der Masern-Betrug*, Klein-Klein-Verlag, Stuttgart.