
# Regional currencies in Germany – local competition for the Euro?

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Discussion Paper
Series 1: Economic Studies
No 43/2006

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ISBN 978-3–86558–261–4 (Printversion)
ISBN 978-3–86558–262–1 (Internetversion)

**Abstract:**

In a surprisingly growing number of regions in Germany private "regional currencies" are issued as a cash substitute for the euro. Currently, these regional currencies are conceived almost exclusively as *Schwundgeld* (depreciative currency), which loses value on a predetermined timescale. This loss of value is intended to encourage the money owners to spend their money quickly in order to boost local demand. The paper shows that the issuance of unofficial parallel currencies is not a fundamentally new phenomenon neither in Germany nor in other European countries. The theoretical assumptions of the *Schwundgeld* concept (*Silvio Gesell* (1862 – 1930)) are highly flawed and suboptimal from a welfare-theoretical perspective. However, the current economic welfare losses resulting from the issuance of *Schwundgeld* are negligibly small.

**Keywords:** Regionalwährungen, Regionalgeld, Parallelgeld, Gesell, Währungssubstitution, Schwundgeld, Freigeld, currency substitution, private money, shadow economy

**JEL-Classification:** E 40, E 41, E 42, E 50

**Non-technical summary**

There are now 16 regions in Germany where "regional currencies" are currently in circulation as a cash substitute for the euro. This papers gives survey of recent developments in this area. At present, the German regional currencies are conceived almost exclusively as *Schwundgeld* (depreciative currency), which loses value on a predetermined timescale. This loss of value is intended to encourage the money owners to spend their money quickly. It is hoped that this will produce a permanent stimulus to local demand. The issuance of unofficial parallel currencies is not a fundamentally new phenomenon neither in Germany nor in other European countries. The theoretical assumptions of the *Schwundgeld* concept are highly flawed, as demonstrated in this paper. The *Schwundgeld* concept is suboptimal from a welfare-theoretical perspective, too. However, given that the overall volume of regional currencies in circulation in Germany amounts only to roughly € 200,000, the current economic welfare losses resulting from the issuance of *Schwundgeld* are negligibly small.

**Nichttechnische Zusammenfassung**

In mittlerweile sechzehn Regionen in Deutschland sind derzeit so genannte Regionalwährungen als Bargeldersatz für den Euro im Umlauf. Dieses Papier gibt einen Überblick über den aktuellen Stand der Verbreitung und Ausgestaltung dieser „Währungen". Derzeit sind die deutschen Regionalgelder fast ausschließlich als „Schwundgelder" konzipiert, die nach einem bestimmten zeitlichen Schema an Wert verlieren. Dieser Wertverlust soll die Geldbesitzer anhalten, die Gelder schnell auszugeben. Davon erhofft man sich eine permanente Stimulation der örtlichen Nachfrage. Die Emission inoffizieller Parallelgelder ist weder in Deutschland noch im europäischen Ausland ein grundsätzlich neues Phänomen. In diesem Papier wird auf einige ernsthafte theoretische Mängel in der Argumentation der Schwundgeldbefürworter hingewiesen. Auch aus wohlfahrtstheoretischer Sicht ist die Schwundgeldkonzeption suboptimal. Angesichts des Gesamtumlaufs der Regionalwährungen in Deutschland in Höhe von rund 200.000 € sind die gegenwärtigen volkswirtschaftlichen Wohlfahrtsverluste aus der Schwundgeldemission allerdings vernachlässigbar gering.

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## 1 Introduction and structure of this paper

For five years now, customers in some parts of Germany have had the opportunity to pay for their purchases in what are known as regional currencies (*Regionalwährungen*) rather than in euro. In the view of their issuers, one of the aims of such cash substitutes is to strengthen the regional economy in an increasingly globalised world. This paper analyses the nature and dissemination of such regional currencies in Germany and investigates the question of whether they are able to fulfil what is claimed for them.

Chapter two looks into the dissemination of regional currencies in Germany and examines how far this is a new phenomenon of private money issuance. Chapter three deals with the objectives and strategies of domestic regional currency issuance. This will focus mainly on examining and categorising *Schwundgelder* (depreciative currencies) in their various forms, besides the regional currency initiatives which are intended not to have a pre-programmed depreciation. Chapter four contains a critical appraisal of the concept of *Schwundgeld*. Chapter five reveals the determinants of the demand for regional money. In chapter six, a formal theoretical analysis is used as a basis for calculating the inflation-equivalent welfare costs of *Schwundgeld* issuance. A brief conclusion summarises the results in chapter seven.

## 2 Regional currencies in Germany – a new phenomenon?

As the chart below shows, in June 2006, regional currencies were in circulation in 16 regions in Germany. Furthermore, "parallel currency" initiatives are scheduled to be launched in 49 other regions of Germany. The issuance of regional money is not concentrated exclusively on rural areas such as, say, Chiemgau in Bavaria or Markgräfler Land in Baden, however; regional currency is also accepted in some retail outlets in major cities like Bremen and Berlin.

* I would like to thank Hans Bauer, Jörg Döpke, Hugo Godschalk, Heinz Herrmann, Michael Krause, Julian Reischle, Jens Rubart, Ralph Setzer, Karl-Heinz Tödter, Jens Weidmann, Andreas Worms and the participants of the Bundesbank's *Donnerstagsseminar* for their helpful comments.

# Regional money in Germany
(as of June 2006)

## Schwundgeld (in circulation)

**1** Bremen
Roland
October 2001

**2** Prien
Chiemgauer
1 January 2003

**3** Bad Oldesloe
Kann Was
1 January 2004

**4** Gießen
Gießen-Justus
March 2004

**5** Ainring
Sterntaler
1 April 2004

**6** Heitersheim
Markgräfler
July 2004

**7** Guesen
Urstomtaler
3 October 2004

**8** Witzenhausen
Kirschbluete
11 October 2004

**9** Pfaffenhofen/Ilm
Hallertauer
25 November 2004

**10** Wolfsratshausen
Regio im Oberland
1 January 2005

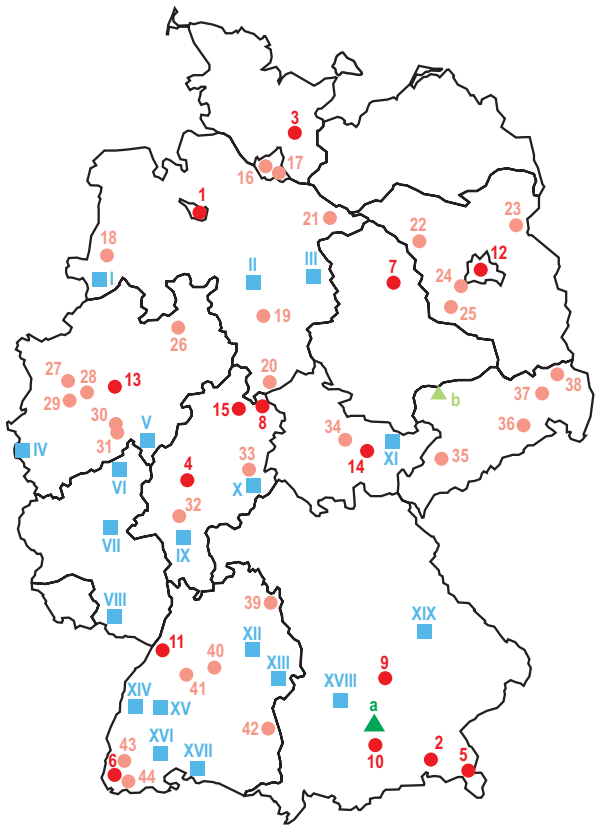
**11** Karlsruhe
Carlo
23 January 2005

**12** Berlin
Berliner
3 February 2005

**13** Hagen
VolmeTaler
8 October 2005

**14** Reinstaedt
Landmark
November 2005

**15** Kassel
Buergerbluete
23 April 2006




## Schwundgeld (initiative)

**16** Hamburg
Hansemark
Date unknown

**17** Hamburg
Alto/Altonaer Krone
Date unknown

**18** Meppen
Emstaler
Date unknown

**19** Hildesheim
Braktus
Date unknown

**20** Goettingen
Augusta
2006

**21** Hitzacker
Wendlaender
Date unknown

**22** Neustadt/Dosse
Havel-Taler
Date unknown

**23** Joachimsthal
Joachimstaler
Date unknown

**24** Potsdam
Havelbluete
Date unknown

**25** Belzig
Mittel-Mark
Date unknown

**26** Bielefeld
Teutotaler
Date unknown

**27** Duisburg
Duisburg-Justus
Date unknown

**28** Wuppertal
Bergtaler
Date unknown

**29** Duesseldorf
Rheingold
Date unknown

**30** Vollmerhausen
Oberberger
Date unknown

**31** Wiehl-Hennef
Bergische Mark
Date unknown

**32** Koenigsstein/Ts.
(name unknown)
Date unknown

**33** Fulda
Fuldaer Mark
Date unknown

**34** Weimar
R€GIO
Date unknown

**35** Stollberg/Zwoenitz
Stollberger
Erzgebirgsregio
Date unknown

**36** Dresden
Elbtaler
Date unknown

**37** Kamenz
Kamenzer
2004 (test)

**38** Hoyerswerda
Lausitzer
Date unknown

**39** Creglingen
(name unknown)
Date unknown

**40** Stuttgart
Roessle
2006

**41** Calw
Nahgold
Date unknown

**42** Laupheim
Schwaben-Taler
Date unknown

**43** Freiburg
Breisgauer /
Freitaler
Date unknown

**44** Schopfheim
DreyEcker
End of 2006

## Regional money without integrated loss (in circulation)

**a** Groebenzell
Baptisttaler
27 November 2004

## Regional money without integrated loss (initiative)

**b** Delitzsch
(name unknown)
Date unknown

## Further identified regional money initiatives

**I** Nordhorn
Grafschafter Geld
Date unknown

**II** Hannover
Leine-Kies
Date unknown

**III** Gifhorn
Allertaler
2006

**IV** Aachen
Sandstreuer
Date unknown

**V** Siegen
Sieg-Taler
Date unknown

**VI** Altenkirchen
Brot€inheit
Date unknown

**VII** Bell
Hunsruecker
Date unknown

**VIII** Pirmasens
De Paelzer
Date unknown

**IX** Darmstadt
(name unknown)
Date unknown

**X** Eichenzell
Eichenzeller M.A.R.K.
Date unknown

**XI** Hermsdorf
(name unknown)
2006

**XII** Schwaebisch-Hall
Heller
Date unknown

**XIII** Heidenheim
Brenztaler
Date unknown

**XIV** Offenburg
Ortenauer
Date unknown

**XV** Freudenstadt
Schwarzwaelder Bluete
Date unknown

**XVI** Villingen-Schwenningen
Wandertaler
Date unknown

**XVII** Ueberlingen
Bodenseer
Date unknown

**XVIII** Augsburg
LechTaler
Date unknown

**XIX** Regensburg
(name unknown)
Date unknown

Source: http://www.regionetzwerk.org, Roesl (2006).

Leaving aside *Knochengeld* (bone money – one "bone" as the name of the monetary unit), which was issued for two months in 1993 in the Prenzlauer Berg neighbourhood of Berlin and the *Phoe*, which was briefly in circulation in Arnstadt near Erfurt in 1999, the introduction of regional currencies in the Federal Republic of Germany can be dated to 2001.[1] At the macroeconomic level, the current economic significance of these currencies, with an aggregate volume in circulation amounting to around €200,000 (mid-2006) is still very small.[2] In the case of the "model project" in Chiemgau, the issuing body reports that 13,000 members, including 430 enterprises, accept the *Chiemgauer* (see Table A1 in the Annex). In the case of other projects, the level of acceptance is, in fact, distinctly lower. Besides many regional currencies being conceived as *Schwundgeld*[3], this is also likely to be due to the denominations of the issued notes being suitable only for small payments. The regional currencies are issued virtually in every case as paper money; their nominal value does not exceed 50 regional currency units (with an equivalent value of €50). Regional giro money systems, which reserve the autonomously created money exclusively for participants who are domiciled in the region, are, by contrast, very largely still in the planning phase.

The following comparison of various types of money in Germany shows that the private unofficial issuance of currency is also not an entirely new phenomenon in this country.[4] Thus, intra-system claims of local exchange trade associations, such as non-commercial local exchange trade systems, LETS (*Tauschringe*), and commercial barter clubs may, in principle, be seen as a private currency in the same way as some claims (transferable to third parties) on enterprises. However, in terms of their economic significance, the regional currencies (*Regionalwährungen*) are not only far behind the official currency, they also occupy no more than a marginal position with regard to the other unofficial private monies.[5]

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[1] The regional currencies should not be confused with LETS currencies which circulate as intra-system claims in non-commercial barter clubs. These date back to as long ago as the early 1990s. See Rösl (2005), p 188 ff. Before World War II, regional currencies were likewise in circulation in some parts of Germany in the form of "emergency money" (*Notgeld*), one example being the *Wära* in Ulm and Erfurt.

[2] See Table A1 in the Annex. Calculation by rough extrapolation of the available microdata.

[3] See Chapter 3 and Chapter 4 for a discussion of the concept of *Schwundgeld*.

[4] See Appendix 1 in the Annex, p 45, for the distinction between regional currencies and vouchers.

[5] Nevertheless, the comparison to corporate currencies like, say, payback points can be made only with certain qualifications since, depending on the particular configuration of such payment media, the money functions are fulfilled only to a very limited extent. For details, see Rösl (2005), p 189.

**Table 1: Official and unofficial currencies in Germany**

| | Official currencies | | Private unofficial currencies | | |
|---|---|---|---|---|---|
| **Forms of money** | **Legal tender (euro)** | **Private money denominated in legal value units** | **Regional currencies ("Regional-währungen")** | **Barter-club currencies** | **Corporate monies** |
| Issuer | Eurosystem | Official domestic banks | Regional societies | Local exchange trade systems (LETS, Tauschringe) and commercial barter clubs | Airlines, also telephone providers, filling stations, payback |
| Type of money (typically) | Banknotes and coins | Deposit money | Cash (in paper note form with pre-programmed depreciation) | Deposit money without pre-programmed depreciation | Deposit money without pre-programmed depreciation |
| Range of acceptance | Broad. Legal tender with mandatory acceptance | Broad but without mandatory acceptance | Formally, only members. Regionally restricted. | Only members (mostly regional) | Only members (supra-regional) |
| | | | | | |
| **Money functions fulfilled?** | **Unrestricted** | **Unrestricted** | **Restricted** | **Restricted** | **Very restricted** |
| Payment media | Unrestricted | Virtually unrestricted | Formally only members | Only members | Only members |
| Circulation | In principle, infinite | In principle, infinite | In principle, infinite; in practice, obviously limited | In principle, infinite; in practice, obviously limited | Only very limited: after media have been disbursed to third parties, return flow to issuer |
| Unit of account | Official unit of account | Official unit of account | Self-defined. Exchange rate mostly euro 1:1 | Self-defined. Mostly on time basis (1 accounting unit). | Self-defined (eg LH airmiles, payback points) |
| Store of value | Given price stability, unlimited | Given price stability, unlimited | Limited since mostly subject to ongoing depreciation and extra premium when redeemed | Yes, but limited range of goods and services | Limited. Issuer can discontinue programme. Expiry dates in most cases. |
| | | | | | |
| **Quantitative significance** | **Major** | **Major** | **Very minor** | **Very minor** | **Minor** |
| Circulation volume | €146 billion (German share of euro volume, April 2006) | €726 billion (overnight deposits at German banks, April 2006) | Around €200,000 (June 2006) | NA | NA (Payback: just under 27 million card owners) |
| Turnover | € 2,246 billion (GDP in 2005) | | NA | Roughly € 15 million in LETS (2005). Barter clubs: NA. | NA (Payback €140 million (2003)) |

Source: Chart modelled on Rösl (2005).

The issuance of private money is not a purely German phenomenon in the European context either.[6] A number of unofficial private currencies, as a substitute for cash in the official national currency, are in circulation in other parts of Europe, too (see map and table A2 containing an overview in the Annex). Among these, the *Credito*, which is also issued as deposit money, in the Valchiusella Valley in the Piedmont region of

[6] A range of unofficial private currencies can also be identified in North America and Japan. See http://www.schumachersociety.org/cur_grps.thml and Lietaer (2004).

northern Italy, appears to be the most successful. Its current value in circulation probably amounts to some €500,000, which is more than double that of all the German regional currencies combined. Moreover, the issuance of regional money in the United Kingdom, which is authorised, subject to limitations, by the state, shows that an "autonomous" volume of parallel currency in the order of several millions can be managed in stability policy terms.[7]

The parallel existence of various means of payment in a single economic area has already been studied in depth in the literature.[8] The papers on currency substitution generally highlight either the relative acceptance of the payment media as a transaction vehicle (dollarisation, euroisation) or – as in the portfolio-theoretical papers – the currencies' property as a store-of-value and speculation medium for guarding against asset losses in the event of changes in the exchange rate, and their implication for the domestic money demand. These studies, however, are based on the obvious assumption that none of the investigated currencies is "superior" to another in terms of all the characteristic properties that are generally ascribed to money, ie employed as a "genuine" substitute. As the following comments show, however, this criterion does not apply to the regional currencies (*Regionalwährungen*) in Germany since such local currencies perform worse in all respects with regard to fulfilling the traditional functions of money (medium of exchange, unit of account and store of value). The existence of regional currencies cannot therefore be explained with the customary models of currency substitution. Integrating such regional payment media into an appropriate theoretical model requires a comprehensive identification of the determinants of regional money demand.

[7] These are predominantly official pound sterling banknotes (GBP) with an autonomous design which some private banks are allowed to issue for historical reasons. The Bank of England controls the issuance of these regional banknotes indirectly since the vast majority of such notes have to be covered by special Bank of England banknotes which are intended solely for interbank transactions. The uncovered "autonomous" issuance volume probably amounts to around GDP 5 million (total volume of GBP banknotes in circulation in 2005 roughly GDP 35 billion). See http://www.scotbanks.org.uk.

[8] For European countries, see Deutsche Bundesbank (1995), Müller (1999), Nielsen (2001) and Genberg (2004).

## 3 Objectives and strategies of the regional currency initiatives in Germany

As already indicated in the overview, in terms of the principles on which they are conceived, the German regional currencies (*Regionalwährungen*) can be divided into two groups: regional currencies without intended depreciation and *Schwundgeld*. According to the statements of the regional currency initiatives, by issuing local payment media, both camps wish to strengthen the economy in their own region. As may be seen from Table A1 in the Annex, what is probably the sole regional currency in circulation in Germany so far that – like euro banknotes and coins – does not have a pre-programmed depreciation, the *Baptisttaler*[9] in Gröbenzell near Munich, has not achieved any significant degree of importance. With no more than 20 businesses still taking part, its failure was virtually already imminent half a year after the launch. For this reason, it may reasonably assumed that there are currently hardly any *Baptisttaler* still in circulation.[10] *Schwundgelder* are more prevalent, however. *Schwundgeld* (depreciative money), also known as *Schrumpfgeld* (shrinkage money) or *Freigeld* (free money) is designed to lose its value in accordance with time path that is known in advance. This is intended to overcome the design flaws in the prevailing monetary system, which, according to Silvio Gesell (1862-1930) – the German-Argentinian originator of the concept of *Schwundgeld* – present themselves as described below:[11]

In economies characterised by the division of labour, the producers (and thus, ultimately, the workers) manufacture goods which (almost) entirely exceed their own needs. As they cannot (and do not want to) consume all of the manufactured goods themselves, they are effectively compelled to offer their supply of goods permanently in the market. This is because storage does not make sense in the long term since the produced goods lose value as a result of rust, decay and spoilage. This continuous flow of goods carried to market "waits for" the demand of the final consumers, who acquire the goods in exchange for money. Now, if there is no longer sufficient money available as a medium of exchange (for reasons of savings,

[9] See Figure A1 in the Annex.
[10] See *Fürstenfelder Tagblatt* of 30 August 2005.
[11] See Silvio Gesell (1949), p 181 ff and p 235 ff. Gesell himself speaks only of *Freigeld* since, as a pure medium of exchange, it liberates the demand for goods from the will of the money possessors. See Silvio Gesell (1949), p 208 and p 238. Gesell's initial ideas date back to as long ago as 1911 and were also published in English in 1929. See Gesell (1911, 1929).

speculation or hedging against crises), the circulation of money falters, the goods are stockpiled and spoil. In Gesell's view, a time-dependent charge should therefore be imposed on money in order to punish any use of money other than spending it in a way that affects demand. Moreover, this would also make it possible for the workers to reap the full benefits of value added that is due to them because it is they who have generated it. As money does not spoil, the savers (in Gesell's terminology, the "money possessors" or "capitalists") who do not consume their entire income immediately have a structural advantage over the workers who produce the goods. While the latter *have to* sell the goods they have produced owing to the threat of spoilage, the money possessors (capitalists) can decide whether to buy the goods or prefer to take their money to the bank and receive interest there. Ultimately, however, the interest received by the capitalists is, again, paid for by the workers since they are forced to borrow from the banks in order to procure the money that has been withdrawn from the economic process as a result of saving. Thus, according to Gesell, interest can be construed as an extra profit of the capitalists. This profit, he believes, should not be confused with a normal trading profit; instead, it is based on the material superiority of "imperishable" money over the perishable goods offered in the market and the money possessors' freedom of choice in employing their monetary resources for consumption or saving. The depreciation that is imposed by design on the money in circulation in the *Schwundgeld* concept, is intended to nullify this structural material advantage of money over perishable goods. This is claimed to remove the incentive for the capitalists to take their money to the bank. Instead, the money is used for purchases of goods, circulation is maintained, the workers' (goods possessors') demand for money at the banks declines, and the interest rate will consequently fall to zero. The workers will thus retain their full value added as they no longer have to make interest payments to the capitalists.

Compared with this traditional approach, the reasoning behind the *Schwundgeld* concept of the present-day issuers of regional currency is presented in less explicit terms. The most common criticism is the "augmentation of capitalists' money through interest and compound interest"[12]. Furthermore, the issuance of *Schwundgeld* is nowadays intended to realise regional economic,[13] democratic, environmental and

[12] Vgl. z.B. http://www.roland-regional.de/WARUM__/warum__.html.
[13] This is in stark contrast to Gesell's original concept which favoured free trade. See Silvio Gesell (1949), p 242.

social objectives.[14] For instance, demand for regional products is to be strengthened by the continuous disbursement of regional currencies that is induced by their depreciation, thus promoting the local economy. For this reason, the use of types of *Schwundgeld* is restricted solely to the region by allowing only local enterprises – but not supermarket chains and the like – to participate in the payment system. The intention behind this is to create a regional counterweight to globalisation, shorten distribution channels and stand up to the global allocation of capital that is guided mainly by yield considerations. The profits achieved from the issuance of regional money are to made available, at least in part, for social and ecological purposes. Support payments are also to be granted to a certain extent for local enterprises and business people. Decisions on this are taken perhaps by a currency council or by the members of the regional currency society by majority vote.

The imposition of a time-dependent user charge ("circulation safeguard") that is felt to be necessary is implemented in quite different ways (see Table A3 and Figures A2 to A4 in the Annex). The most widespread form in Germany at present is *Markengeld* ("stamp scrip"), which is typically brought into circulation in exchange for euro.[15] In this case, the owner of the currency notes has to attach small adhesive stamps to the note in order to ensure the validity of the payment medium for a certain period of time.[16] In addition, the charge for exchanging the notes back into new regional currency notes or euro that is due at the end of the notes' overall period in circulation is designed to encourage the notes' rapid disbursement. The stamp scrips typically lose 2% to 3% of their value per quarter. Their regular period of circulation is three months with an extension option for a total of one year. At this point, if not sooner, a further 5% of the nominal value becomes due when exchanging back into euro. As a rule, the notes, like the adhesive stamps, are financed against the sale of euro to the issuing body which either keeps them in safe custody or invests them in an overnight money account[17] bearing interest. By contrast, in the case of *Tabellengeld* ("table money"), the depreciation of the currency can be read directly from the note, either

[14] See, for example, http://www.chiemgauer.info.
[15] In the case of the *Sterntaler*, credits ("talents") gained for the performance of a service in the local LETS can be paid out in regional currency in some cases. In the case of the *Justus* in Giessen, which is now barely in circulation, some of the notes were distributed among the participating enterprises against a mutual promise of acceptance.
[16] Gesell proposed a weekly von 1‰ depreciation of the notes' nominal value, which corresponds to a 52 stamps being affixed per year and an annual loss of purchasing power of about 5%. See Gesell (1949), p 241.
[17] The *Chiemgauer*, for example. See http://www.Chiemgauer.info.

from a table printed on the reverse or from a bar chart. Another, third variant of *Schwundgeld* issued in Germany is *Ablaufgeld* ("expiry money"). This does without an ongoing currency depreciation. Instead, the intention is to ensure the continuous disbursement of the regional currency solely by means of a limited period of validity for the notes (up to one year) combined with the disincentive of a charge for exchanging or redeeming the notes when they cease to be valid.

## 4 Critical analysis of the *Schwundgeld* concept

Below, an attempt will be made to examine how far the arguments of the *Schwundgeld* advocates are sustainable.

### 4.1 Interest as the capitalists' extra profit?

According to Gesell, interest is the extra profit of the money possessors (capitalists) originating from the material superiority of money compared with perishable goods, and the money possessors' desire to exploit this situation. If this process is placed in the context of money circulation, however, the person who has very recently been in possession of the goods (worker) then himself becomes the exploiter (capitalist) after the good has been sold since he now possesses the money. In the subsequent disbursement of the money, he is once again the one who is exploited and his contractual partner is the exploiter, and so on. Thus, seen from a macroeconomic perspective, the exploitation scenario collapses into a zero-sum game without net winners or losers and, for this reason, the assumed exploitation profit ultimately vanishes.

Moreover, Gesell's theory totally ignores the real economic dimension of interest, which is reflected in the real compensation of the capital donors for their restraint in consumption. Thus, going by all empirical findings, it is not a matter of indifference for money possessors – or, more precisely, savers – whether they consume part of their income now or only at a later date (savers' positive time-preference rate). How important this real determinant of interest rates is, however, is revealed by the

example of a pre-money barter economy in which there is no money per se but nonetheless a rate of interest.[18]

### 4.2 Exogenous supply of goods?

Furthermore, Gesell's equating of money possessors and capitalists, on the one hand, and goods possessors and workers, on the other, are misleading.[19] In this context, the linguistically necessary distinction between money possessors and savers would show up the inconsistencies in Gesell's argumentation just as quickly as would the required explicit consideration of the corporate sector. This is because, above all, the supply of goods in the national economy is by no means an exogenous flow which is fed autonomously from the division of labour and which occurs entirely without regard to profit and loss (*"ohne jede Rücksicht auf Gewinn und Verlust"*)[20] and is a matter divorced from the will of the possessors of goods (*"vom Willen der Warenbesitzer losgelöste Sache"*)[21]. Rather, in reality, enterprises adapt endogenously to the changing conditions of demand in the product market.

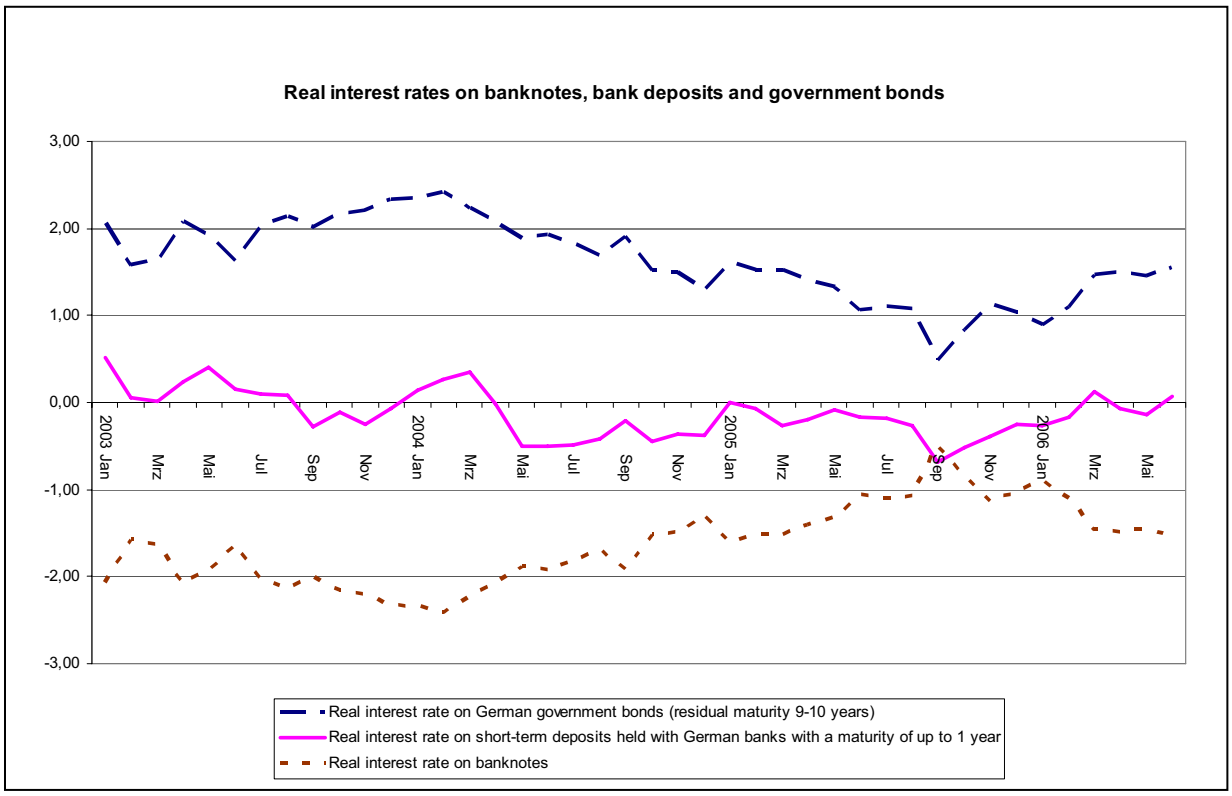
### 4.3 Overcoming the demand gap by means of a higher velocity of circulation of money?

Gesell's thinking on the hording of money holdings and the resulting adverse implications for macroeconomic demand has indeed been taken seriously in the literature.[22] Nevertheless, the relevance of this proposition should be placed in the context of an (at the very least, imminent) deflationary environment. For countries, such as Germany, which have been achieving stable prices or moderate rates of inflation for decades, a situation of this kind does not exist, however. In this instance, saving money is comparatively unprofitable as, first, the real value of the banknotes declines over time as a result of inflation (negative remuneration) and, second,

[18] Consider, for example, the situation in which a smith lends his plough to a farmer for a limited period of time and, as compensation, receives a sack of potatoes (from the harvest which, with the aid of the plough, has a comparatively higher yield) as the interest for having lent real capital in the form of the plough. See also Issing (1993) and Färber (1997).
[19] See, in particular, Gesell (1949), p 240.
[20] Gesell (1949), p 191.
[21] Gesell (1949), p 238.
[22] See Gesell (1911) and (1949), p 191 f. In this instance, Gesell did indeed anticipate a major point of the Keynesian theory that was not to be formulated until around 25 years later. This consequently ensured him a number of favourable comments from Keynes. See Keynes (1936), p 353 ff. Similar deliberations are also found in Fisher (1933).

households' and enterprises' bank deposits, which likewise count towards the money stock, generally offer no more than an adjustment for inflation (virtual real zero remuneration). Thus, as Figure 1 below shows, a saver who wishes to invest his resources for, say, ten years, can also invest in government bonds instead of bank deposits without thereby incurring a greater risk.[23] At all events, it is not possible to demonstrate a money-interest-induced demand gap for Germany.

**Figure 1:**
**Comparison of the real remuneration of cash, bank deposits and government bonds**




Source: author

But even if a demand gap were to arise in the product market as a result of hording money (whether for saving, precautionary or speculative purposes), the imposition of a constant rate of depreciation on the money holdings to combat money hording has to be seen in critical terms. This is because a continuous increase in the overall demand for money (product of the money stock and the velocity of circulation) cannot be achieved in this way. The velocity of circulation of money does indeed increase in such a *Schwundgeld* system – as will be shown explicitly in the context of a model-theoretical approach[24] – but the matching volume of the money stock decreases

[23] The interest rate differential is thus essentially due to the liquidity premium.
[24] See comments in Chapter 6, especially pages 23 and 26.

owing to the comparatively high costs of holding money, which means that no continuously stimulating overall effect on the demand for goods is to be expected. This would happen only if, much like the financing of government spending programmes by means of an inflationary expansion of the money stock, the depreciation-induced loss of purchasing power were not to be anticipated by the money holders.[25] The extensive empirical evidence shows, however, that this assumption is not tenable.[26]

### 4.4 Promoting the region by artificially binding purchasing power at the local level?

Besides using *Schwundgeld* to combat the design flaws of the prevailing monetary system, the issuance of regional currency is designed to strengthen the local economy by confining the use of such payment media to the region in order to bind purchasing power artificially at the local level.[27] A system of this kind, which ultimately aims at regional insulation – if it exists for any length of time at all – impedes cross-regional trade without which a region cannot go on developing. Moreover, insulation causes not only self-inflicted harm but also harms potential trading partners, who are likewise deprived of growth opportunities. The economic reason for this is that both sides forgo a supra-regional division of labour that is geared to comparative advantages as well as integrated sales markets which have a larger volume than the sum of the individual regional markets.[28]

Furthermore, donations of a part of the regional bank profits that are granted to local enterprises (sole proprietors) and cultural initiatives help, at best, in the short term. Experience has shown that, in the long run, such subsidies are not an appropriate instrument for strengthening lacking competitiveness against the market forces. In any case, it remains incomprehensible why such payments, if they are needed, are not granted straightaway in euro. At least this would then save the higher transaction costs of using the parallel currency.

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[25] See also Läufer (2003). For the discussion of various expectation formation hypotheses, see Sargent (1993) and Evans/Honkapohja (2001).
[26] See, for example, Muth (1961), Lucas (1972), Sargent/Wallace (1975) and Schöler (1985).
[27] See, for example, Kennedy/Lietaer (2004).
[28] See also Harper (1948), p 141, who analyses the issuance of local money in the USA before World War II..

The possibility that the regional currencies generate a certain advertising effect for the region cannot be rule out, however. This is not an inherent monetary characteristic of such local payment media, however, but instead due to the curiosity value of a new form of dedicated regional currency in an age of advancing globalisation of the monetary system.

### 4.5 Issuance of a "social" money?

The desire to use regional currency to achieve social objectives is to realised precisely the opportunity of donating part of the earnings from *Schwundgeld* issuance to non-commercial bodies. We leave as an open question whether social cohesion in the community can really be strengthened in this way. At all events, *Schwundgeld* is very expensive for money possessors compared with normal non-depreciation-bound money, which, in itself, calls into question the social character of such currencies. It is, above all, the issuing regional bank[29] that benefits from the *Schwundgeld* system. In terms of the appropriation of profits, the regional currency societies, as a rule (see Table A3 in the Annex), only state that they donate 3% of the nominal value of their issued notes to non-commercial institutions. This is quite a lost measured by the 5% redemption charge (extra premium) due at the end of the notes' period of circulation. First and foremost in the case of stamp scrip, however, most of the regional bank's earnings are achieved though the sale of adhesive stamps (generally, 8% of the nominal value per year) and investing the euros received in interest-bearing overnight deposit accounts (currently around 2% annually). The total earnings per year therefore add up to roughly (5% + 8% + 2% =) 15% of the nominal value of the regional currency notes in circulation. Let us assume that 13 percentage points of this actually have to be spent on printing costs and that the regional bank does not retain any hidden profits. Would it not be more reasonable from a social point of view to use the obvious willingness to donate on the part of the regional currency holders more efficiently than for financing printing costs?

[29] See Appendix 2 on the regional bank profit in the Annex p 47.

## 5 Determinants of the demand for regional money and assessment of future developments

The comments made so far have shown that the regional currencies in circulation in Germany at the present time are very expensive – not least owing to fact that they are conceived (almost exclusively) as *Schwundgeld*. This raises the question of why such local payment media are used at all in the first place. The obvious assumption that this is due to general scepticism concerning the euro does not, in any case, come into consideration. Although the surveys of the European Commission show an overall decline in approval of the euro within the euro area since 2002, it is precisely Germany where the initially critical attitude to the new single currency has now receded, while, in parallel with this, the number of regional currencies has steadily increased.

**Table 2: Approval of the euro and the development of regional currencies**

| | **Approval of the euro in the euro area as a whole** | **Disapproval of the euro in the euro area as a whole** | **Approval of the euro in Germany** | **Disapproval of the euro in Germany** | **Number of regional currencies in Germany** |
|---|---|---|---|---|---|
| 2001 | - | - | - | - | 1 |
| 2002 | 54% | 32% | 39% | 52% | 1 |
| 2003 | 52% | 36% | 42% | 52% | 2 |
| 2004 | 53% | 36% | 41% | 50% | 10 |
| 2005 | 51% | 39% | 47% | 48% | 15 |

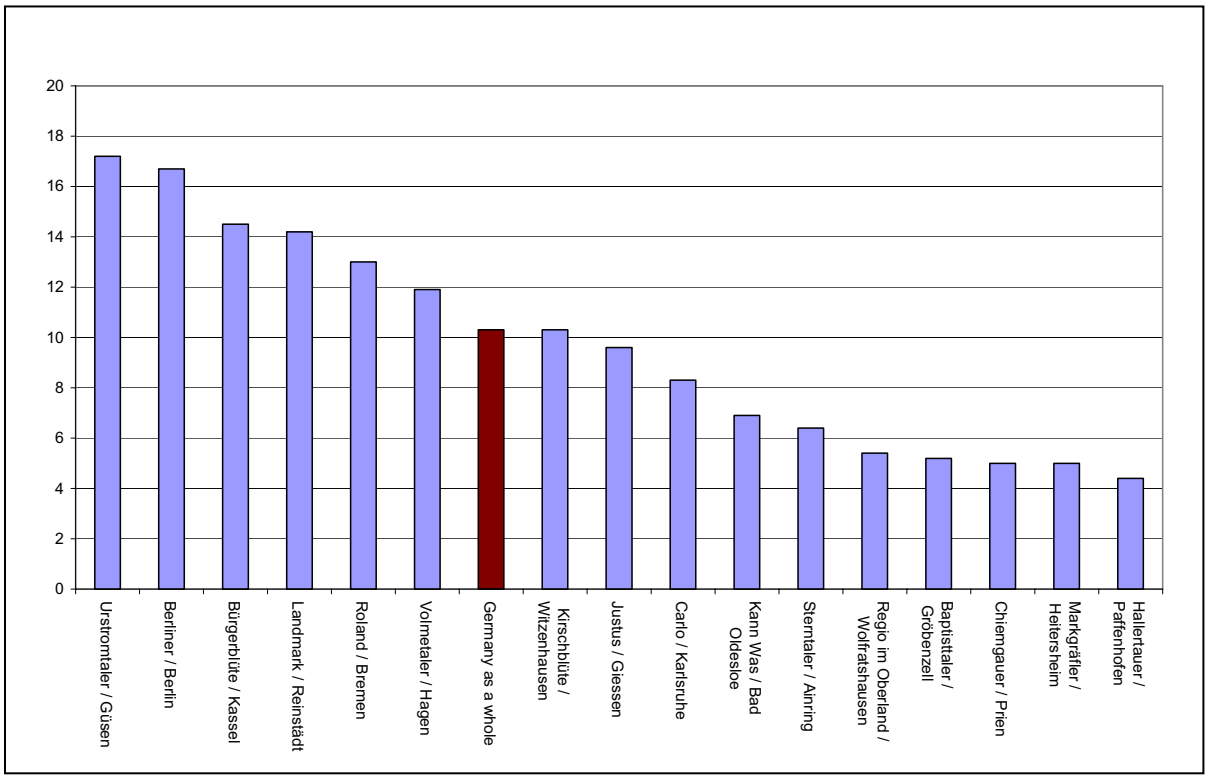
Source: European Commission (2005, 2004, 2003, 2002), author's own research.

Rather, the reasons underlying the demand for regional currency are likely to consist more in its curiosity value in an age when the monetary system is becoming increasingly internationalised and in the regional currency holders' belief that they are promoting the regional economy by using local money. Furthermore, these currencies provide those that hold them with the opportunity to demonstrate their loyalty to the region and thereby take a stand against globalisation (*"Geld der Anti-Globalisierer"* [Currency of the globalisation opponents][30]). According to research undertaken by *Süddeutsche Zeitung*, it is, at least, always the same people (*"immer die gleichen"*) who pay in regional currencies.[31] The donation to local social institutions and associations associated with purchasing the regional currencies is

[30] *Die Zeit* of 5 August 2004.
[31] *Süddeutsche Zeitung* vom 9.6.2005.

also likely to represent a certain gain in prestige for the money holders. In contrast to other forms of donation (donation parties, for instance) where the participants pay not only for the excessively expensive product itself but also "buy" the attention of others, in the case of regional currencies the currency holders can decide themselves when and where they receive such perceived social recognition by paying in regional currency. The willingness to pay for such regional currency appears to be more pronounced precisely in regions with low unemployment rates, where the "luxury" of *Schwundgeld* is evidently more readily affordable than in structurally weaker areas of the country.

**Table 3: Unemployment rates in areas with regional currencies**[1]




1 Relative to all members in the labour force in the relevant reporting population of the *Bundesagentur für Arbeit* [Federal Employment Agency]. Data November 2004 as the majority of regional currencies were created in that year. Source: *Bundesagentur für Arbeit*.

It cannot be ruled out that the users of *Schwundgeld* are, at least in some cases, unaware of their relatively high money holding costs. They are perhaps advised by the issuers that depreciation costs can easily be avoided by quickly spending the money again, and enterprises are promised higher sales and profits on account of

the depreciation-induced rapid circulation of such currency.[32] It should be remembered in this context that, as in every "snowball" system, it is the last in the chain who pays the bill. Overall, it may be safely assumed that the costs of *Schwundgeld* will be given ever greater consideration in the currency holders' calculations, the larger the volume of *Schwundgeld* in circulation becomes. Seen in that light, it is precisely the loss of the currency's value that will ultimately place a severe limitation on the potential expansion of these local payment media.[33]

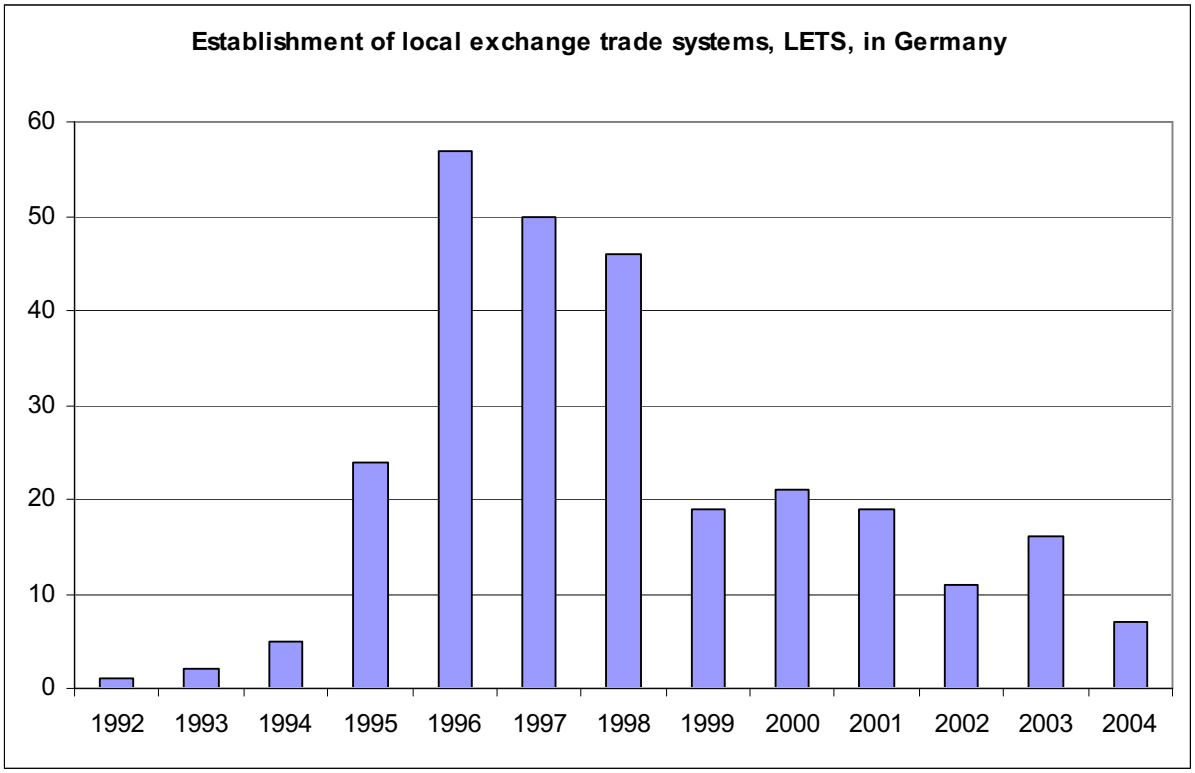
Nevertheless, as long as the stock of regional currency held by any particular individual does not grow to a substantial magnitude, it is quite conceivable that such costs will be borne gladly by some people if only on account of the fun of having paid for once in local currency.[34] Admittedly, the losses for the individual remain quite limited in absolute terms, even though they are still very expensive as a percentage of the nominal value. But even if the German regional currency initiatives conceal the high money holding costs through marketing, the regionally restricted usability of the regional currencies and, possibly, emerging doubts about the soundness of the regional banks alone are likely to prevent an economically disturbing widespread presence of such payment media.

Even so, it cannot be ruled out that the sheer number of regional currency projects will show a distinct increase in the near future. In all probability, this will not bring about any change to the only marginal significance of regional currencies at the macroeconomic level, however. Such a conclusion is permitted by a comparison with the local exchange trade systems, LETS, which have existed in Germany since the early 1990s. As is shown in the chart below, much like the regional currency societies, their number initially rose rapidly after a certain start-up phase. As time went on, however, they gradually grew at a slower pace. However, despite the now almost nationwide presence of such bartering associations (see the map in the

[32] In Chapter 6, a model theory is used to show that the introduction of Schwundgeld cannot, however, continuously increase the aggregate demand for money.
[33] See also Harper (1948), Timberlake (1987) and Godschalk (2001).
[34] This probably applies to tourists in particular. It is therefore not surprising that it is precisely in the alpine upland that regional currencies, the *Chiemgauer* and the *Sterntaler*, with a value of several tens of thousands of euro are in circulation. Regional currencies are also of interest to collectors.

Annex), the value added in these associations is rather modest in macroeconomic terms. It is unlikely to be much more than €15 million per year.[35]

**Figure 2: Establishment of local exchange trade systems in Germany**




Source: author. Analysis based on available microdata of 278 non-commercial bartering associations.

[35] These calculation should be understood as no more than a very rough assessment, see Rösl (2005). In the United Kingdom, there are likewise around 400 non-commercial bartering associations (local exchange trade systems, LETS) with, on average, roughly 85 members and a trading volume of about GBP 70 per capita and per year or GBP 2.1 million per year respectively. See Seyfang (2000), p 228.

## 6 Calculation of the welfare losses in the issuance of *Schwundgeld*

The comments above have shown that the conceptual underpinning of *Schwundgeld* as traditionally formulated by Gesell is, in itself, highly flawed. The arguments advanced to suggest that *Schwundgeld* aids the local economy are not persuasive either. At all events, holding regional currency is very expensive. The financing of regional bank earnings are not the sole costs which holders of *Schwundgeld* have to bear, however. This will be shown by the following comments on the social welfare costs which are incurred – much like the loss of purchasing power due to inflation – in the process of *Schwundgeld* being issued.[36] The chosen analytical framework will be a utility-theoretical approach which expands the familiar Sidrauski model[37] to include a depreciation rate on the nominal money holdings. This will make it possible to show not only how the demand for money holdings as well as the velocity of circulation of money change as a result of an increase in the depreciation rate, but also to compute the costs that would be incurred if all currency in circulation in Germany were to be reorganised on a *Schwundgeld* basis. Subsequently, these issues will be analysed within the context of a "parallel money" approach incorporating both legal tender and *Schwundgeld*.

### 6.1 Sidrauski model with monetary depreciation in continuous time

Let the starting point be a representative household that maximises its discounted lifetime utility (W):[38]

(1) $$W = \int_0^{\infty} u(c_t, m_t) e^{-\theta t} dt$$

Let $\theta$ be the discounting rate (time preference rate) and

(2) $$u_t = u(c_t, m_t)$$

[36] The author wishes to express his gratitude to Karl-Heinz Tödter for his valuable comments.
[37] See Sidrauski (1967).
[38] See further Sidrauski (1967), Blanchard and Fischer (1989), Engels (2004). The simplifying assumption of an infinite household lifetime does not play a crucial part in the following results as it does not affect the first three first-order conditions.

a strict concave utility function of the households comprising real per capita consumption ($c_t$) as well as the real per capita money holdings ($m_t$).[39] The household possesses real assets ($A_t$) in the form of real capital ($K_t$) and in the form of money ($M_t$) deflated by the price level ($P_t$):

$$A_t = K_t + \frac{M_t}{P_t} \tag{3}$$

It draw its real income from labour ($w_t N_t$), capital ($r_t K_t$), and lump-sum transfer income, which is not allocated to a specific use, received from the government[40] ($X_t$):

$$C_t + \frac{dA_t}{dt} + \sigma_t \frac{M_t}{P_t} = w_t N_t + r_t K_t + X_t \tag{4}$$

where $w_t$ stands for the real wage rate, $N_t$ for the number of household members, $r_t$ for the return on capital and $K_t$ for the real capital stock.[41] This income is used for consumption $C_t$ and for financing the devaluation of the real money holdings due to the (nominal) depreciation rate $\sigma_t$. A surplus (deficit) increases (decreases) the households' assets ($dA_t / dt$). Written as real per capita variables, the budget restriction is thus

$$c_t + \frac{dA_t}{dt}\frac{1}{N_t} + \sigma_t m_t = w_t + r_t k_t + x_t \tag{5}$$

where $c_t = C_t / N_t$, $k = K_t / N_t$, $m_t = (M_t / P_t) / N_t$ und $x_t = X_t / N_t$.

The real change in assets

[39] For the incorporation of money into the utility function, see Patinkin (1965), Sidrauski (1967), Feenstra (1986).

[40] This corresponds to the recycling of seigniorage from money issuance (including transfer of real resources to the money producers owing to the intended depreciation of nominal money holdings).

[41] To keep the argumentation as simple as possible, let the interest rate below be exogenous. It can be demonstrated that endogenising the interest rates (by introducing a production function) does not substantially alter the model. For similar reasons, depreciations of the capital stock are not taken into consideration either.

(6) $$\frac{dA_t}{dt} = \frac{dK_t}{dt} + \frac{dM_t}{dt}\frac{1}{P_t}$$

per capita of the household is

(7) $$\frac{dA_t}{dt}\frac{1}{N_t} = \frac{dK_t}{dt}\frac{1}{N_t} + \frac{dM_t}{dt}\frac{1}{P_t N_t}.$$

If the growth rate of the household or, given a fixed number of households, the growth rate of the population is denoted as $n_t = (dN_t/dt)/N_t$ and the inflation rate as $\pi_t$, this may be written as

(8) $$\frac{dA_t}{dt}\frac{1}{N_t} = \frac{dk_t}{dt} + n_t k_t + \frac{dm_t}{dt} + \pi_t m_t + n_t m_t$$

The budget restriction (5) may thus also be expressed as

(9) $$c_t + \frac{dk_t}{dt} + n_t k_t + \frac{dm_t}{dt} + \pi_t m_t + n_t m_t + \sigma_t m_t = w_t + r_t k_t + x_t$$

or, using the real per capita assets ($a = k + m$, or $da = dk + dm$), written as a differential equation

(10) $$\frac{da_t}{dt} = [(r_t - n_t)a_t + w_t + x_t] - [c_t + (r_t + \pi_t + \sigma_t)m_t]$$

The change in the real per capita assets is composed of the household's income (from capital income (r-n)a, labour income w and Transfers x) and aggregate consumption. Aggregate consumption consists of the consumption of goods (c) and the consumption of money services, where (r + π + σ) are the user costs of money. These, in turn, are composed of the forgone nominal interest rate (r + π) incurred by holding money instead of capital, and the depreciation rate of money (σ).

Moreover, at the beginning of the period, real per capita assets are to assume an arbitrary (not necessarily positive) value

(11) $$a(0) = a_0 ,$$

and at the "end" of the planning horizon they are not to assume a negative value:[42]

(12) $$\lim_{t\to\infty}\left[a(t)e^{-\theta t}\right] \geq 0$$

The Hamilton equation associated with the maximisation problem is

(13) $$H = \{u(c,m) + \lambda[[(r-n)a + w + x] - [c + (r+\pi+\sigma)m]]\}e^{-\theta t}$$

with the time index t being omitted, unless absolutely necessary, to simplify the notation. The first-order conditions for a maximum for[43]

(14.1) $$u_c(c,m) = \lambda$$

(14.2) $$u_m(c,m) = \lambda(r+\pi+\sigma)$$

(14.3.) $$\frac{d\lambda}{dt} = \theta\lambda - (r-n)\lambda$$

(14.4) $$\lim_{t\to\infty}\left[a\lambda e^{-\theta t}\right] = 0$$

In general, the marginal utility of goods consumption and the marginal utility of money services consumption are functions of c and m. The first two conditions may be summarised as

(15) $$\frac{u_m}{u_c} = r+\pi+\sigma$$

[42] This is known as the no-Ponzi-game condition, which ensures that the representative households has no debts "at the end".

[43] For the derivation, see Pontryagin et al (1962), Barro and Sala-i-Martin (2004), Chiang and Wainwright (2005).

In the optimum, the marginal substitution rate between real money holdings and consumption thus corresponds to the utility costs of money. Also, the optimality conditions (14.1) and (14.3) produce the familiar Keynes-Ramsey rule

$$\frac{du_c / dt}{u_c} = n + \theta - r, \tag{16}$$

according to which the utility-maximising household always selects its consumption plan over time so that the marginal rate of the substitution of consumption $\phi(c)$ between two points in time always matches the marginal rate of transformation. As an equivalent, (16) may therefore also be expressed as the optimal growth path for consumption:[44]

$$\frac{dc / dt}{c} = \phi(c) \cdot [r - \theta - n] \tag{17}$$

Finally, the transversality condition (14.4) may be interpreted – in a somewhat simplified manner – to mean that, optimally, the utility-maximising household will have entirely consumed its assets at the "end" of its planning horizon.[45]

In a long-term steady state $d\lambda/dt = 0$, which means that, from (14.3), there follows the modified golden rule[46]

$$r = \theta + n \tag{18}$$

ie the real rate of interest corresponds to the sum of the discounting rate and population growth rate. As in the traditional Ramsey and Sidrauski model, this outcome is independent of the growth rate of the money stock, ie money is "superneutral" in the long term. Furthermore, Equation (18) shows that, in the long

[44] Blanchard and Fischer (1989), p 40.

[45] Strictly speaking, this does not have to be the case, however. For example, even with positive final assets ($a_\infty > 0$) the transversality condition would not be violated, ie if the present value of the marginal utility of these final assets is zero ($\lambda_\infty \cdot e^{-\theta \cdot \infty} = 0$). In other words, assets that lie in the very distant future do not generate any additional utility in the present.

[46] The golden rule itself is the condition $r = n$ which maximises steady-state per capita consumption. Blanchard and Fischer (1989), p 45.

run, the optimal consumption plan is independent of the depreciation rate σ. The ongoing stimulation of aggregate demand by means of increasing the depreciation rate, which the supporters of *Schwundgeld* or *Freigeld* theory hope for, thus proves to be unsustainable.

In a long-term steady state, the change in the real per capita money stock is also equal to zero ($dm/dt = (\mu - \pi - n) \cdot m = 0$). This, in turn, implies that the steady-state inflation rate is determined by the growth rate of the money stock μ (adjusted for population growth n):

(19) $$\pi = \mu - n$$

Inflation, in this model framework, is therefore a purely monetary phenomenon in the long term. If is furthermore assumed that if the marginal costs of printing money are (approximately) zero, then the following applies in a steady state to the private marginal utility of money ($u_m = 0 = \lambda(r + \pi + \sigma)$) in (14.2):

(20.1) $$-\pi = r + \sigma$$

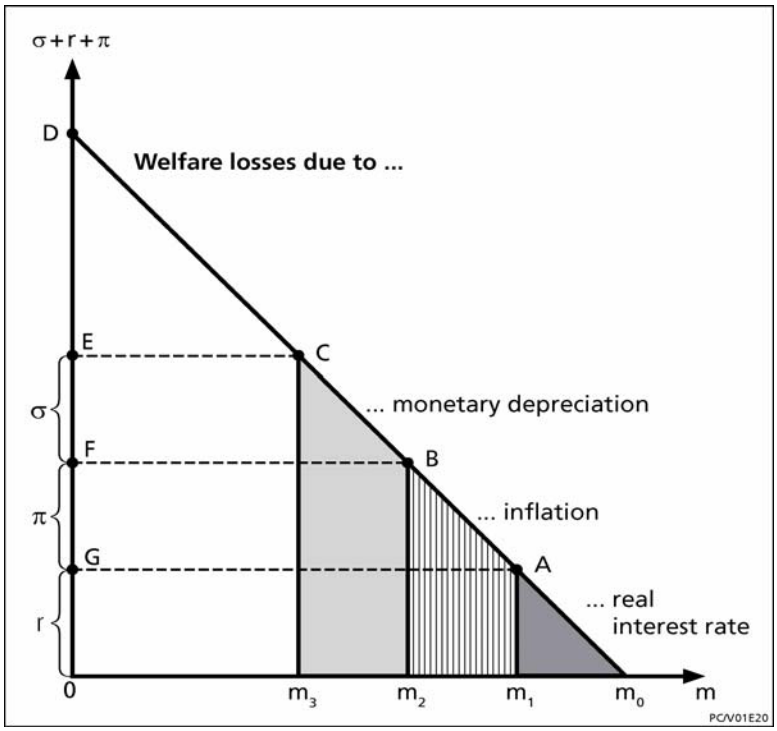
or, as an equivalent,

(20.2) $$-\sigma = r + \pi$$

This is a generalisation of the Friedmann rule, expanded to include the depreciation rate σ, according to which – given the absence of monetary depreciation (σ = 0) – the deflation rate should correspond to the real interest rate ($-\pi = r$) or the nominal interest rate should be zero ($r + \pi = 0$).[47] The idea behind this is that the money holders, owing to the positive opportunity costs of money holding, aim for a money holding which is suboptimal in welfare theory terms as it is too low. This can be demonstrated in a graph using the following simple linear money demand.

[47] See Friedman (1969).

**Figure 3: Welfare costs of suboptimal money holding**




Let us begin the analysis in a setting of stable prices (π = 0), let the real interest rate be zero ($r = 0$) and the payment medium should initially not be subject to any nominal monetary depreciation ($\sigma = 0$). We also want to regard the marginal costs of printing money as negligibly small. In this case, from the point of view of the money holders, the "price of money holding" (measured by the opportunity costs) is likewise equal to zero, and they will therefore demand the money stock $m_0$. Let us now assume that the real rate of interest rises to a positive value. Since the money holders now forgo the remuneration of alternative investments, they will restrict their money demand until the marginal costs of money holding again correspond to the marginal utility of money holding. The consumer surplus,[48] which could previously be achieved in the area $m_0D0$, is now reduced to the triangle ADG. However, as this decline is not fully offset by a matching increase in the producer surplus (from zero to $m_1AG0$), there remains a net welfare (dead weight) loss in the triangle $m_0Am_1$. The welfare loss is even greater given inflation (π > 0) or the introduction of a positive depreciation rate (σ > 0) in the trapezia $m_1ABm_2$ and $m_2BCm_3$. This shows that, in

[48] On the concept of consumption surplus as a measure of welfare, see Bailey (1956), Fischer (1981), Tödter and Ziebarth (1997), and the textbook account in Bofinger, Reischle und Schächter (1996), p 76 ff.

utility theory terms, the costs of *Schwundgeld* are to be treated in precisely the same way as the welfare costs of inflation and real opportunity costs.
In order to offset this loss of welfare, the central banks has two parameters of action. It can either, as shown in (20.1), use a matching supply of money (19) to bring about a rate of deflation equivalent to the sum of the real rate of interest and the depreciation arte or it can generate a negative depreciation rate at the same level as the nominal interest rates. In other words, it would – the exact opposite of what Gesell calls for – ultimately *pay* a *positive* rate of interest on money holding. A linear combination of deflation rate and (negative) depreciation rate would also be conceivable, however.

## 6.2 Estimation of the inflation-equivalent welfare costs of a pure *Schwundgeld* system

To estimate the welfare costs of *Schwundgeld*, a concrete utility function is needed. In the simplest case, this could be a utility function of the Cobb-Douglas type.

(21) $$u = c^{\delta} m^{1-\delta}$$

Thus, from both the initial first-order conditions, there follows the demand function for real money holdings:

(22) $$m = \frac{1-\delta}{\delta} \frac{c}{r+\pi+\sigma}$$

The real money demand is therefore proportional to consumption and in inverse proportion to the utility costs of money holding. Thus, it also holds that, the higher the depreciation rate of money is, the smaller is the real per capita money demand

(23) $$\frac{dm}{d\sigma} \frac{1}{m} = -\frac{1}{r+\pi+\sigma} < 0$$

and the higher is the velocity of circulation of money[49] (v):

$$v = \frac{c}{m} = \frac{\delta(r + \pi + \sigma)}{1 - \delta} \tag{24}$$

If there are no depreciation costs ($\sigma = 0$), the velocity of circulation is $v_o = \delta(r + \pi)/(1 - \delta)$. Therefore, the velocity of circulation may generally also be expressed as

$$v = v_o \cdot (1 + \frac{\sigma}{r + \pi}) \tag{25}$$

In other words, given annual 12% depreciation costs and a nominal annual rate of interest of 5%, the velocity of circulation is greater by the factor of 1+0.12/0.05 = 3.4 than if there were no monetary depreciation.

If the optimal money demand (22) is inserted into the utility function, the following inverse relationship between the utility and the costs of money holding is obtained:

$$u = \kappa c(r + \pi + \sigma)^{-(1-\delta)} \tag{26}$$

where c is the optimal consumption level and $\kappa = [(1 - \delta)/\delta]^{1-\delta}$ is a level constant. As a relative change in utility given a change in the depreciation rate, it follows from this that

$$\frac{du}{d\sigma}\frac{1}{u} = -\frac{1 - \delta}{r + \pi + \sigma} < 0 \tag{27}$$

which states the percentage by which the utility of the representative households decreases if the depreciation rate is raised by 1 percentage point. How sharp would the rise in consumption now have to be to compensate the representative household for the utility loss (27) that arises given an increase in the depreciation rate? If the total derivation of the utility function (21)

[49] This is consistent with Harper' observations on stamp scrip during the Great Depression in the USA. See Harper (1948), p 142.

(28) $$\frac{du}{u} = \delta\frac{dc}{c} + (1-\delta)\frac{dm}{m}$$

is set at zero, there follows, using the semi-depreciation elasticity of the money demand (23), the consumption growth rate needed to offset the utility loss:

(29) $$\frac{dc}{c} = -\frac{1-\delta}{\delta}\frac{dm}{m} = \frac{1-\delta}{\delta}\frac{1}{r+\pi+\sigma}d\sigma$$

Equation (22) permits a rough estimation of $\delta$:

(30) $$\delta = \frac{c}{c+(r+\pi+\sigma)m}$$

This share of the costs can be estimated empirically. Private consumption in Germany at end-2005 amounted to some €1,300 billion. The volume in circulation (2005:4) in the euro area was roughly

€530 billion (volume of cash in circulation, M0)
**€3,500 billion (monetary aggregate M1)**
€7,100 billion (monetary aggregate M3).

The German contribution is estimated at 30%. The real rate of interest is set at r = 3% and the inflation rate at $\pi$ = 2%. Given a depreciation rate of zero, the following is obtained for the monetary aggregate M1:

(31) $$\delta \approx \frac{1{,}300}{1{,}300 + 0.05\cdot(0.3\cdot 3{,}500)} = 0.96$$

Thus, the economic welfare costs of a 1 percentage point increase in the depreciation rate of money are

(32) $$\frac{dc}{c} = \frac{0.04}{0.96}\frac{1}{0.05}1\% = 0.8\%$$

Relative to the German monetary aggregate M1 (banknotes and coins plus overnight deposits at banks in Germany), this corresponds to roughly €10 billion, or €130 per capita of the population in each year!

**Table 4: Economic marginal welfare costs of *Schwundgeld***

1 percentage point increase in the depreciation rate

| | M0 | **M1** | M3 |
|---|---|---|---|
| As a percentage of the consumption level | 0.1 | **0.8** | 1.6 |
| In € billion pa | 1.6 | **10.5** | 21.3 |
| In € billion per capita and pa | 20 | **130** | 270 |

*Figures rounded*

Let us now assume that, given an annual 2% inflation rate, the money depreciation rate – as, at present, in the case of the *"Kann Was"* regional currency in Bad Oldesloe – is 1% per month or 12% per year. Applied to the official money stock currently in circulation, this would call for the following compensatory increases in consumption.

**Table 5: Economic welfare costs of *Schwundgeld***

given an annual 12% depreciation rate

| | M0 | **M1** | M3 |
|---|---|---|---|
| As a percentage of the consumption level | 1.5 | **9.7** | 20 |
| In € billion pa | 20 | **130** | 250 |
| In € billion per capita and pa | 240 | **1600** | 3200 |

*Figures rounded*

If the entire monetary aggregate M1 in Germany were to be rebased on *Schwundgeld*, it would cost the Germany economy welfare losses of €130 billion annually, which would correspond to a per capita amount of €1,600. This example shows how costly *Schwundgeld* ultimately is in principle from a welfare-theoretical perspective as well.

## 6.3 *Schwundgeld* costs in a parallel currency system (official currency and regional currency with pre-programmed depreciation)

So far, we have been concerned with the computation of the economic welfare costs that would result from *Schwundgeld* being the sole payment medium in circulation. Below, this assumption will be loosened to investigate a system in which official currency without inherent depreciation (M) and regional currency with pre-programmed depreciation (G) circulate in parallel. Regional currency is incorporated as an autonomous argument into the utility function of the representative money holder as it will be assumed below that the currency user believes in the effectiveness of using *Schwundgeld* to promote the regional objectives:

(33) $$u_t = u(c_t, m_t, g_t)$$

where $g_t$ and $m_t$ are the real stock of regional currency and official currency per capita respectively.

By analogy with the case of only one type of currency, the optimisation problem may be formalised as

(34) $$\max W = \int_0^{\infty} u(c_t, m_t, g_t) e^{-\theta t} dt \qquad \text{s.t.}$$

(35) $$\frac{da_t}{dt} = [(r_t - n)a_t + w_t + x_t] - [c_t + (r_t + \pi_t)m_t + (r_t + \pi_t + \sigma_t)g_t]$$

(36) $$a(0) = a_0$$

(37) $$\lim_{t \to \infty} [a(t) e^{-\theta t}] \geq 0$$

Together with the transversality condition,[50] there follow from the Hamilton equation the first-order conditions:

[50] $$\lim_{t \to \infty} \left[ a \lambda e^{-\theta t} \right] = 0$$

(38) $$u_c(c,m,g) = \lambda$$

(39) $$u_m(c,m,g) = \lambda(r+\pi)$$

(40) $$u_g(c,m,g) = \lambda(r+\pi+\sigma)$$

(41) $$\frac{d\lambda}{dt} = \theta\lambda - (r-n)\lambda$$

where the first three equations can be summarised to

(42.1) $$u_m = u_c(r+\pi)$$

(42.2) $$u_g = u_c(r+\pi+\sigma)$$

The marginal substitution rate between consumption and real money holdings corresponds to the respective utility costs of the currency. The substitution rate between the two types of currency is equal to the relative money holding costs:

(43) $$\frac{u_g}{u_m} = \frac{r+\pi+\sigma}{r+\pi}$$

Given a utility function

(44) $$u = c^{\delta} m^{\upsilon} g^{\gamma} \quad ; \quad \delta+\upsilon+\gamma = 1$$

the first three first-order conditions produce the following demand function for real money holdings:

(45.1) $$m = \frac{\upsilon}{\delta}\frac{c}{r+\pi}$$

(45.2) $$g = \frac{\gamma}{\delta}\frac{c}{r+\pi+\sigma}$$

Both real money demands are proportional to consumption and inversely proportional to the respective utility costs of money holding. If the optimal money demands are inserted into the utility function, the following is obtained:

(46) $$u = \kappa c (r+\pi)^{-\upsilon}(r+\pi+\sigma)^{-\gamma} \quad \text{with} \quad \kappa = (\nu/\delta)^{\nu}\cdot(\gamma/\delta)^{\gamma}$$

It follows from this as the relative change in utility given a change in the depreciation rate of regional currency:

(47) $$\frac{du}{d\sigma}\frac{1}{u} = -\frac{\gamma}{r+\pi+\sigma} < 0$$

Now, in order to quantify the utility losses that are incurred given an increase in the depreciation rate, the total derivation of the utility function

(48) $$\frac{du}{u} = \delta\frac{dc}{c} + \upsilon\frac{dm}{m} + \gamma\frac{dg}{g}$$

is again set at zero. As m is not dependent on σ and $dg/g = -d\sigma/(r+\pi+\sigma)$ follows from Equation (45), solving for the rate of change in consumption gives

(49) $$\frac{dc}{c} = \frac{\gamma}{\delta}\frac{1}{r+\pi+\sigma}d\sigma$$

Equation (49) states with how much consumption the representative households would have to be compensated in order to offset the utility loss arising from a 1 percentage point increase in the depreciation rate σ.

To quantify the utility loss, estimations of the parameters $\gamma$ and $\delta$ are needed. In principle, these can be calculated from the expenditure shares

(50.1) $$\delta = \frac{c}{c+(r+\pi)m+(r+\pi+\sigma)g} = 0.96118297452$$

(50.2) $$\gamma = \frac{(r+\pi+\sigma)g}{c+(r+\pi)m+(r+\pi+\sigma)g} = 0.00000002074$$

with the following values being used for parameterisation. The official money stock in Germany is estimated at 30% of the euro-area monetary aggregate M1 ($m = 0.3 \cdot 3{,}500 = €\,1{,}050$ billion) (2005:4), the volume of regional currency in circulation at year-end is estimated at €165,000. Let the real interest rate (r) again be 3% pa, the inflation rate (π) 2% pa and the depreciation rate of regional currency σ,

in line with the *"Kann Was"*, 12% pa. Private consumption in Germany (2005:4) is again quantified at €1,300 billion.

Thus, the marginal relative utility loss expressed in consumption units is

$$(51) \qquad \frac{dc}{c} = \frac{0.00000002074}{0.96116306} \frac{1}{0.03 + 0.02 + 0.12} 1\% = 0.0000001269$$

With a current consumption level in Germany of €1,300 billion, this corresponds to a marginal economic loss, given a 1 percentage point increase in the depreciation rate, of around €1,650 annually. With a depreciation rate of 12% pa, this is equivalent to an annual overall welfare loss of roughly €20,000 – up to now, admittedly, a negligible amount in macroeconomic terms.

## 7 Summary of the results

Regional currencies (*Regionalwährungen*), as a local cash substitute for the euro, are now in circulation in 16 regions in Germany. Almost 50 other regional currency initiatives are also planning to issue their own means of payment in the near future. Although the rapid growth of such currencies is surprising, the analysis shows that the issuance of unofficial parallel currencies is not really a new phenomenon either in Germany or other European countries. At present, the German regional currencies are conceived almost without exception as *Schwundgeld*, with stamp scrip being the most widely used. All variants of Schwundgeld have in common that they lose their value in accordance with a time path that is known in advance. This is intended to encourage the money holders to spend the currency more quickly. It is hoped that this will provide a permanent stimulus to local demand as such currencies can only be used in their region. However, the theoretical assumptions underpinning the concept of *Schwundgeld* are, in themselves, highly flawed. Among other things, a theoretical model shows that the velocity of circulation of such payment media does, in fact, increase with the introduction of a positive depreciation rate, but that the aggregate money demand ultimately remains unaffected by this, since, owing to the increased costs of money holding, there is, in return, a matching decline in the money demand. The *Schwundgeld* concept is also suboptimal in terms of welfare theory. Thus, according to the model calculations, the German economy would incur a loss of around €130 billion if all the domestic currency in circulation and the giro account deposits at the German banks were to be rebased on *Schwundgeld*. Given the aggregate volume of the regional currencies in circulation in Germany at around €200,000, the current economic welfare losses arising from the issuance of *Schwundgeld* are, however, negligibly small.

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# Annex

## Table A1: Issuers and circulation of the regional currencies in Germany

| Regional currency, region, first issued | Issuer | Payment system | Issue rate in € | Nominal values | Amount in circulation (nominal value in €): | Participants – of which enterprises (E) |
|---|---|---|---|---|---|---|
| Roland, Bremen October 2001 | Roland-Regional, Verein für nachhaltiges Wirtschaften | Paper money, cheques | 1 : 1 | 5 (paper money), with cheque (free) | €1,500 € (Paper money), €3,000 in cheques (Sept. 2004). | 60 (Sept 2004) |
| Chiemgauer, Chiemgau 1 January 2003 | Chiemgauer Regional Verein für regionales Wirtschaften e.V. | Paper money. Giro system planned | 1 : 1 | 1 / 2 / 5 / 10 / 20 / 30 | €60,000 (April 2006) | 1,300, of which 430 E (April 2006) |
| Kann Was Bad Oldesloe 1 January 2004 | Dr Frank Schepke | Paper money | 1 : 1 | 1 / 5 / 10 / 20 | €8,500 (April 2006) | 198 (April 2006) |
| Giessen-Justus Giessen, March 2004 | Giessener Justuszentrale | Paper money | 1 J = €1.5 | ½ / 1 / 2 / 5 / 10 / 20 / 50 | €9,750 € (June 2006) | NA |
| Sterntaler, Ainring, 1 April 2004 | STAR - Sterntaler und Talente Austausch Ring e.V. | Paper money | 1 : 1 | 1 / 2 / 5 / 10 / 20 | €29,502 (Dec 2005) | 650, of which 179 E (Dec 2005) |
| Markgräfler, Heitersheim, July 2004 | Markgräfler Regional, Verein für nachhaltiges Wirtschaften e.V. | Paper money | 1 : 1 | 0,1 / 0,5 / 1 / 5 / 10 | €1,500 (May 2005) | 50, of which 14 E (April 2006) |
| Urstromtaler, Güsen, 3 October 2004 | Regionalwährungs-initiative Sachsen-Anhalt | Paper money, cheques, giro system | 1,1 U = €1 | 1 / 2 / 3 / 10 / 20 / 30 | €22,000 (Oct 2005) | 120 E (Feb 2006) |
| Kirschblüte, Witzenhausen, 11 October 2004 | Kirschblüte Regional, Verein für nachhaltiges Wirtschaften e.V. | Paper money | 1 : 1 | 5 | €5,185 (April 2006) | 165, of which 55 E (Feb. 2006) |
| Hallertauer, Pfaffenhofen/Ilm, 25 November 2004 | Hallertauer Regional - Verein für nachhaltiges Wirtschaften | Paper money, giro system | 1 : 1 | 1 / 2 / 5 / 10 / 20 / 50 | €2,712 (Dec 2005) | 203, of which 53 E (April 2006) |
| Babtisttaler, Gröbenzell, 27 November 2004 | Showmedia | Paper money | 1 : 1 | 1 / 5 / 10 / 20 | €3,000 € (Dec 2004) | 20 E (Aug 2005) |
| Regio im Oberland, Wolfratshausen, 1 January 2005 | Oberland regional, Verein für nachhaltige Wirtschaftskreisläufe | Paper money | 1 : 1 | 5 / 10 / 20 | €3,000 (end-2005) | 34 E (Feb. 2006) |
| Carlo, Karlsruhe, 23 January 2005 | Carlo-Regional - Verein für nachhaltiges Wirtschaften | Paper money | 1 : 1 | 1 / 5 / 10 / 20 | €4,755 (Jan 2006) | Around 100, of which 47 E and societies (Jan 2006) |
| Berliner, Berlin, 3 February 2005 | Verein Berliner Regional e.V. | Paper money | 1,02 B = €1 | 1 / 5 / 10 | €10,000 (Feb 2006) | 600, of which 130 E |
| VolmeTaler, Hagen, 8 October 2005 | VolmeTALER - Verein für nachhaltiges Wirtschaften | Paper money | 1 : 1 | 1 / 5 / 10 / 20 | €44,682 exchanged since start (position: April 2006) | 190 E (April 2006) |
| Landmark, Reinstädt, November 2005 | Wirtschaftsring Reinstädter Landmarkt | Paper money, giro system | 1 : 1 | 1 / 5 / 10 / 20 / 50 | €2,000 (March 2006) | 43 E (March 2006) |
| Bürgerblüte, Kassel, 23 April 2006 | Bürgergeld e.V. | Paper money | 1 : 1 | 1 / 2 / 5 / 10 / 20 | NA | 20 society members (Nov 2005) |

Source: Initiatives' websites. Author's research.

## Table A2: Issuers and circulation of regional currencies in the rest of Europe[1]

| Regional currency, region, first issued | Issuer | Payment system | Exchange rate with national currency | Nominal values | Amount in circulation (nominal value): | Number of accepting parties |
|---|---|---|---|---|---|---|
| Bon-Netz-Bon (BNB), Basel (Switzerland), 1 January 2005 | Genossen-schaft Netz Soziale Ökonomie | Paper money | BNB 1 = SFr 1 | 1,5,10,15 | BNB 15,800 (March 2006) | 19 enterprises (Position: Dec 2005) |
| Waldviertler Regional, Schrems (Austria), 1 May 2005 | Waldviertler Verein für regionales Wirtschaften | Paper money, giro system planned | Wald-viertler 1 = €1 | 1,2,5,10,20 | W 27,905 (Feb 2006) | 188 enterprises (Feb 2006) |
| Løn, Copenhagen (Denmark) 1976 | Christiania (village-type hippy commune) | Coins | Løn 1 = 50 Danish krones (€7.7) | 1 Løn | 9,000 units at 50 krones = DK 450,000 | Around 1,000 members of the hippy commune |
| Credito, Valchiusella Valley (Italy) Wohl 1986 | Nazione Damanhur (sect-like village) | Coins, banknotes, scriptural money. | Credito 1 (100 Cali) = €1 | 10,20,25,50 Cali; 1,2,5,10,25,50, 100 Crediti | Credito 350,000 (2004), Forecast: 2005: Credito 500,000 | Around 900 members, of which 98 businesses |
| Eko, Findhorn (Scotland) May 2002 | Ekopia Resource Exchange Ltd. (Ökodorf) | Paper money | Eko 1 = pound sterling | 1,5,20 | Eko 18,500 (2004) | At present, 450 members, of which 40 E |
| Axarco, Axarquia (Spain) 1988 | Antonio Gámez Burgos | Coins and paper money | Axarco 1 = €1 | Coins: 4/10/20 Notes: 0,1/0,5/1/ 5/10 | Deliberately not announced. | NA |
| EcoAspromonte, Aspromonte National Park (Italy), 2003 | Aspromonte National Part | Paper money | EcoAspr. 1 = €1 | 1,2,5,10 | NA. | National park with 38 villages |
| Pound sterling (GBP), Scotland as a whole NA. | Clydesdale Bank | Paper money (official banknotes) | 1 pound = 1 pound (BoE) | 5,10,20, 50,100 | GBP 1,230 million = €1,815 million (30.9.2005) | Around 5 million inhabitants |
| Pound sterling (GBP), Scotland as a whole 1727 | Royal Bank of Scotland | Paper money (official banknotes) | 1 pound = 1 pound (BoE) | 1,5,10,20, 50,100 | GBP 1,365 million = €2,010 million (31.12.2005) | |
| Pound sterling (GBP), Scotland as a whole 1695 | Bank of Scotland | Paper money (official banknotes) | 1 pound = 1 pound (BoE) | 5,10,20, 50,100 | GBP 830 million =€1,222 million (31.12.2005) | |
| Pound sterling (GBP), Northern Ireland as a whole 1836 | Ulster Bank | Paper money (official banknotes) | 1 pound = 1 pound (BoE) | 5,10,20, 50,100 | GBP 150 million = €221million | Around 1.7 million inhabitants |
| Pound sterling (GBP), Northern Ireland as a whole NA | Northern Bank | Paper money (official banknotes) | 1 pound = 1 pound (BoE) | 5,10,20, 50,100 | GBP 300 million = €442 million | |
| Pound sterling (GBP), Northern Ireland as a whole NA | First Trust Bank | Paper money (official banknotes) | 1 pound = 1 pound (BoE) | 5,10,20, 50,100 | GBP 329 million = €484 million (31.12.2005) | |
| Pound sterling (GBP), Northern Ireland as a whole NA | Bank of Ireland | Paper money (official banknotes) | 1 pound = 1 pound (BoE) | 5,10,20, 50,100 | GBP 481 million = €683 million (31.12.2003) | |

Source: Author's research. – 1 The other European GBP issues of Gibraltar, Jersey and the Isle of Man are made entirely autonomously under monetary law and, as these territories are not part of the United Kingdom, are regarded in this paper as currencies of autonomous countries.

## Table A3: *Schwundgeld* variants in Germany

| **Regional currency** | ***Schwund-geld*-variant** | **Issuing-practice** | **Ongoing monetary depreciate-ion as %age of nominal value** | **Period of notes' validity** | **Extra premium: charge for redemption (R) in € or exchange (EX) for new notes as %age of nominal value** | **Bonus (when exchan-ging)** | **Use of earnings (Figures as %age of nominal value):** |
|---|---|---|---|---|---|---|---|
| Chiemgauer | Stamp scrip | Against € | 2% per quarter | 3 months. With extension 1 year. | R: 5%<br>EX: NA | No | From extra premium:<br>2% to issuers,<br>3% to society determined by the customer. |
| Sterntaler | Stamp scrip | Against € or combination of € (80%) and "Talent" LETS currency (20%). | 3% per quarter | 3 months. With extension 1 year. | R in € and Talents 5%.<br>R solely in €: 10% | No | From extra premium:<br>EX in €/Talents: 2 % to issuers,<br>3% to project.<br><br>Redemption solely in €<br>NA. |
| Hallertauer | Stamp scrip | Against € | 2% per quarter | 3 months. With extension 1 year. | R: 5%<br>EX: NA | NA. | From extra premium:<br>2% to issuers,<br>3% to society determined by the customer. |
| Regio im Oberland | Stamp scrip | Against € | 2% - 2.5% per quarter | 3 months. With extension 1 year. | R: 5%<br>EX: NA. | No | From extra premium:<br>2% to issuers,<br>3% to society determined by the customers. |
| Carlo | Stamp scrip | Against € | 2% per quarter | NA | R: 5%<br>EX: NA. | NA | From extra premium:<br>2% to issuers,<br>3% to society determined by the customer. |
| VolmeTaler | Stamp scrip | Against € | 1% every 2 months | 1 year | R: 5% for individuals and 0% for enterprises | Lottery ticket with tom-bola | Earnings from ongoing depreciation and extra premium for charitable purposes |
| Landmark | Stamp scrip | Against € | 3% per quarter | 3 months. With extension 1 year. | R: 5%<br>EX: NA. | No | NA |
| Bürgerblüte | Stamp scrip | Against € | 2% per quarter | 3 months | R: 5%<br>EX:NA | NA. | From extra premium:<br>2% to issuers, 3% to social welfare institutions |
| Roland | Tabellen-geld (*Table money*) | Against € and credit. | 1% per month | 2 years | R: generally not envisaged. In exceptional case 1% EX as per table | No | Non-interest-bearing loans to organic farmers |
| Kann Was | Tabellen-geld (*Table money*) | Against € | 1% per month to be paid in advance | 1 year | R/EX: 10% for individuals and 5% for enterprises | No | Interest from deposited euro for social purposes. Extra premium to issuer. |
| Giessen-Justus | Ablaufgeld (*Expiry money*) | Against € to individuals. Allocation to enterprises against promise of acceptance | No | 1 year | R: 5%<br>EX: 5% | No | NA |
| Markgräfler | Ablaufgeld (*Expiry money*) | Against € | No | 3 months | R: 3%,<br>EX: 2% | No | From extra premium:<br>1% to issuer,<br>2% to non-profit organisation |
| Urstromtaler | Ablaufgeld (*Expiry money*) | Against € | No | 6 months | R: generally not possible.<br>EX: 5% | 10% | NA |
| Kirschblüte | Ablaufgeld (*Expiry money*) | Against € | No | 6 months | R: 5%,<br>EX: 4% | No | After deduction of costs to local societies |
| Berliner | Ablaufgeld (*Expiry money*) | Against € | No | 6 months | R: 5%,<br>EX: 2% per further quarter | 2% | Earnings from R to non-commercial projects.<br>Earnings from EX to issuer. |

Source: Author's own research

# **Regional money in Europe** (except Germany)
(as of June 2006)

## ▲ Regional money without integrated loss (in circulation)

**1** Northern-Ireland
Pound Sterling
Ulter Bank, Belfast
1836

**2** Northern-Ireland
Pound Sterling
Nothern Bank, Belfast
Date unknown

**3** Northern-Ireland
Pound Sterling
First Trust Bank, Belfast
Date unknown

**4** Northern-Ireland
Pound Sterling
Bank of Ireland, Dublin [1]
Date unknown

**5** Findhorn/Scotland
Eko
Ekopia Resource Exchange Ltd.
May 2002

**6** Scotland
Pound Sterling
Clydesdale Bank, Glasgow
Date unknown

**7** Scotland
Pound Sterling
Royal Bank of Scotland, Edinburgh
1727

**8** Scotland
Pound Sterling
Bank of Scotland, Edinburgh
1695

**9** Copenhagen/Denmark
Løn
Christiania
1976

**10** Valchiusella valley/Italy
Credito
Nazione Damanhur
1986

**11** Nature reserve Aspromonte/Italy
EcoAspromonte
National park Aspromonte
2003

**12** Axarquia/Spain
Axarco
Antonio Gámez Burgos
1988


## ● Schwundgeld (in circulation)

**13** Basel/Switzerland
Bon-Netz-Bon (BNB)
Netz Soziale Oekonomie
1 January 2005

**14** Schrems/Austria
Waldviertler Regional
Waldviertler Verein für soziales Wirtschaften
1 May 2005

## ● Schwundgeld (initiative)

**a** Bretagne, Nord-Pas de Calais, Ile de France/France
SOL (SOLidarity plastic money)
Centre des Jeunes Dirigeants et des acteurs de l'economie sociale
Date unknown

**b** Milan/Italy
Libra
Libra S.r.l.
Date unknown

**c** Kroton/Italy
Kro
Nino Galloni
Date unknown

Source: Roesl (2006). - **1)** Issuing bank located outside the region in which the money circulates. - **2)** In circulation in whole Scotland.

# Local Exchange Trade Systems (LETS, Tauschringe) in Germany

● LETS
as of October 2004


Source: Roesl (2006)

# Illustrations

**Figure A1: Baptisttaler**


**Figure A2: Chiemgauer**


Quelle: http://www.chiemgauer.info

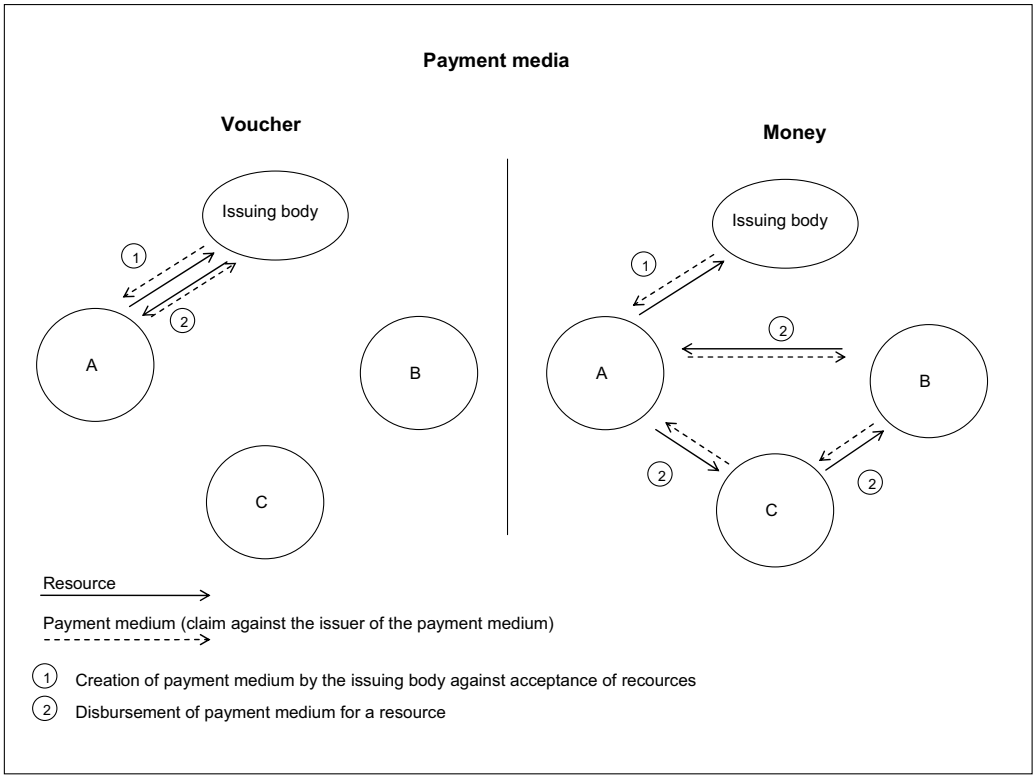
**Figure A3: Kann Was**


**Figure A4: Urstromtaler**

## Appendix 1: Regional currencies – voucher or money?

The regional currencies are put into circulation by private societies which issue the payment media in the form of paper notes in exchange for euro.[51] These notes can be used in local businesses to pay for goods and services. A crucial aspect which sets such payment media apart from voucher systems is that the notes can be used to make purchases at *outlets other than the issuing body itself*. In contrast to "genuine" voucher systems,[52] where use is confined exclusively to a bilateral business relationship between the voucher issuer and the voucher holder, the regional currencies may be acquired to pay for goods and services which are provided by third parties (see chart below).

**Figure A5: Categorisation of payment media**




They are consequently to be construed as a *transferable* claim on the issuer which expires only when the central institution withdraws the notes.[53] Thus, a local

[51] For the various regional currency issuance, see Table A3 on p 41.
[52] One example of a "genuine" voucher is the "Bethel-Euro" (formerly "Bethel-Mark") which has been in circulation in Bielefeld since 1908, with a volume in circulation of currently around €200,000.
[53] In the case of "genuine" voucher systems this happens automatically with payment since, in such a system, the issuer and of the payment medium and the issuer of the payment medium are identical.

circulation of money arises to the extent that the regional currencies are channelled back to the customers of the participating enterprises as small change and/or used as bonus and part-wage payments to the employees and/or deployed for payments among the enterprises. Furthermore, the notes have their own unit of account, such as *Chiemgauer* or *Hallertauer*, which ensures that the available products can be compared in terms of their value.[54] The regional notes also serve as a store of value, even though this monetary function is inherently restricted in the case of *Schwundgeld*. Nevertheless, these notes allow purchases to be deferred. Hence, as the notes fulfil all three monetary functions, they constitute money according to economic criteria.[55] This assessment is in no way altered by the fact that such notes fulfil the monetary functions less well than the official payment medium.[56] Even any overprint with the word *Gutschein* (voucher) or the often explicit requirement that the money holder has to be a member of the regional society does not invalidate the monetary functions. The simple fact is that "money is what money does". These considerations also apply to the planned regional giro currencies (*Giralwährungen*).

[54] In practice, an 1:1 exchange rate against the euro is chosen, which makes a parallel pricing in regional currency units and euro superfluous.

[55] For an anthropological view of money that departs from the traditional economic perspective, see Seyfang, 235 f..

[56] See Hayek (1977), p 39 ff. Following Hayek's suggestion, it would be possible to speak of competing "circulation media" in this context. Other terms, of a more semantic nature, which have been created and are used in the literature, such as "near money", "money substitute", "near-money asset" or "money surrogate" do not appear to be of much assistance at this point, however, as they are ultimately used to characterise no more than a payment medium which fulfils the money functions in principle but not as well as the conventional payment media. See Timberlake (1987, 1981).

## Appendix 2: Costs of money holding and regional bank profit

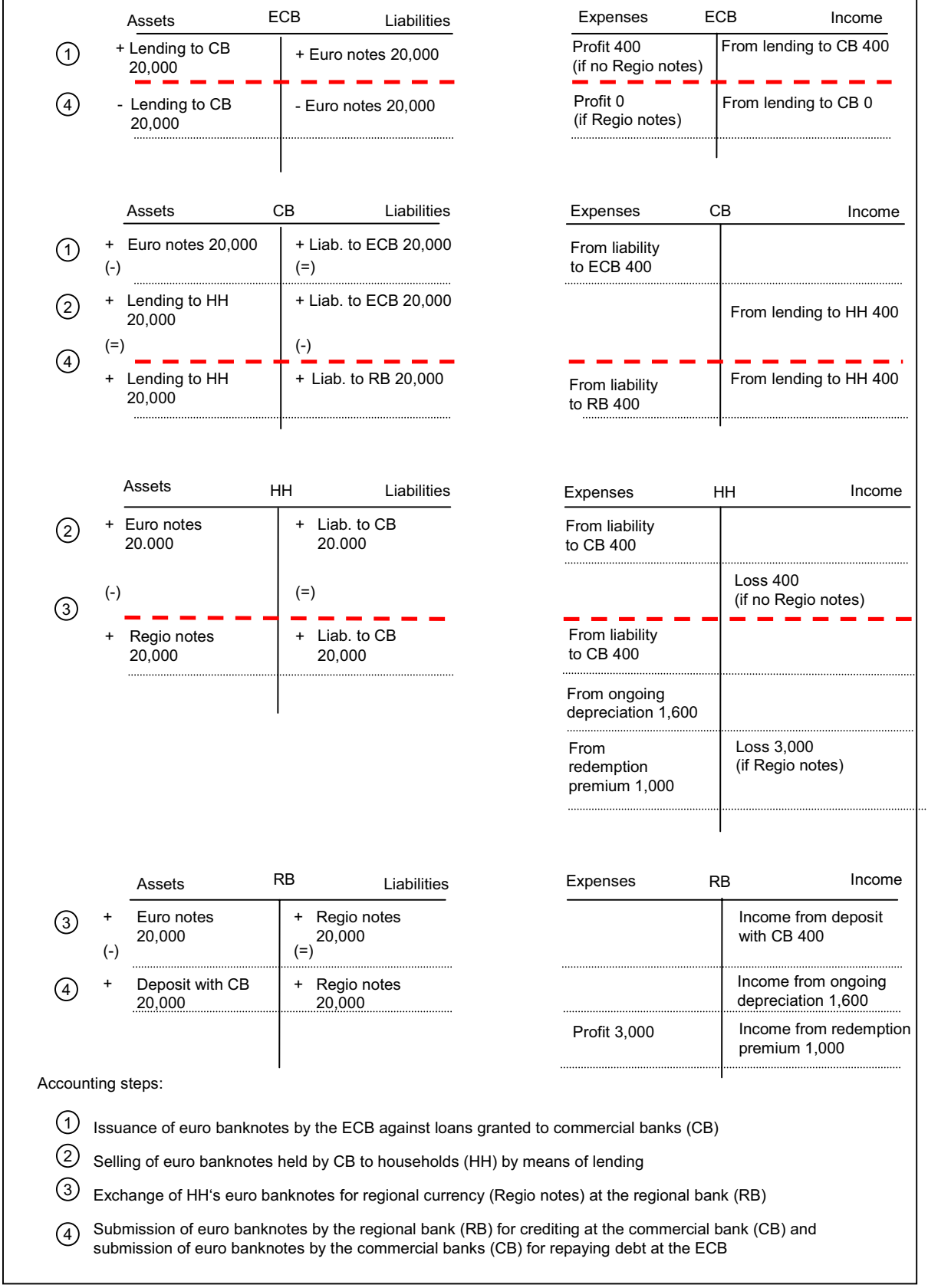
The following example, based on typical data for the most widely used Schwundgeld variant, stamp scrip, shows how expensive *Schwundgeld* ultimately is.[57]

Let us assume that the money holders in a community, instead of holding euros, are prepared to hold regional currency to the value of €20,000 for one year in order to pay for their transactions with these notes. They now exchange the euro cash which they bought earlier through the regular banking system from the Eurosystem at the rate on the main refinancing operations (2% or €400) for the regional currency notes at the central issuing institution. This now invests the resources with the regular banking system, where the institution – let us assume for the sake of simplicity – is to receive interest at 2%, and the regular commercial banks, in turn, may return the euro amounts they have received to the ECB to repay their outstanding debts. Admittedly, this pure exchange of payment media poses no additional burden on the users of regional currency. The seigniorage (€400) now flows to the regional bank and not to the Eurosystem, however, as is the account scheme below plainly shows.[58] The various forms of *Geldschwund* do represent an additional burden for the regional currency holders, however. If the ongoing monetary depreciation amounts to 2% of the nominal value per quarter, as is usual in the case of stamp scrip, this accumulates (excluding the effects of compound interest) to 8% per year. If the regional currency is exchanged back for euro in one year's time, a further 5% of the nominal value becomes due. Consequently, the users of *Schwundgeld* are left with additional costs of money holding amounting to some 13% of the nominal value, or €2,600 per year. The overall costs of holding regional currency in this example may therefore be quantified at €3,000. Compared with the costs of holding official money balances, which amounts to 2% of the nominal value (€400) in line with the assumed underlying ECB main refinancing rate, this is a hefty increase of 650%.

[57] In the case of "expiry currencies" (*Ablaufgelder*), which do not have an ongoing loss of value, the costs of money holding and therefore also the regional bank's (gross) profit are correspondingly lower.

[58] The assumption of currency substitution is key in this context. By contrast, if the issuance of regional currencies were not accompanied by an equal-sized reduction in the volume of euro in circulation, the Eurosystem's seigniorage would, of course, not decline (as sharply).

**Figure A6: Regional bank profit as recorded on the balance sheet**




Accounting steps:

1. Issuance of euro banknotes by the ECB against loans granted to commercial banks (CB)
2. Selling of euro banknotes held by CB to households (HH) by means of lending
3. Exchange of HH's euro banknotes for regional currency (Regio notes) at the regional bank (RB)
4. Submission of euro banknotes by the regional bank (RB) for crediting at the commercial bank (CB) and submission of euro banknotes by the commercial banks (CB) for repaying debt at the ECB

For the sake of simplicity, the example above disregards the costs of money production. This may perceptibly overstate the regional bank's profit situation, at least as long as it sells only comparatively small cash denominations whose production costs are relatively high in comparison with the nominal value.[59] However, this does not make the slightest difference to the fundamental assessment that *Schwundgeld* currencies are expensive. This is because an expenditure item of this kind reduced the regional bank's net profit but not its earnings. From the point of view of the money holders, however, it is precisely the earnings – and not the profits – of the issuing banks which correspond to the money holding costs to be financed. From a technical financing perspective, it is ultimately irrelevant whether the regional bank pays printing costs or makes other outlays with these earnings.

[59] See Godschalk (2006).

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