Gertrude Tumpel Gugerell: Financial regulation and systemic stability

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The references for the speech can be found on the Austrian National Bank's website.

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Introduction

Supervisors in the early post war period were used to a fairly quiet life. The regulatory regime at this time was characterized by largely repressed and nationally closed financial systems shielded from competition. The Bretton Woods system made currency risk insignificant, interest rate fluctuations were very moderate, price competition played no role because interest rate regulations were in place. There was also very little competition from non-banks and international competition was restricted by capital controls. This situation resulted in high intermediation margins with relatively low risk. As a consequence the risk bearing capacity of financial institutions was high and financial systems were very stable.

This situation has radically changed since the mid seventies. After the fall of the Bretton Woods system which was accompanied by a process of wide spread financial deregulation interest rate and currency risks increased substantially and financial systems became much more competitive all over the world. Intermediation margins came under pressure and the risk bearing capacity of the financial system decreased. Supervisors were suddenly confronted with banking crises and problems of financial instability. The sometimes sizeable costs of these crises have increasingly refocused the regulatory debate from issues of depositor protection and competition policy to issues of financial stability. Today supervisors and regulators all over the world see the strengthening of the safeguards against financial instability as one of their core tasks. But are the instruments in place today appropriate to achieve this goal? Are recent regulatory initiatives able to improve current practice?

I think it is fair to claim that many remarkable improvements have been made recently and during the past two decades. The efforts to improve capital- and risk management standards for banks have resulted in substantial advances in adapting to a financial environment characterized by reduced margins and higher volatility. The level of the debate about risk within and outside financial institutions has been rising substantially and the awareness of potential problems in assessment methods and regulatory instruments is nowadays much higher than ten or twenty years ago.

All these improvements notwithstanding, I want to argue today that we still need a further critical debate about how we think of financial instability, its causes and its economic consequences. In this debate we have to question perceived viewpoints and sometimes perhaps to go back to basics.

There are of course many more open issues than I can possibly address in this talk. So let me confine myself mainly to a particular - though important- aspect of this debate: The common perspective on financial regulation and financial instability is at the moment mainly concerned with single institutions. The discussion of financial crises and systemic risk however requires a shift in perspective from individual institutions to the financial system as a whole.

This shift in perspective is already under way. The popularity of the notions of "macro-prudential" versus "micro-prudential" approaches to regulation and supervision reflect this fact (Borio (2002)). As Andrew Crockett, the general manager of the BIS explained in a widely cited speech at the international conference of banking supervisors in Basel in September 2000, macro- and micro prudential approaches to supervision and regulation differ mainly in terms of objectives of the supervisory tasks and in the conception of mechanisms influencing economic outcomes. Whereas the macro-prudential objective can be defined as limiting the costs of financial distress for the economy as a whole and to reduce the likelihood of large scale breakdowns of financial intermediation, the micro-prudential approach is concerned with limiting the failure of individual institutions. Whereas the micro-prudential approach is based on the assumption that financial stability is ensured when each and every institution in the financial system is sound, the macro-prudential approach does not necessarily endorse this view.

In the following I want to contribute to this discussion and argue why a shift of perspective from an institution-based regulatory policy to a system perspective is indeed necessary and important and why we should actively discuss these issues.

The Endogenous Nature of Financial Risk

The recent history of financial regulation - in particular the framework put forward by the Basle Committee - has been concerned to a large extent with the upgrading of capital standards for banks. One of the basic features of this regulation is the idea that capital charges required by the regulator should reflect appropriately the risk taken by the banks: they should be risk weighted. Banks that take higher risks should be required to hold more capital. The major part of the discussion about capital adequacy regulation has so far centered on the appropriate choice of risk weights. In fact a core part of the proposal for the new Basle accord deals with correcting past shortcomings in the choice of these weights.

In this process regulators have relied heavily on individual risk management models operated by the banks and audited by the supervisors. Capital charges are determined based on the results from these risk management models. The recent developments have increased the scope for model-based calculations of capital charges to a much wider class of risks.

A common feature of these models is that financial risks are taken as exogenous to the behavior of institutions. Conceptually many of the modern internal risk models look at financial risks borne by the banks in very much the same way as on the risk of the weather. Managing the risk of a financial institution is thus seen in analogy to a game against nature (See Morris and Shin (1999)).

This point of view can be perfectly sensible from the perspective of an individual bank. As an individual institution in a big international market it may make sense to view the financial risks reflected in the volatility of financial market and asset prices as largely exogenous. For the system as a whole the risks faced by the different agents in the financial system are however endogenous.

From a system viewpoint it is important to see that prices and volatility are determined endogenously in the aggregate and depend on the joint behavior of all agents. Failing to recognize this endogenous nature of financial risk can indeed lead to poor risk assessments. In particular in times of crises the weather paradigm of financial risks is seriously misleading. While in normal times the actions of many heterogeneous agents cancel each other out in the aggregate in times of crises behavior usually becomes extremely uniform and individual actions become mutually reinforcing thereby amplifying the crises. This reminds us of a basic insight in other areas of economics: What is true at the micro level may not necessarily hold in the aggregate.

In the recent academic literature various contributions by Morris and Shin (See Morris and Shin (1999)) have modeled this basic insight for an analysis of banking crises and currency attacks. Their main point is that in a financial market - contrary to weather forecasts - agents play a game against nature and against other agents simultaneously. In such a situation actions of individual agents are typically mutually reinforcing. Equilibrium behavior is characterized by simultaneous sudden switches of collective actions.

Discrepancies between individually and aggregate rational behavior arise because individual agents do not take into account the effects of their behavior on the payoff distribution of other agents. If - for example- everybody sells into a falling market prices will plummet and the crisis is reinforced.

Morris and Shin (1999) discuss the episode of the crash of the US dollar against the Yen in October 1998 as an example for the logic described above. The dollar had been continuously appreciating in the years before the crash. In the summer of 1998 it was expected that the dollar would rise even further to the end of the year. In combination with a large interest rate differential between Japan and the US, many traders took advantage of the situation by borrowing Yen, buying Dollar assets and make profit on the appreciation of the Dollar as well as on the interest rate differential. This kind of trading strategy was pursued by banks, hedge funds and even by bigger corporations. When the Russian default set in during August 1998 all agents that had participated in the so called Yen-carry strategy in the months before were all simultaneously eager to unwind their dollar positions reinforcing the fall of the Dollar and thereby deepening the crises.

Individually these strategies might have all been rational. What individual institutions and the weather paradigm of financial risks fail to take into account is the fact that the behavior of individuals changes the payoff distribution of all other individuals. Since this externality is not taken into account by current

risk management technology there are reasons to believe that the models will work poorly exactly when needed most: before and in times of crises.

What conclusions can we draw from such an insight? I think the arguments put forward above support the point made in the beginning. If we want to design a regulatory framework that is able to act as a safeguard against financial instability a shift of perspective from individual institutions to a system level is essential. The current strong reliance on individual backward looking risk models has to be questioned and we have to think on how we can supplement such an approach by a form of aggregate assessment that takes the endogenous nature of risk into account as far as possible.

Summarizing these points I want to conclude that we have to ask ourselves whether we are at the moment perhaps relying too much on the use of internal risk models to determine capital charges. As I have argued, these models are rooted in a risk concept that is particularly misleading shortly before and in a crises because the endogenous nature of risk. At the onset of a crisis the process that drives the data on which risk assessments are based undergoes a structural break and changes its nature. If we fail to take these effects into account we are led to flawed and misleading risk assessments.

The Problem of Hidden Aggregate Risk Exposure

Another tension between the micro- and the macro-perspective exists in the field of banking supervision. Current practice is mostly based on the individual institution approach. It is hoped that supervisory assessment of the “soundness” of single institutions and bank by bank regulatory monitoring of risk models is sufficient to safeguard the stability of the banking system as a whole. This point of view can however be doubted. As with the problem discussed before there is a substantial difference between the single institution and the system perspective.

One of the major reasons why the individual institutions approach is insufficient is the fact that modern banking systems are characterized by a fairly complex network of mutual credit exposures. These credit exposures result from liquidity management on the one hand and from OTC derivative trading on the other hand. They have substantially increased in importance in the post Bretton Woods area by the huge growth in international capital markets. They have also become more important because the banking industry's reaction to a situation of tighter margins and increasing volatility. Banks have increasingly used new risk management techniques that try to take risks out of the balance sheet and sell it to third parties via derivative contracts, mainly through interest rate swaps.

In such a system of mutual exposures the actual risk borne by the banking system as a whole and the institutions embedded in it may easily be hidden at the level of an individual bank. Thus again the major problem of an individual institution perspective is a potentially misleading risk assessment for the financial system as a whole.

The problem of hidden risk exposure is perhaps most easily seen in the case of counterparty risk. Judged at the level of an individual institution it might look rather unspectacular. By the individual institution perspective it can however remain unnoticed that a bank is part of a chain of mutual obligations in which credit risks are highly correlated. Its actual risk exposure thus might indeed be quite substantial and can be uncovered only if an assessment can be made at the system level.

Another example of hidden exposure has been pointed out in the literature by the previous speaker, Professor Hellwig. He gave an example where the network of mutual credit obligations makes substantial exposure of the system to interest rate risk invisible at the level of an individual bank because the individual maturity transformation looks short, whereas the maturity transformation of the system as a whole is rather extreme (See Hellwig 1997). To uncover hidden exposure and to appropriately assess risk in the banking system, rather than looking at individual institutions, risk assessment should therefore make an attempt to judge the risk exposure of the system as a whole.

How a change into a more system oriented supervisory risk assessment could work in practice seems at the moment still an open issue. Even if we feel uneasy about the current practice it is not clear how a system perspective would look like in practice. This does however not imply that we should not face the challenge. To the contrary: If we take the task of strengthening the safeguards against financial instability seriously, finding an answer to these questions is indeed crucial. Let me point out at this stage that Oesterreichische Nationalbank by its research activities tries to actively contribute to this process. The results of these efforts are published in our regular Financial Stability Report and the Working Paper Series of the Bank.

To summarize these remarks let me conclude that we have to rethink the current practice of how we supervise our banking systems. I have argued that the problem of the current approach based on individual institutions may fail to notice important risk exposures that remain hidden if we don't attempt to achieve a risk assessment at a system level. Spotting the build up of financial instabilities in the banking system is in any case an extremely difficult task. But the quality of such risk assessments will be greatly improved if we manage to learn how risk assessment at a system level can be done.

To be sure let me make clear that I am not arguing that the current supervisory practice is of no value in the big task of safeguarding financial stability. However, we need complementary approaches that bring in the macro-perspective of an overall risk assessment for the banking system as a whole.

The Problem of Procyclical Effects of Capital Adequacy Regulation

Another classical conflict between the micro- and macro-perspective on financial stability has extensively been discussed in the case of capital adequacy regulation. While for an individual institution it may make sense to take a defensive stance in a situation of crises, if all banks do that each of them could end worse off.

From the early days of the Basel accord concerns about these procyclical effects of capital adequacy regulation have been raised and the issue has been widely discussed. (See Blum and Hellwig (1995)). If I discuss the procyclicality issue here I am therefore telling hardly anything new. However it seems necessary to point out at this stage that we can not close the debate yet.

The mechanism by which capital standards act as a cyclical amplifier is relatively easy to understand. Capital adequacy regulation can bring banks into a situation where they have to cut back credit in a recession to fulfil their capital requirements after an adverse shock. Especially in a situation where all banks are hit at the same time, this might amplify an economic recession and increase bank insolvencies rather than prevent them.

Of course this analysis is based on the assumption that banks can not easily issue new equity and that firms can not simply substitute bank credit with other sources of finance. The effect of capital scarcity leading to a "credit crunch" has been observed and investigated by in the literature by Bernake and Lown (1991) and Calomiris and Wilson (1998) among others.

If there is a substantial cost connected to issuing new equity in bad times and if firms can not easily substitute bank finance by other sources, one has automatically a procyclical effect of bank lending no matter whether capital requirements are in place or not. However capital requirements may act as an amplifier.

Refining risk weights by making capital charges dependent on internal and external ratings may even exacerbate these effects because ratings also vary with the business cycle. Preliminary evidence suggests that procyclicality is likely to increase under the new proposal in particular in crises situations (See Segoviano and Lowe (2002)).

Having said this, what conclusions shall we draw from this analysis? I don't have a definite answer but I think the concerns that have been raised in the discussion have to be taken seriously and we are challenged to think about approaches that could strengthen countercyclical regulatory instruments that encourage the build up of cushions in booms that can act as buffers when times deteriorate.

Making progress in this direction requires that we are able to improve the measurement of risk through time and in the assessment of the profile of macroeconomic risks; an extremely difficult task (See Borio 2002). There are efforts to proceed in this direction in particular by work at the BIS and at other institutions but there is still much to be done.

Some authors have argued that the procyclicality concerns are largely exaggerated because there are reasons to believe that a number of other factors can alleviate or even offset these effects. (See Borio 2002). I think we don't know the definite answer yet. Theoretical arguments and the preliminary evidence combined should alert us that we have to make further progress on this issue.

The Role of Central Banks

I have argued that there is a need to strengthen the system perspective on financial regulation and financial stability and that the regulatory instruments and objectives have to be complemented by new

approaches to risk assessment and supervision. At a policy level such an endeavour will necessarily involve many institutions and raise difficult policy coordination issues. Let me say a few words about the role of central banks in this process.

Modern central banking has always been intimately connected to banking supervision. This intimate link has its historic roots in the establishment of banknotes as a means of payment and the spread of commercial bank money or bank deposits as a convenient substitute for banknotes and coins. While it is the public function of monetary policy to ensure the confidence in the paper currency, ensuring stability of the relationship between central bank and commercial bank money is the ultimate function of prudential supervision and regulation of the banking system. Thus central banks have a keen interest in issues of financial stability.

As far as the shift in perspective from an individual institution approach to a more system based approach to regulation and supervision is concerned, central banks are natural institutions to contribute to such an attempt.

Central banks by their role as liquidity providers to the banking system and in their functions in prudential supervision have rich data sets that are relevant to the issues raised above. These data sets provide potentially extremely valuable information that can be used and exploited for the development of new tools and methods that can support a system approach to banking regulation and supervision.

As I have indicated in the beginning issues of financial stability have raised to the top of the agenda of economic policy discussions because the world and the financial environment have substantially changed since the mid seventies. Both financial institutions and regulators during the last decades have already learned a lot about how to live in this new world of increased volatility and tight margins. As central banks needed some time to learn how to effectively fight inflation, we will need some time to learn how to best deal with a more volatile and competitive financial environment. In this learning process policy makers can benefit a lot from the input of academic research and economic analysis. In the same way as academic research has provided very valuable insights that have helped policy makers in the conquest of inflation, the attempts to provide safeguards against financial instability will equally benefit from an active dialogue between policy and research. Initiatives such as this conference are therefore very valuable indeed and I want to emphasize that good policy solutions to the big challenge of safeguarding financial stability will depend very much on a fruitful dialogue between academic research and economic policy.

Conclusions

The discussion about financial stability and financial crises has brought us a long way since the beginning of the seventies. We have learned a lot in this process and despite of many shortcomings the regulatory environment as well as the active management of risks in banks and other financial institutions has substantially improved since then.

However many questions still have to be addressed. I hope that I have convinced you that one of the big steps that is ahead of us is the development of meaningful and effective ways to complement existing approaches to safeguarding financial stability by a more systemically oriented viewpoint. I have discussed three issues - the endogenous nature of financial risks, the problem of hidden aggregate exposure and the problem of procyclicality of capital requirements - to illustrate this point. I hope that I have convinced you that we could indeed benefit from a shift in perspective from an individual institution- to a system perspective.

If you share this view, then there is still much work ahead both in terms of research and in terms of economic policy. Policy makers will need the input from research to clarify many of the open conceptual and empirical issues that are raised in this debate. I also hope that researches find the problems that arise for policy makers sufficiently interesting and challenging to think about them and that many new ideas will result from attempts to understand the nature of financial risks and financial instability. I do hope that a fruitful dialogue between these two worlds - the world of regulatory policy and supervision and the world of academic research - will finally result in improved policy solutions for the difficult problem of financial regulation and systemic stability.