utile.ch

Financial Market Stability Tax

Dissertation on a tax and other guidelines
for making the financial markets more stable

lic. iur. HSG
D. Zucchetti
Lugano, 22nd October 2010

1. Introduction

Functioning of the financial markets and taxation of transactions are wide-ranging questions. On these matters there are a lot of studies, research, data, and information, and there are a multiplicity of opinions that often vary. This document is not intended to summarise the existing situation, but simply to look more closely at some aspects with a view to improving the stability of financial markets. Subjects and solutions are dealt with, putting them into the current context. The intention is to provide a point of view and starting points for further in-depth study. This text is aimed at people already informed and that presumably have experience in this matter and a wider, more detailed vision than the author's. It therefore stops, as far as possible, at comments centred on the theme, expressed succinctly.

Further information, additions and corrections to this document will be made available on the www.utile.ch website.

2. The financial circulatory system

With an electrical system, when we push a switch we create a circuit through which a current passes and switches on a light bulb. Without a closed circuit the electricity could not get there. The electricity we use has a value and only exists as an element of a circuit. Similarly, the value of money is due to the fact that it is recognised as an exchange tool and can therefore be transferred from one person to another to off-set goods and services. The idea that money is something fixed that remains in the coffers is wrong. The value of money lies solely in that it is part of a circulatory system. An investor takes money to the bank because he knows that it can come back to him. Investing therefore means putting money into an immense circuit with the expectation that it will come back having increased. The bank does not keep money standing still, but it lends it to companies. With such loans companies buy raw materials and work to produce goods; these are sold in exchange for money that then returns to the bank to repay the loan and pay interest. If this circuit should be interrupted or blocked, money would become simply pieces of paper without any value.
Thanks to the blood circulatory system oxygen and other substances are taken and transported to all parts of the body, where they are exchanged with the various organs. Waste from the activity of the human body is recovered and expelled. The blood serves as a transport and exchange tool. Money and the financial circulatory system have a similar function. Thanks to money it is possible to exchange goods all over the world and get earnings back to the various investors and owners.
A central element for the functioning of the financial circulatory system is trust. The investor only entrusts his money to the bank if he knows that he can withdraw it if necessary. The bank grants a loan to a company because it trusts that it will be paid back. Banks lend one another money because they trust that it will be paid back. If the risk of not getting money back increases significantly, nobody will lend money to each other any more and the circulatory system is interrupted.
The global financial crisis brought with it the risk of blockage of the financial circulatory system. If this had occurred, capital could no longer have been exchanged and would have lost value. Loans to companies would no longer have been possible, and investors would no longer have been able to get their money back. In order to avoid this blockage and to restore trust, central banks therefore took action in the form of large transfusions.

2.1 Characteristics and problems of the financial circulatory system

The first characteristic is that the financial circulatory system exists. There is a complex system, made up of people, financial institutions, computer systems, legal rules, central banks, international agreements, companies and others that go together to form the global financial circulatory system.
Like the blood circulatory apparatus, the global financial circulatory system is made up of sub-systems and organs that provide various functions and relate it to the economic system, political systems, and society in general.

The other characteristic is that the financial circulatory system is an infrastructure. At a political and society level there is no awareness of the fact that a financial circulatory system exists that makes it possible to exchange goods and services, pay taxes, and finance technical developments and social assistance systems.
This lack of awareness is due to the fact that the financial circulatory system, unlike the electrical grid, is not a clearly defined physical entity. We live in a society that tends towards the digital, made up of goods and services (music, videos, information, software, communications systems, currencies) the characteristics and value of which are not due to their physical form.
The global financial circulatory system is a new type of infrastructure, partly physical, partly digital, and partly a combination of knowledge and laws that play a fundamental role in the economic system in which we live.

The financial crisis showed the precarious nature of the financial circulatory system. All that was required was the fear for bankruptcy of some institutions to risk collapse. As with any other infrastructure whose functioning is essential for society, also in the area of the financial circulatory system approaches and methodologies must be applied aimed at guaranteeing stability. The first step was clearly that of politics taking an interest in this infrastructure and laying the basis for an improvement in how it works.

For the purposes of stability, it is also clearly fundamental to make sure that the elements that circulate in the system are not toxic. The detonator for the global financial crisis was the discovery of an innumerable quantity of shares that were found to be devoid of value. Like the blood circulatory system, the financial circulatory system does not have the function of creating value. Value is created by other organs, namely the economy and production and services system in general. Financial engineering multiplied shares without there being a real multiplication of value. The financial circulatory system found itself swamped with

shares that did not have real value. The problem therefore arises of how to avoid anyone taking advantage of control of parts of the financial circulatory system to create fictitious value or, worse still, extract resources as they like.

Another type of problem is the interaction with the economic system and society in general. It is the areas that are already without food that have no stocks available. The poorest sections of society and the planet are the first to feel the financial crisis and to feel it more strongly. The phenomenon of shortages is added to by that of retention. At times of difficulty the wealthy tend to accumulate reserves, which often leads to resources being withdrawn to the detriment of those that are weakest. Situations that are already serious are made worse by the fact that speculation in the financial markets is able to increase the price of foods and raw materials. Imbalances and tensions in the financial markets have an immediate negative effect on the economic system, leading to social tensions and political crises.
It becomes imperative in terms of justice to come up with instruments that bring stability to the financial markets, avoiding negative distortions for the economy and society, which are very costly to solve.

2.2 Reinforcing the financial circulatory system

The current financial crisis should have shown the fact sufficiently clearly that unless the financial circulatory system (like any other infrastructure) is monitored and regulated, it could not function correctly.
We need to change from a passive to an active approach, very similar to that used for network infrastructures that are essential for our economy and society to function properly. The financial circulatory system must be seen in the same light as any other infrastructure that is indispensable to society. This new approach must clearly include considerations aimed at protecting the economic system and the weakest sections of the population. The State and politics must set quality criteria, and checking and monitoring systems, and must set up systems for action in case of dysfunctions and blockages.
However, States are bringing about order and are trying to find solutions. One of the goals is to prevent an interruption of circulation at a certain point from bringing damaging effects on the system as a whole. Increasing the capital requirements for banks, is an attempt to increase availability, so that in case of a crisis we do not immediately find ourselves with the flow interrupted and the need for central banks to intervene. An attempt is also made to separate the various environments, so that vital financial circulation is not compromised by activities that are extraneous to it. This setting encompasses the measures taken to separate commercial from investment banks.

Another important aspect is that of trust. The financial circulatory system only works if there is trust in the counter-party to whom you entrust your money. The measures on transparency of balance sheets and reserves go some way to create a more secure system. The State guarantees on deposits with banks also fit into this framework.
The other important question is guaranteeing the quality of the elements in circulation. If the financial circuit can become a means for distributing elements that are without value, the system itself suffers and becomes no longer reliable. The rules for functioning of stock exchanges and trade, and the legal framework for the various products in circulation (debentures, shares, options, derivatives, etc.), are measures that should prevent elements that only have face value from getting into the system.

Intervention is going in the right direction. However, more awareness is required of the fact that something has to be done about the circulatory infrastructure. Weakness of one point is all that is needed to put the system at risk. The measures must be part of a wider context that provides security and back-up systems.
We live in a globalised world in which the financial system extends to the entire economy and the whole planet. Walls must be created that, if needed, can be raised to avoid local or sector crises extending to the entire system.
Another central question is that of real-time monitoring of the global circulatory system. Like information networks, electrical grids, and motorway networks, the financial circulatory system must be monitored and mechanisms must be set up to forecast and take action to resolve blockages and problems in the network. A system for monitoring inter-bank loans is presented below that, if implemented, could lead to a vision and management of risks in real-time, linked to the system of inter-bank loans.
It seems to be worth hoping that emergency structures will be set up so that, in crisis situations, the continuity of consumers' daily transactions can be guaranteed. Recurring payments by companies and consumers must continue to be made even if some important banks are no longer able to meet their commitments. The circulatory system must be structured on a number of levels. One for consumption and for small businesses, which must be able to function separately from that of large-scale finance and speculation. Retail banks should have specific reserves able to guarantee making of payments of a certain type (payment of utilities, salaries, credit cards, etc.). Some sort of separate accumulation basins must be set up that guarantee the economic flow even in case of financial crisis. A large financial institution could head towards bankruptcy, without daily transactions being compromised.

3. Financial Market Stability Tax

The idea of a Financial Market Stability Tax (FMST) leads us to introduce filters that are able to identify and limit the proliferation of elements that, if they reach excessive quantities, would be harmful to the financial system and to society. Thanks to this tax it would be possible to recover the costs of transfusions and create reserves, to be used for future interventions and to manage and stabilise the financial circulatory system.

A giant bubble emerged with the financial crisis, associated with introducing new very sophisticated financial products onto the market. Significant volumes of values created on paper, without any economic reference, were introduced into the financial circuit. This led to destabilisation of the financial markets and obliged States to intervene. The situation is still critical, since the repercussions of the financial crisis have moved into the economy and in the States, where, in addition to the current problems, they find themselves loaded down with immense exposure as a result of action to save the banks.
Three problems proved relevant in the destabilisation process:

- The risks connected with the new financial instruments are difficult to categorise and to evaluate. Financial companies have accounted for and marketed a whole series of risks, without having a clear knowledge of them
- The development and marketing of these new instruments took place outside the institutional trading channels (stock exchange). Trading in these values therefore escaped the control of the watchdog authorities.
- Trading in new financial products generated a significant commission amount that was immediately drawn (in the form of remuneration) by managers of financial institutions, leading to weakening of the financial institutions.

The States are acting by introducing new regulations. However, trade in these products occurs mainly outside the traditional markets, and so real monitoring appears difficult. What is more, the element that distinguishes new financial engineering is adapting and being able to get around the system of regulations by means of continuous inventions. It therefore appears difficult that regulations alone would be able to put a stop to the problems that have emerged.
Even prohibition or limitation of some of these products appears to be difficult to achieve. New financial engineering has led to the development of products (options, term contracts, derivatives, etc.) thanks to which it is possible to better adapt to the complexity of our economy and therefore to achieve more certain management of funds. The new financial products are no bad as such, but it is their use out of context that creates problems. It is certainly in a farmer's interests to be able to sell their crop beforehand, knowing they will make money on it. The problem with options on food products arises when speculation

takes over, with the purpose of making prices rise, resulting in putting the poorest portions of the population and the planet in difficulty.

In order to achieve more stable financial markets taxation systems need to be introduced, along with more precise regulation. The taxation instrument lends itself to evaluations of merit (good/bad) and to also intervening in non-coded operating circuits. Typically taxes are applied with an incidence that differs according to whether the item taxed is good or bad for society, or in relation to how dangerous it is. Taxes on alcoholic drinks are a typical example, the higher the alcohol content on a drink (and greater the health risk), the higher the tax applied.

Tax is a relatively simple instrument that does not create an excessive administrative burden and can be ideal for keeping certain types of operation under control. It is much easier to promulgate a tax for a certain type of operations than setting up a system through which all transactions of a certain kind must pass. A tax therefore makes it easy to monitor the volume of operations of a certain kind.

Tax is also a very effective element in the financial context. It is not the same as alcohol, where interest in using it or not depends solely on price. The goal of financial instruments is to produce earnings. If, by means of a tax, certain types of speculation become less attractive, the limitation effect is assured.
Also as regards applicability, there do not appear to be many difficulties. The new financial products are set up by a certain number of specialists that have significant qualifications and use sophisticated calculation systems. It would certainly not be a great problem for these people if they had to inform themselves and adapt to some taxation regulations.

Tax also makes it possible to recover financial means. The States have invested significant money from taxpayers to support the financial system. Setting up a tax system that can recover the means invested is both correct and useful.

3.1 Added risk of the new financial instruments

The aim is to have a tax that brings to more stable, better performing financial markets, and so it is called a "Financial Market Stability Tax".
Accepting here that tax on certain types of financial instruments is an adequate means, what is required is to understand on what bases and on what elements this must be applied.

Along with profitability, the risk element is one of the discriminating factors for choosing investments. Where performance is equal, investors choose more certain instruments. The higher the risk factor the higher the return, in order to attract potential investors. There is therefore a constant effort in finance to make the profitability perspectives appear attractive compared to the risk.
The purpose of regulation on financial markets is to create transparency and provide investors with the possibility of evaluating risks objectively. The manner in and time at which information on financial products is given is therefore a fundamental element for the functioning of the markets.

However, knowledge of the risk and dangerousness of a product do not always lead to people taking a responsible approach. We see this is the area of alcohol and smoking products. The same sometimes applies to the financial setting (roulette, lotteries, or playing the stock exchange).

With the development of financial engineering new financial products and instruments have come about that are much more complex and have led to a significant increase in the volumes traded in the financial sector and therefore of the risks.
The products of financial engineering are normally elaborations and combinations of other financial instruments. Various types of products are combined and form investment packages with specific earning and risk characteristics. Evaluating the actual risk/benefit ratio is difficult even for specialists. Creating these new instruments leads to additional risks due to various factors:

- Increase in the distance between the counter-parties.
- Increase in unpredictability factors.
- Change of context and recipients.
- Speculation context.
- Lack of standardisation.
- Time of applicability: when issued or when traded.

Increase in the distance between the counter-parties.
If the holder of a credit knows their counter-party they are better able to evaluate the risk. With indenture credits, those providing the credit do not even know who the debtors are. If payment is not made it is difficult to take action to obtain payment. The greater or more complicated the legal structures between the debtor and creditor, the greater the risk. The new instruments that introduce additional distances between creditor and debtor make it more difficult to recover credits and therefore significantly increase investment risks. The

more the creditor is separated (both physically and formally) from the debtor, the greater the risk.

Increase in unpredictability factors.

Financial markets must not be lotteries. Creating financial products that appear to be of a certain type while in fact being linked to risky elements that are difficult to evaluate, most be avoided. The new financial products contain elements that are highly volatile or that relate to events that are difficult to evaluate, linked to the performance or a share or index. The more remote the possibility of evaluating the events, the greater the risk. As unpredictable elements increase the risk of losing some or all of the investment increases.

Change of context and recipient

Financial instruments that remain within a certain context and that are sold only to specialists capable to evaluate the risks, do not pose particular problems. However, the case in which products that are difficult to understand end up in the hands of people that do not have the capacity to evaluate the risks is completely different. New financial products get into contexts in which there is no knowledge of them. A person thinks they are buying a life policy, but instead they are buying options on an index or indentured credits. The change in the risk factor changes significantly with a change in context and recipient.

Speculation context.

An option by means of which a farmer sells their maize harvest to a company that handles and sells maize certainly makes economic sense. In this way the farmer manages to establish his earnings and leaves the buyer with the risk of falling prices. However, the situation is completely different when speculation takes over the market for a specific product in order to raise prices, with negative effects on the population and the economy. The switch to the financial setting of an instrument that is useful in another context has negative effects on the parties involved. The forces involved change completely, and so the risks for the contracting parties increase. Operations of a strictly commercial and productive nature therefore need to be isolated from those that are driven exclusively by financial and speculative reasons.

Lack of standardisation.

Typical instruments (bonds and shares) are coded by law, are known, and one knows what to expect. The products of financial engineering on the other hand are often tailor-made, with specific conditions and clauses, often very complicated, relating to individual contracts. The more specific a product is, the greater the time and skill needed to evaluate the risks and benefits. Specialisation of the instruments therefore introduces a further risk factor.

Means of issuing and trading

Instruments purchased on the stock exchange have precise rules when it comes to trading and transferring them. The products of financial engineering have ways of being purchased and exercising of rights that may vary significantly. These are specifics that can greatly change the value of a product. The different methods also bring with them an increase in risk.

Combinations of a number of elements

The risk element may increase simply due to a combination of a number of factors. The combination of a number of risk factors leads not to the addition, but to the multiplication of risks.

3.2 Added risk as an element of proportioning of tax

Earlier we said that new financial products have added risk components. The danger of the new products lies in the difficulty of evaluating these components. To bring stability to the financial system it is therefore useful to proportion tax on the basis of the added risk component of such products. The greater the risk component the higher the tax must be, so that, where possibilities are equal, investors will tend to opt for investments with risks that are less difficult to perceive.

Adopting a progressive tax, based on the added risk component, could also be a way of warning investors of the potential risk associated with the product. Investors that do not wish to run excessive risks would therefore stay away from financial products subject to higher tax.

Distance between counter-parties

There should therefore not be tax on direct loans (bonds, shares). In the case of loans where there are a number of creditors (indenture) or where responsibilities vary and cannot be measured immediately, the tax should be applied.

Predictability of events

The tax should not be applied to financial products for which the risks can be evaluated. Financial products that contain elements that are highly volatile or that relate to events that are unlikely to occur (e.g. +50% stock exchange index), should be taxed.

Destination and recipients of products

Companies that buy financial instruments for values that exceed a certain threshold in relation to the value of their own balance sheet, could be called on to pay taxes.

Speculation context

The tax would cover operations that are purely of a financial nature and that do not relate in any way to the volume of goods one can handle. Those that buy or sell goods for the purpose of using the product would not be taxed. Those that buy options for the sole purpose of speculation would be taxed.

Lack of standardisation

Contracts that are concluded outside the standardised markets could be taxed at a higher rate than standard products.

Means of issuing and trading

There could be cases in which it would be useful to tax issuing and not tax direct selling, or taxing both issuing and transfers.

Combinations of a number of elements

The tax could be applied to cases in which certain risk factors are added to one another.

Some possible examples of products taxed and not taxed in terms of a Financial Market Stability Tax are given below:

Issues not taxed	Issues taxed
Debentures / Bonds	Financial products with chains of counter-parties
Direct loans	Indentured loans
Shares	Warrants
	Selling shares or debentures without owing them (short selling)
Term sales of raw materials with a withdrawal clause	Sales of raw materials without a withdrawal clause
Term sales of food products for the purpose of re-selling the same	Sales of food products without a delivery clause
	Indices for food products

The extent of the tax applied

The extent of the tax should therefore be proportional to the added risk element referred to previously. As regards the amount to be paid as a tax, this should depend on the amount of

the effective financial transaction or the nominal value. The tax must be such that it brings in income for the State that justifies setting up taxation mechanisms, while at the same time being able to avoid a proliferation of investments, without effective evaluation of the risk.

3.3 Subjection of the international sector

The explosive growth of new financial products is also due to the fact that finance has reached global dimensions. Capital can easily be moved to where the conditions are best from an operating and fiscal point of view. International finance has taken advantage of this freedom of movement to create competition between States. In order to avoid business emigrating to other financial centres, measures have not been set up that are intended to create stability in the system.

Recent political efforts at an international level were aimed at doing away with tax havens. However, one problem the has not been dealt with is that of global players that by moving business and profits legally and fiscally between various companies in the group based in different countries, manage to easily avoid tax and restrictive rules.

The large global groups enjoy a limitation of responsibility that is very dangerous for finance, the economy and society. They are able to get around the rules and, thanks to their financial and operating capacity, manipulate Countries. These global players enjoy advantages that local companies do not have. This creates extensive distortion of the market. This situation is worrying in that certain company decisions are more and more often determined by criteria that no longer have anything to do with production and the market. This leads to perverse situations in which companies move production, only to receive state incentives or fiscal advantages for the company or its managers. This situation is the most negative aspect of globalisation and weighs heavily on normal people.

The problem is particularly acute in the financial setting. It is precisely the large global financial groups, those referred to as being "too big to fail" that destabilise the financial system and make it necessary for States and national banks to intervene.

Seeking to bring global groups and finance under control is imperative if we want to ensure the stability of the financial markets and the economy.

This does not mean penalising global groups, but simply to make sure they cannot get away from the rules that apply to all the other businesses that easily.

What is needed is an approach that seeks to regulate global players, so that they are no longer so easily able to destabilise the system and get away from the rules for applying tax.

This problem is quite simple to tackle. In fact, one characteristic of global operators is that they have companies in the major financial centres. It would therefore be possible to oblige global players to obtain a special operating licence and to comply with certain fiscal and risk

rules. Countries could agree to impose payment of a tax that applies to all operations carried out by the group, including those in countries that are not party to any treaties.
First and foremost the Financial Market Stability Tax should be applied in the area of the global market.
In the context of an international treaty this means:

- Creating parameters for defining the activities that are included in "global finance".
- Establishing an obligatory deduction for certain financial operations that affect transactions in which one of the parties is a global finance operator.
- Creating an international stabilisation fund that will be funded by the income from taxes on international groups.
- Allowing Countries to apply additional or specific deductions for all operators on operations that take place within their territory.

In order to prevent groups or countries evading the system, this tax should be divided into two parts: one international that is equal for all and paid into a common fund, the other local, where the operation takes place, established by the State and that provides a benefit to that State.
Large international groups should be required to pay tax to the international fund, also for operations that take place in States that are not signatories to the agreement. If one of the States is not a signatory to the treaty, the tax would still be paid into the common fund. This would create some sort of competition to promote signing up to the treaty. In order to become competitive fiscally, States should sign up to the treaty and establish that no local tax will be levied. If instead they do not sign up to the treaty, the tax on local operations would still be levied and paid into the common fund.
In this way companies that operate internationally could not get around paying the taxes, and so for these companies competition based on discounts would not be effective.
In order to avoid the taxes financial groups should limit their operations to certain countries only. This would therefore do away with the possibility and advantages connected with being global financial players.

By making global players subject to this tax a separation would be created between local and international companies. This would bring about the creation of distinct separation of global and local finance. This would reduce the risk of a local or sector crisis instantly becoming an international crisis.

3.4 Application to the foodstuff market

One area in which more than any others one feels a pressing need to introduce a tax that can reduce speculation, is that of trading in foodstuffs and raw materials. In a circulatory system

it is the weakest areas that feel fluctuations (shortages and accumulation trends) most strongly. The goal of stability is to avoid the proliferation of speculation at the expense of the poorest populations and of the whole planet.
The markets for various foods and raw materials and the leading world players on these markets are well known or can at least be circumscribed.
From both a political and a technical point of view the context appears to be ideal for the introduction of a Financial Market Stability Tax.

The tax should be applied to all foodstuff or raw material transactions that are exclusively of a financial nature. All companies or people that engage in operations for goods without themselves having the capacity to handle these goods would be subject to this tax. All operations on foodstuff and raw materials markets would be taxed, with the exception of those made up of companies for productive or distribution purposes. In order to avoid abuse, purchases made by companies in the sector that exceed the quantities they can handle, would also be taxed.
However, direct operations between farmers and traders would be exempt, as would those that extract petroleum and raw materials and sell the same to distributors. Grain merchants that have their own silos and refinery owners would be exempt for the quantities they handle themselves. All other operations would be subject to tax.
The other operations of an exclusively financial nature, the object of which is to possess, buy, sell or any operation associated with food products or raw materials would therefore be taxed.

In order to balance the tax, one could start with a calculation based on the amount of the financial transaction.
In the area of tax fixing, which groups and companies would be subject to the (global finance and markets) tax would have to be established. It is clear that a significant part of the volumes of transactions would escape taxation. A flexible subjection system should be set up so that it can be adapted on the basis of experience gained and extended to other areas if deemed necessary or useful.

4. Monitoring the inter-bank loan market

Over recent decades the inter-bank loan market has developed considerably. A considerable part of banks' balance sheets is made up of loans made to and received from other banks. When they have money available that they are not able to use with their clientele, banks place this money with other banks. At the same time, to finance granting of loans to their clientele, they turn to other banks.

Banks, especially those that manage private assets, also act as brokers on the inter-bank loan market for their clients, to allow them to make fixed term investments at interest rates set in advance. This is correctly termed a market because, whoever is lending or borrowing goes looking for the best conditions. To find or make investments operators are obliged to continually adapt what they offer to market conditions.
The inter-bank loan market does not involve only banks but also insurance companies, pension funds, central banks, or other entities with significant financial resources.
Since they have easy access to the inter-bank loan market, many banks have no longer invested in collecting funds from savings account holders. For many banks the inter-bank loan system has become a huge warehouse from which they can draw or into which they can deposit, based on the needs at the time. Banks have been able to increase loan operations and achieve better management of their own funds. Thanks to the inter-bank market the banks have financed financial engineering operations and products. The system worked well as long as it was maintained that all the operators in this market were able to meet their commitments.
With the financial crisis and the failure of large banks, the situation has changed radically. Banks have stopped trusting one another. Placing money has become risky and as a result finding a loan has become more difficult. Access to the great loan warehouse has become more risky and costly. A capital only exists when circulation works, and almost closing of the market had immediate repercussions on other sectors. The impossibility or increased cost of refinancing put those companies that had to renew loans or take out new one in great difficulty. Without loans the companies were unable to continue their activity and their deterioration would also have meant losses for the banks. The blockage in the loans market therefore set off a sort of chain of negative consequences. To avoid this scenario the central banks intervened, replacing the inter-bank market, and offering lines of credit to banks and becoming the deposit bank for their excess liquidity.

4.1 Inter-bank loan network

When one refers to the inter-bank loan system, the term “market” is used. Banks, looking for loans or the possibility of placement evaluate the various proposals and choose the operation that guarantees the best possibilities. In order to be competitive on what turns out to be the inter-bank loan market, the various players therefore have to continually adapt their proposals.
However, the inter-bank loan system has some network characteristics. On the inter-bank loan system, unlike the stock market, the operation does not end with the transaction (purchase, sale). With a loan a relationship is set up between the lender and whoever has to pay back the loan. The situation differs completely from a market in which one buys and sells. On the stock market, having made a purchase and paid the price, the transaction is complete and there is no relationship between the parties. In the inter-bank loan system, with the acceptance of the agreed conditions, a relationship is set up that will continue until

the loan has been paid back. The loan relationship between debtor and creditor is one that, using computer terminology, we will call "connection".
Each bank is therefore connected to other banks via the loan. If we consider banks as points and the loan relationship the lines that link the banks, we will have a very complex graphic image, with connections between the various banks. Compared to a motorway or computer network, the peculiarity of the inter-bank loan network is that it has connections that change constantly. By means of computerised simulation we will see the network change as loans are opened and paid off.

The network for supplying electricity or water, or that connecting all the computers via the internet, or that of motorways, are constantly monitored and managed. With a computer or electrical network, if you are not able to monitor the traffic and detect malfunctions, any problem could potentially lead to blockage of the network. In a motorway network that is not monitored it would be impossible to know where to send emergency vehicles, and any accident would lead to interminable traffic jams. A network without safety and management elements is constantly at risk. Despite being a fundamental network system in the financial circulatory system, the inter-bank loan system does not have any real-time monitoring and supervision system.
On a number of occasions the world's financial system has been on the point of collapse. It has not come to a standstill because the central banks have begun to make loans directly to the banks. It is as if a water main that was blocked and full of leaks, new pipelines were set up headed to the distribution points, completely inundated with water, and hoping that sooner or later the water main would begin working again.

To bring greater stability to the inter-bank market this market must be seen as a network and a system must be adopted that is able to manage it:

- Monitoring all the loans taken together.
- Being able to understand where problems are beforehand.
- Intervening to avoid breakage of a connection resulting in the network collapsing.
- Optimising the connections and reducing the risks.

4.2 Gathering data and monitoring the inter-bank loan network

In order to be able to monitor and manage the inter-bank loan network, first of all a system is required for gathering the data required for management.
Statistical surveying of risks between banks does not make network management possible. Only the banks involved know, in real-time, how many connections (loans) the other banks have. There is no diagram of the various connections with the duration and amounts of the

loans. Only afterwards (when a problem arises) will we know the amounts in play and the connections and links at risk.

The loan has two components, one the supply of funds and the other repayment of the funds. What constitutes the network is only the part of repayment of capital and interest. In order to achieve a monitoring system, information on repayments is required.

The elements that are needed are therefore:

- The Bank lending
- The Bank receiving
- The extent of the commitment on the due date
- Due date

In the concrete case of a loan, there are the following elements:
Lender: Bank A
Debtor: Bank B
Start: 28th October 2011
Duration: 1 year
Repayment: 28th October 2012
Amount: 100
Interest rate 10%
Interest on due date: 10

In order to set up a system to monitor the loan network, all that is required is the value of the transaction on the due date and the due date. The reason for the transaction (loan, hire purchase agreement, or any other contract) and related details are not required for the purposes of the construction and the network.

The data that would be required are:

- Lender: Bank A
- Debtor: Bank B
- Repayment amount: 110
- Due date: 28th October 2012

Just a few pieces of data are required and these are already in the banks' computer system. Creating a gathering system that allows for constant updating therefore applies to be a relative easy task.

The collection centre could use the data for using computerised models to check the state of the network and its individual node points. Thanks to processing of the data one could see how the situation evolves over time, with the possibility of detecting if, at specific due dates, liquidity problems should arise.
This data would make it possible to know one bank's exposure to all the others and would allow the authorities to see problems ahead of time.
Today, in order to obtain loans, banks have to deposit guarantees.
The exposure volume could be an indicator for evaluating the dependability of an institution.
Banks with limited commitments could take advantage of their situations as an element of dependability.
By cross-referencing national and regional data, one could obtain an overview at a global level.

4.3 Integrating the payment system with the loans network

A system for real-time monitoring of the loans network and existing commitments on the inter-bank market would provide important advantages.
However, on the due date there would still be a certain amount of uncertainty and risk, associated with the transfer of funds and due to the fact of not knowing what channel will be used to make the repayment.
In the area of the traffic of payments, in order to reduce this type of risk, clearing systems have been introduced. By clearing the banks agree to make payments via a specific institution (in Switzerland, the National Swiss Bank). The beneficiary of the funds is credited at exactly the same time that the other party is debited. It is no longer necessary to keep a number of transactions open, and so there is less risk and less need of liquidity.

The payments clearing system could lead to simplification and reduction of the risks for the inter-bank loan system as well.
It involves extending the clearing system, making it possible to also add payment data.
Clearing systems already allow a payment date to be indicated, but this order can always be revoked.
To link the payment system and loans, the possibility must be created of making payment orders irrevocable.
With a clearing system the loan and repayment operations should therefore involve the following phases:
1) Bank A pays bank B the amount of FR. 100 (payment of the loan).
2) Bank B gives the clearing centre an irrevocable payment order for 110, to be paid out on the due date of 28th October 2012.

3) Bank A receives confirmation from the clearing centre of having received from Bank B an irrevocable order to pay FR 110 on 28th October 2012.
4) On 28th October 2012, provided bank B has the necessary funds available, the clearing centre credits Bank A with Fr 110 and debits Bank B for 110.

In this way, on the due date the clearing centre can regulate all the operations instantaneously.

All data on repayment of loans (and not only), and so banks' commitments to other banks, would flow together in the clearing system. With the clearing system up and running, we would have the data required for a monitoring system. This would provide the current and future exposure of all the banks in real-time.

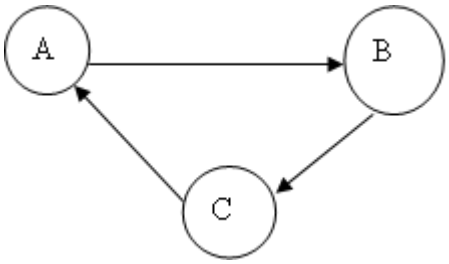
Thanks to computer systems it is possible to have monitoring structures that make it possible to forecast tensions. It would be possible to act to lighten burdens and limit the possibility of the network as a whole getting stuck as much as possible.

Combining the clearing system with that for repayment of inter-bank loans would provide various advantages:

- Transactions on the inter-bank market would be standardised
- Those investing do not have to worry about having different repayment conditions.
- Transfers risks and remuneration of third parties would be eliminated.
- The central has real-time knowledge of all loans, counter-parties, amounts, and due dates.
- All loans can be monitored.
- A check can be kept on the exact exposure of the various banks.
- Operating limits could also be set so that certain limits cannot be exceeded that are set on the basis of one's own means.
- One can easily calculate the transactions that offset one another.
- The centre knows which are closed circuits and can take action in case of a lack of liquidity.
- In case of a lack of liquidity of a bank, the amounts involved and parties involved are known.
- The system is easy to implement, as the clearing systems already allow for a future payment date to be entered. What is required is the possibility of indicating that the order is irrevocable.
- It does not involve any additional bureaucracy for banks (Payment order prepared at the beginning instead of on the due date for the loan).

An instrument like this would certainly be an element of significant security and additional trust in the financial system.

With a system of this type it would also be possible to carry out, even where there was a lack of liquidity, closed circuit operations, even when the bank does not have the funds available.



Example of a closed circuit

Bank A owes 10 to Bank B, who owes 10 to Bank C, who in turn owes 10 to Bank A.
In the current system, if bank C does not have the funds available to pay bank A, and so on, blockage of the payments occurs. In order to avoid these situations, banks are obliged to keep greater reserves.
With the term clearing system, these operations would be visible. The clearing centre could carry out these operations simultaneously, even where there is a lack of funds.

This vision could open the way to optimisation. In the balances for the banks there are, in the assets and liabilities, bank exposures that seem to balance out. It is possible that some of the exposures offset one another (after various steps) and that they do not constitute any risk. One could imagine a system that makes it possible to offset certain term positions. Banks would find themselves with lower balance exposures, and so with lower risks and less need for their own capital.

5. Removing State protection of immoral bonuses

Many companies operating in the financial sector have concluded contracts with their managers that provide for the payment of bonuses. However, in certain cases the calculation mechanisms have been shown to be perverse. Companies in bankruptcy or on the brink of bankruptcy have had to pay remuneration that were clearly contractual abuses. This situation was even more unpalatable where the State has used citizens' money to intervene to rehabilitate the companies. Despite the concern no practicable solutions have been found to ward off these situations.
The problem is that the current legal situation allows companies to effectively make claims against its managers only if the company went bankrupt due to management. Nobody wants to make a company go bankrupt, rather one does all they can to continue activity and save jobs. The interest in making a business continue (jobs, creditors) is more important than

having to find a way of avoiding paying bonuses. Businesses find themselves forced to honour their undertakings if they want to save the companies and their activities.
This means that legal instruments have to be provided that allow companies to withdraw from certain obligations that, in this specific situation, appear to be unjust.
One solution that seems simple from a legal point of view, would be to make abusive claims by managers for credits without foundation, like credits for gambles or the results of speculation (art 513 of the Swiss Code on Obligations). For credits without foundation, recourse cannot be made to justice or the executions and bankruptcy office in order to receive the same.
Managers may not take legal action. Companies could decide not to honour contracts (albeit only in part), evaluating the degree of responsibility and amounts at stake.
The statute for credit without foundation could be applied to bonuses claimed by managers in a situation, such as the following:

- A significant basic salary has already been paid (e.g. exceeding Fr 500,000).
- The Company is in financial difficulty and has had to ask the State for help, or two years have not yet passed from the time at which the bonus matured.