International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 137-151

COOPERATION AND INTERTRADE BETWEEN COMMUNITY CURRENCIES: FROM FUNDAMENTALS TO RULE-MAKING AND CLEARING SYSTEMS, INCLUDING A CASE STUDY OF THE ZURICH AREA, SWITZERLAND

Jens Martignoni*

FleXibles - Association For The Investigation Of New-economy Systems, Zurich, Switzerland

ABSTRACT

Cooperation, interchange or intertrade of complementary currencies is not yet very common, perhaps of because the funding impulse of most complementary currencies does not cover the question of interchange and cooperation yet, or because theoretical aspects are not often studied. The article describes money or currency as an instrument of cooperation, based on a sociological and institutional economics background. It then postulates currency as an operating system and focuses on the technical terms of trade if one would try to establish cooperation between such systems. Basic principles of interchange and intertrade, which are necessary for success, are presented, such as the ideas of trade balance, compensation funds, exchange rates and clearing, set-points and limits, references, anchoring money and tolls and taxes. Further some aspects of governance and negotiation are discussed and a nested framework of rules is adapted to currencies. As an Appendix a case study of the Zurich region is presented where a process of negotiation and building of an interchange network between several CC-groups is on-going.

ACKNOWLEDGEMENTS

I would like to thank the participants of my first presentation and the different people who discussed with me the topic of cooperation at the CCS-Conference in The Hague. A special thank goes to my colleague Lucas Huber and the two reviewers for adding important thoughts and improving the article substantially and to Mr. Beat Morf who worked hard to do the editing and correction in English.

* Email: jmartignoni@flexibles.ch

To cite this article: Martignoni, J., (2015) 'Cooperation and Intertrade between Community Currencies : From fundamentals to rule-making and clearing systems, including a case study of the Zurich Area, Switzerland' *International Journal of Community Currency Research* 19 (D) 137-151 <www.ijccr.net> ISSN 1325-9547

MONEY AS AN INSTRUMENT OF COOPERATION

Economic theories refer to money as a means of exchange or as a store of value etc. Money is still shown as a kind of technical invention to overcome some barter-trade-difficulties in todays textbooks (e.g. Samuelson/Nordhaus 2010, p. 684 ff.). The financial system is then used as a term to describe the collective effects of all money. This system is watched and deeply researched to demonstrate its effects and find out some "natural laws" among it. In theories of monetarism e.g., money is seen as kind of energy that has to be mastered by the central banks. The main goal here is to avoid inflation and the second is to keep up economic growth. This behaviour must be fatalistic if money really was invented by man, but is then taken as a kind of unchangeable natural force. Unfortunately these bleary theories meet a public opinion, where money became an individualistic tool or even a magical instrument for living a good life personally. The further inconsistencies of all these believes have shown up very strong lately and many great thinkers and scientists have already presented much better models, but still this simple bunch of unreflected thoughts remains the leading paradigm of our time. This strong discrepancy might even be one reason why the community or complementary currency (CC) movement arose: To dispel such false beliefs.

Because here on a small scale it becomes obvious what is hidden in the big central-bank-money-system behind an obscure wall of power-games, meaningless complexity and out-of-date habits: money is a major means for working together, for sharing resources and for sharing wealth. There are other aspects of money, but in this article we will look specifically at these. Unless specified, we author all the figures in the article.

Emile Durkheim wrote his pioneering work *The division of labour in society* already in 1893. He discussed the moral and social side of this on-going phenomenon and pointed out clearly at the end:

> "But if the division of labour produces solidarity, this is not only because it makes each individual an 'exchangist', as the economists say; it is because it creates between men a whole system of rights and duties which bind them together in an enduring way. Just as social similarities give rise to a law and a morality which protect them, so the division of labour gives rise to rules which guarantee peaceful and regular cooperation between the divided functions." (Durkheim 2012, p. 477)

As we know today, Money is an undispensable tool for the division of labour, but Durkheim did not name the money in his description, he just name its function: *the division of labour gives rise to rules which guarantee peaceful and regular cooperation between the divided functions.* This is exactly a description of the function of money or better of the role of currency. It is as a "vehicle of rules" an instrument of cooperation and facilitates it strongly. Further on Durkheim continues: „But it is not enough that rules exist. They must also be just, and for that to be so, the external conditions for competition must be equal." (Durkheim 2012, p. 478). So the division of labour requires that money itself be built with just rules and functions that support equality.

In this article we will look at institutional and organizational aspects of cooperation between currency communities. This is already a next level. If cooperation is a basic feature of a currency, the exchange between different currencies must include this aspect too. In other words: we will take a meta-look at cooperation and cooperation-instruments.

CURRENCY AS AN OPERATING SYSTEM

Currency is an interesting term because it demonstrates that a big difference exists between money on an individual level and money on a collective level.

One generally accepted definition of currency has two aspects (from the internet, The Free Dictionary):

1. Money in any form when in actual use as a medium of exchange, especially circulating paper money.

2. Transmission from person to person as a medium of exchange; circulation: *coins now in currency*.

In English current (from Middle English *curraunt*, meaning *in circulation*) highlights the flowing aspect of money. In German the term „Währung" (from the historic Middle High German *werunge* for "Gewährleistung" or warranty) emphasizes the aspect of a reliable order or a guaranteed value. Another more figurative description of money and currency taken from weaving could be: "currency is the warp ("steady"), money the weft (in action)".

All these descriptions are perhaps good and useful. I suggest the following definition for the term currency used by the Community-*Currency*-movement:

> A currency is a representational reflection of a collective and dynamic agreement (or institution or framework of rules) to manage wealth in a community. It is an instrument for the exchange of goods and services and the determination of participation of the participants. A currencies two main components are *quantity (represented by number)* and *unit (represented by name).*

Currency functions as a kind of operating system for the economy but it is much more difficult to upgrade than a computer's because a part of the code is in peoples' minds and habits: It has become an *institution*. Institutions are systems of established and embedded social rules, that structure social interactions, as defined by Hodgson (2006, p. 18). By reinventing money on a small scale, CC's become organizations which are defined by Hodgson as:

Organizations are special institutions that involve (a) criteria to establish their boundaries and to distinguish their members from non-members, (b) principles of sovereignty concerning who is in charge, and (c) chains of command delineating responsibilities within the organization. (Hodgson 2006, p.18)

These organizations create and hold the frame of a currency and maintain some basic functions, while others are set within the daily flow of the money by its users (agents). Each organization covers a small or even very small area of economic activities (compared with the overall system). As small areas they might remain isolated islands and not be able to facilitate the urgently needed change. Only if the existing organizations (or groups) start to work together and build up a network of cooperation, an advanced and more intelligent operating system for the whole economy might be developed. This new operating system then would challenge the existing institution and in case of success will be transformed into an institution itself.

FORMS OF COOPERATION

It is not easy to categorize the different forms of cooperation which might occur between groups or organizations that emit a currency because such forms rarely exist today. I propose the following terminology to talk about the different aspects of cooperation between currency communities in this article:

Suggested terminology

Cooperation: stands for any kind of structured settings and cooperative measures between such groups. Cooperation starts with communication between responsible members of different groups and might continue to negotiation of terms of trade up to strong contracts between the groups. The cooperative area covers a wide field from very simple details of respecting and acknowledging the other group, joint action or e.g. sharing and developing the same accounting-software. Cooperation is essentially needed for:

- establishing additional instances like councils or joint funds,
- lobbying against legal discrimination of CC's,
- coordinating activities,
- investigating innovation,
- setting up standards,
- educating about CC's in general.

Interchange: stands for general exchange operations between the groups. Interchange is used to describe a closer cooperation of a more or less reciprocal exchange. It includes intertrade but also subjects like membership exchange, or exchange of business data and information.

Intertrade: stands for the exchange of goods, services and currency between the groups. Intertrade is therefore used as a term to describe trade as the central economical part of such a cooperation. It is essential to see that intertrade is not necessarily the dedicated form of cooperation which has to be used by CC's. In some cases trade between CC's might be restricted or even prevented by cooperation, e.g. to avoid unbalances or protect certain forms of social relationships.

Advantages and disadvantages of cooperative actions between CC-organizations

The CC-movement tries to build a better world by inventing and using new kinds of money. Many of its small but mostly independent organizations are already functioning well, influencing people and helping to cover urgent needs. They are precisely adapted to their environment and most of them are nonprofits. Would cooperation and especially the possibility of intertrade not destroy the whole idea of a sustainable small-scale economy? Let's see some pros and cons.

Pro cooperation of organizations:

- It strengthens the individual organization and supports the whole movement.
- It can get bigger markets for own products and services.
- It can help to overcome the "critical mass" of participants for a currency.
- A big network can support trustworthiness and safety of a currency.
- It gets more resources by sharing them.
- It can help to develop new forms. Etc.

Against cooperation:

- We need strong dams and borders against the "money-flood" and today's wrong money. With interchange they will be weakened.
- There are much greater risks of unbalance and abuse.
- The easy-to-use interchange mediums already exist: use dollars or euros to get anything.
- The stronger will survive and the smaller will be merged, as always, and we won't get away from troubling the world with inadequate money.
- The risk of causing legal problems and judicial examinations will increase - at least when the volume of interchange reaches a certain level.
- Interchange between different kinds of currencies makes it harder to define the purpose and the characteristics of a specific currency. Etc.

COOPERATION TO SUPPORT DIVERSITY

One very important subject for the future of the world economy and of mankind's life on earth is the mental jump or shift of paradigm from a particularized viewpoint of "we against the others" into a inclusive viewpoint of "we respect the others". The old paradigm was maybe based on *Stability* through a *Unity* of money as one "neutral" medium, the new one will be founded on *Resilience* through *Diversity* (see Hubert, 2011 or Lietaer et al. 2012). A new

money system or a new network of currencies should be built on that. But what does this mean?

Diversity

Diversity is a topic that does challenge us. Theory and our mind would agree with more diversity, but through many different types (of whatever) the area of unknown is raising and this might rise our fear of it too. This causes troubles, irrational behaviour and limits trust, which is essential for any cooperation. In long terms we must learn "living diversity" as it seems to be a natural law. So it is important to find methods to adapt it and one of these methods could be a split up of "the one money" into diverse currencies. A future diverse currency environment might have some of the following properties:

- Diversity will have as a result many different currencies and exchange systems close to each other. Different topics and tasks might be served by different types of money - different philosophies and different areas/regions too.
- Currency communities will have to build formal structures of governance, of insurance and rebalancing abilities, of political or juridical lobbying, and of internal standards and quality matters.
- Worldwide trade will be strongly reduced by intercurrency borders, and local trade strongly reinforced by the advantages of local currency.
- There will be gateways to exchange the different currencies, which will be regulated by the needs and possibilities of the participating communities and the aim to assure fairness. This would be a first "guardian of resilience".
- Prices might be adjusted at each gateway with many kinds of toll-like fees and additional taxes and through exchange rates to reduce imbalances between the communities. This would be a second "guardian of resilience".
- There will be special treaties and funds for compensation and fair balance as a third "guardian of resilience".
- People will perhaps have a large selection of currency in their "wallet" for specific uses and will find it strange how only one money for everything was possible in the past.

Governance

Governance appears to be a top priority or a superior topic when considering cooperation. Existing networks of CC's are usually based on their type. In many countries at least informal networks do exist. There are already some established national federations such as:

- IRTA, The International Reciprocal Trade Association (Barter systems)
- Associazione Nationale Banche del Tempo in Italy (time banks)
- Regiogeldverband Deutschland (regional money)
- LETSLINK UK, UK Local Exchange Trading and Complementary Currencies Development Agency (LETS)

Most of them are nationally based. Only the IRTA is an international network or umbrella organization that also requires its members to follow certain standards of practice. The general influence of these structures on governance of CC's is still quite small. A crucial question discussed is if conventional structures as associations are still useful in a time of transition and with the goal of establishing a sustainable economy. So new models might come into focus like sociocracy (see website Sociocracy) or holacracy (see website Holacracy).

INTERCHANGE

Currency communities are very much focused on the exchange between their members either by using their currency or by the implicitly resulting processes such as giving or sharing. Interchange between such groups is therefore a natural step to take and might include:

- sharing of information, experience or templates for rules or structures;
- setting up joint structures for support, research and discussion.

Future possibilities of interchange might include:

- exchange of data about members or even emphasizing multiple memberships;
- exchange of data on trade and information about currency parameters to allow better governance of local and regional economies or even the world economy;
- install instruments to facilitate fairness and help groups for the disabled.

A further preparation for the understanding of cooperation between currency communities is to look at the field of balance or equilibrium, which is an important subject if we start to talk about intertrade.

PRINCIPLES OF ECONOMIC EQUILIBRIUM

Economic equilibrium is a term widely used in economics but here we do not refer to such problematic concepts as competitive equilibrium or the Nash equilibrium because they are theoretical constructs far away from reality. The term equilibrium as it is used here means a temporary result of a dynamic process of balancing. A good example is a human being standing upright. While he or she is standing

upright in equilibrium, the muscles are always working to balance this state. Even closer to an economy is the "walking-equilibrium" where an additional movement forward of the body has to be balanced. So the equilibrium can be seen as a combination of a set-point that constantly has to be approached and a specific use of alternating muscles to keep the balance. (For a further introduction on set-points see under technical terms and items.)

For currencies as operating systems this metaphor can be useful to define the necessary systemic parameters. There is a need to find or define the set-points which sometimes already result from certain assumptions. A second set of parameters, "muscles", meaning working parts which are able to keep a balance, has to be defined or identified.

One other basic assumption now made regarding currencies is, that with a currency and the translation of values into numbers, set-points and balances can also be represented as numbers. "Constant positive" numbers are called wealth, "constant negative" numbers are called debts. Here time is crucial to determine what the significance of "constant" in a certain case means. We will now distinguish different levels with different set-points and different balancing methods which have to be used.

Individual level

An individual person or entity as a participant or user of a currency should have its input-output balance: by spending money his/her balance gets smaller, by earning money his/her balance gets larger. Ideally both of these activities should have the same strength (see Figure 1). But where is the set-point? Different answers might occur:

- In a LET-System the individual set-point is zero. Negative is possible and even necessary for some to "create" this type of money. Individually there is a negative limit and in some systems there is also a positive limit. So it uses a certain (usually quite small) bandwidth.
- In the dominant central-bank-system the individual set-point is surely above zero for ordinary people. It is not defined where but it is suggested the higher the better and it might be infinite (which indicates one more source of systemic instability in this system). Debts or a minus balance are possible but will be veiled and this is still frowned upon. This is somehow strange because this system works in one point much the same as LETS: large amounts of money only exist as long as somebody is in debt.
- With the old-fashioned gold-coin-currency (or other metals too) the set-point of the whole system was the total amount of metal. A positive account was a certain number of coins; a negative number was somehow not possible. Instead one had to use a parchment or make a personal promise to pay it back to create "negative coins".

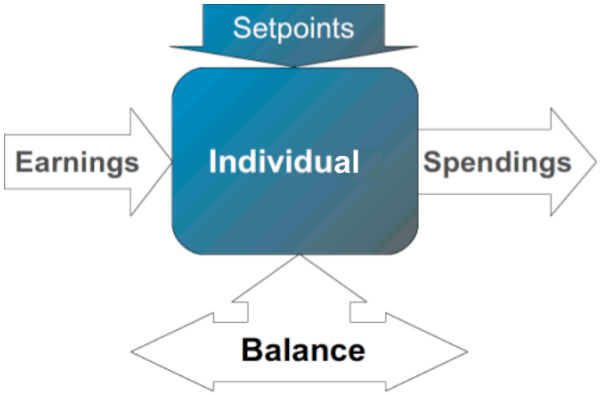


Figure 1: Individual balancing scheme

A general assumption of every currency on the individual level is, that each person or entity should be responsible for his/her balance and fulfil the requirements for the set-point(s). But as reality shows, long term debts or really large fortunes are things that are very common because the rules of today's money evoke such accumulation. A "rich man" can easily have hundreds of millions of debts and his banks are very happy about that, while a "poor man" with a debt of only €1000 will probably be put under heavy pressure to pay it back.

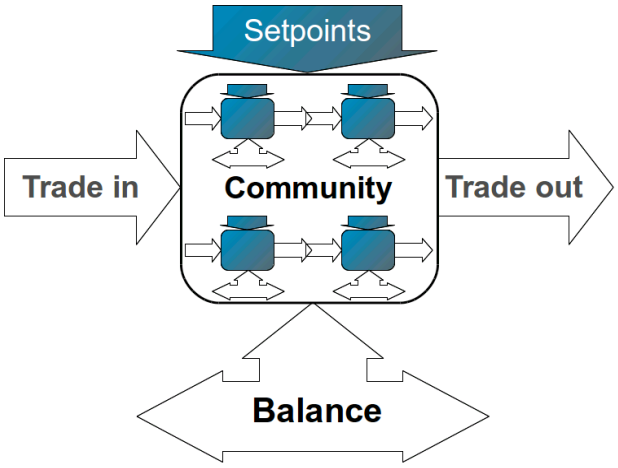


Figure 3: Currency balancing scheme in the case of inter-trade between currency communities

Group/community level

What is different if we look at the group level, meaning the group or community of people forming a currency? In this case we have additional features for equilibrium and balance to be considered as parameters. How about complementary currencies? As long as a currency works as an isolated system for itself, this question of additional parameters can be neglected. As soon as we think of starting an interchange between different systems, we have to deal

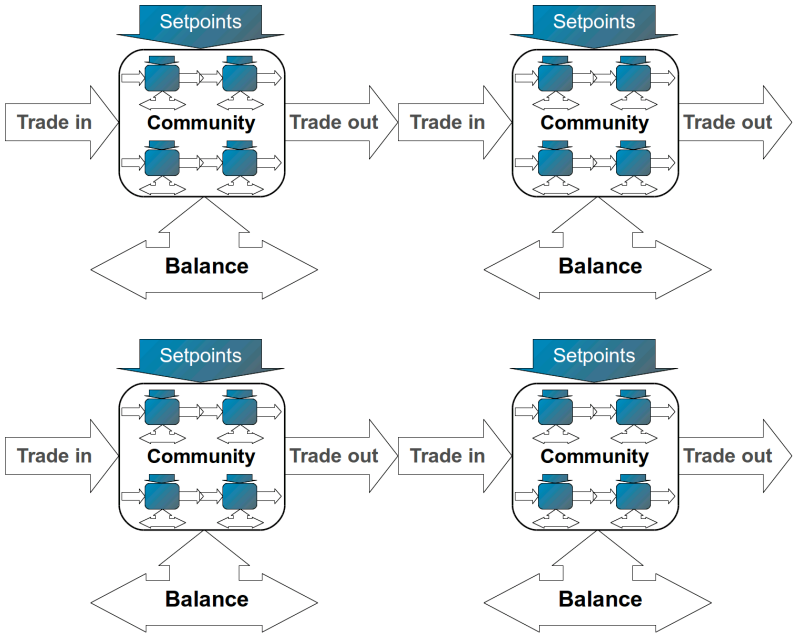


Figure 3: Currency balancing scheme in the case of intertrade between currency communities

with the parameters on the community level too. These parameters might be called "trade in" or "import" and "trade out" or "export" and the resulting balance could be understood as a "trade balance" as is usually used for countries (see Figure 2). The additional set-points on this higher level have to be defined in agreements with the trade partners, e.g. other communities. It is a part of negotiation and should be defined in a contract of cooperation.

Local or regional level

On the next level (Figure 3) the different communities or groups which started to trade with each other, must consider their behaviour and those of their partners to keep the balance here also. Therefore they might invent different instruments and measures which are explained later under technical terms.

World level

What about the world level or the level of the community of communities? If we move up one more (or several more) level(s), again we must define new parameters and build a set of level-specific rules. It is the same procedure as between groups but we should consider more generalized aspects. The world level as the highest possible level has the function of balancing the whole world economy as a regulatory framework. There is already a long discussion about doing that with a world reference currency like Bancor (Keynes, 1989) or TRC (formerly called Terra, Lietaer et.al., 2012, p. 158-166). Such a reference currency must include a real common viewpoint of the earth's inhabitants and cannot be ruled by national egoisms or false assumptions as is the case in today's institutions such as the World Bank or the Bank for International Settlements. One would have to work out in the future which parameters would be useful and how such regulations could be established.

INTERTRADE

Intertrade is perhaps the most tangible part of the cooperation of CC's. It seems to be only a matter of a technical terms and tools as they are used in mainstream economics today. But it has its underlying conditions that are often forgotten.

Conditions for intertrade

In intertrade we have to consider a new form of thinking about trade which sometimes contradicts the way of thinking of an individual trading person. Whilst he or she might say: "it must be very easy and convenient to trade and I don't want hindrances, borders or complicated rules", the group as a whole must have a collective approach and cannot have the same objectives. It's a bit like the old struggle between neoliberalism, which is the maximizing of individual rights, against socialism, which wishes to maximize the common good. But both paradigms failed completely, which makes it necessary to look for more practical solutions. The following aspects are not yet a complete list of conditions but they might help to think about it:

- There must be an agreement among the group members to start such a process.
- There must be an established group or a method to determine who is allowed or invited to speak about the rules and frames of intertrade.
- An agreement on a process of rule making must be found.
- One must talk about measures in case of imbalances, unfairness, or violation of rules.

- People must be named who are responsible for the different measures.
- A regular communication and reporting system must be installed.
- There must be constant learning and education in the matter.
- There must be a defined way out of intertrading for each group.

Limitations to intertrade

Intertrading is not always the best type of interchange, as already mentioned. For example a time bank dedicated to saving for one's old age might not be connected via intertrade to a regional currency which is convertible to legal tender because this might cause the people to think about bypassing the hours and getting the legal tender instead. It would perhaps be much better if the two organizations worked together by offering every member a "double account": a regional money account for daily local spending and a time bank account for the savings. So there would be no intertrade but still a possibility for members to emphasize or change their wishes. In general: Cooperation is always desirable, interchange as a more structured level either but intertrade demands a deeper analysis before going into it. This includes the tradeoff-option as mentioned above, as well as serious studies about the partners strengths and weaknesses and possibilities to balance them.

FRAMEWORK OF RULES FOR INTERTRADE

Cooperation between currency-systems is, as are currencies themselves, based on rules. Every LETS, Tauschkreis, mutual credit system or SEL has its individual rules valid for its internal exchange and the use of its currency. If a cooperation with other CC's is planned a set of additional rules has to be negotiated between them to define interchange and clearing procedures, limits, taxes, etc. This can be done on a higher level too and so a nested system of rules would be the result. Such a bottom-up framework might be a good approach for the CC movement. But other possibilities are thinkable, such as a standardized protocol or non-hierarchical frameworks.

Neighbouring groups first

It is good to start with a framework of the same type of currencies like a LETS-network, a barter alliance or a time-bank-clearing-system. In any case it is important to respect the "neighbouring aspect" for a first approach to cooperation. Let us not forget that currency communities are an approach to re-localize resources and avoid energy-wasting world trade. As a second step it might be good to connect local systems of different type, like a LETS which allows exchange with a time bank which allows savings of time. Because rules and aims of different types of currencies are rather far away from each other, the settings of a framework need advanced knowledge. It is not enough to convert one currency into the other but additional measures have to be taken to bridge the different aims. E.g. someone would like to transfer his LETS-income into a time bank to save for his age. When he does this, the two groups will get into an imbalance that needs attention.

The LETS-system gets a short term "profit" by moving a part of its obligations to the time-bank, while the time bank gets a long term obligation to uphold its productivity in the time after the retirement of this member.

It becomes obvious what in today's economy is veiled completely: we must think of "all the sides, the whole time and all the people" when using money. It is not a mindless instrument as it is treated today.

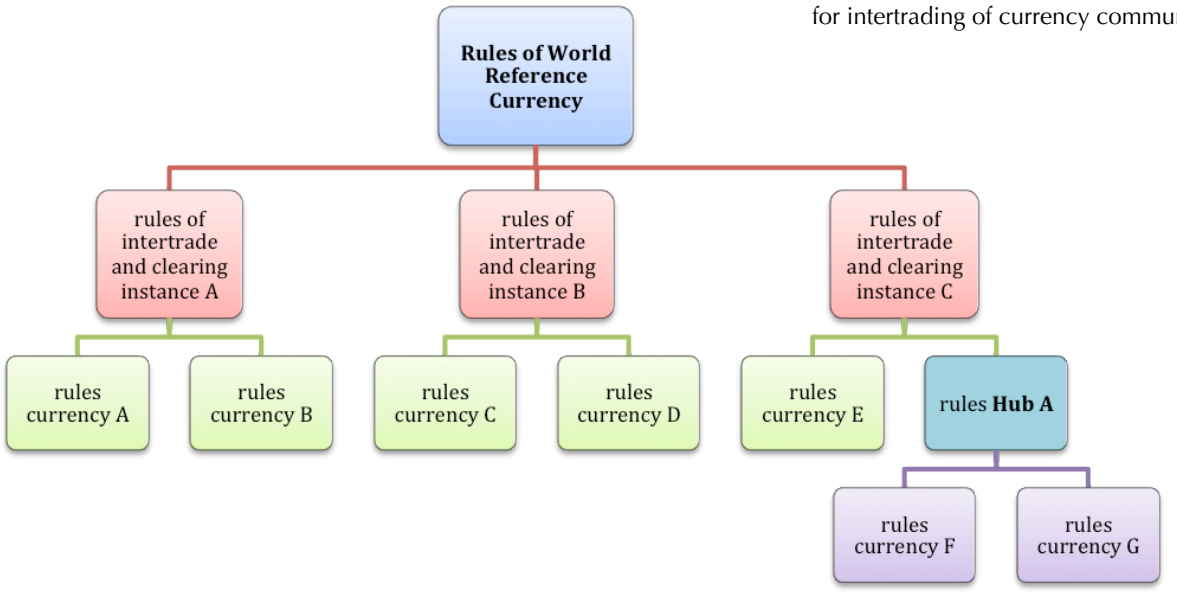


Figure 4: Bottom-up framework of rules for intertrading of currency communities

Bottom-up framework for intertrading

It looks like a hierarchy but should in fact be a federal system of coordination and cooperation. The independent currencies (communities) decide which interchange and clearing instance they wish to join. The mutual agreements from bottom up will dominate, the technical questions how to implement the necessary mechanisms should be subsidiary. In contradiction to a peer-to-peer (p2p) network, a certain part of the regulation is left to the (hopefully democratically selected) responsible of the above instances.

Today's situation in CC-cooperation looks as if this model might be in use. The different instances (A, B, C in Figure 4) might be different types of CC's such as a clearing instance A for time banks a clearing instance B for LETS and so forth. Another approach would be to define a clearing organization like the following systemic intertrading model (SIM) by cc-hub (2013).

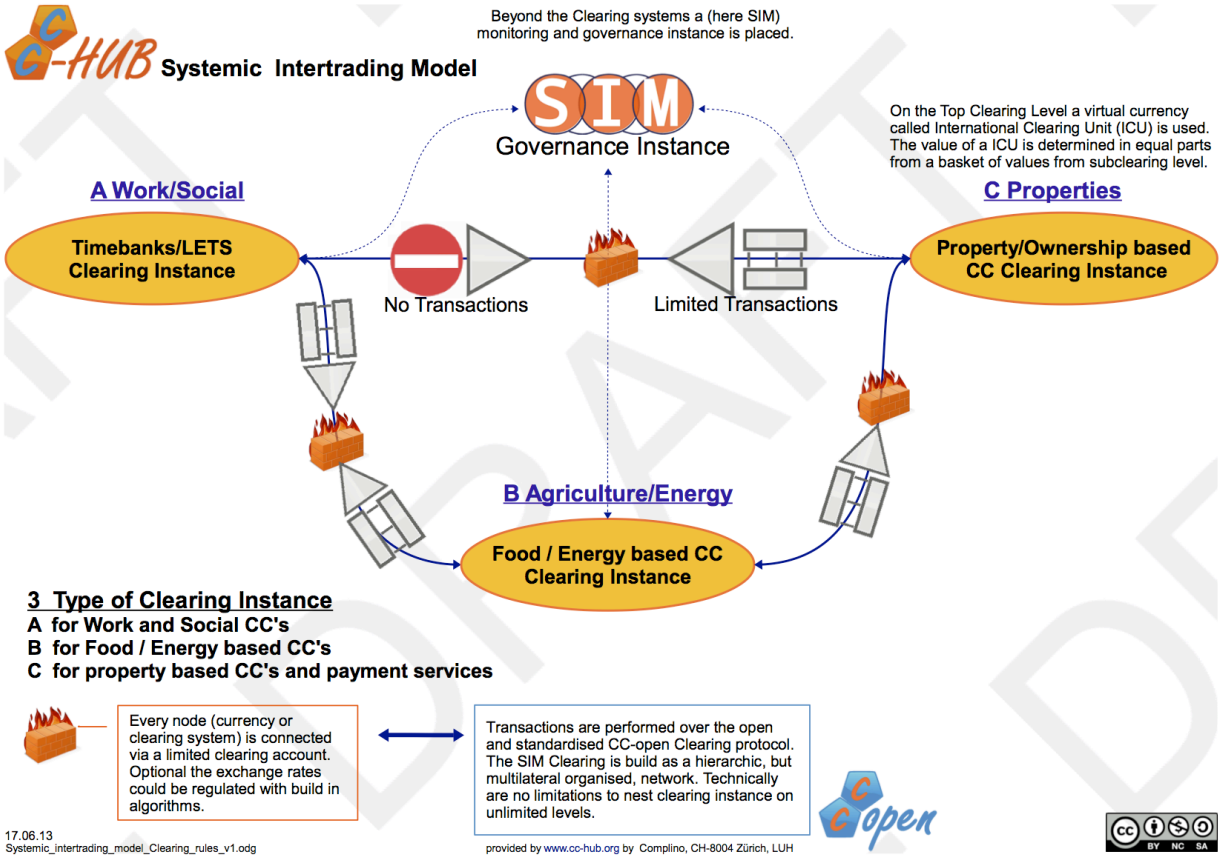
By standards

Another possibility for building up a framework is to establish first the technical standards and standardized rules of interchange and clearing. It would be like first defining a new language and then everyone (who speaks it) can talk to each other. This method might have some important advantages and greater efficiency. The difficulty is the definition of the standard itself. Many assumptions must be made in the beginning because finding an open standard which allows freedom of development is crucial. Nevertheless it is worth a try. At cc-hub.org, where I am also involved, a cc-open standard for future cooperation and clearing of CC's is suggested. During the CCS-Conference there were also several discussions about building standards for intertrade. But the topic did not yet have a clear outline, which makes sense because it is not enough to find technical solutions and protocols for clearing mechanisms. It needs an advanced discussion including the economical and social implications for the involved CC's and the whole movement.

Non-hierarchical frameworks?

The above might be a good approach for a first worldwide framework but it looks a bit static. What about the opposite, a p2p-currency-network? Is it possible to create and implement rules which are absolutely non-hierarchical? How to balance give-and-take in a multiple exchange organism without a solid frame? In existing p2p-networks it might function for a certain time with personal responsibility or control. One example for that approach is the Ripple-Network. But when the network is growing, trust has to be given to more and more further-away-beings and the possibilities of fraud are increasing. Bitcoin's solution for that was to create an even more rigid frame with its finite number and the complicated aggravated mining process, where

Figure 5: Suggested model for a systemic-intertrading model (bottom-up framework: Huber, 2013)



a kind of mathematical gard should prevail trust. Thereby they avoided the potentially difficult innovation of how to balance consciously and "face to face" the gives and gets in a social environment.

Nested clearing

The solution for an future overall intertrading system for CC's might be a complex multilevel structure that we call nested clearing. This would guarantee diversity and provide the possibility of enhanced balancing by a high number of control-points or gates between the communities. As a result a new approach to a global economic balance would come into reach. But this really might be a topic for the future of currency development.

MEASURES AND INSTRUMENTS TO REGULATE INTERTRADE

If the conditions for intertrade are given and the minimal governance measures and structures have been settled, the discussion can expand towards the technical means of how to do it. Today these issues will be mainly be implemented in software tools serving as means of execution of the agreements. The following chapters offer a variety of technical aspects that should be considered before the tools are finally built.

Set-points and limits

Why does a currency need set-points and limits? A simple answer: we live in a limited world and its limits and set-points have to be mapped somehow in currencies in order to stay in touch with reality. A limit in a currency always occurs as pair: upper limit and lower limit. Of course in some cases only one side is emphasized or stressed but in general both should be implemented. Limits might be more static like a usual credit limit in a LETS or might be dynamized by some procedures such as by considering performance measurement (Greco, 2013, p. 21). To use a set-point for a currency is to take over a concept from control technology. It means that we invent a kind of healthy state for individuals as well as for communities. Examples:

- A mother with a child needs 2'000.- (any currency) regularly every month to live normally. So she should also get an income of 2'000.- . Now 2'000.- is her set-point. When the child gets older, the set-point will shift, maybe 3 years later the mother has to target 2'500.- and that will be her set-point then.
- A time bank system caring for the elderly has 100 old people to be cared for. Every month these old people need 1'000 hours so the set-point for the work and savings of the young people can be set at 1'000 hours a month.

In reality of course some more circumstances have to be considered but the basic principle remains the same. While the limits may be static, a set-point always includes dynamics and is bound to time. It is also possible to calculate a performance out of it as Greco (2013) suggests in different forms, but the set-points themselves already have an importance for currency management.

Trade Balance

As mentioned above, the trade balance is used to describe the difference between ingoing and outgoing trade (import and export) of a CC in interchange with other CC's. An example of a year interchange (intertrade) between three CC's will help. We assume the same type of currency (e.g. hours) and a trade-period of one year:

Buys from	Sells to			Total sold
	A	B	C	
Currency A	n. a.	1000	1000	2000
Currency B	3000	n.a.	2000	5000
Currency C	3000	3000	n.a.	6000
Total bought	6000	4000	3000	

Resulting trade balance:

A 2000 sold, 6000 bought = -4000

B 5000 sold, 4000 bought = +1000

C 6000 sold, 3000 bought = +3000

The people using currency A have bought much more than they sold and currency C's people the opposite. Currency B is not far from a balance. Now two questions must be answered after that year:

- Is the imbalance mainly of A and C a problem and why? Maybe it is not a problem because it has a temporary cause.
- If it is a problem (maybe because it is predictable that A will continue in the same way in the following year): how can the balance be restored?

The answer to the second question may need tools, economic intelligence or negotiation processes and is a very important part of sustainability. The ongoing destructive process with the euro, where trade imbalance is a crucial point, shows how much a community can suffer if the question of balance is not taken seriously. For example: A should prevent its members from buying outside and instead animate them to sell outside. The opposite is the case with C, they should buy more and sell less. This could be done by setting limits, by adding fees and taxes, by stimulating and organizing the market, by devaluation of currency A against C, etc.

Exchange rates

Today, in official currencies the exchange rate is taken as a price like other goods too. This "price" is a result of a mixture of highly speculative betting by "investors" against political or strategic interventions of the central banks. Therefore the resulting exchange rate has only a marginal relation to the real economic operations. This is a no-go for all CC's. The currencies themselves are to be prevented from becoming objects of trade, they are instead the meters for measuring the amount of trade. The exchange rate is therefore not a normal price but a systemic value and has to be taken out of the influence of individuals.

By the adaption of an exchange rate a trade imbalance can be corrected or even prevented to a certain extent. It is a very powerful instrument and has to be used with intelligence and care. Therefore real trade has to be measured and out of that an exchange rate can be calculated. When the rate is adapted, the system will shift and many parameters change inside. So it cannot be foreseen exactly how much the rate has to be. Instead, after some time a new calculation has to be made and the rate can be adapted again. It is in fact a dynamic balancing process and has to be maintained in a whole systemic view together with all the other measures. In general there are three methods of exchange-rate calculation:

1. past-oriented-method, which derives the exchange rate from the real trade volumes of the past period.

2. future-oriented-method, which derives the exchange rate from assumptions of the trade volumes of the following period

3. mixed methods, which combine the above in a certain manner or use more sophisticated mathematical models to keep the involved currencies in balance

Today many small CC's which trade in between use a fixed exchange rate by a simple one time agreement. As said above, this "method" does seldom fit the basic requirements of the existing dynamics and so might be bound to fail. If trade is very small or when some corrections occur naturally it might function for some time.

References or anchoring money

Through exchange the question of reference also arises. If there are only two or three currencies there is no need for reference because they can easily be compared to each other. The more different systems there are, the more convenient a reference is. This meets with another need or wish: to anchor the value of money somewhere in the "real" world. Last but not least the "security-aspects", that wealth could be preserved perfectly and a final reference might be a way to prevent instability are additional reasons for using a reference. Collins/Schuster/Greenham (2012, p. 27) describe restoring trust, preventing "virtual wealth", preventing instability and ecological degradation and promoting the (energy) transition as important reasons for anchoring money. They indicate and describe two main anchoring possibilities (p. 28-32): a basket of resources, and a single commodity.

Indeed these have been the main classical approaches to that question. But there are more possibilities, which have not been reflected on very much, but follow out of a new understanding of value and trust, which the CC-movement is inherently built upon. Two possibilities are:

- Time as a new base of value: Especially the "one-hour-is-one-hour" approach meaning that every persons working-time has equal value, be it a cleaning job or a lawyers coaching. It is theoretically not well based but widely used in mutual exchange and especially in time banks. Time therefore could be used as a global reference.

Bundling personal responsibility by pledge or surety might be another trust-based anchor. It is used e.g. in the Minuto Voucher System (www.minutocash.org, 2013) and becomes an insurance-like system if it is wider spread and is based on the transparancy of relations and capabilities. It is already one strong anchor of todays money system unless todays financial industries have perverted it with lots of weird instruments without any transparency. Conceptual approaches for referencing currencies are, as already mentioned, e.g.:

- The Terra or the Trade Reference Currency TRC as an initiative for multinational businesses (Lietaer et al., 2012). It is based on a basket of resources.

- The Bancor concept of J.M. Keynes (Keynes, 1989) which was basically based on a gold standard but included thoughts about a basket of commodities.

A good overview and more examples about that topic can be found in the already mentioned NEF publication 'Energizing Money' (Collins et al, 2012).

Compensation funds

There might be reasons why a trade balance cannot be reached by certain CC's for structural reasons. For example, unbalanced resources as in a slum where all people have a low education, or situations as in a city where a big factory was closed, in a country area where a bad summer reduced the harvest, etc. In such cases a compensation fund can help to regain the balance. Funds should be installed on all levels. The funds might be filled by tolls and taxes or by contributions of the "rich" currencies and pay compensation in the case of weak systems or "disabled" currencies. Compensation funds could also serve as a systemic insurance in case of bankruptcy of a member-CC. Another more radical method of compensation would be a regular quittance in a jubilee year, as described e.g. in the bible or in other historic contexts.

Tolls and taxes

Is there anything good about tolls and taxes? Today these words, denigrated by neoliberal "free market" sermons,

have gotten a bad negative touch. But the only fault in the past about them was to go too far and use them as a weapons for fighting each other or enrich a few at the expense of many. Tolls are instruments of protection and small economies will need some protection to function as beneficial as possible because so called "free trade" will not pay for its true costs but externalize them as widely proven today. So some barriers need to be installed and a toll might be a solution sometimes. Also taxes can serve as good instruments to keep a balance between different CC's if they are used rightly. What does this mean?

- They should be used very sparingly.
- The earnings out of it should be used to fill a common compensation fund and not the pocket of the organization which taxes.
- They are also indicators of imbalances and should motivate to fight the causes (such as wrong pricing, aggressive behaviour of participants, exploitation, black markets, etc.).
- They need a "positive anchoring in culture", e.g. regular re-discussion of the meaning and importance between the affected and the system-managers. People should be able to see the rightness and fairness of taxation or tolls and unlike today not making a sport avoiding to pay it.

Clearing systems

If an approach of interchange of CC's is put on the agenda, maybe the the first task will be that of clearing. Clearing used as a term in financial circumstances means: stating reciprocal receivables, payables and delivery commitments and can include the offset processing too. Clearing is used in many areas of the modern financial industry. For use in today's CC movement the closest is the clearing between banks and how it is used to reset inter-bank commitments (usually per day). Through payments from one bank to another the sum will be transferred via a special clearing account, and accordingly the interbank clearing is made today by specialized companies and institutions like Euroclear, Clearnet or SIX.

Important for CC's is to know, that it has to be a special process with its own rules if the currency should cross the border to another currency. These rules have to form a "standard" to allow communication and the booking on the other side.

Clearing can be done manually or automatically when the banking system/software of two organizations have the possibility to "work together". Actually there are some very interesting approaches to developing solutions for the clearing between CC's. Existing clearing systems, e.g.:

- ZART (manual clearing, German-speaking countries, Austria)
- CES (worldwide, South Africa)
- cc-hub (small scale clearing, Zurich)
- Ressourcen-Tauschring (semi-automatic, Germany)

Future clearing systems which are in discussion or already working:

- Clearing Central
  cForge (Community Forge, Geneva)
- cc-open (a further development of cc-hub, Zurich)

A very important matter in the future clearing of CC's is to respect levels and structures and not to get around them. Effectiveness is therefore more important than efficiency. A nested clearing system might be a good approach. For more about clearing issues see Slater (2011) or Huber/ Martignoni (2013).

NEGOTIATION AND GOVERNANCE

Serious cooperation between CC's is not something that will happen and function by accident. It has to be governed, and of course as democratically and cautiously as possible. Unfortunately such cooperation needs much technical and economic understanding discipline and clearly appropriate leadership to be successful. So one important step in CC-movements will be to develop and teach further simple and effective methods of understanding and managing CC's and networks of CC's.

A very important item is a solid but transparent framework of rules and rule-making processes which include the people (stakeholders). Additionally there have to be negotiations and consultations between existing CC's to understand each other and build up joint cooperative structures. Negotiation is also the key to maintaining the cooperation. There will be many things awaiting us: in case of success, strong growth and the danger of falling back into old habits, in case of an economic breakdown, perhaps an existential threat as in the Argentinian case (Gomez, 2012).

FURTHER DISCUSSION

The above shall be just the beginning of a discussion. The CC-movement is not only working out solutions for an improvement of local or regional economies and social networks but might have the mission to bring back some "reality" into economics. It is possible to reframe today's economic thinking as a healthier and more understandable "science" that no longer tries to find "natural laws" in its

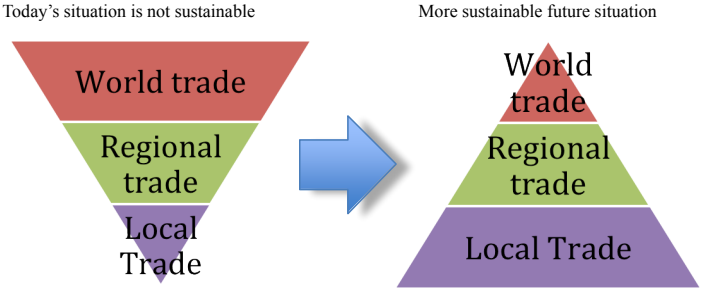


Figure 6: Trade amounts today and in a sustainable world

self-made and simplified models. Instead the economic operations should be modelled towards our real needs and the necessities of the earth (see Figure 6).

CC's are a very good field to find out that we can be the designers of the economy. It allows with its small scale, with the possibility to see clearly essential operations of daily economic activity and with the view of money itself a close look at the task of living together well on only one planet. By studying the cooperation of currency-communities we might find and try better forms of working together locally as well as globally. The described terms and principles therefore have to be developed further, then be used as design principles for cooperation and finally they have to be adapted to and verified by the reality of people who like to exchange and share a better life together.

BIBLIOGRAPHY

Brakken, M., P. Austin, S. Rearick and L. Bindewald (2012) 'Trophic currencies: Ecosystem modelling and resilient economies'. International Journal of Community Currency Research. Vol. 16 (D) pp. 169-175.

Collins, J.R., L. Schuster and T. Greenham (2012) Energizing Money – An introduction to energy currencies and accounting, (London: New Economic Foundation)

Dellsperger, R. (2011) Ein Dachverband oder eine Fusion für die Tauschnetzwerke in Zürich?, Unpublished Thesis, (VMI Universität Freiburg, Switzerland)

Douthwaite, R.J. (1999) The Ecology of Money, (Totnes, Green Books)

Durkheim, E. (2012) Über soziale Arbeitsteilung – Studie über die Organisation höherer Gesellschaften, (Frankfurt am Main: Suhrkamp Taschenbuch). Original: De la division du travail social, Paris 1930.

Fernhout, P.D. (2011) Five interwoven economies, online-presentation, available at: http://www.pdfernhout.net/media/FiveInterwovenEconomies.pdf, accessed 27.05.2013

Gómez, G. (2012) 'Sustainability of the Argentine Complementary Currency Systems: four governance systems'. International Journal of Community Currency Research. Vol 16 (D) pp. 80-90.

Greco Jr., T.H. (2009) The End of Money and the Future of Civilization, (White River Junction, Vt.: Chelsea Green Publishing)

Greco Jr, T.H. (2013) 'Taking Moneyless Exchange to Scale: Measuring and Maintaining the Health of a Credit Clearing System'. International Journal of Community Currency Research. Vol 17 (A) pp. 19-25.

Hodgson, G. M. (2006) 'What are institutions'. Journal of Economic Issues. Vol. XL (1), March pp. 1-25.

Hodgson, Geoffrey M. (1997) 'The ubiquity of habits and rules'. Cambridge Journal of Economics. Vol 21 pp. 663-684.

Huber, L. (2008) Solido, eine Währung für den Sozialen Raum - Grundlagen und Modell einer sozialräumlichen Komplementärwährung Unpublished Bachelor thesis, (FHS St. Gallen University/ Switzerland).

Huber, L. (2013) A Monetary Smart Grid: How to allow interoperability of Community and Corporate Currencies through software and governance standards? http://cc-hub.org/attachments/article/98/Monetary-Smart-Grid_L_Huber.pdf , version 20.02.2014

Huber, L. and J. Martignoni (2013) 'Improving complementary currency interchange by a regional hub-solution'. International Journal of Community Currency Research. Vol 17 (A) pp. 1-7.

Hubert, R. (2011) The Challenge of Sustainable Economic Growth. SEDI; http://www.gci.org.uk/Documents/The-Challenge-of-Sustainable-Economic-Growth-Revised1.pdf

Kennedy, M., B. Lietaer and J. Rogers (2012) People Money – The promise of regional currencies. (Devon, UK: Triarchy Press)

Keynes, J. M. (1989) 'Vorschläge für eine Internationale Clearing-Union'. In Leber, S. (Ed) Wesen und Funktion des Geldes. (Dornach) pp. 323-353.

Lietaer, B. (2004) 'Complementary Currencies in Japan Today: History, Originality and Relevance'. International Journal of Community Currency Research. Vol 8 pp. 1-23.

Lietaer, B., C. Arnsperger, S. Goerner, S. Brunnhuber (2012) Money and Sustainability – The Missing Link. Report from the Club of Rome (Devon, UK: Triarchy Press)

Dunne, J. and B. Lietaer (2013) Rethinking Money – How new currencies turn scarcity into prosperity. (San Francisco: Berrett-Koehler Publishers)

Martignoni, J. (2012) 'A new approach to a typology of complementary currencies'. International Journal of Community Currency Research. Vol 16 (A) pp. 1-17.

Martignoni, J. (2011) 'Typologie von Komplementärwährungen und Erfolgsfaktoren von Komplementärwährungsorganisationen' Unpublished Master Dissertation, (Universität Freiburg/ Switzerland).

Samuelson, P.A. and W. Nordhaus (2010) Volkswirtschaftslehre. (Munich: Mi-Wirtschaftsbuch Verlag GmbH) (Translated from the 2010 Original, NY: McGraw-Hill)

Rossmeissl, B. (2006) Überleben in Zeiten der Wirtschaftskrise - Der argentinische Tauschhandel als erfolgreiche Komplementärökonomie. (Saarbrücken: VDM Verlag Dr. Müller)

Schmucki, I., L. Schwarz, L. Huber, and S. Meyer (2007) Analyse von Tauschorganisationen im Raum Zürich. Praxisprojekt Projektbericht Unpublished Thesis, (Fachhochschule St. Gallen) PP081_TT_ZH_07

Schröder, R, (2006) 'Community exchange and trading systems in Germany'. International Journal of Community Currency Research. Vol 10 pp. 24-42.

Seyfang, G. and N. Longhurst (2012) A Global Currency Movement? Grassroots Innovations Research Briefing 17 (Norwich: University of East Anglia)

Seyfang, G. and N. Longhurst (2012) Community Currencies and Sustainability; Grassroots Innovations Research Briefing 15 (Norwich: University of East Anglia)

Slater, M. (2011) 'Complementary currency open source software in 2010'. International Journal of Community Currency Research. Vol 15 (D) pp. 82-87.

The 40 Foundation (2011) Ecounit – human and resources economic system (an internet paper), unknown authors, accessed 01.07.2013; www.ecounit.org

ZART (2012) Verein für Zusammenarbeit regionaler Tauschsysteme/Transaktionssysteme, Found 2012 Oct., www.zart.org

Znoj, H. (1995) Tausch und Geld in Zentralsumatra. Zur Kritik des Schuldbegriffs in der Wirtschaftsethnologie. Berner Sumatra-Studien (Berlin: Reimer)

WEBSITES

CC-Hub: community-currency-hub, research & development; accessed 15.06.2013; www.cc-hub.org

CES, Community-Exchange System: accessed Feb 2013; www.community-exchange.org

Holacracy - Social techniques for purposeful organizations: accessed 23.06.2013; www.holacracy.org

Minuto – The Minuto voucher for goods and services: accessed 13.06.2013; www.minutocash.org

Sociocracy - The sociocratic circle organization: accessed 23.06.2013; www.sociocratie.nl

Obelio - Advertisement And Accounting Service For LETS: accessed 09.06.2013; www.obelio.com

STRO: Social TRade Organizations: accessed Oct 2012; www.socialtrade.org

RTR - Ressourcen Tauschring: accessed 09.06.2013; http://www.ressourcen-tauschring.de

The free dictionary: accessed 27.05.2013; http://www.thefreedictionary.com/currency

APPENDIX: COOPERATION IN THE ZURICH AREA

The above theoretical part is not finished. It is a preliminary result of practical work, research and discussions about cooperation and clearing which started in the Zurich area in 2011 with research work of Roman Dellsperger. He did an investigation with the boards of the five existing exchange-networks (Tauschkreise, all of them associations under Swiss law) in Zurich. His question was, if a federation or a merger of the associations would be an acceptable idea for the board members or peer persons, or if they would prefer other forms of cooperation or even reject it (Dellsperger, 2011). Out of this initial initiative and on his suggestion a working group or council with the participation of the five organizations was formed (see Huber/ Martignoni, 2013, p.2). This council was named "Zürich tauscht" or something like "Zurich exchange or Zurich swap". The names of the funding organizations were:

- Complino
- Give & Get
- LETS Zürich
- Talent Schweiz (which has regional groups in other parts of the country as well)
- Tauschen am Fluss

Additional support was given by the research & development institute FleXibles, which is an agency like NEF or QUOIN after the terminus of John Rogers (Kennedy/ Lietaer/Rogers, 2012, p.195-211).

Zurich tauscht

As is described in Huber/Martignoni (2013) the council initiated a joint website (www.zuerichtauscht.ch) and a common market event in summer. Additionally a project for a common software-platform was started by Huber and Martignoni, who were part of the council. The process continued since the mentioned article (Huber/Martignoni, 2013) was written. The common software-platform is not yet implemented, but all the organizations became members of the ZART clearing association. An interchange is now possible between all of them. The discussion about limits and practical handling of this additional trade possibility is continuing. A few weeks ago a second joint market was held. Again members of all organizations could buy and sell across borders.

- During the first market in June 2012 a total of 213 exchanges worth 130 hours (about € 3'000) were made between 2:30 and 8:00 p.m.
- During the second market in June 2013 a total of 323 exchanges worth 206 hours (about € 5'000) were made between 2:00 and 8:00 p.m.

Compared to the size and the regular turnaround of the groups, this is quite a success. But already a rather high trade imbalance has arisen. The main organizer, Tauschen am Fluss, has gotten a positive account of 75 hours against the other four organizations. Now ways have to be found how this amount can be reduced in future. This question has not yet been answered but the council is continuing its work and an intensified cooperation might be a result of further negotiations.

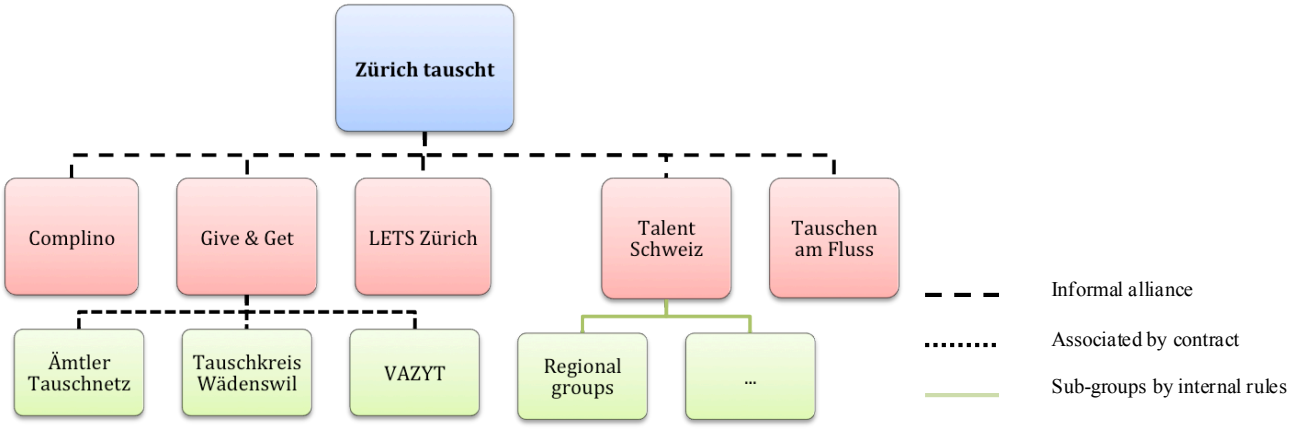
Give & Get

One member of Zurich tauscht, the association "Give & Get" might be even more interesting when we look at a process of aggregation of smaller entities: it is the latest birth of such a system in the Zurich area (01.11.2011) and has grown rapidly through the acquisition of the following smaller and older organizations in the canton of Zurich:

- VAZYT Winterthur (since 1996, association)
- Ämtler Tauschnetz (since 2004, association)
- Tauschkreis Wädenswil (since 2008, association)

This was done with joint venture contracts between Give & Get and these three older organizations and includes openness for a merger in the future. The main advantage was the integration of their market and accounting systems into a centralized cyclos installation. The entities continue their work and, freed of the IT-administration, can concentrate more on the networking, relations and support functions. It

Figure 7: Network of currency communities in Zurich area



will be interesting to see if these leftover functions will keep the associations as independent organizations or if the merger option will be taken instead. The organizational situation in Zurich is as shown in Figure 7.

At least three different principles of cooperation or group building are used. This is also a part of diversity which strengthens resilience but needs a more sophisticated understanding of governance.

Next steps

The development of the network is continuing. Further discussions might include intertrade limits and possible compensation procedures, clearing issues, and marketing and monitoring aspects.