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Financial Globalization

Systemic RisK, Monetary Control in OECD Countries

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resumo

Este texto relaciona-se directamente com temas tratados pelo autor quando, em Novembro de 1992, se encarregou, na FEUC, de um curso de pós-graduação destinado a docentes, mestrandos e quadros superiores da banca e seguros. Nele se oferece uma visão da situação presente da economia mundial em que, a par do retrocesso do monetarismo, se assiste a uma recessão induzida pelas questões financeiras e a uma globalização com características que é necessário identificar.

O autor quer sublinhar algumas interacções entre as transformações estruturais e os ajustamentos macroeconómicos. Umas estão relacionadas com o conceito de fragilidade financeira que leva ao risco sistémico. Outras com os excessos de concorrência que podem causar um endividamento excessivo e uma subestimação do risco. Umas são induzidas pelas taxas de juro reais num sistema financeiro liberalizado, ao contrário do que acontece num sistema administrado.

O autor refere, em seguida, o que considera serem as principais características da economia financeira mundial. Seguidamente, examina as tendências da liberalização financeira mais difundidas e com influência duradoura na economia mundial. Por fim, nas duas últimas secções, procura avaliar o comportamento global dos diferentes sistemas financeiros existentes e examina as dificuldades que o risco sistémico e a redefinição dos objectivos de política monetária representam para as autoridades monetárias.

resumé / abstract

Dans cet article, l'auteur prétend mettre en avant certaines des interactions entre les changements structurels et l'ajustement macroéconomique. Certaines d'entre elles sont liées au concept de fragilité financière qui conduit au risque systémique. D'autres proviennent des excès de la concurrence, qui peuvent alimenter le surendettement et la sous-évaluation du risque. D'autres encore sont induites par le rôle des taux d'intérêt réels dans in système financier libéralisé, rôle qui est bien différent dans un système administré.

Pour aider à la compréhension de ce phénomène, l'auteur établit tout d'abord ce qu'il considère les principales charactéristiques d'une économie financière globale. Puis, dans la deuxième section, il se demande quelles sont les tendences de la libéralisation qui pénètrent et ont une influence durable dans l'économie globale. Finalement, dans les deux dernières sections, il essaie une évaluation de la performance globale de systèmes financiers concurrents et examine la dure tâche que les autorités monétaires assument lorsqu'elles sont confrontées au risque systémique et qu'elles réévaluent les objectifs de la politique monétaire.

In this paper the author stresses some of the interactions between structural changes and macroeconomic adjustments. Some of them are related to the concept of financial fragility which leads to systemic risk. Some come from the excesses of competition which can foster over-indebtedness and risk underpricing. Some are induced by the role of real interest rates in a liberalized financial system, in contrast with its function in an administered system.

To provide some insight, the author states what he considers the main features of the global financial economy. Then, in a second section, he asks what are the trends of financial liberalization which are pervasive and have a lasting influence on the global economy. Finally, in the last two sections, he tries to estimate the overall performance of competing financial systems and examines the tough task the monetary authorities have in dealing with systemic risk and in reassessing the objectives of monetary policy.

The present situation of the world economy is difficult, intriguing and perilous. It is forcing the economic profession to question its common wisdom without complacency. The tide of monetarism is receding with the main exception of its German stronghold where it does no good for Europe. The real business cycle theory appears almost ludicrous in the midst of a financially induced recession. The war against inflation has been blurred by the laxity of the monetary authorities towards asset price inflation. Their subsequent powerlessness to lead the economies of the industrial countries out of recession is largely due to their inappropriate perception of the magnitude of the financial adjustment in the private sector.

The unease with the state of the world economy is not surprising however. We have experienced tremendous structural changes for two decades, above all in the financial sphere. These changes have not been frictionless because neither microeconomic behaviour nor government policy can adjust smoothly to new conditions that are disruptive for their environment. There are many kinds of imperfections, externalities, limited knowledge under uncertainty, which convert structural shocks into destabilizing dynamics or determine multiple equilibria, some of which are very unsatisfactory.

In this paper I want to stress some of the interactions between structural changes and macroeconomic adjustments. Some of them are related to the concept of financial fragility which leads to systemic risk. Some come from the excesses of competition which can foster over-indebtedness and risk underpricing. Some are induced by the role of real interest rates in a liberalized financial system, in contrast with its function in an administered system.

To provide some insight, I will first state what I see as the main features of the global financial economy. Then, in a second section, I ask what are the trends of financial liberalization which are pervasive and have a lasting influence on the global economy. Finally, in the last two sections, I try to estimate the overall performance of competing financial systems and I examine the tough task the monetary authorities have in dealing with systemic risk and in reassessing the objectives of monetary policy.

I. Main Features in the financial sphere

I.1. Secular trends in finance

Generally economists do not have a long memory. Either they refer to the growth in real wealth and the growth in indebtedness, closely linked together for the years 1950-1990. Or, if they are pessimistic, they emphasize common clues between the present situation and the 30's, being haunted by the financial breakdown of that time. This is not the proper alternative. A longer view provides another picture.

Financial developments are not monotonous. They go through long stages: financial indebtedness, low real interest rates, high investment on the one hand; financial consolidation and cautious risk assessment, high real interest rates, thwarted growth of investment on the other. Therefore a more adequate basis of comparison for the present situation is the late nineteenth century (1873-1897):

— Real long-term interest rates were permanently higher than growth rates in the most advanced countries of the time. Therefore businesses faced hard financial constraints. The average rate of growth of fixed productive resources was limited to the growth of equity capital. Any attempt to go further into debt, depressed profits since financial costs increased faster than the income produced by the firms. Therefore, a stage of financial deflation is characterized by a financial transfer from borrowers to lenders. It creates an obstacle to growth and makes financial consolidation a lengthy and weary process for private and public borrowers alike.

— The long run depressive trend did not impede financial liberalization and international capital mobility. But there were conflicting national interests, incentives to build up trade areas, world-wide financial integration but trade segmentation and contests.

It follows that the financial restructuring now in process might cause a lasting change in the financial behaviour of economic agents. If they want to reduce their *desired* level of indebtedness relative to income, the adjustment would not only entail the cancellation of transitory unsustainable financial positions. It would be a trend change from higher to lower desired debt ratios in the balance sheets.

I.2. A reversal in the investment-savings mechanism

The shift from a low to a high real interest rate is not just quantitative. It involves opposing adjustments to absorb macroeconomic disequilibria and brings about different types of equilibria.

In a regulated financial system, nominal interest rates are rigid, either because they are controlled by the monetary

authority or because they are determined by a bank oligopoly. If a disequilibrium occurs between the total of planned investment expenditures and the total of voluntary savings, say an *ex ante* excess of investment, credit demand will soar. A speed up of inflation will ensue, provoking a decline in the real interest rate. Investment expenditures are kept up and nominal income is increased, generating higher savings which matchs investment expenditures. The macroeconomic adjustment enables real growth to be stable and shocks in effective demands to be absorbed via variable rates of inflation.

In a deregulated financial system the same *ex ante* disequilibrium triggers an opposite adjustment. Because an increase in the rate of inflation is transferred into higher nominal interest rates as soon as it is expected, an excess of investment demand will carry a higher real interest rate. Because investment is more sensitive than savings to the change of the real interest rate, the adjustment proceeds through a marginal curtailment of investment expenditures. The rate of inflation is stable because deregulated financial markets have an inbuilt mechanism to check inflation. But the rate of investment is more volatile, more sensitive to the conditions of credit and to the level of indebtedness.

Therefore, if they focus exclusively on an objective of price stability narrowly defined, i.e excluding assets prices, the monetary authorities do not acknowledge the basic change of mechanism which achieves the investment-savings balance. They can be induced to wage an outdated war, while the main problem is to get out of long recessions and to keep weak recoveries alive.

I.3. Endemic financial instability

What is striking is the broad field of instability. It illustrates the financial linkages created by the process of financial globalization. Markets have been diversified and payments systems interconnected via foreign exchange markets. Flows of financial transactions have hugely increased. Borders between financial activities have overlapped or have even been deleted; competition has been enhanced between different types of financial institutions.
For two decades it has been possible to live through various episodes of financial instability:

— Stock market and property market crises;

— Extended banking crises (the secondary banking crisis in UK, the savings and loans disaster in the US, the collapse of the Nordic banking system);

— Bankruptcies of large individual banks (Continental Illinois) or financial conglomerates (BCCI, Maxwell);

— Crises in the interbank market due to spillovers from individual failures (Drexell Burnham Lambert, Herstatt);

— Breakdowns in the payment systems (Bank of New York).

However different in scope, the institutions involved and the activities concerned are, these episodes have in common the ingredients of similar dynamics: critical thresholds, weak links in financial interrelationships, externalities, crossed expectations, contagions and spillovers.

I.4. An upsurge of systemic risk

Systemic risk is a macroeconomic phenomenon which links together different sources of financial instability. It is the unintentional outcome of externalities between decisions and behaviours of individual agents under uncertainty. The externalities are rooted in three main financial processes: runs on deposits and settlement failures in payment systems; slumps of asset prices spreading from market to market; underpricing of risk and over-indebtedness in bank credit.

The resurgence of global risk has renewed the attention of monetary authorities for a financial safety net. The separation between banking policy and monetary policy has become more elusive. In a deregulated financial environment there is a need for an enlarged vision of monetary control: striking a compromise between the efficiency of markets, financial security and price stability.

II. The basic trends of financial liberalization

The process of financial liberalization is complex because it is not homogeneous across countries. There are both common developments and different competing models of financial organization. The Anglo-saxon concept of finance, as an industry in its own right, is far from being universal. Since there are different types of financial systems, which have their own flaws and their own consistency, the process of financial globalization is difficult to understand. Hard questions have to be answered. What are the relevant criteria capable of identifying consistent financial systems? This question makes it necessary to go through an extensive description in order to reach a theoretical specification of models of financial organization. Subsequent questions arise immediately. Are sharp differences in financial organization compatible with the

smooth functioning of world-wide financial markets? Or conversely, is organizational diversity a factor of financial instability when barriers to competition are removed?

I will first analyse common developments of financial liberalization according to three criteria which will be theoretically justified in the third part of the paper when I will be dealing with systemic risk. The criteria are the following: *development of financial markets, overlapping of financial activities, concentration of financial institutions.* The criteria point out both to structural changes which have affected every financial system in OECD countries and to the principles of organization which remain distinct between the various types of systems. This analysis will permit, in the last part of the paper, a classification of these financial types by combining the criteria and assessing their overall performance.

II.1. Developments of markets

Until the end of the Seventies, the primary importance of markets in finance was an Anglo-saxon peculiarity. They were much less developed in Continental Europe and in Japan. These structural differences have a long standing in financial history.

In the Anglo-saxon tradition, finance is an industry in its own right which has to earn its profitability by a market assessment of investment opportunities. The stock market is the heart of the financial system. Financial decisions are implemented through delegation by the owners of capital to managers, according to a principal-agent relationship. As far as debt instruments are concerned, securities markets are very active because state expenditures have long been financed by issues of public debt. A huge outstanding public debt has provided large and deep secondary markets which have been the channels of monetary policy.

In the Continental tradition, finance is a specialized service dedicated to the financing of domestic business investment. The main financial concept is not the market but the intermediary. The heart of the financial system is not the stock market but the banking system. Banking and industry are closely linked through long-term contractual groups, involving crossed

Table 1 - Logics of financial systems

Criteria	Japanese	American
Legitimation	Satisfying	Maximizing
	Community of interests at a	social welfare
	sufficient level	
Coordination	Horizontal	Vertical
	Keiretsu = crossed ownership + main	Principal-agent relationship between
	bank + credit consortium	firms and shareholders.
		Assessement by the stock Market
Incentives	Vertical	Horizontal
	Loyalty to the group. Inside mobility	Market value of individual
	and statutory promotions	performance. Outside mobility and
		competition
Control and sanctions	Bankruptey prohibited. Managed	Bankruptcies, reorganizations
	reorganizations within Keiretsu	through mergers and public
	Main bank as lender of next to last	offerings in the Stock Market
	resort	
Efficiency and safety	Risk are mutualized	Market ethics and efficiency
	Collusion between supervisors and	Public information
	supervised	Independent supervision
	Unknown indirect liabilities between	Prudential control against moral
	members of Keiretsu	hazard
Purpose	Finance serves the long run	Finance as a speculative activity
	expansion of the Keiretsu	seeking short run capital gains

ownership or pyramidal control via holding companies. Public expenditure finance is not always straightforward. It is often assured by special financial institutions which channel savings and have a public or a mixed status.

The differences between American and Japanese financial systems are prominent in that respect. (Table1) The dissonance of financial cultures is all the more startling given that the Japanese system was formally rebuilt along American schemes and ideas about competition and ethical standards after World War II.

Table 1 shows how the two systems are contradictory whatever the item used to compare them. They are both consistent and self-contained systems, but substantially different in every respect. Significant disparities can also be found in Europe between German and British concepts of finance.

Considering how deep rival principles governing the organization of finance are, it is no wonder that markets have developed unevenly across countries. Nonetheless, the world crisis of the Seventies unleashed powerful forces which boosted market developments until the end of the Eighties. Public and private debts soared, which triggered a quest for non-inflationary financing. Inflation itself made firms and households more sophisticated in managing their assets; which gave a powerful impetus to the demand of diversification. Many debtor countries wanted to attract foreign capital and had to remove capital controls. In creditor countries, the same had to be done, so that opportunities for international lending could be exploited.

The different processes combined to develop wholesale capital markets which have become truly world-wide. Global money markets have become available to a larger set of agents. Tough competition between financial marketplaces kept up the momentum of financial innovation at the microeconomic level. Similarly, linkages have been established between markets. The competition between Stock Exchanges has benefited from the opening of financial professions, the deregulation of commissions, the multiple listing of stocks. Securities markets have been connected with derivatives (futures and option contracts, swaps) well suited to manage risks or to lower the cost of financing for high-ranking borrowers. The volume of financial transactions has been hugely increased. (see Table 2 and Graph 1). Table 2 illustrates the explosion of off-balance sheet instruments in the last five years. Both instruments on organized Exchanges and over-the-counter transactions have increased at an amazing speed. Graph 1 shows the effect of growing financial transactions on the payments systems of the countries which house the three biggest financial markets of the world. The annual value of large size payments through the main interbank funds transfer systems reached an astonishing total of 45 to 120 times GNP in 1990. The largest jump occurred in Japan and was closely related to the tremendous speculation of the late Eighties in stock and property markets.

The most important consequence of market developments for the regulation of financial systems is the increase of market risk and the way it is handled by the new market instruments. Firstly, market risks have increased with the *volatility* of interest rates and asset prices. Secondly, techniques of risk management have become more *diversified* and more *opaque.* They involve more off-balance sheet items which make the overall risk exposure of financial intermediaries more difficult to assess by the market or by the supervisory authorities. The transfer of risk is easier, but many new market instruments carry contingent risks, so that it becomes impossible to know who the ultimate bearers are. Thirdly, the larger scale of open positions in interbank markets and interbank payments systems is linked with larger financial transactions. Market activity induces credit risks of a systemic nature because they are embodied into the bank networks. The externalities inherent to the functioning of these networks spread out individual risks through third party indirect exposures and risk sharing procedures.

II.2. Overlapping of financial activities

Like the importance of markets, the scope of financial activities and their allocation between banks and non banks is the subject of a vivid controversy. It is the second organizing principle of the financial system. The conflict of doctrine opposes *narrow banking* and *universal banking.* The first principle was adopted by the US in the Glass-Stegall Act of 1933 and imposed on Japan after the war. But this country circumvented the limitations, linking banks and non-banks within financial groups. The US is still in the midst of a bitter struggle between lobbies in Congress to decide how much overlapping should be permitted to guarantee fair competition between banks and non-banks. The reform of banking, however urgent and well founded, is still going nowhere in Congress. By contrast, the second principle is dominant in continental Europe. The second banking directive of the Community has officially promoted it. The theoretical arguments in favour of one or the other principle are substantial both ways, displaying the fact that there is nothing like an optimal structure in finance. The choice of an organizing principle is highly political.

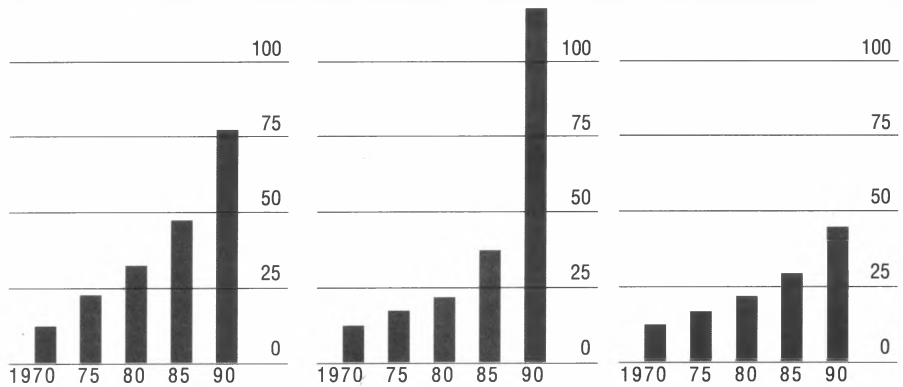
Table 2 - The expansion of selected financial derivative market

Exchange-traded	1986	1987	1988	1989	1990	1991
	notional principal amounts in bilions of US dollars					
instruments	583	724	1.300	1.762	2.284	3.518
Interest rate options and futures	516	609	1.174	1.588	2.054	3.231
Currency options and futures	49	74	60	66	72	77
Stock adex options and futures	18	41	66	108	158	210
Over-the-counter instruments	500	867	1.330	2.402	3.451	4.080
Interest rate swaps	400	683	1.010	503	2.312	2.750
Currency and interestcurrency swaps	100	184	320	449	578	700
Other	—	—	—	450	561	630
Grand total	1.083	1.591	2.630	4.164	5.735	7.598
Memorandum items:						
Ratio of grand total to: International claims of BIS reporting banks	0.27	0.31	0.47	0.64	0.76	
OECD GDP	0.10	0.13	0.19	0.29	0.35	

Sources: Futures Industry Association various future and options exchanges worldwide.
International Swap Dealers Association and BIS calculations.

Graph1 - Indicators of trends in the value of payments*

Ratio of the annual value of transactions to GNP



* Payment through the main interbank funds transfer systems.

Sources: National data.

The proponents of narrow banking emphasize the following advantages. Narrow banking forbids commercial banks to indulge in asset trading, limits severely share ownership and more generally all investment banking activities like underwriting. Consequently, the separation of activities protects the banks from the volatility of asset prices which could impair the value of their balance sheets in time of asset price deflation. Narrow banking has also the advantage of avoiding conflicts of interests between the function of a creditor and the function of a shareholder of a defaulting firm. It makes the managers of a bank freer to focus on its safety and its profitability. Finally, narrow banking limits credit risks because it keeps commercial banks clear of project financing and all kinds of specialized long run loans.

The zealots of universal banking base their arguments on the asymmetrical nature of information between creditors and

debtors in customer markets. Universal banking can improve the quality of information on borrowers, thus the quality of credit, because banks can set up long run relationships with their customers if they provide a large menu of financial services. Banks get an insider position which enables them in some way to overcome the lack of relevant public information. It means that universal banking can shape loan contracts to make debtors more inclined to disclose their true information, thus effectively circumventing a market failure. Long standing relationships rest upon the complementarity between banks as managers of money, handling the payments and keeping the deposit accounts of their customers, and banks as financial intermediaries, investing in idiosyncratic non-tradable knowledge and monitoring individual loans to keep them performing up to maturity.

However sharp and clear-cut the distinction between narrow and universal banking, the development of markets has tightened the competition between banks and non-banks. The former have felt strong pressures on their profits from both sides of their balance sheets: on the asset side they have lost business from their best customers and have had to substitute more risky assets and to increase their securities holdings; on the liability side they have lost part of their core deposits and have had to substitute more expensive market resources for cheaper ones, in order to fund riskier and more volatile assets.

Table 3 shows how the pressure of competition has affected narrow and universal banking systems alike. But the latter (France, Italy, Germany) have been better able to sustain the pressure without many banking failures or heavy assistance by central banks or supervisory authorities.

Table 3 - Pretax profits at comercial banks

(period average in per cent of assets)	1981 - 89	1990 - 91
United States	0.83	0.73
Japan	0.62	0.40
Germany	0.58	0.49
France	0.38	0.28
Italy	0.89	0.82
United Kingdom	0.83	0.65

We can see, however, that Japan and the United Kingdom, the countries where the speculative bubble and the subsequent slump of assets prices have been the sharpest, are also the countries with the most severe decline of profits for their banks. The more they have been under the fire of competition by non-banks, the more banks have developed fragile financial structures. To protect their market shares, they have underpriced risk and squeezed profit margins. To meet competition, they have entered unfamiliar lines of business too fast to learn safely. Therefore they have built excess capacities and let unbalanced capital-asset structures develop unchecked. When the rise of money-market interest rates in the late Eighties triggered the asset price deflation, the concealed fragility of their financial structure was suddenly revealed. The subsequent consolidation has been made more painful for over-exposed banks because Capital Adequacy Standards are being imposed at the worst possible time. That is why banks have been cutting credit, reasserting credit risks, increasing interest margins on their credit, issuing subordinated debt and selling securitized assets, to restructure their balance sheets. Improving the quality of assets, controlling the expansion of the overall size of assets, consolidating financial positions, are all parts of a drastic change in bank strategies which is going to have a lasting, depressing influence on the aggregate supply of credit.

II.3. Concentration of financial institutions

Concentration is the third basic feature of a financial system which impinges upon competition and safety. Concentration is also a trend in the financial restructuring accompanying the process of globalization. There are different types of concentration because this trend is intertwined with the trends displayed before, i.e market developments and overlapping of financial activities.

For instance in Germany, the financial system has been the least fragile up to now because market innovations have been checked by a stable monetary control and efficient universal banking providing customers with services they have no incentive to look for elsewhere. Since banks are universal, concentration can be essentially horizontal. The available indicators of concentration are low, thanks to a densely implanted network of public savings banks and mutual savings banks. But there is also a stable oligopoly of very strong private commercial banks. The dual market structure under the homogeneous principle of universal banking has made a financial system which seems to have struck a robust compromise between allocative efficiency and a low degree of systemic risk. It is possible, however, that a deeper financial integration in

Europe could destabilize the system if market developments become impossible to check. To keep the high degree of stability the Germans are accustomed to, it could be necessary for concentration to increase in banking.

In Japan, narrow banking is an institutional framework that was superimposed on a financial culture completely foreign to this conception. This strange remnant of American dominance has been easily circumvented by conglomerate concentration in the Keiretsu, the loose Japanese structure of financial groups.

Conglomerate concentration is going to be an important trend of financial globalization. On the one hand, banks in many countries (excepting Germany for the time being) have lost stable resources because savings have been reallocated towards institutional investors (life insurance and pension funds) or have shifted to competing mutual funds. On the other hand, banking is an activity that is able to select and monitor entrepreneurial risk, which has nothing to do with financial asset management by institutional investors. If banks have an expertise vital for a growing, innovative economy, while no longer directly controling the capital to perform their social function, they have to make new alliances with non-banks. Conglomerate concentration could be a brand of universal banking, not as plainly displayed as in Germany, but more concealed like in UK or Japan. However, as the BCCI and Maxwell failures have shown, international financial conglomerates are very difficult to supervise and they interiorise systemic risk within their opaque networks of concealed liabilities.

III. Systemic risk and financial structures

Systemic risk stems from non-independent individual risks. Individual reactions to the mutual dependency of risks create endogenous externalities. They are expressed by interconnexions between financial positions which spread chain effects between credit risks. They are also realized by coordination failures between individual actions (imitation, contagion, moral hazard, adverse selection). They involve strategic complementarities because individual decisions, taken rationally on the assumption that others have an unchanged behaviour, are mutually reinforced (positive feedbacks) when others do the same.

Externalities which are self-reinforcing have peculiar dynamic properties. They exhibit a dependency to initial conditions which is revealed by the presence of critical thresholds. In the vicinity of such a discontinuity, a small variation of a state variable can trigger a major change in an instrumental variable. For instance a small change in the money market interest rate can shift already fragile bank financial positions in a situation where the banks can no longer pass their cost increases to their credit rates, because the quality of credit would decrease more than the increase in interest income. They have to shift abruptly from a price rationing regime to a quantity rationing regime.

When such dynamics are built into a financial system, the concept of economic equilibrium has to be restated. There are multiple equilibria, all equilibria are path dependent and are of a large variety fixed points, stationary cycles, self contained irregular pseudo-cycles, non explosive chaos.

It follows that there are *normal* equilibria and *abnormal* equilibria, according to some social welfare function, government preference or whatever guides economic policy. They could be called organizational equilibria or equilibria whit inbuilt rules, since the organizational principles of a financial system and patterns of economic policy can influence the processes which lead to one type of equilibrium or another.

This framework enables to understand systemic risk as an outcome of dynamics leading to abnormal equilibria. To deal with systemic risk, the authorities should be able to set up rules, run monetary policies and eventually intervene in last resort, in order to thwart the externalities which shift the financial system beyond a critical threshold where the spill over of microeconomic adjustments become perverse.

To apply the framework, I shall define the main processes which feed systemic risk and confront the disruptive processes with the criteria of financial organization.It will then be possible to provide some insight into the inherent robustness or fragility of different financial structures.

III.1. The main dynamics of systemic risk

There are three main dynamics which involve systemic risk, and thus which lead to an abnormal equilibrium, if not checked. They are: a run on deposits or a disruption in the interbank payments systems; an unstable path of asset prices; a disruption in the supply of bank credit.

A run on deposits or a settlement failure in the interbank payments network is traditionally the most well known form of financial crisis. It leads to an abnormal equilibrium at the macro level because it destroys bank reserves, which induces a

multiple contraction of money. Concentration in banking can robustly face this type of externality for two reasons: first the likelihood of redepositing when a bank has overexpanded its money creation is larger, second concentration favours the expectation of a bank bail out. A well organized payments system means a well defined set of rules: applying the principal of irrevocability to preclude chain effects triggered by multiple defaults; choosing financially safe settlement agents with direct access to the L.L.R; setting up clear rules for sharing losses between members to keep in check moral hazard.

A slump of asset prices spreading from market to market after the burst of a speculative bubble, is a source of systemic risk most likely in a financial system with highly developed markets. The deflation of asset prices destroys financial wealth. Because banks hold a substantial part of tradable assets in their portfolios, or because they have lent heavily to asset holders in anticipation of a perpetual price appreciation, the quality of bank assets declines precipitously. Besides, the liquidity of some market-makers can be jeopardized, which provides a channel to spread instability between underlying and derivative markets. A break up of arbitrage is possible which provokes a reaction by traders, who must sell short positions that are no longer sustainable.

An abnormal equilibrium can be reached at the macro level if a flight to quality induces a general rise in real interest rates. A segmented financial system with narrow banking strictly enforced, or a financial system with universal banking and tightly regulated financial markets, can be robust in the face of this type of systemic risk.

Excessive competition for market shares in banking, with the widespread underpricing of risk and the over extension of credit, is the third type of systemic risk. It occurs when banks discover the bad quality of their claims and collectively reassess their risk. They all cut credit together and raise their interest rates to make provisions for the higher probability of default on their assets. The abnormal equilibrium arises in the form of a credit crunch (indiscriminate rationing). A less severe issue is a depressed credit market because the real cost of intermediation becomes prohibitive. Lenders and borrowers alike have to adjust to the new cost structure of credit, both trying to lower their indebtedness to improve their financial positions and becoming over-cautious as far as new credit is concerned. From a macroeconomic standpoint, both the aggregate demand and supply functions of credit shift downwards. Only well defined prudential rules, a moderately competitive structure of banking, and efficient supervision, can prevent this type of systemic risk.

III.2. The types of financial structures and the dilemma between competition and safety

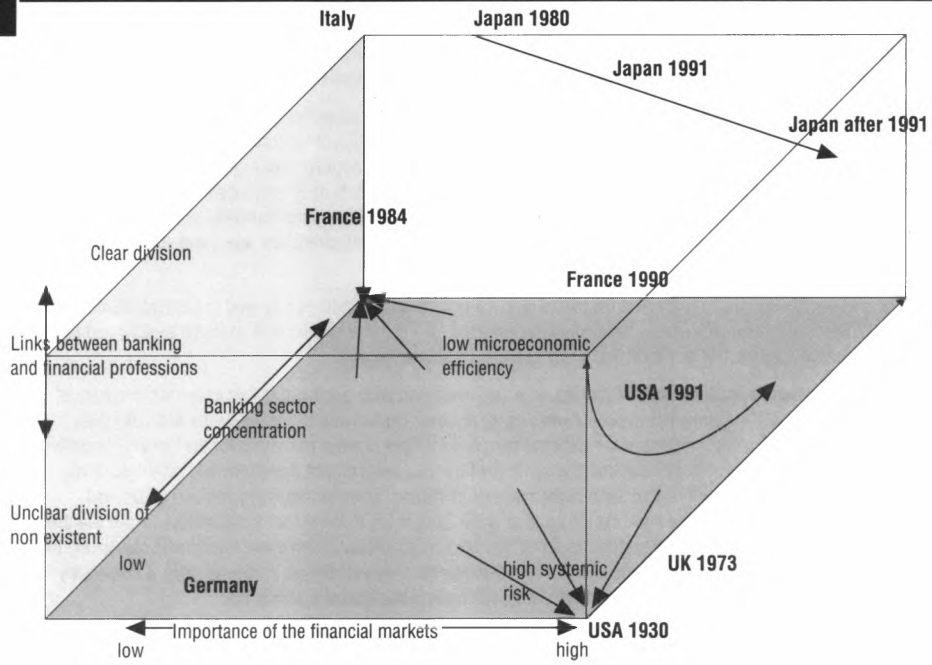
Financial systems can be compared in a three dimensional space. The three dimensions are the degree of importance of markets (measured by the weight of financing through markets in the overall debt outstanding of non-financial agents), the degree of overlapping between banks and non-banks (measured according to a scale between the extreme of complete separation and full universal banking), the degree of concentration in banking (measured by an appropriate index of concentration). Graph 2 measures the positions of the financial systems of the main OECD countries at specific dates.

The analysis of systemic risk points out to a dilemma between competition and safety. Acute competition can foster micro efficiency in the allocation of capital. Highly regulated systems preserve macro stability. The dilemma appears plainly on Graph 2 which combines the organizing principles of financial systems:

— *There is a structure which displays maximum vulnerability to systemic risk:* it combines highly developed markets, little separation between banks and non-banks which exposes commercial banks to the instability of the markets, and low concentration in banking which makes the banks vulnerable to runs on deposits. It is no wonder if this structure coincides with the US system in the 20's and early 30's. The US could have reformed its system by reducing the role of the markets or increasing concentration in banking. Both methods were closed either by ideology or collusive interests lobbying in Congress. Separation between commercial banks and other financial institutions was the only solution left. It was the substance of the Glass-Steagall Act. But financial liberalization has eroded the bearing of this organizing principle. Systemic risk has not been long to come back to the fore. Therefore the US has no other choice but to encourage concentration through mergers and nationwide branching.

— *There is a structure which displays maximum impediment to competition:* it combines very limited and subordinated financial markets, high concentration in banking and a degree of separation between banks and non-banks. Such a system is segmented in different channels of financing run by non-competing financial intermediaries (the corporatist system of Italy still in operation, the French system up to the end of the 70's). Such systems are microeconomically inefficient because the cost of credit is plagued with oligopoly rents. But there is no systemic risk and even individual bank failures are precluded. The system is also well suited for a selective credit policy and for direct monetary control by the means of the availability of bank credit. It is no wonder if this system has been reformed in France by deregulation, which increased markedly the importance of markets and enhanced universal banking.

Graph 2



— *The peculiarity of the German financial system appears plainly.* It is an original compromise between efficiency and safety. But it depends heavily on the containment of market developments. If this attitude is no longer sustainable in the new European financial marketplace, the Germans will have little choice but strengthening the concentration of their banking system, since they will certainly keep their universal banking.

— The paths of the different countries through time show the structural impact of financial globalization: *more markets involve more concentration and a reorganization of finance either towards straight universal banking or financial conglomerates.* This dilemma is irreductible because deregulation means more systemic risk. That is why monetary control is also undergoing substantial reform.

IV The financial safety net and monetary control

The debate about financial safety is obscure because it brings to the fore the lender of last resort function (L.L.R) that the central banks are reluctant to talk about. There is a sense of urgency however. The separation between banking policy and monetary policy which worked well before financial liberalization has started to crumble. Central bankers are in search of a doctrine which does not jeopardize their paramount priority for price stability but which can handle efficiently the externalities inherent in systemic risk. The disarray of monetary policy in the US and in Japan are good examples of the problem.

The reasons for the breakdown of the dichotomy between banking and monetary policies will be discussed first. Then I will outline the principles of building a financial safety net adequate to present global finance. Finally I will hint at the L.L.R relation with monetary policy.

IV.1. The breakdown of the dichotomy between banking policy and monetary policy

In the tightly regulated financial systems after World War II and during the growth era up to the middle of the 70's, L.L.R was dedicated to banking policy. Besides, banking policy was separated from monetary policy. This separation is easily conceivable theoretically. Banking policy involves the structure of assets held by the central bank. Monetary policy involves

the size of assets, whose counterpart is the monetary base. But there is a big difference between a theoretical possibility and a practical feasibility. The latter depends on the structure of the financial system.

In the period 1950-75, the financial structure was fit for the dichotomy between central bank responsibilities. On the one hand, asset markets were unimportant in most countries, or they were indirectly stabilized by a good policy mix. On the other hand, even if asset markets played a significant part in the financing of the economy, commercial banks were prohibited to trade or hold risky and volatile asset. Therefore the source of systemic risk stemming from asset price fluctuations no longer spilled over into the banking system.

Furthermore, runs on bank deposits were made unnecessary with the existence of formal deposit insurance schemes or with the common knowledge that the central bank would not let a large bank go bankrupt in a concentrated banking system. This traditional source of systemic risk could be said to have been a thing of the past.

Only the third process of systemic risk remained a possible active source; individual bank failures due to individual credit risks, provoking a loss of confidence towards the banking system as a whole or inducing other banks to become more careful in their credit policies. What had to be done was to prevent individual bank failures from having adverse external effects on other banks. The principle "too big to fail" followed naturally. The L.L.R doctrine was to help insolvent banks and to sterilize the creation of money, if any, to insulate monetary policy.

This doctrine has become inadequate because the development of markets has reactivated a source of instability which makes banks fragile, but which does not originate in the unwise credit policies of individual banks. For instance, it can be disputed whether the debt policy of international banks was sustainable or not until 1979. But it cannot be disputed that the shock deliberately created on international money markets by US policy, thrust debtor countries into insolvency Furthermore, the competition between banks and non-banks and the upsurge of financial conglomerates make the principle "too big to fail" irrelevant because it becomes indiscriminate. If central banks do not elaborate a new doctrine, they will end up assisting almost any financial and even non-financial concerns.

But there was only one clear cut doctrine available and it is not feasible in contemporary financial structures. It is the Bagehot's old classical doctrine of the L.L.R. To handle systemic risks while denying moral hazard, the doctrine carefully distinguished liquidity and insolvency. It advocated lending freely at a penalty rate to any economic agent with good collateral, or collateral considered credible under normal conditions.

The doctrine worked because monetary policy in the modern sense did not exist. Average price stability was taken for granted over the business cycle as long as the currency stuck to the gold standard. All the central banks had to do was to preserve orderly financial conditions in open financial markets. They learnt to do this by manipulating the Bank rate, whose impulse was steadfastly transmitted to the markets by the discount houses.

To day price stability is no longer the outcome of a mechanism, it is the paramount priority of monetary policy. Moreover prudential supervision is much more developed than in Bagehot's time and is largely under the responsibility of institutions other than the central banks. That is why the consistency between monetary policy and financial stability can no longer be taken for granted. What price stability really means is a question that must be answered if a consistent doctrine is ever to be spelled out.

The experience of the 80's illustrates the point. We know that excessive changes of interest rates to get price stability in a narrow sense can disrupt asset prices and exchange rates, threatening in turn the stability thought to be achieved, as the UK learnt in the late 80's. Moreover, with high interest rates both monetary aggregates (because of substitutions in portfolios) and the supply of credit (because of riskier loans) can be more unstable.

IV.2. The multi-level organization of the safety net

Central bankers do not want to state plainly a monetary doctrine encompassing the prevention of systemic risk. They prefer to resort to the so called constructive ambiguity. But they are investing heavily in prudential policy to build a safety net able to meet the challenges of global finance. This is basically a three level institutional framework.

— At the deepest level, the problem is to conceive rules which induce a wise management of risk without impairing fruitful innovation. As Keynes once put it, well conceived rules should encourage entrepreneurship and discourage speculation. But the critics which have heralded the capital adequacy standard demonstrate how difficult it is to set up rules tied to well defined incentive schemes. All too often, rules which seem to be quite reasonable entail adverse reactions. It is impossible to hope for a financial security with inbuilt rules. Other prudential mechanisms are to be devised and enforced.

— Enforcing market discipline is a requirement which was quite lacking in the crises of the late 80's. This requirement is implemented differently in organized markets and in customized markets. In the former, it is possible to separate liquidity and credit risks because Clearing Houses are well identified market-makers which can enforce rules upon their members. The functioning of the Exchanges can also include devices, like circuit breakers, to handle panics or breakdowns. In the latter, credit risk and liquidity risk are intertwined and it is not easily possible to get rid of moral hazard, because asymmetries of information are present everywhere. The role of supervision is indisputable and indispensable. Supervision should be much more developed internationally and much better coordinated across different professions, if a consolidated control of financial conglomerates is ever to be achieved. Supervision should have two purposes: making early diagnoses of fragile institutions and unsustainable market developments on the one hand, designing cost minimizing reorganizations on the other.

— The above mentioned institutional levels do not make the L.L.R unnecessary. But if they are efficient, they can contain the moral hazard inherent in any L.L.R assistance or even in the presumption that the L.L.R will intervene. That is why all levels of the safety net should be tightly knit. Central banks should have a rule making activity, shared with professional bodies and supervisory authorities. L.L.R and supervisory authorities have to work together. Supervision is efficient if it is close to the markets and if it sets proper incentives for market-makers. But supervision should be coordinated by the L.L.R to get the best global assessment of the financial situation in crisis. Careful diagnosis is the basis to get a decision about a proper intervention: if, when, how, to whom, to what amount, with what guarantees? To answer the relevant questions, coordination cannot be *ad hoc*. It should be institutionalized along careful lines of communication and harmonized methods of investigation.

IV.3. Lender of last resort and monetary policy

Is sterilizing L.L.R interventions appropriate? It depends on the type of externality which carries systemic risk and which motivates an L.L.R intervention.

If bank reserves have been destroyed and monetary targets are going to be under-achieved, the money created by an L.L.R intervention compensates for the perverse destruction of money. Obviously sterilization is not called for.

If the fragility of one bank has induced deposits to be shifted to other banks, the beneficiaries could be ordered by the central bank to recycle them. If there is an incident in the payments system, the excess liquidity supplied for settlement can be cancelled the next day. In both situations, L.L.R interventions do not impinge upon monetary policy.

If a financial crisis is caused by a slump of assets prices, the L.L.R has to decide at what price the market should be stabilized. The extent of money creation depends on this decision. Once market confidence has been restored, it might be appropriate to withdraw some liquidity from the open markets.

If a brutal shift of regime in the credit policy of the banks has produced a credit crunch and a flight-to-quality, it constitutes a real shock that is reflected in larger spreads (a change in relative prices), not a monetary shock. Monetary policy can ease the financial adjustment, but it cannot by itself engineer an economic recovery. High quality borrowers are needed.

References

Aglietta, M. (1991), Le risque de système, *Revue d'Economie Financière,* 4e trimestre.

Aglietta, M. (1992), Les dérapages de la finance japonaise, *Economie Prospective Internationale,* 51.

Aoki, M. (1988), *Information, incentives and bargaining in the Japanese Economy,* Cambridge University Press.

Artus P. *et al.* (1991), Crise du systeme financier americain et gestion des bilans, *Revue d'Economie Financière,* 18, automne.

Bernanke B.; Blinder A. (1988), Credit, money and aggregate demand, *American Economic Review,* May.

Bernanke B.; Lown C. (1991), The credit crunch, *Brookings Papers on Economic Activity,* 2.

Blinder A. (1987), Credit rationing and effective supply failures, *Economic Journal,* July.

Frankel A.; Montgomery J. (1991), Financial Structure: an international perspective, *Brookings Papers on Economic Activity,* 1.

Granovetter M. (1978), Threshold models of collective behavior, *American Journal of Sociology,* 6.

Guttentag J.-M.; Herring R.-J. (1986), Disaster myopia in international banking, *Princeton Essays in International Finance,*164.

Jaffee D.; Stiglitz J. (1990), Credit rationing, *in* B.Friedman and F.Hahn (eds.), *Handbook of Monetary Economics,* vol. 2, North Holland.

Kaufman G. (1991), Lender of last resort: a contemporary perspective, *Journal of Financial Services Research,* 5.

Mankiw N. (1986), The allocation of credit and financial collapse, *Quarterly Journal of Economics,* August.

Schwartz A. (1986), Real and pseudo financial crises,*in* F.Capie and G.Wood (eds.), *Financial crises and the world banking system,* Saint Martin's Press, New York.

Suzuki Y. (1992), *The Japanese Financial System,* Clarendon Press, Oxford.

Wojnilower A.-W. (1980), The central role of credit crunches in recent financial history, *Brookings Papers on Economic Activity,* 2.