

# TRUST CAPITAL ABSTRACT

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Notes on a proposal for a trust-based decentralised  
Credit money system<sup>1</sup>.

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## **Managing credit risk: background**

The current conventional monetary system is based on credit money (granted by the banking system). One of the greatest challenges for this type of system is the management of credit risk. Like the conventional banking system, mutual credit systems generate money on the basis of credit, and only work if said credit is granted appropriately.

In mutual credit systems based on joint guarantees (risk is assumed by all the members of the system in proportion to the monetary balances they hold) there is a mismatch between the bonds of trust and the duty of reciprocity implied by said bonds. As the number of participants in the system increases, connections based on trust break down, responsibility is reduced, and the number of defaults goes up.

## **Credit renewal terms: minimum activity ratio**

Mutual credit systems allow their members to obtain credit which is interest-free and, in principle, does not have to be repaid. Nevertheless, there must be other conditions attached to access to credit, with rules governing the renewal thereof.

An adequate velocity of circulation of money is a prerequisite of a working monetary system. This can be ensured if each participant in the credit system has a minimum level of activity (purchases and sales) in the social currency in relation to the credit obtained. This is expressed as a commitment to carry out a volume of purchases and sales in the system of at least  $x$  times the volume of credit obtained ( $x$  being the minimum activity ratio). If a participant does not achieve this minimum activity level, the credit extended must be repaid (in proportion to the difference between the minimum activity ratio and the real recorded activity). If the participant does not have sufficient funds to repay this part of the credit, it must be paid by their guarantors. Otherwise the aggregate velocity of circulation will be reduced. The repayment of credit implies the

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<sup>1</sup> These notes expand on a paper with the same title presented at the Third International Conference on Social and Complementary Currencies held on 28 October 2015 in Salvador de Bahía <https://socialcurrency.sciencesconf.org/>. A proposal initially prepared for a complementary currency for the whole of Catalonia (the Eurocat project).

destruction of a part of the money supply (the idle money supply), helping to increase the velocity of circulation of money again.

The purpose of this measure is to establish ways of destroying money that ensure the velocity of circulation is kept above the minimum, without resorting to financial crises (the mechanism used by the current banking system to drain money from the system when the velocity of circulation drops). The value of the minimum activity ratio will be linked to the desired velocity of circulation, and different minimum activity ratios could be applied to different credit lines, as they will have different maturity periods, with differing amounts of time needed to bring the product to market.

### **Trust capital: mutual credit with self-generated credit guarantees through P2P micro-sureties**

Trust capital is defined as the type of money created in a mutual credit system with a system of self-generated guarantees based on the bonds of trust between the participants, recognised in the form of micro-sureties given between them. It has been designed primarily to serve as working capital. The management of risk is thus decentralised by means of a mechanism that draws on the system's collective intelligence while guaranteeing an adequate velocity of circulation of money.

Unlike a mutual credit system based on joint guarantees, this credit system allows credit guarantees to be self-created through micro-sureties given by peers (P2P). The fundamental difference is that the credit risk of each participant is borne only by their guarantors and not by all the members of the system, although the money is used to buy from and sell to all the members.

The amount of the sureties used to guarantee the credit is small, and therefore a high number of guarantors are required, in relative terms. To prevent the scarcity of sureties, as under normal conditions any participant would prefer to be the guaranteed party and not the guarantor, the money creation mechanism will require participants to both give and receive sureties. The risk is spread but the principle of bonds of trust is maintained, as each participant is the centre of their network of sureties granted and received: the centre of their circle of trust. The community is no longer a single circle of trust for the entire community, but rather a system of overlapping and interlinked circles of trust, with no limit on the number.

### **Dual nature of the credit money generated as trust capital**

It is important to highlight that the credit money generated in a trust capital system has a dual nature, drawing on the best features of the two main types of money:

- A) If the participant complies with the conditions for the granting of credit, i.e., the minimum activity ratio, the money generated behaves like fiat money, backed by a liability which is not redeemable by the issuer, and does not, therefore, have to be repaid. Like a monetary issuer, the participant in this case may generate money as a non-redeemable liability and hold said balance without having to repay it.
- B) If the participant does not comply with the conditions under which the credit was granted, then it must be repaid. In this case, the credit underlying the money is redeemable, like bank credit (although without interest in this case) and the participant is just a lender.

### **Operating conditions of the micro-sureties system**

The system of micro-sureties is both a system of guarantees and a method for granting decentralised credit which capitalises on the collective intelligence regarding the trustworthiness of the participants and spreads risk to ensure the resilience of the system.

For the micro-sureties system to work, one of the conditions under which a participant is granted access to credit is that said participant must have received and granted micro-sureties totalling at least the value of the credit received.

The participants in the credit system will give guarantees to each other under the following terms:

1. Any user that complies with the criteria for accessing the social currency system may be a guarantor or a guaranteed party. If not already a member, the user must join the system.
2. For a participant to grant sureties to others, at least one of their guarantors must already have credit in the system.
3. The participants are prosumers: companies, self-employed people and private institutions with access to credit. In principle, they may all be guarantors and guaranteed parties.
4. Reciprocal sureties are not permitted. A participant may not give sureties for other participants who have given sureties for them.
5. A participant may not give sureties for participants that belong to the same shareholder group or with whom they have common holdings. Nor may a participant give sureties for those who have common holdings with other participants from whom said participant has already received sureties.
6. A surety is recognised as having been received when it has been expressly accepted by the beneficiary. The surety document must, therefore, be signed (digitally or on paper) by both parties: the guarantor and the guaranteed party.
7. To spread the risk and reduce the systemic risk there must be a limit on the value of each surety that each participant may grant. This is defined in the section on parameters, where its initial value is also set. This parameter will be periodically analysed and revised.
8. All the participants will be aware of the activity ratio of all the other participants, their guarantors and guaranteed parties and their open credit balance.
9. If a participant has to withdraw from the system leaving an unpaid debit balance for any reason (e.g. they do not comply with their activity ratio and do not have sufficient funds to cover a reduction in their credit limit), said participant's debt will be distributed among the guarantors in proportion to the risk borne in the social currency. The guarantors can pay off this debt in instalments over a year, to ensure that the impact of a default on the guarantors' liquidity is minimised.
10. Participants are advised to grant guarantees to companies in different sectors, thereby diversifying the risk assumed.
11. The guarantee system is supported by a document management system (paper or digital).
12. The way non-prosumers (individuals) can enter into this micro-sureties system, whether as recipients of credit, guarantors, or both, has yet to be defined.

## **Trust capital resulting from the integration of systems:**

### Integration of the micro-sureties system with credit and payment systems

The system of micro-sureties described above can be integrated with various credit and payment systems. The micro-sureties system must be capable of establishing credit limits for each participant, or be a factor that is taken into account when setting said limits.

### Credit data management system

When a participant in the credit system is seeking guarantors, they must be able to share their credit data with the other participants so that the latter can make informed decisions about whether to grant sureties. It is vital therefore that each user owns their credit data and can share it with whoever they wish, or give them access to answers about their credit record using system functionalities based on zero-knowledge proof techniques.

## **Initial Parameters**

**Minimum Activity Ratio:** IRTA recommends that the credit should not exceed  $1/4$  of annual sales or purchases (the lesser of the two) in the complementary currency, which translates into a minimum activity ratio of 4.

**Maximum amount of micro-surety:** The maximum amount of each micro-surety can be an absolute number or one relative to the credit or transactions of each participant. The complexity of a relative amount is increased when we consider that each micro-surety has two participants, the guarantor and the guaranteed, and therefore, two figures for credit and transactions would need to be taken into account. It should also be borne in mind that the possibility of fraud affecting the system through circular mutual guarantees is increased if each micro-surety can be for a high amount and is discouraged if it is lower. Therefore, a maximum amount for the micro-surety is proposed, which is an absolute low number, to begin with, for example 100 monetary units, with the possibility that this criterion will change later.