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The regulation of the financial system is an issue that becomes front-page news in every financial crisis. Naturally, the crisis we have recently been through is no exception. All sorts of recipes have been suggested for a more stable financial system, some more appetising than others. However, one view that the great majority share is that the rules of the game need to be tightened up. The only questions are how much and in which manner.

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The financial crisis, in particular the collapse of Lehman Brothers, has revealed that money market funds are more risky than had previously been believed. We discuss the importance of money market funds for financial stability and whether situations similar to those in the US and Icelandic markets could arise in Sweden. We find that there are similarities between the Swedish and Icelandic funds, but few similarities with the US funds. In Sweden, as was the case in Iceland, the assets under management are concentrated in a few funds and the connection to the major banks is strong. However, given the relatively small size of the money market funds in Sweden, we do not find that they, in isolation, are of major systemic importance as a source of funding for the Swedish banks. The funds are more likely to have a systemic impact through spill-over effects on the banking system, especially in a market already characterised by high uncertainty and risk aversion. The money market funds are thus more important to certain parts of the financial market, such as the market for corporate commercial paper and covered bonds.

■ Future system for EU supervision – will it work? 70

By Tom Andersson

In the wake of the recent crisis, the EU has launched an ambitious project to reform the supervision of financial markets and institutions in the EU. By setting up a partly new regulatory framework and a new institutional structure for the supervision of risks on the European financial markets, the EU's intention is to improve its capacity to identify, prevent and manage future crises. This article presents and discusses the proposed reforms that are intended to be implemented already next year. The conclusion is that even if the reforms entail a significant improvement, they do not constitute a perfect solution for fostering and financial stability on the integrated financial markets of Europe. The creation of a sustainable supervisory framework requires more far-reaching reforms. Moreover, if the goal is to establish a single market for financial services a higher degree of centralised supervision and crisis management will be needed – at least for the financial companies that conduct extensive cross-border operations.

■ Monetary policy and financial stability – some future challenges

BY STEFAN INGVES, MIKAEL APEL AND ERIK LENNTORP¹

Stefan Ingves is Governor of Sveriges Riksbank, Mikael Apel is an adviser at the Riksbank's Monetary Policy Department and Erik Lenntorp is an economist at the Financial Stability Department.

Every once in a while, developments take a course that turns old truths on their heads and forces new solutions. This is what happened in Sweden in conjunction with the economic crisis at the start of the 1990s, when the policy of a fixed exchange rate reached the end of the road. At that point, we were lucky enough to be able to change track and become one of the very first countries to start to apply an innovation in the field of monetary policy – inflation targeting.

In much the same way, the financial crisis, not yet a completely closed chapter, has come to function as a catalyst for reassessment and renewal – not just at home this time, but also on an international level. The spotlight has primarily been focused on the work of maintaining financial stability – but the crisis has also raised the issue of whether there may be lessons to be learned for monetary policy too.

Today, I plan to discuss some of the challenges that I believe central banks will face in the future. These challenges exist both in the work on financial stability and in the field of monetary policy – and in the borderland between the two. Indeed, developments in recent years have demonstrated that monetary policy and financial stability, in many ways, are more intimately connected than we may previously have imagined. One of the challenges I intend to address today deals with the difficulty of assessing the effects on potential output and growth of the financial crisis and the regulations following in its wake. Another challenge concerns the impact of these regulations on monetary policy's transmission mechanism. Finally, I will also discuss the possibility of preventing a credit-driven property boom.

One highly current and significant challenge is that of preventing the central government finance problems primarily facing Greece, but also a number of other countries, from leading to new problems on the financial markets. The solution to this must primarily be sought on the internatio-

¹ This article is based on a speech by Stefan Ingves at the Swedish Economics Association on 17 May 2010.

maintain confidence and of solving the most acute problems. The comprehensive support package for countries with serious budget problems, recently presented by the EU countries and International Monetary Fund, should be considered one such measure. Of course, a more lasting solution will also require the problem to be tackled at its root – for the regulatory framework for central government finances to be reviewed so that similar situations can be avoided in the future. Discussions on how best to do this have also been initiated. Hopefully, this will be enough to restore calm and for the process of recovery and normalisation following the financial crisis to continue. I do not intend to say much more about the unfolding situation other than that we are naturally following developments very carefully and, as always, are prepared to act to safeguard financial stability, should such action be necessary.

Allow me, therefore, to return to the more general discussion I had originally intended to hold. However, before proceeding further, I would like to point out that the thoughts I present here are my own. My colleagues on the Executive Board do not necessarily analyse matters in completely the same manner as I do. I would also like to emphasise that my ambition is to illustrate different ideas in an intuitive manner, without attempting to propose any cut-and-dried solutions.

MONETARY POLICY HAS DEVELOPED

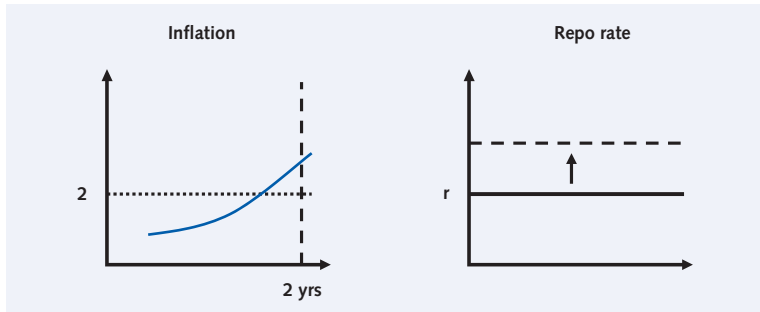
Let me start by looking back on how monetary policy has developed in Sweden and other countries over the last fifteen to twenty years. As I have already mentioned, we were one of the first central banks to introduce inflation targeting. When we started in 1993, our only forerunners were the central banks of New Zealand, Canada and the United Kingdom. Today, inflation targeting is applied in approximately twenty-five countries.² Furthermore, many other central banks have adopted essential elements of inflation targeting, such as setting price stability as the overriding goal, basing the policy on forward assessments and publishing regular reports to provide relatively comprehensive explanations of the reasoning used.

Also within the framework of inflation targeting, the manner in which monetary policy has been conducted has seen some development over the years as experience and knowledge have increased. For quite a long period of time, monetary policy in Sweden took guidance from a rule reading approximately as follows:

² Roger, Scott, "Inflation Targeting Turns 20", *Finance & Development*, March 2010, International Monetary Fund.

"If the forecast for inflation two years ahead exceeds the inflation target—raise the repo rate. If the forecast falls below the target – decrease the repo rate." (Figure 1).

Figure 1. A simple rule of action

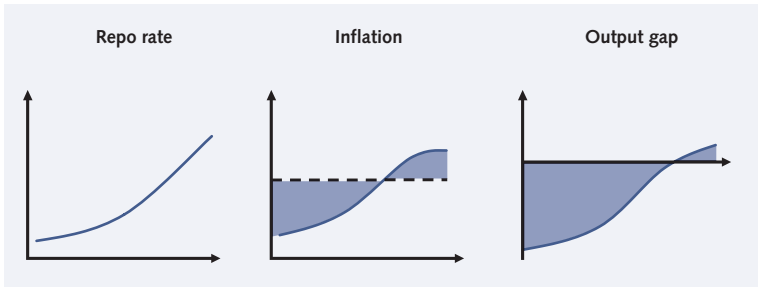


This simple rule had a number of advantages, above all in the communication of monetary policy decisions. For example, it clearly indicated that inflation was the overriding goal and that monetary policy had to be forward-looking. These were important points to make when the inflation-targeting regime was new. However, in many ways, this presented an excessively simplified view of monetary policy. One weakness was that the forecasts for inflation and the other variables were based on the assumption that the repo rate would be held unchanged for the entire forecast period. This assumption was often quite unrealistic, for example during a strong economic upturn with rising inflation, when an increase in the repo rate was widely expected. Consequently, it could be difficult to reconcile this assumption of an unchanged repo rate with credible and consistent forecasts.³

Today, our reasoning is somewhat different. We attempt to determine a forecast path for the future repo rate that entails that monetary policy is, as we often put it, well-balanced. A well-balanced monetary policy is normally a matter of finding an appropriate balance between stabilising inflation around the inflation target and stabilising the real economy, that is to say, production and employment. One way of illustrating this balance is to say that the deviations arising during the forecast period between, on one hand, inflation and the inflation target, and, on the other, the real economy and a trend, may not become altogether too great (Figure 2). As a measure of deviations in the real economy, the output gap is

³ It can be demonstrated that an incentive arises for the central bank to deviate from the unchanged repo rate as time passes and the forecast horizon is moved ahead, even if the forecast was initially on target two years ahead and no new information has been received. For a more in-depth discussion of this time inconsistency problem, see for example Kai Leitemo, "Targeting Inflation by Constant-Interest-Rate Forecasts", *Journal of Money, Credit and Banking* 35, August 2003.

Figure 2. Well-balanced monetary policy

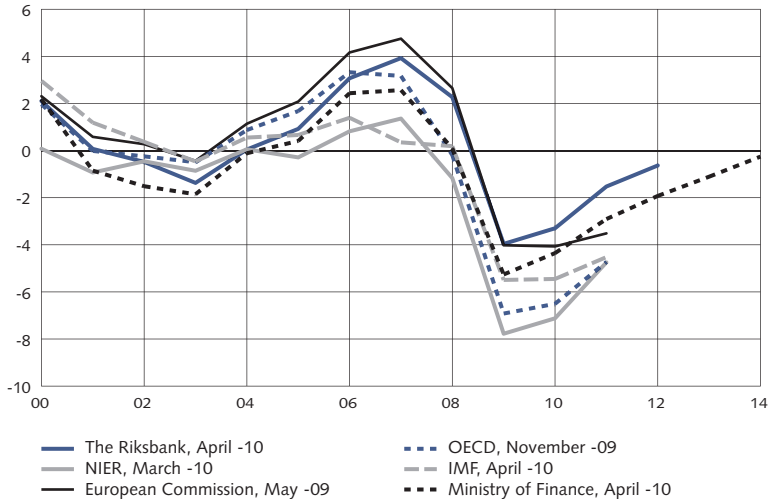


often used – that is to say, the difference between actual production and the economy’s long-term production capacity or potential output. That the Riksbank does not only care about inflation, but also about the real economy, is nothing new. We have done so more or less right from the very start, even if, when the inflation-targeting regime was new, there was particular reason to emphasise that low and stable inflation should be prioritised. However, in the present framework, the considerations that we actually make as regards both inflation and the real economy have become more apparent.

However, a number of problems still remain. For example, it is not obvious which measure of the real economy monetary policy is to stabilise nor how best to calculate the trend to be stabilised around. Quite different estimates can be made, not only in terms of the present and the future, but also of past events (Figure 3). However, it remains clear that intellectual progress has been made and that developments have moved forwards.

So far, relatively few central banks have gone so far as to publish forecasts of their policy rates, as the Riksbank does. But it is clear that the

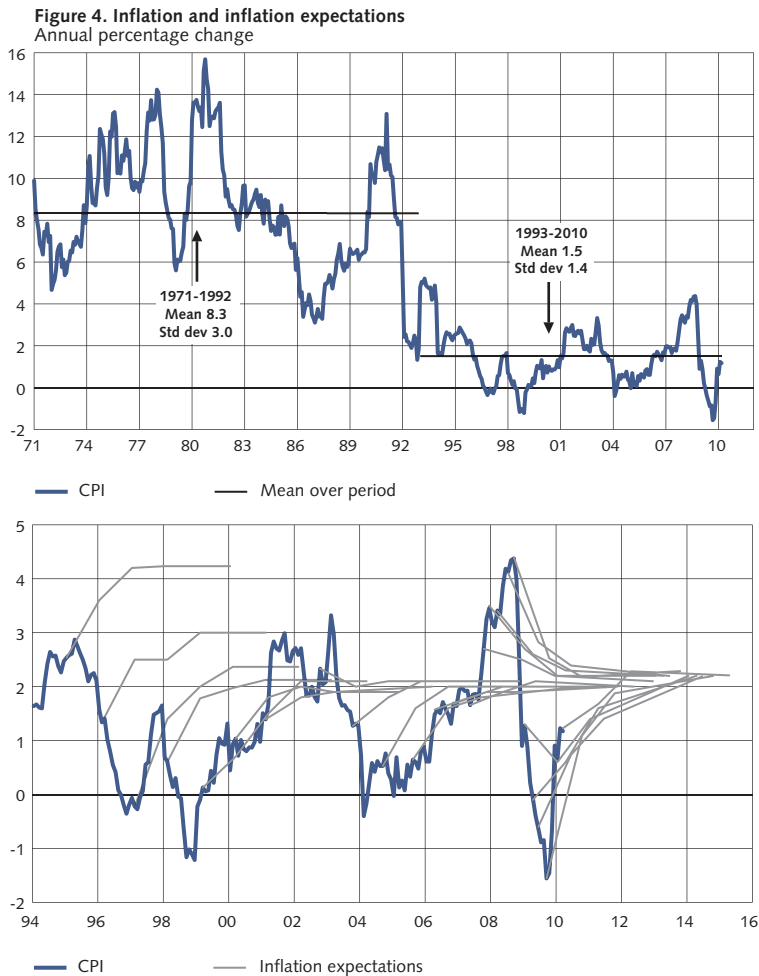
Figure 3. Different measures of resource utilisation
Per cent



manner in which monetary policy is conducted has developed in most parts of the world and is presently more open and clear than was the case fifteen to twenty years ago.

MONETARY POLICY HAS CONTRIBUTED TO INCREASED MACRO-ECONOMIC STABILITY

The trend towards inflation targeting, or policies resembling inflation targeting, and increased openness and clarity has had positive results. In Sweden and other countries affected by high and fluctuating inflation during the 1970s and 1980s, inflation has become lower and more stable. Similarly, inflation expectations have been significantly better anchored than before (Figure 4). I believe that countries with explicit, quantified inflation targets have had a particular advantage. These days, actual in-



Note. Inflation expectations refer to money market participants.
Sources: TNS SIFO Prospera, Statistics Sweden and the Riksbank

flation can differ quite considerably from the inflation target, for example due to temporary increases in energy prices, without households and companies finding it particularly alarming. They rely on the Riksbank to return inflation to target within a couple of years.

More or less at the same time as inflation decreased and started fluctuating less, growth also became more stable. This increased macroeconomic stability was a more or less worldwide phenomenon, being generally known as “The Great Moderation”. There exist various hypotheses on what may lie behind this increased stability. One of them is that monetary policy had started to be conducted in an improved manner, in which an emphasis on low and stable inflation allowed inflation expectations to be better anchored. If actual and expected inflation vary less, this will entail fewer variations in real interest rates and real exchange rates. This may, in turn, allow for the more stable development of demand and, thereby, the real economy. Well-anchored inflation expectations also make it easier for monetary policy to stabilise the economy. Unless households and companies immediately adjust their inflation expectations upwards, a minor increase in the interest rate will be enough to prevent an inflationary impulse from becoming entrenched. And when substantial interest rate changes become less necessary, fluctuations in the real economy become less extensive than when inflation expectations are poorly anchored. One way of putting it is that well-anchored inflation expectations make it easier for central banks to take consideration of the real economy.

For Sweden's part, one important explanation for the increased macroeconomic stability is probably also that inflation targeting – together with a more long-term focus for fiscal policy – spelled the end of the uneven ‘stop-go’ policy entailed by the many devaluations of the 1970s and 1980s. Quite simply, the stabilisation policy has shown more orderliness.

To sum up, the manner in which monetary policy is conducted across the world has changed quite extensively in the last fifteen to twenty years. Within both the central bank world and among academic researchers, a great deal of effort has been expended upon attempting to find a solution for how monetary policy best should be formulated. These efforts have also borne fruit. In most areas, inflation has fallen significantly and has been more stable than previously. The real economy also seemed to be developing with more stability, which was probably partly due to improved policy. There may be those who believed that most problems had been solved, and that the improved stability of the macroeconomy was here to stay. But the Great Moderation would turn out to be a deceptive calm.

BUT AN IMPROVED MONETARY POLICY WAS NOT ENOUGH

The recent period has seen frequent discussion of the financial crisis and its causes. Consequently, I do not intend to go into any detailed description of the development of the crisis, but will remain on a relatively intuitive level. The origin of the financial crisis lay in a number of interacting macroeconomic and microeconomic factors. However, the core of the crisis was that the banks and other participants took on too much debt in relation to the risks they were taking. Shortcomings in the regulatory framework, combined with a lack of understanding of new complex financial instruments, contributed towards the altogether too low pricing of risk by the market. Regulatory frameworks and supervision also failed to ensure that the banks had enough high-quality capital to maintain confidence when the economy took a downward turn and inflated asset values fell. Neither did the banks have a sufficient liquidity buffer to manage their short-term funding in an environment in which confidence in banks in general was being questioned and previously liquid assets were suddenly becoming illiquid. The banks simply lacked sufficient resilience. When Lehman Brothers filed for bankruptcy in the autumn of 2008, an acute crisis of confidence arose in the financial system. Only massive efforts from central banks and authorities across the world could prevent a collapse.

Paradoxically the fairly long period of macroeconomic stability preceding the financial crisis may partially have contributed towards making the crisis as deep as it became. When things have gone well for a long period of time it is probably human nature to relax and become slightly less cautious. Without oversimplifying matters, I think it could be said that this was something that characterised not only investors and financial institutions but also supervisory authorities and political decision-makers during this period.

Even if the financial crisis has triggered a new wave of thinking regarding the central banks and their activities, I would like to point out that in no way do I consider that the development of monetary policy over the last fifteen to twenty years has been misguided or a waste of time. On the contrary, I am convinced that the policy that gradually developed will continue to contribute towards more stable development in the future. Even so, it is clear that the financial crisis functioned as a wake-up call in many ways. It showed that there existed areas in which we needed to think further or maybe even revitalise old knowledge. Not least, it made it apparent that, while central banks had become more adept at handling normal shocks to demand and supply, there remained a great deal to be learned regarding the manner in which imbalances on the financial markets ought to be handled.

So what consequences can we expect the crisis to have for central banks' method of working in the future? Is there reason to supplement current monetary policy reasoning – and, if so, how? A large part of what I will address here today consists of matters that are currently the subject of intensive international discussion. The final result of these discussions remains to be seen. Nonetheless, let me think aloud on the manner in which central banks' work may be affected and on the challenges we will face.

EFFECTS ON POTENTIAL OUTPUT AND GROWTH?

One challenge concerns attempting to assess to what extent the crisis will affect the economy's long-term production capacity or potential output. This is significant for several reasons. Firstly, the deviation between actual and potential output, the output gap, is a measure of the stability of the real economy. Secondly, the output gap can affect the manner in which inflation develops. If the production of an economy exceeds its long-term production capacity (that is to say, if the output gap is positive), this tends to exert upwards pressure on inflation. The opposite applies if the output gap is negative. For a central bank with a price stability target, it is thus useful to have a good idea of the long-term production capacity. If, for example, it is believed to be higher than is actually the case, an excessively loose policy may be being conducted, in the belief that there are spare resources in the economy. This may cause inflation to rise. One hypothesis about why inflation in the United States increased so much during the 1970s is indeed that the Federal Reserve believed that the economy's long-term production capacity was higher than was actually the case.⁴

To a certain extent, this is a 'traditional' challenge in the sense that, after any deep recession, it must be asked whether potential output may have fallen and, if so, by how much. Potential output may fall as a consequence of permanent loss of real capital when companies are forced into liquidation or because dismissed personnel have difficulty in finding new work when economic activity turns upwards again. Following the crisis at the start of the 1990s, assessments of this nature were a central feature of forecasting work. Of course, estimating the extent of the output gap is no easy task. As I have already mentioned, it is possible to arrive at fairly disparate estimates even under normal circumstances when there is no reason to suspect a fall in potential output.

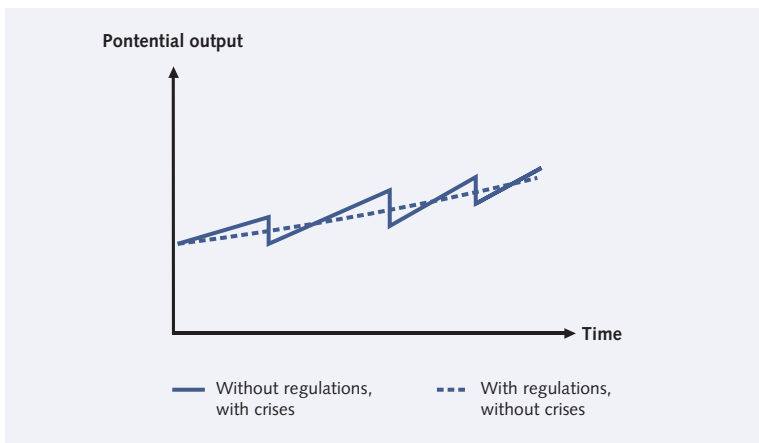
⁴ See, for example Athanasios Orphanides, "Monetary Policy Rules and the Great Inflation", *American Economic Review Papers and Proceedings* 92:2, May 2002.

Looking forward, another aspect also exists that may be more specific to this crisis in particular. One consequence of the financial crisis is that, in the future, we will see more regulation of banks and the financial sector in general. The fundamental aim of these regulations is, of course, to reduce the likelihood and effects of crises of the type we have just experienced. These increased requirements will probably lead to increased prices for financial services, slightly higher lending rates to households and companies, and a slightly lower credit supply. One way of putting it could be that these costs are a kind of insurance premium that society is willing to pay to avoid financial crises or to considerably reduce the risk of them.

However, at the same time, it should be borne in mind that these regulations could impact the economy's potential output and growth. If the regulations are too far-reaching, they may have a negative impact on the efficiency and growth potential of the financial sector. It is true that the significance for growth of the financial sector is not entirely clear, but the possibility that an 'over-regulated' financial sector could contribute to lower potential growth in the economy as a whole can hardly be ruled out.

For central banks and other economic forecasters, the challenge will be to attempt to make the best assessment possible of how potential output and growth may be impacted by both the crisis and the regulations resulting from it. For the authorities that are to design the regulations, the challenge will lie in finding an appropriate balance: on one hand, the regulations will need to be sufficient to reduce the risk of financial crises – which can cause potential output to fall. However, on the other hand, they should not be so comprehensive as to impede the financial sector unnecessarily, thus risking dampening potential growth. In other words, it is a matter of finding just the right level of regulation.

Figure 5. Potential output with and without crises

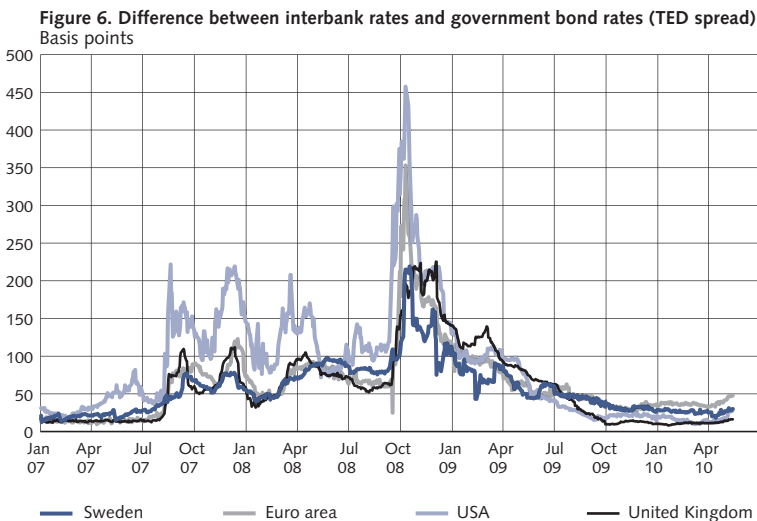


Somewhat simplified, it could be said that this is a matter of making a choice between two development paths for potential output (Figure 5). In one, development is interrupted now and again by crises, during which potential output falls, but between these, growth is relatively strong. In the other, development is even, but growth may be slightly lower than is the case between crises in the first development path. It is not obvious which development provides the best welfare effects over the long term, but it is clear that general opinion at present is that we should attempt to reduce the risk of crises and abrupt halts. I am quite certain that most observers deem that this would also provide better growth over the long term.

HOW WILL REGULATION AFFECT MONETARY POLICY'S TRANSMISSION MECHANISM?

Another consequence of the regulation agenda is that what is usually known as monetary policy's transmission mechanism may look slightly different in the future. More specifically, the connection between the central banks' policy rates and the interest rates affecting households and companies may change.

A stable transmission mechanism is usually an underlying assumption in economic models. This is probably a fairly good approximation under normal circumstances, but during the crisis it became necessary to re-assess this assumption. The impact of monetary policy was affected by a decline in willingness to take risks and the impaired functioning of the interbank markets (Figure 6).



Note. The difference is calculated as the difference between three-month interbank rate and the rate on a three-month treasury bill.
Sources: Reuters EcoWin and the Riksbank.

A simplified illustration of this can be provided by describing the banks' lending rate as a function of the central bank's policy rate plus an interest rate margin or spread:

$$i_t^{lending} = i_t + \delta_t.$$

The interest rate margin (δ_t) is a function of the compensation taken by the banks for administrative costs and capital costs, risk premiums, the banks' profit margins, and loan-to-value and amortisation requirements. Loan-to-value and amortisation requirements are not directly visible in the interest rate applied to the customer, but, in order to illustrate their effects on an aggregated level, these can be recalculated in terms of interest relatively simply.

When risk propensity fell during the financial crisis, the interest rate margin increased as a consequence of both higher risk premiums and lower loan-to-value ratios. This counteracted the cut in the policy rate. When central banks and governments subsequently adopted various measures to increase confidence on the markets, risk premiums fell in a similar way. The lending rate thus fell without a change in the policy rate being required.

Now, it is not only during a crisis that there exists reason to consider the financial sector's significance for the transmission mechanism. As I have just discussed, one of the consequences of a crisis is that the regulations of banks and other institutions will become more stringent. The intention of this is to reduce the socioeconomic costs that can result from banking. However, there is also reason to consider how the regulations introduced could affect the impact of monetary policy.

These regulations usually entail an increased cost for the banks which, to a certain extent, is passed along to customers in the form of an increased interest rate margin. This could be seen as a sort of 'regulation premium'. This premium can also be seen as the price to be paid by households and companies for more stable real economic development as represented by the broken curve in Figure 5. This concept can be illustrated with the equation for the lending rate by adding a variable (\bar{z}) designating regulations affecting the interest rate margin:

$$i_t^{lending} = i_t + \delta_t(\bar{z}).$$

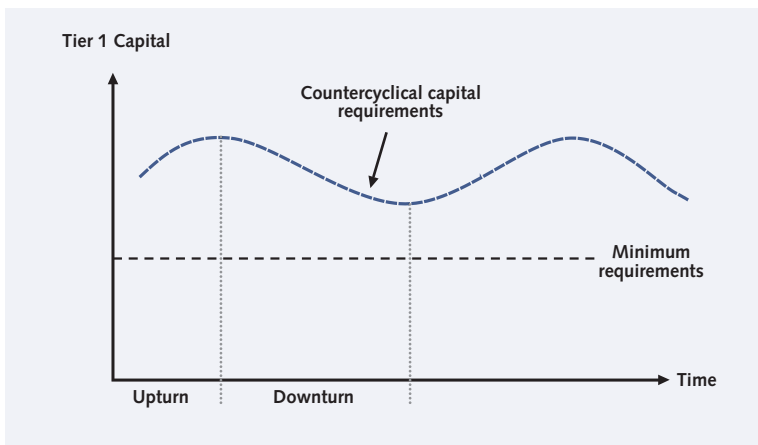
I would like to emphasise that this equation is, of course, a simplification. However, as my focus today is on the correlation of interest rates and regulations, this description will be facilitated by viewing regulations as a kind of 'shadow interest rate', even if they can also be analysed in terms

of the supply of credit. If regulations become more stringent, the interest rate margin and thus the lending rate both increase.

New regulations will not be introduced until we have emerged completely from the crisis, and they will be introduced successively. The end result will probably be a higher interest rate margin than was the case prior to the introduction of the regulations. In principle, this can be seen as a 'one-off shift' upwards in the interest rate margin. Adjustment to this higher level may be more or less protracted, depending on the rate at which the regulations are implemented and the degree towards which they are expected by the market. During this period of adjustment, the transmission mechanism will be affected.

One criticism of the regulatory framework and supervision of the financial area was that, prior to the crisis, these focused excessively upon individual institutions. The assumption was that the system would remain stable as long as the individual institutions were stable. Consequently, processes creating risks on the system level were ignored – processes such as a general underpricing of risk, the increased element of short-term market funding and the increasingly intimate connections between various market participants. One of the components in macroprudential policy, the package of more explicit systemic crisis preventative regulations being discussed internationally, is the more active application of regulations to dampen risk-building tendencies and build buffers when times are good. One specific proposal is to allow the capital requirement for the banks to vary over time. This would entail a division of the total capital requirement into two components. The first of these would be a constant minimum requirement to establish the amount of capital a bank is always to hold. To this can be added a further capital requirement that

Figure 7. A time-varying capital requirement



varies over time by being linked to a suitable indicator of, for example, credit growth or cyclical position of the economy (Figure 7).

When economic activity is strong, the capital requirement is high, and vice versa. This time-varying capital requirement has two functions. The first is to build up the bank's capital buffer when times are good and then let this buffer decrease during less favourable periods. The second function is to dampen credit growth when times are good by increasing the capital requirement and thereby the bank's lending costs. This increase in the bank's lending costs in turn implies an increase in the interest rate margin – and thus the lending rate.

In light of the discussion of 'just the right level of regulation', a time-varying capital requirement and other regulations varying across time may have certain advantages. Their more apparent connection with risk build-up may make them less costly than the alternative of introducing a constant higher 'minimum requirement'.

One objective of varying regulations across time is to affect credit growth through the interest rate margin. This creates an additional source of variation in the interest rate margin, which can be illustrated in the lending rate equation by adding an additional time index for the regulations:

$$i_t^{lending} = i_t + \delta_t(z_t).$$

An interest rate margin with time-varying regulations also implies another dynamic for the transmission mechanism and is more complicated than a one-off shift. Of course, this will have implications for monetary policy decision-making, which will become more complex.

The application of time-varying regulations may also give rise to a more indirect effect on the interest rate margin. Just as uncertainty about the future policy rate gives rise to a risk premium, so can uncertainty about the manner in which regulation will develop give rise to an additional 'regulation risk premium'. It is already possible to see that the uncertainty prevailing around the proposed tightening of the capital and liquidity regulations – which are not intended to vary over time – is affecting both interest rate margins and the supply of credit.

One way of increasing predictability would be to adjust the regulations automatically, according to a specific rule, as, for example, is the case with the dynamic provisioning used in Spain.⁵ However, I do not consider it practically feasible to rely entirely upon automatic decision-making rules. Uncertainty surrounding the manner in which regulations may change over time will thus always remain. However, it may be pos-

⁵ Dynamic provisioning is, in principle, a rule in which banks make specific and general provisions when times are good for later use in less favourable periods. These provisions are rule-based and are built upon credit stocks and credit flows calibrated by data on average historical loan losses to different sectors.

sible to learn lessons from the experiences of monetary policy in order to reduce this regulation risk premium. Even if monetary policy is essentially conducted in a discretionary manner, economic agents frequently have a fairly good idea of the way in which the interest rate will change. Naturally, I would like to believe that this is due to the present openness and clarity of monetary policy. Hopefully, it will be possible to achieve an equivalent level of openness and clarity in the matter of time-varying regulations. One possibility could be to develop some kind of rule of action based on assessments regarding, for example, credit growth. Such a rule would thus provide information on whether the 'regulatory controls' needed to be shifted upwards or downwards.

Inspired by the Taylor rule that is well-known within monetary policy, the arguments in the regulation could be formed of the non-time varying regulations (\bar{z}), a measure of actual credit volume in relation to a level deemed sustainable over the long term ($l_t - \bar{l}$), and the output gap:

$$z_t = z(\bar{z}, l_t - \bar{l}, y_t - \bar{y}, \dots).$$

I would like to emphasise that this is intended as an illustration of a so-far quite loose conception, rather than a concrete proposal. However, it is a useful illustration, not least because it indicates the comprehensive development work that will be required before anything practically applicable can result. Nonetheless, I believe there are good conditions for development work within this area to result in equally healthy returns as the efforts expended upon developing monetary policy over the last fifteen to twenty years.

The application of time-varying regulations also raises the issue of what would be an appropriate form of institutional organisation. Different countries have chosen different solutions as regards the allocation of responsibility. One common feature is for the central bank frequently to have a certain responsibility for financial stability via its role as lender of last resort. In certain countries, the central bank also has responsibility for supervision and the application of regulations. Meanwhile, in other countries, such as Sweden, responsibility for regulatory and supervisory matters is placed with a separate supervisory authority. This means that, in Sweden, it is the Riksbank that controls the policy rate and the Swedish Financial Supervisory Authority, Finansinspektionen, that controls regulations.

For some time, a discussion has taken place on the international level regarding the role central banks should play in matters of supervision and the application of rules. Ideas regarding the application of more time-varying regulations are adding fresh fuel to this debate. Utilising the expression for the rule of action above in the equation for the lending rate allows dif-

ferent institutional arrangements to be illustrated. In the previous equation for the lending rate, the regulations were described as a time-varying variable. However, with a rule of action, the application of regulations itself becomes a function of a number of variables that vary over time:

$$i_t^{lending} = i_t + \delta_t(z(\bar{z}, l_t, y_t, \dots))$$

Various institutional arrangements can be imagined, based on the distribution of responsibility for assessing the variables in the function, determining rules of action or functional form and, finally, for translating the function into actual regulations. The latter would probably require an element of discretionary decision-making. One possibility would be for the central bank to determine the policy rate (i_t) and for the supervisory authority to determine regulations, that is to say both \bar{z} and $z(\dots)$, as is the case in Sweden. Another possibility would be for the central bank not only to determine the policy rate, but also to determine the time-varying regulations through taking responsibility for the application of the rule of action ($z(\dots)$), while the actual implementation of the non-time variable regulations (\bar{z}) would be the responsibility of the supervisory authority. A variation of this would be for the central bank to be completely responsible for the implementation of the time-varying regulations. Finally, there is the possibility of the central bank taking responsibility for all regulation and supervision.

At present, it is still too early to say whether the international debate will conclude that one form of organisation is better than any other. Nonetheless, regardless of the form of institutional organisation, it seems inevitable that monetary policy and regulatory activities will increasingly approach each other.

CAN MONETARY POLICY PREVENT A CREDIT-DRIVEN PROPERTY BOOM?

One issue that has been discussed for quite some time, and which has gained fresh impetus from the financial crisis, concerns the extent towards which monetary policy should be used to attempt to counteract a rapid increase of property prices and credit volumes. That the focus on the property market in particular is because problems there often have greater effects on the financial system and the economy in general than problems on, for example, the stock market.

The dynamic of a credit-driven increase on the property market can be described as follows. When the price of an asset starts to rise, it becomes possible to borrow against that asset for a higher amount. This frees up money to buy more of the asset, but also for consumption. The latter implies that rising property prices may lead to a credit-driven con-

sumption boom. When the price increases, there also arises a tendency to regard the asset as being less risky, meaning that the credit risk premium decreases and the loan-to-value ratio is allowed to increase. In the lending rate equation, this implies a decrease in the interest rate margin. Cheaper credit feeds further price increases, which, in turn, feed further credit expansion, and so on.

The situation one would like to avoid is one in which the upturn is characterised by exaggerated optimism and excessive risk propensity. In such a situation, the fall can be dramatic when something causes this sentiment to turn. Prices fall, participants become more pessimistic and risk propensity decreases among both lenders and borrowers. This may result in an extended period during which participants consolidate their balance sheets, consumption and investment develop weakly, and lending becomes exaggeratedly restrictive. Fluctuations in property prices and credit volumes can thus amplify the fluctuations of the real economy.

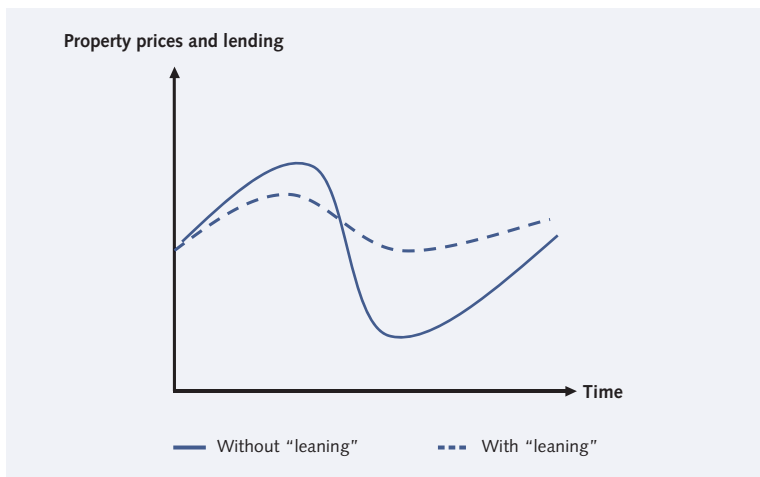
A fall in prices or expectations of such a fall may also lead to financial instability with possible consequences in the form of increased uncertainty, a credit crunch and stresses on central government finances. This is because a credit-driven imbalance can create a significant credit risk if the banks have filled the asset side of their balance sheets with loans based on inflated prices and with high loan-to-value ratios. The credit risk also depends on the manner in which borrowers' obligations in the event of a default will be regulated, that is to say whether the bank will be able to claim only the actual collateral or whether it will also have a claim on the remaining loan. An individual bank has no reason to take consideration of anything other than the risk to its own balance sheet and can, in general, ignore the effects on the real economy and financial stability: these are external effects. This 'credit expansion externality' implies a market failure and may justify public intervention. As experience has shown that it is precisely the bursting of property bubbles that has played such a decisive role in several financial crises, there exists reason to believe that such credit expansion externality may be particularly great on the property market.

According to one view, a central bank should try to counteract the increase of property prices and credit volumes by keeping the policy rate higher than would otherwise be necessary during the upturn. Central banks should lean against the wind, as this is usually called. The idea is that the increase in property prices and credit volumes will thus be smaller, but also that the decline, in return, will be significantly less dramatic (Figure 8). If the development of property prices and credit volumes becomes more balanced, it is also assumed that the real economy and inflation will be more stable. While growth will undoubtedly be somewhat lower in the upturn, it will, on the other hand, make it possible to avoid

the deep recession that may be the consequence of a fall in property prices.

One complication arising in this context is that it is not entirely easy to incorporate the risks that may be associated with the rapid increase of property prices and credit volumes into the normal work of forecasting and analysis. One difficulty is, for example, that the financial sector is often rather underdeveloped in the models used by central banks in their analysis work. At present, fairly intensive efforts are being made in many areas to better include financial variables in the central banks' forecast models. Another, not unrelated, problem is that property prices and bor-

Figure 8. Leaning against the wind



rowing are occasionally driven by psychological factors – exaggerated optimism and high risk propensity in upturns and the opposite effect in downturns. It is, of course, primarily this kind of development that leaning against the wind is an attempt to counteract. However, such factors are difficult to capture in economic models, as these are often based on the assumption that participants will act in a rational manner. In other words, it is difficult for a model to generate a scenario such as that represented by the unbroken curve in the figure. Even so, we know that such scenarios occur. It is part of human nature to reassure oneself by believing that “this time is different”, which, at the end of the day, is seldom the case.⁶

The difficulty in making forecasts that capture and quantify the risks that may be associated with a credit-driven property boom has meant

⁶ “This time is different” is the title of a newly published book by Carmen Reinhart and Kenneth Rogoff (Princeton University Press). The book analyses financial crises occurring over several hundred years. The title is a reference to the phenomenon that, even though it is common knowledge that crises occur every now and again, there seems to be a tendency to believe that, on just this occasion, there is probably no danger.

that monetary policies that lean against the wind are often described as the adoption of 'extra action' or the increase of the interest rate 'over and above' the forecasts for inflation and the real economy by the central bank.⁷ A central bank's decision to act in this manner should not be interpreted – as has sometime happened – as indicating that the development of property prices and credit volumes is an end *in itself* of monetary policy. The reason that the central bank is leaning against the wind is that it thereby expects to achieve a more stable development in the real economy and inflation. One could say that the central bank sees property prices and credit growth as *indicators* saying something about the way in which inflation and resource utilisation may develop over the longer term. However, it is clear that such a monetary policy places great demands upon a central bank's communications.

It should be pointed out that the reason that a central bank may wish to lean against the wind does not have to be because it only wishes to safeguard financial stability. That *may* be the case, but it may also be a purely monetary policy decision. The bank may simply wish to attempt to avoid severe fluctuations in the real economy and inflation, even if these are not deemed to be associated with financial stability problems.

Leaning against the wind is not a problem-free strategy. Three primary counterarguments have been put forth.⁸ Firstly, the imbalance must be identified at a sufficiently early stage. Attempting to rectify the imbalance too late may be problematic as monetary policy acts with a time lag. If property prices fall steeply immediately following an increase of the policy rate by the central bank, the delayed effects of the interest rate increase will reinforce the negative effects on the economy of the falling property prices. Of course, one must also be sufficiently certain that an imbalance really is building up. If the upturn is being caused by fundamental factors, a higher interest rate would hinder growth unnecessarily.

Secondly, one has to rely upon being able to deal with the property price increase through reasonable increases of the policy rate. One hypothesis is that the optimistic mood often prevailing during a boom in the property market means that significant increases of the policy rate are required to have an effect. Such a tightening of monetary policy could have severe negative effects on the rest of the economy.

Thirdly, at least previously, there existed a view that the negative effects of the bursting of a bubble need not be so dramatic, but can be

⁷ See for example Donald L. Kohn, "Monetary Policy and Asset Prices," speech held 16 March 2006, Federal Reserve Board and Frederic S. Mishkin, "Housing and the Monetary Transmission Mechanism", in *Housing, Housing Finance and Monetary Policy*, Federal Reserve Bank of Kansas City Jackson Hole Symposium, 2007.

⁸ See for example Donald L. Kohn, "Monetary Policy and Asset Prices Revisited", speech held 19 November 2008, Federal Reserve Board.

counteracted or considerably mitigated relatively painlessly by easing monetary policy, or by other measures.

These arguments have convinced some that monetary policy should not lean against the wind, but should restrict itself to 'cleaning up afterwards'. I am one of those who has 'cleaned up afterwards' in a number of countries, and I know how expensive and complicated it can be. These experiences have contributed towards my conviction that ending up in such a situation is something best avoided. This was a point I made at a conference at Jackson Hole a few years ago, where the theme was monetary policy and asset prices.⁹ That was before the financial crisis, when criticism of using monetary policy to lean against the wind was significantly stronger than it is today. What it ultimately boils down to is that if one creates money, as a central bank does, and this leads to a high level of mortgaging of properties, it is difficult to discharge oneself entirely from responsibility for what is happening.

The dramatic effects of the financial crisis have made their mark on the debate. As I interpret matters, it seems as though advocates of the strategy of 'cleaning up afterwards' have partially modified their view, primarily because the potential profits of limiting bubbles seem to be greater than previously estimated. It seems to be an increasingly accepted view that a central bank should at least do something when it suspects that a credit-driven imbalance is building up on the property market.¹⁰ This does not necessarily mean increasing the policy rate, even if it now seems to be increasingly accepted that this can also be considered.

CAN TIME-VARYING REGULATIONS PREVENT A CREDIT-DRIVEN PROPERTY BOOM?

I mentioned earlier that an international discussion is underway regarding the more time-varied application of regulations within the framework of macroprudential policy. Even if this discussion primarily addresses the prevention of risks to financial stability, it is conceivable that the time-varied application of regulations may also be used to prevent a credit expansion that may destabilise the real economy, without any threat to financial stability being perceived. In the same way as leaning against the wind with the policy rate can be justified by monetary policy reasons, so too can a policy that leans against the wind with regulations.

⁹ Stefan Ingves, "Housing and Monetary Policy: A View from an Inflation-Targeting Central Bank", in *Housing, Housing Finance and Monetary Policy*, Federal Reserve Bank of Kansas City Jackson Hole Symposium, 2007.

¹⁰ See for example Alan S. Blinder, "How Central Should the Central Bank Be?", *Journal of Economic Literature* XLVIII, March 2010.

How, then, would this time-varying application of regulations look in practice? One possibility is to raise the capital adequacy requirement, which would raise the interest rate margin and thus the lending rate. Higher capital adequacy would also lead the banks to increase their buffers and thus improve their resilience to loan losses. Another alternative to increase the interest rate margin would be to require a larger proportion of own funds from borrowers by setting a ceiling for leverage – such as, for example, the ceiling recently proposed by Finansinspektionen, the Swedish Financial Supervising Authority – or amortisation requirements. Raising the requirements for own funds will primarily strengthen borrowers' buffers against falling prices, even if lower indebtedness will also reduce the banks' risks. In contrast to capital requirements, the regulations on loan-to-value and amortisation requirements mean that it will not only become more expensive but also more difficult to raise loans. This latter suggests that such regulations could be analysed in terms of more explicit supply limits. However, today I have decided to discuss loan-to-value and amortisation requirements in terms of a 'shadow interest rate' in order to illustrate the connection between quantitative regulations and monetary policy.

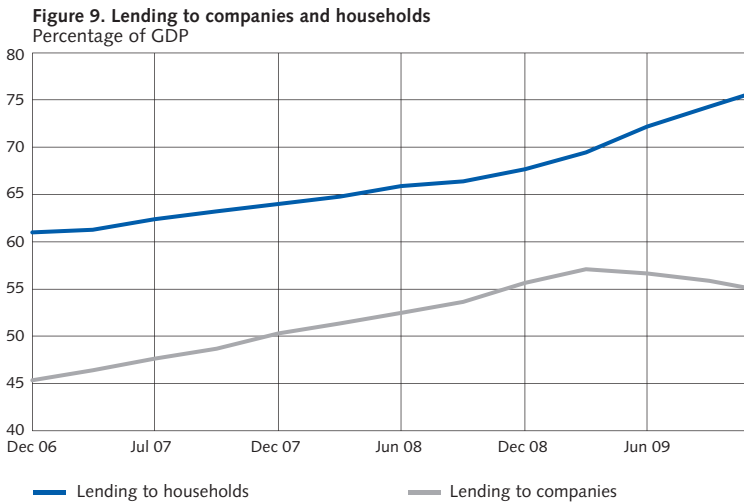
Rather than regulations, an economist may be more used to thinking in terms of Pigovian taxes as regards handling negative external effects. Pigovian taxes are common within the area of environmental regulation, where they can, for example, take the form of fuel taxes in order to put a price on the negative environmental effects of traffic. In the same manner as these taxes attempt to put a price on the environment, it is possible to imagine using a Pigovian tax, based, for example, on the banks' lending, to price – or internalise – negative external effects associated with banking. As the banks would pass at least a portion of such a tax on to their customers, the effect of this tax on the borrowing rate would be equivalent to an increase of the interest rate margin.

Sweden recently introduced a stability charge to be paid by the banks. This charge is intended to finance a stability fund to act as a central government financial buffer for the costs that may arise in a financial crisis. At present, the stability charge is not risk-differentiated. A charge that is risk-differentiated in an appropriate manner to provide the banks with the incentive to redistribute their activities depending on risk could be seen as a type of Pigovian tax.

It could also be imagined that Pigovian taxes could be used to attempt to correct the cross-border external effects that may arise in an increasingly integrated European banking market. One example is the Swedish banks' lending activities in the Baltic which have probably entailed a liquidity risk in foreign currency in Sweden. The presence of a

liquidity risk reduced confidence in the Swedish banking system in general and led to a disruption to the Swedish financial system. If the banks had internalised this liquidity risk, lending in the Baltic would probably have been less extensive.

One circumstance that may be worth taking into account here is that the credit market is not homogenous. One distinction that can be made is to view the credit market as being divided into a corporate market and a household market. In the recent period in Sweden, we have seen ample evidence of the great variance in developments between these two sectors (Figure 9).



Even if certain factors affecting the lending rate are common to these two sectors, for example the policy rate, other factors can be sector specific. In other words, there is no common interest rate for the corporate sector and the household sector. Consequently, no single equation can be used to describe the lending rate for all sectors in the economy. Instead, one equation for households (H) and one for firms (F) are needed:

$$i_{iH}^{lending} = i_t + \delta_{iH}(z_{iH}),$$

$$i_{iF}^{lending} = i_t + \delta_{iF}(z_{iF}).$$

If we suspect that a bubble is building up in one of the two markets, measures can be aimed at just that market. This is not possible with the policy rate, as there only exists one policy rate in the economy. In other words, both equations have the same 'lever'. Regulations or charges can also be adjusted on the basis of the aggregated credit growth and, in this case, the effect would be rather like an interest rate increase. However, with regulations, it is also possible to aim measures in a specific direction

and only increase the interest rate margin for the market in which credit growth is deemed to constitute a problem. This strategy allows us to avoid tightening credit growth for the other sector which does not form a risk, which – all other things being equal – reduces the costs of leaning against the wind. One condition for the implementation of such targeted measures is, of course, that the rules governing when action is to be taken are based on developments in the individual sectors.

Of course, the time-varied application of such regulation would not be unproblematic. As in the case of leaning with the policy rate, any imbalance must be identified at a sufficiently early stage. Changing the regulation too late will contribute more towards making the fall greater than braking the build-up of the imbalance. Neither do we have much practical experience of using regulations to prevent bubbles – even if it should be mentioned that we actually do not have particularly much experience of using policy rate increases for that purpose either. Consequently, it may be difficult to determine the appropriate “dosage”. One potentially fairly serious problem with regulations is that experience has shown us that it is relatively easy to circumvent them. Possibilities for regulatory arbitrage can be particularly great when the regulatory framework is applied in a more differentiated manner. The role played by the ‘shadow banking system’ in this crisis is an example of the consequences of circumventing regulations.

IS A COMBINATION OF POLICY RATE AND REGULATION NEEDED?

I mentioned earlier that it seems as though more and more are advocating that something may need to be done when it seems as though a credit-driven imbalance is building up. I do not believe that the increasing popularity of this view has so much to do with the fact that the identification of an excessive credit expansion is now considered to be easier. Neither is it because we have identified tools that can effectively and accurately brake an unsustainable credit growth. Rather, I believe that it is due to society’s increased unwillingness to live with the real economic risks entailed by such imbalances. In other words, it stems from an increased acceptance of paying a certain price over the short term in order to reduce the risk of a particularly unfavourable outcome later on. However, the question remains of what this “something” that can dampen the build-up of imbalances could be. Should we deploy the weapons of the policy rate, of regulations or of a combination of the two?

The answer to this question largely depends upon the view taken of the efficiency of the policy rate and regulations respectively as regards dampening excessive credit growth. It also depends upon the conse-

quences arising for inflation and the real economy in various time perspectives if the policy rate or regulation, respectively, are used. Both the policy rate and regulations have their advantages and disadvantages. The policy rate is a blunt instrument in so far as it impacts all lending in the economy, which can be seen in the two interest rate equations for companies and households, respectively. It can require decision-makers to make difficult choices and is a tough challenge to communicate. It is probably quite difficult to explain that the policy rate is being increased to safeguard stability in inflation and the real economy further ahead, even though everything looks good in a more short-term perspective. This task is not made any easier when policy rate increases impact sectors in which credit growth is not deemed to pose any problem. At the same time, the very bluntness of the policy rate is one of its strengths compared with regulations. As the policy rate impacts the cost situation in the economy in general, it is difficult to circumvent it in the same manner as regulations can be avoided. On the other hand, regulations can be applied in a more differentiated manner, which can mean that they will be a less costly way to lean against the wind. Another advantage is that regulations increase resilience by building buffers, for example in the form of capital. Consequently, neither the policy rate nor regulations are preferable in all situations. The conclusion I have reached is that a combination of policy rate and regulations may be the most practical path.

CONCLUDING REMARKS

The financial crisis has exposed problems and shortcomings, much as crises often do. As I see matters, this is not a decisive blow for the prevailing order, as far as monetary policy goes. I still believe that the best model is an inflation targeting policy conducted in an open and clear manner, and in which the work of clarification and development continue apace. However, it is obvious that we need to learn more about how financial imbalances should be handled, and that the crisis will have consequences for central banks' methods of working.

I have attempted to present a picture of a few of the challenges I see ahead. By necessity, this picture is quite sketchy and has been painted with broad brushstrokes. The final practical consequences of the intensive discussion currently being held cannot be predicted with any certainty at present. In many respects, this will be a matter of trial and error and seeing which solutions seem to work. One step in that direction is Finansinspektionen's recent decision to recommend a ceiling for the loan-to-value ratio of new mortgages. Something that can, however, be said with certainty is that we will probably never completely be able to

prevent financial crises – here, history speaks all too clearly. But I do believe that now, when our awareness of the problems is unusually great, we have the chance to design regulations and frameworks that will at least make these crises a little rarer and a little less dramatic.

■ After the crisis – towards a more stable financial system

LARS NYBERG AND TOM ANDERSSON¹

Lars Nyberg is Deputy Governor of the Riksbank and Tom Andersson is an economist at the Riksbank's Financial Stability Department.

The regulation of the financial system is an issue that becomes front-page news in every financial crisis. Naturally, the crisis we have recently been through is no exception. All sorts of recipes have been suggested for a more stable financial system, some more appetising than others. However, one view that the great majority share is that the rules of the game need to be tightened up. The only questions are how much and in which manner.

If it were only a matter of creating a more stable system, the answer would be relatively straightforward. However, the issue is equally one of creating an efficient financial sector in which the financial system's many useful social functions are not smothered by misdirected or excessive regulations. Finding a good balance between stability and efficiency is the primary and, possibly, the most difficult challenge lying ahead.

The fact that the financial markets have been functioning better for a while now gives no excuse for refraining from reforms. It is important to remember that the recovery has, to a large extent, been the result of massive government rescue programmes using huge amounts of tax payers' money. One of the primary justifications for reform is precisely to avoid a situation in which the stability of the financial system becomes dependent upon public support measures. It could also be put like this: It is unreasonable that the owners and employees of banks and other financial institutions can reap the benefits of profits when these companies are prospering, while tax payers have to foot the bill for losses when the same companies are in trouble.

The reform work that is currently underway is not really about discovering a new recipe for financial stability. Rather, it is a matter of adding more of the ingredients we already have. This is because, as we see it, the crisis can largely be explained by a lack of three things: There

¹ This article is based on a speech held by Deputy Governor Lars Nyberg at Samfunnsøkonomforeningen, Oslo, 5 February 2010 and has been translated from Swedish.

was too little capital. There was too little liquidity. And there was far too little focus on the overall system-wide risks that had built up in the global financial system over a longer period of time. In this article, we discuss how we can ensure that there will be more of these scarce resources in the future.

Capital – insufficient in quantity and quality

In the centre of the financial system stand the banks. The banks acquire and manage our savings, they provide us with loans for investments and they also ensure that we can execute our payments efficiently and securely. Public access to these services and public confidence that these services will be executed securely are fundamental conditions for the smooth functioning of the economy. This is the reason we usually talk about the need to maintain financial stability. And, as the banks form the hub of the system, they are the primary institutions that must be kept stable. This requires capital. Capital forms the primary line of defence against an unstable financial system.

More specifically, capital's function is to work as a buffer against losses. So that a bank's depositors and other lenders may feel secure when investing their money in that bank, they need to be satisfied that it will be the capital – that is, primarily the shareholders – and not themselves who will take the blow if problems arise.

The capital that the banks are obliged to retain under the present regulations has evidently been insufficient to create such security. The requirements placed on the banks' capital by bond investors and other creditors have exceeded by far both the regulatory requirements and the banks' actual capital holdings. And when the markets' capital requirements, regardless of whether or not these are justified, exceed the capital that actually exists, problems will arise. In the best case, funding for the banks will be expensive. In the worst case, no funding will be forthcoming. And if these problems are substantial enough to threaten the system as a whole, the government will be forced to intervene, either by injecting fresh capital or by lending the money that the market is either unable or unwilling to provide.

However, the question is whether the market has been correct in its view that capital has been insufficient in both quantity and quality. The simplest answer is that "the customer is always right". The banks are dependent upon their creditors and, if enough of these consider that capital is insufficient, the bank will be unable to stand on its own two feet. In this respect, notions of right and wrong are irrelevant: from a stability perspective, the market's view of what is right is the only thing that matters.

However, the basic question remains. Disregarding the market's view – has the existing regulatory framework forced the banks to hold a sufficient buffer to cope with the losses that have arisen? Neither in this respect has there been sufficient capital. In many cases, governments have been forced to use public funds to fill the gaps in the banks' balance sheets. In many other cases, great uncertainty still prevails regarding whether there will be enough capital to cover the losses in banks' assets.

We can thus make the observation that current capital requirements have not been sufficient, either to protect the taxpayers or to convince the banks' creditors. The result: financial instability and – in many countries – a gigantic crisis management bill for the government. It seems obvious that something must be done to correct this – but what?

The Basel Committee² is currently undertaking thorough reform work on the international standards forming the basis of the regulation of many countries' banks, the Basel II regulations. The main part of this reform programme deals specifically with the banks' capital. It mainly deals with two areas: Ensuring that there is *better* and *more* capital in the banking sector.

BETTER CAPITAL

The work of creating *better* capital is one of the most significant and eagerly awaited areas of this reform work. This is because, for a long period of time prior to the crisis, the regulatory framework had allowed the banks to successively reduce their amounts of "real" capital - that is, common equity and retained earnings. Instead, the capital base has been filled with other types of instrument, existing somewhere in the border between debt and equity. Even before the crisis, there were many, including the Riksbank, who pointed out the risks of diluting capital in such a manner. However, our voices were not heard. But once the crisis had thrown the banks' balance sheets into disarray, it turned out that we had, to a large extent, been right. These hybrid capital instruments did not provide the banks with the robustness in which many had hoped and believed.

Consequently, the present demands for banks to have a larger proportion of common equity are very welcome. It is equally welcome to see a tidying up of the plethora of other types of instrument that will continue to be counted as capital in the future.

A new type of capital that is being discussed – and which is also being considered by the Basel Committee – is contingent capital. The

² The Basel Committee is a committee under the Bank for International Settlements (BIS) which, among other tasks, develops international standards for the regulation and supervision of banks.

special characteristic of this capital is that, under normal circumstances, it has the same characteristics as a regular debt, but during a crisis, for example when a bank's capital adequacy falls below a predetermined threshold, it can be converted into equity. In this way, the bank's capital will be strengthened when it is most needed. When correctly designed, this type of capital can be of satisfactory quality. This was actually tested in Sweden, during the crisis of the 1990s. However, if investors are to be willing to invest in instruments of this type, they must be constructed so as to provide a reasonable balance between risk and return. How this will be done in practice remains to be seen.

MORE CAPITAL

The Basel Committee's proposal for *more* capital is made up of several different components. Without going into more detail about each and every one of these components, we will confine ourselves to observing that the proposals, on the whole, seem to be well-considered. For example, it seems reasonable that considerably higher capital requirements will be placed for the risks taken by banks when trading with bonds, shares and other financial instruments.

However, there are a couple of examples of proposals that will require more thorough analysis and calibration before implementation. One such proposal suggests that the banks should be forced to build up their capital buffers in "good times" so as to have something to fall back on when times are worse. We will return to this point later in the article.

Another such proposal deals with the introduction of a supplementary capital requirement – a leverage ratio – alongside the capital requirement already existing. This basically involves establishing a fixed and simple limit for how far capital may be allowed to decrease in relation to the size of the bank's assets. No such limit currently exists. The present requirements are instead related to the *riskiness* of the bank's assets. The higher the risk, the higher the capital requirement, and vice versa.

Let us start by observing that risk-based capital requirements, as such, are not the problem. On the contrary, the gains to be made through such requirements are significantly greater than the disadvantages. However, there can arise problems if the models forming the basis for the calculation of the capital requirement underestimate the actual risks. One such example would be if the risk models were built on too short-term data and thus did not capture the losses risked by the banks in a recession.

The intention of the new requirement is not to replace the old one. Instead, it is supposed to function as a floor if today's more complex and

risk-sensitive requirements allow capital to fall too low. Even if the intention is sound, there is reason to think very carefully when determining the level at which this lower limit should be set. This is because, if the lower limit is calibrated incorrectly, the risk exists that one of the basic intentions of the present risk-sensitive capital requirements will be lost – that is to say, encouraging sounder risk-taking in the banks.

Liquidity and confidence

High and good-quality capital will get us far, but not all the way. An equally important ingredient is liquidity.

Capital creates confidence and reduces the risk that depositors and investors will abandon the bank when storm clouds gather. However, we have also seen how relatively well-capitalised banks have been forced to go to the government cap in hand. When confidence in the financial system collapses and the money runs out, not even the best capitalised can avoid problems – unless, that is, a sufficient liquidity buffer is held. The crisis has also exposed severe shortcomings in this area. The main evidence for this is that the world's central banks, with few exceptions, have been forced to provide the banks with massive liquidity support to replace their short-term market funding. For periods during the crisis, the central banks acted as intermediaries for, in principle, all interbank transactions. The sources of funding that had previously been taken for granted dried up, and there were no contingency plans of which to speak.

Access to liquidity is decisive for the stability of the financial system. A lack of liquidity can sink the entire banking system, and – as was mentioned above – even drag the healthiest banks down with it. This has to do with the banks' actual basic function: To take on short-term and liquid deposits and convert these to long-term and more illiquid lending – the process of maturity transformation. This mismatch in duration of assets and liabilities implies a risk if the banks cannot renew their liabilities or repay them with their existing assets. This is basically what happened during the crisis, when confidence in the banks disappeared and several financial markets collapsed. The supply of new loans decreased sharply, as did the market prices of those assets that could be utilised to obtain liquidity. The banks affected the most severely were those having extensive maturity mismatches and which had also relied upon being able to sell or borrow against complex and previously relatively untested financial assets. The most striking example of this is the British bank Northern Rock.

However, the solution to the problem is not to forbid banks from conducting maturity transformation. Despite everything, this is what we, as banking clients, demand when we deposit savings and borrow to make

investments. Instead, it should be ensured that the banks have sufficient liquidity buffers to cope with temporary stress, and, in addition, that maturity transformation does not become excessive. While it is not clear where the limit should be set, when we encounter a situation like that of the US investment banks, we know that matters have gone too far. These banks had such short-term funding that they had to roll-over approximately one-third of their liabilities every day.

One part of the Basel Committee's reform package is a proposal to introduce, for the first time, a global standard that places quantitative requirements on the banks' liquidity management. This will establish a lower limit for the banks' liquid assets which will ensure that they can meet their short-term liquid requirements in a stress situation. Furthermore, a limit will be set for how short-term a bank's debt may be in relation to its lending – that is, how much maturity transformation may take place.

It may seem remarkable that this type of regulation has not existed previously. This reflects an excessive confidence that liquidity would always be available on the markets, in all situations. But there is no point in crying over spilled milk. The important thing is that a regulatory structure will now be in place – not least to let central banks avoid having to provide liquidity in the manner that they have done over the last two years.

The system perspective – the missing piece of the jigsaw

One of the main reasons for the regulation and supervision of banks is to avoid systemic risks – that is, risks posing a threat to *the stability of the entire financial system* and, ultimately, the economy as a whole. It may seem superfluous to mention this after our recent experience of one of the worst crises in history. However, the fact remains that, to a large extent, these were precisely the risks that were neglected or underestimated.

In many areas, regulation and supervision have instead been excessively focused on the health of individual institutions. Too little attention has been paid to broader trends, such as the expansion of credit in the economy, the effects of fiscal, monetary and exchange rate policies on the financial markets or the links between different institutions within the financial system, to give a few examples.

Above all, financial supervision has not sufficiently considered the risks of financial problems becoming highly contagious as a consequence of the financial institutions' significant exposures to one another and of their often similar exposures. It is precisely these contagion effects that may have the most serious repercussions for the financial system and the

real economy. One particular problem in this regards is posed by those participants who, due to their size or function, individually can cause major disruption to the system.

The unusual depth and comprehensiveness of the crisis was also a result of the behaviour of the market participants, which contributed towards amplifying the decline. When everybody ran for the door to save their own skins, a downwards spiral developed, aggravating the situation across the entire system. Feedback or cyclical effects of this type are also a type of systemic risk that has not been considered sufficiently in regulation and supervision. In actual fact, the reverse has been true: Certain characteristics of the financial regulatory system, such as the capital adequacy requirement and areas of the accounting framework, have acted to fuel rather than dampen the cyclical tendencies of the financial system.

The fuelling of an existing trend through the actions of market participants, as well as by regulations and supervision to a certain extent, is not a mechanism that is only set in motion during downturns. The same forces also exist when economic activity and market conditions are favourable. This means that price and credit bubbles can build up, increasing the risk of problems arising later, even if the immediate and observable risk in each individual institution does not seem to have increased. In retrospect, it does not seem controversial to conclude that this was exactly the situation prevailing on most markets during the long period of favourable economic circumstances preceding the crisis.

The art of preventing systemic risks

Strategies for the prevention and management of these systemic risks are currently the subject of comprehensive international debate. There has been much discussion regarding the need to introduce what is often called a macroprudential framework.

Even if a considerable amount of thought has been dedicated to this issue before the crisis, it is still not a subject that has been developed particularly thoroughly. Most of the world's central banks have certainly devoted a great deal of thinking towards making system-wide stability analyses, but the risks identified have seldom resulted in any corrective measures. One important explanation for this is, quite simply, the lack of ready-to-use, well-defined tools to address the risks.

However, it is not merely a lack of tools. To tell the truth, central banks, supervisory authorities and other analysts did not succeed in pinpointing all of the risks that caused the crisis.

Creating an effective macroprudential framework is thus a matter of two tasks:

- developing and improving the existing analysis, and
- finding appropriate tools to prevent and correct the risks.

We have excluded the question of how this work of analysis should be developed in order to focus instead upon a few of the tangible ideas and suggestions for tools that have been put forward in the international debate.

MONETARY POLICY AS A TOOL...

One question that has been keenly discussed is that of the extent towards which monetary policy can be used as a tool to reduce the build-up of risk in the economy.

It seems likely that monetary policy can play a certain role, albeit a limited one, in this regards. A tightening of monetary policy would be likely to have a restraining effect on credit growth and asset prices and could thereby contribute towards dampening or limiting any bubbles or imbalances.

However, monetary policy can seldom do the whole job. In many cases, optimism and confidence are strong when a bubble is building up. In such cases, fairly large interest rate increases can be needed to brake the increase of property prices, for example – so large as to have serious negative effects on the real economy. Consequently, in such cases, monetary policy is not particularly effective at affecting asset prices, and a decision to implement it regardless could result in great damage in other respects.

In other situations, monetary policy may be tied to a low interest rate, with the aim of stimulating demand in a deep recession. In such a situation, monetary policy would quite simply be unavailable for correcting a bubble on the property market, for example. As we know, Sweden is currently experiencing a strong expansion of household lending and rising house prices at the same time as resource utilisation is low. If the situation on the housing market develops into a problem, it will not be easy to manage this by increasing the interest rate.

The view that the inflation target and the role of monetary policy must be reconsidered against the background of our experiences in the financial crisis is frequently encountered. However, it is far from certain that this is the correct conclusion. In Sweden and many other countries, we have flexible inflation targeting as a guiding principle. This has basically served us well, both as regards keeping inflation low and as regards limiting fluctuations in the real economy. However, always having monetary policy readily available for use against the development of various asset price bubbles is probably expecting too much of a single tool.

...BUT NOT THE ONLY ONE, AND HARDLY THE BEST ONE

The path to an effective macroprudential framework lies instead through other tools than monetary policy. In the international debate, discussion is currently focusing on various proposals entailing the inclusion of systemic risk perspectives into the regulation and supervision of individual institutions.

One such proposal is that the banks' provisions for loan losses should be allowed to vary in a way that dampens rather than amplifies cyclical fluctuations. The idea is that the banks could make greater provisions in "good" times, thus being able to report a more even level of loan losses over the cycle, so-called dynamic provisioning.

Another proposal, as mentioned above, is to introduce contracyclical capital buffers – that is, to require the banks to maintain larger capital buffers in boom periods when there is a tendency towards fast credit expansion, but smaller buffers in periods when growth is more limited. Allowing liquidity buffers and loan-to-value limits to vary with the economic cycle in accordance with a fixed rule of some type are also examples of proposals that have been discussed.

However, the work of developing internationally harmonised tools has just started. We still do not know exactly which path future regulation will follow, although the Basel Committee's reform programme does have a clear macroprudential focus. The new capital and liquidity standards mentioned above have been designed to prevent cyclical tendencies and contagion risks in the financial system. For example, the Committee has been influenced by ideas such as contracyclical capital buffers and the possibility of evening out loan loss provisions over time. In addition, it will consider whether it is necessary to place more stringent capital and liquidity requirements on systemically-important banks. However, one precondition for this to work would be the identification of a meaningful way of determining which banks are systemically important – something that would be easier said than done.

DIFFICULT CONSIDERATIONS

There are no obvious answers as to which of these tools is most appropriate. All of the proposals have their strengths and weaknesses which require careful analysis. However, below we point out a few general considerations that must be made when new tools are to be introduced.

Automatic or discretionary: One issue that must be considered is whether these macroprudential tools should be automatic, or whether it should be left to authorities to take a discretionary decision, that is in every individual case, as to when measures should be implemented. The

advantage with automatic tools is that they are transparent and predictable. They also reduce the risk that dangerous developments will not be corrected in time. However, the problem is that automatic tools reduce precision and are more indiscriminate than discretionary interventions based on ad hoc assessments. It is likely that the authorities may need a combination of automatic and discretionary tools in their toolboxes. However, it is important to note that the instruments for the tasks referred to here are not to be implemented in individual banks, but in a uniform manner in the entire banking system.

Transparency in the banking system: Another issue is that of how transparency in the banking system would be impacted by the introduction of regulations aimed at smoothening the banks' results and capital over the economic cycle. This is because such measures require that "reality" is abandoned in favour of assumptions of how various economic variables will develop over time – which is the entire point, of course.

However, the downside is that this approach inevitably entails a certain degree of uncertainty concerning the reliability of the banks' financial statements. It could also leave room for arbitrariness if the regulations allowed the banks too much scope to make their own assumptions and assessments. For example, too much flexibility in the accounting rules as a consequence of increased possibilities to deviate from the principle of valuing certain assets at their actual market value (fair value) would increase the risk that banks – or authorities too, for that matter – would be tempted to manipulate valuations to make a bank appear healthier than is actually the case.

Authority and responsibility: Another issue is that of who would be allowed to decide and who would take responsibility. When macroprudential tools are discussed, what is often being referred to are the more or less traditional supervisory tools implemented by supervisory authorities, but which, instead of being used to limit the risks in individual companies, are being implemented to influence the financial system as a whole. As discussed above, this could be a matter of more stringent capital requirements, but could also include other types of measure, such as setting limits for loan-to-value ratios or tightening amortisation requirements, for example. But applying a system-wide perspective to the oversight of the financial system in this way is a task that usually lies closer to the responsibility of the central banks.

The current situation could be described, somewhat exaggeratedly, as one in which *the central banks have the responsibility*, while *the supervisory authorities command the tools*. This gap between responsibility and powers must be addressed in some manner.

The obvious solution, of course, is to gather both responsibility and powers into one and the same authority, either at the central bank or at the supervisory authority. However, there are other alternatives. One such alternative could be to merge the supervisory authority and the central bank into a single authority, according to the model already applied in many countries. A less far-reaching alternative would be to strengthen coordination between the authorities in various manners.

One circumstance complicating the question of responsibility is that many of these macroprudential tools will affect lending in the economy, one way or another. Thereby, they will also have an impact on the growth rate and other real economic factors, which, in turn, are input variables in the central banks' monetary policy analyses. Consequently, it cannot be ruled out that, in certain cases, tensions may arise between the monetary policy objectives and the stability objectives.

In many parts of the world, discussions are currently underway regarding the manner in which responsibility should be allocated between central banks and supervisory authorities. We will just have to see where these discussions take us, given time. Maybe this issue does not need to be so controversial. It would actually be quite natural for the supervisory authorities to manage the individual banks and to have instruments for this, while the central banks handle the economy as a whole and have instruments for that.

However, it should be emphasised that the most important aspect is not who is to do the job, but that it is done at all. One authority or another must be granted the authority and the instruments to influence lending in the banking system as a whole.

THE INTERNATIONAL DIMENSION

There is one additional aspect linked to the management of systemic risks that is yet to be discussed – the international dimension.

The internationalisation taking place on the financial markets in recent decades has meant that systemic risks have developed an increasingly cross-border nature. It is currently difficult or even impossible for national authorities to fully control these risks on their own. This is quite simply because these risks exist or are building up beyond the borders of the country in question. Clear evidence of this is provided by the manner in which we, in the Nordic countries, have been impacted by the crisis, even though we are far from its epicentre.

In this environment, it is easy to understand that conflicts of interest may arise between countries. To illustrate this, we can use a hypothetical example of a situation that could be faced by Swedish authorities. In the

Nordic countries, the banking sector includes a not inconsiderable amount of foreign banks conducting operations via branches. These branches are under the supervision of the country in which the bank has its registered offices, as opposed to the country in which operations are conducted. The foremost example in Sweden is that of Danske Bank's Swedish branch, which has a market share of over five per cent of the Swedish banking market. If the Swedish authorities decide to undertake measures, for example to limit the banks' lending for housing purchases, this must be discussed and agreed with the overseas equivalents. In the case of Danske Bank, this would be the Danish supervisory authority. Otherwise, of course, branches of foreign banks could continue their lending activities in Sweden as if nothing had happened, with the risk that the measures implemented by the Swedish authorities would be less effective.

This development towards increasingly integrated financial markets is fundamentally positive. But increased collaboration is needed by authorities in different countries to manage its "side effects". Partly this is a matter of coordinating the work of information retrieval and analysis across borders, and partly of determining how to manage the risks arising.

In this respect, the crisis has functioned as a wake-up call for the EU. Work is now underway to set up a new advisory body, the European Systemic Risk Board (ESRB). This body, which will be located at the ECB, will be given the task of identifying and analysing systemic risks within the entire EU.

Thanks to the creation of a joint body to monitor the entire financial system, it will be easier to avoid the mistake of focusing supervision too much on individual institutions and markets. By examining the risks arising from both macroeconomic trends and from developments within the financial system, the Systemic Risk Board will be able to identify both endogenous and exogenous threats to financial stability.

However, it remains to be seen how effective the Board will be. For example, reservations may be expressed regarding the fact that the Board has no binding powers at its disposal, which is obviously a problem from the point of view of efficiency. Nevertheless, the Board will provide significant added value in creating better coordination and consensus regarding the risks in the EU's financial markets and the manner in which these should be addressed. And, quite regardless, the situation cannot be worse than it was before – because then, of course, there was nothing.

SOME THOUGHTS ON CRISIS MANAGEMENT

So far, we have only discussed crisis prevention. But crises will always arise. It would be folly to believe otherwise. We must consequently exert

just as much energy on reforms to strengthen our ability to manage crises. Once a crisis has arisen, a system is needed in which the rules and regulations are clear and precise, right from the very start. Not starting to ascertain how a crisis should be tackled until it is already a fact only contributes to increased uncertainty. This also increases the risk that taxpayers will be left to foot the bill, a situation of which we have bitter experience in the Nordic countries.

What is needed – but which is absent in many countries, including Sweden – is a well thought-out and credible framework for managing banks in crisis. This is largely – but not exclusively – a matter of formulating tailor-made bankruptcy and reconstruction legislation for financial institutions. The need for this is primarily due to the banks' central role in the payment system, which forms the very heart of the financial system. Applying "normal" bankruptcy proceedings and stopping payments for a bank which conducts innumerable transactions on behalf of itself and its customers on a daily basis would be to risk bringing the entire financial system to a crashing halt. The consequences that this, in turn, would have for the economy are easy to imagine if we only consider how dependent our own private economies are upon a functioning payment system. Allowing banks to enter into regular bankruptcies is thus extremely costly and probably not something governments will allow. And if there is nothing else to fall back upon than the normal bankruptcy legislation, the only alternative is to rescue the bank in an improvised manner, using public funds.

The problem here is not that the government intervenes. On the contrary, this is essential. The problem instead is that it takes place in an improvised manner and without prepared arrangements for dealing with the bank's owners and lenders. And, as we know, history tells us that, in situations of this type, it can be difficult for the government to "punish" the shareholders by forcing them to accept severe economic concessions, for example by removing their ownership. Instead, the government risks becoming embroiled in protracted negotiations ending in the bank receiving economic support, at the same time as the owners reap the benefits of this support. From the taxpayers' perspective, this is, of course, completely unacceptable. Nevertheless, it is a likely scenario unless a functioning bankruptcy and reconstruction legislation is available.

One of the most important components in a functioning crisis management framework is the government's right to take over a bank without ending up in protracted conflicts with the shareholders. In a crisis situation, there is no time to sort out possible disputes with the owners. In these cases, this must take place afterwards. And should it be established that the government has handled the situation incorrectly, in any respect,

the shareholders should, quite simply, be given reasonable economic compensation.

Implementing a smoothly-functioning crisis management system is not just important for limiting the economic damage once a crisis has taken place. It is also centrally significant for the prevention of crises. If we can succeed in creating a system in which the banks' shareholders and lenders cannot expect the government to foot the bill in the event of a crisis, this will, with the greatest probability, contribute to more responsible risk-taking in the financial sector. Consequently, the need to govern the banks' operations in detail with preventive regulations and supervision should also be decreased.

CRISIS MANAGEMENT IN AN INTERNATIONAL PERSPECTIVE

Considering the globalisation of the financial sector, it is a particular challenge to ensure that there also exist functioning crisis management systems on an international level. Of course, within the EU, we have succeeded well in integrating the markets for financial services in 'times of peace'. But we still lack a common view of the manner in which we should manage cross-border banks in crisis.

National crisis frameworks need to be adjusted so that authorities from different countries are allowed to interact and strive towards common goals. There is a great deal of work to be done here and many obstacles to be overcome. Many countries have clear ambitions on this issue, but so far there is no detailed roadmap and the debate is quite unfocused.

Certain countries wish to proceed in the direction of harmonisation and coordination, while others consider that national interests must be given priority. Among those advocating the latter, there exists a basic fear of being forced to pay for problems caused somewhere outside their own jurisdiction. Consequently, these countries prefer regulation and supervision striving towards a more nationally-oriented financial sector. However, this kind of financial protectionism would be both reactionary and costly.

Instead, we need to attempt to maintain the benefits brought about by financial integration. The key to success lies in finding a system in which countries feel confident that the costs arising in a crisis situation will not unfairly be passed on to their side of the border. One central precondition for the creation of this confidence is that we already start to discuss the management of cross-border crises in advance – because when the crisis comes, it is usually too late.

A difficult balancing act

The coming years will bring with them major changes to the regulatory structure governing the financial sector. This is natural after a deep financial crisis such as the one we have just experienced. It will take time for everything to come together. After the crisis in the 1930s, it took 4–5 years.

During the crisis, there was not much time to discuss future regulations. That discussion is taking place now, against the backdrop of the risks the taxpayers of many countries – including Sweden – have had to bear to shore up the financial system.

The risk of excessive regulation is obvious, and the extent of that risk is, to a large extent, dependent upon the banks' attitudes – both towards the current situation and towards events during the crisis.

This article has primarily dealt with the construction of a more stable financial system. As was mentioned in the introduction, there is, of course, another side to this issue which is probably just as important: The financial system does not just need to be stable – it also needs to be effective. And stability and efficiency do not always go hand in hand. It is thus important that we are alert and ensure that the regulatory reforms following the crisis do not impair the financial system's ability to fulfil its useful social functions.

In the end, reform work is basically an issue of finding a reasonable economic balance between the risks and returns of the financial system. How much risk should society allow and which consequences will the chosen level of risk entail in terms of increased or decreased economic welfare? Even if this question is almost philosophical in nature and cannot easily be answered, it is precisely what we constantly need to have in the back of our minds as we now call for more regulation.

■ Money Market Funds and Financial Stability

BY GUDRUN GUNNARSDOTTIR AND MARIA STRÖMQVIST¹

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The financial crisis, in particular the collapse of Lehman Brothers, has revealed that money market funds are more risky than had previously been believed. We discuss the importance of money market funds for financial stability and whether situations similar to those in the US and Icelandic markets could arise in Sweden. We find that there are similarities between the Swedish and Icelandic funds, but few similarities with the US funds. In Sweden, as was the case in Iceland, the assets under management are concentrated in a few funds and the connection to the major banks is strong. However, given the relatively small size of the money market funds in Sweden, we do not find that they, in isolation, are of major systemic importance as a source of funding for the Swedish banks. The funds are more likely to have a systemic impact through spill-over effects on the banking system, especially in a market already characterised by high uncertainty and risk aversion. The money market funds are thus more important to certain parts of the financial market, such as the market for corporate commercial paper and covered bonds.

Could situations similar to those in the US and Icelandic markets arise in Sweden?

As the recent financial crisis has shown, in certain situations, money market funds can be considered important for financial stability. These situations are characterised by extensive uncertainty and instability in the markets. The money market funds in both the United States and Iceland were severely affected by the financial crisis. This paper discusses the importance of money market funds for financial stability and whether situations similar to those in the US and Icelandic markets could arise in

¹ We are grateful for useful comments and help with data from Elias Bengtsson, Anders Bjällskog, Heidi Elmér, Johanna Fager Wettergren, David Forsman, Johannes Holmberg, Kerstin Mitlid, Kjell Nordin, Fredrik Pettersson, Anders Rydén, Kristian Tegbring and Staffan Viotti. We are responsible for all errors.

Sweden. Do the Swedish money market funds have significant similarities to the US and Icelandic money market funds?

Factors that influence the importance of money market funds, apart from the market situation, include the risk of spill-over effects to the banking system, investor sentiment, and whether the funds are an important source of funding for banks and mortgage institutions. This paper examines the importance of these factors for the Swedish money market funds.

Data has been collected from several different sources. Data at the aggregate level has been collected from the Swedish Investment Fund Association (Fondbolagen), Statistics Sweden and Morningstar. To analyse specific holdings, we examined the portfolios of seven large money market funds. The data on individual funds was collected from Finansinspektionen, the funds' annual and semi-annual reports, and from the fund companies themselves. The paper focuses on money market funds mainly investing in securities issued in domestic currency. For the Swedish and Icelandic markets, money market funds are defined as short-term bond funds with an average maturity of less than one year. The corresponding definition for US money market funds is 90 days. Differences in definitions will be discussed later in the paper.

The next section describes the US and Icelandic situations. Thereafter the importance of money market funds for financial stability is discussed, given the US and Icelandic experiences. The following section analyses the Swedish money market funds and the markets in which they operate. In the two subsequent sections, the Swedish money market funds are compared to the US and Icelandic funds, and we document how successfully the Swedish funds coped with the recent crisis. The last section presents our conclusions.

What happened to the money market funds in the United States and Iceland, and why were these funds considered important for financial stability?

A RUN ON US MONEY MARKET FUNDS

The US money market mutual fund market is the largest of its kind in the world (about USD 4 trillion). The funds invest in short-term assets and the weighted average maturity of the portfolios of money market funds is restricted to 90 days (Baba et al., 2009).² The US money market funds are structured to maintain a stable net asset value of USD 1 per share;

² The weighted average maturity of Swedish and Icelandic funds is around one year.

this is called the Buck system.³ This simplicity is important because there are a lot of transactions in the funds as they are often used as a cash management tool.⁴ As the money market funds do not have capital buffers, they instead rely on discretionary financial support from their sponsors whenever the value of a share threatens to fall below 1 USD.

The Buck system had only been broken once in 30 years, until the fall of Lehman Brothers in September 2008.⁵ On 16 September 2008, the day after Lehman Brothers' fall, the Reserve Primary Fund announced a share price for its flagship fund of 97 cents. This was the first money market fund open to the general public to ever break a buck. The USD 64.8 billion fund held USD 785 million in Lehman Brothers' commercial paper (Waggoner, 2009). In the end, it was the combination of the holdings, the large redemptions and the lack of resources from the sponsor (the fund company Reserve) to back the fund that led the fund's net asset value to drop to 97 cents (McCabe and Palumbo, 2009).

This event triggered a run on US money market funds, especially funds that invested in non-government securities. Investors moved their money to funds that, for example, only invested in government securities and bank deposits. Institutional investors liquidated much more than retail investors. As an example, institutional investors liquidated 16 per cent of their holdings in a couple of days, while individuals liquidated 3 per cent at the same time (Baba et al. (2009)).

This had severe financial stability implications, including freezing the commercial paper market. US money market funds held nearly 40 per cent of the outstanding volume of US commercial paper in the first half of 2008 (Baba et. al. 2009). The US government stepped in and guaranteed US money market mutual funds on 18 September 2008. In the press release from the US Treasury (2008), the justification for the action was to protect and restore investor confidence and the stability of the global financial system. The money market funds were considered to be of systemic importance, as they have an important role as a savings and investment vehicle, as well as a source of financing for the capital markets.⁶ The US government believed that the concerns about the net asset value of money market funds falling below USD 1 had exacerbated global finan-

³ The US money market funds are categorised by their investment objectives and the type of investors in the fund. For example, they can be divided into prime funds that invest in non-government securities, which can be divided further into institutional or retail prime funds depending on the investors. The Buck system provides convenience and simplicity to investors in terms of tax, accounting and record keeping. Returns on investments are paid out as dividends with no capital gains or losses to track.

⁴ According to an email correspondence with Fredrik Petterson of Fondbolagen.

⁵ A small institutional money market fund, Community Bankers Money Fund, broke the buck in 1994. However, this had no effect on financial stability.

⁶ The U.S. money market funds were also important for the asset-backed commercial paper market (ABCP) and thus, there was a connection between the funds and the real economy. However, the money market funds did not experience large redemptions during the ABCP crisis that started in mid 2007 (sponsor support played a large role there).

cial market turmoil, causing a spike in certain short-term interest rates and increased volatility in foreign exchange markets. The event also provoked severe liquidity strains in world markets. European banks, which have experienced a large growth in US dollar assets, were affected when the opportunities for dollar funding were reduced, partly due to the problems with the US money market funds (Baba and Packer, 2009). In its press release, the US Treasury concluded that actions from the authorities were necessary to reduce the risk of further heightened global instability.⁷

THE ICELANDIC MONEY MARKET FUNDS CRASHED WITH THE FINANCIAL SYSTEM

In Iceland, the money market funds were not the source of the crisis, but they were severely affected and thus aggravated the crisis. The Icelandic case is interesting for two reasons – firstly, it shows that money market funds can be risky and make large losses; secondly, it points to the risks of excessive connections between the mutual funds and the domestic banks. The largest money market funds in Iceland, in terms of assets under management in Icelandic kronor, were owned by Landsbanki, Kaupthing and Glitnir's fund companies.⁸ These banks were taken over by the Icelandic government in October 2008. Around the time of their collapse, the money market funds were closed.

When the financial system in Iceland collapsed, it affected all major issuers of fixed income securities in Iceland, financial institutions as well as corporations. New emergency legislation was implemented in Iceland on 6 October 2008⁹, in which bank deposits were given priority before all other claims. Before this new law was implemented, bonds and certificates had the same right to claims as deposits. Thus, the new legislation had a negative impact on the money market funds' recovery rate from securities. To protect the investors in money market funds, the government decided that the banks, now government-owned, would themselves resolve the issue, with the interests of their investors as their primary goal.¹⁰ The banks then bought back securities from the money market funds for a total of about ISK 83 billion before they paid their inves-

⁷ New rules from the SEC for the US money market funds were adopted in January 2010. These new rules include new liquidity requirements, tighter constraints on credit quality, new disclosure requirements and new procedures for the orderly shutdown of money market funds that break the buck (McCabe and Palumbo, 2009).

⁸ The three parent banks accounted for 90 per cent of the total financial system in Iceland according to Sedlabanki's 2008 Stability Report. Landsbanki's money market fund was called Peningabref ISK, Kaupthing's fund was called Peningamarkadssjodur and Glitnir's fund was called Sjodur 9.

⁹ Icelandic law number 125/2008: <http://www.althingi.is/lagas/nuna/2008125.html>.

¹⁰ A great deal of media attention focused on the money market funds around the time of their closure, when it was evident that losses would be made. Many household investors had not fully understood the possible risk involved in investing in those funds, as they had been marketed "almost" as a substitute to bank accounts with similar risk (SIC, 2010).

tors. According to Morgunbladid, ISK 50 billion of that amount has now been written off (Juliussón, 2009).¹¹ The money market funds returned between 69 and 85 per cent of their value to their investors after the securities had been bought from the funds (Juliussón, 2009). Securities issued by financial institutions and corporations accounted for the majority of losses (Sigfusdóttir, 2008), despite the fact that securities seem to have been bought back at higher prices than they were ultimately worth, given the write offs.

Two out of three money market funds did not report negative returns before they were closed and, subsequently, reported losses of between 15 to 31 per cent. The exception was Glitnir, where the money market fund's returns decreased when the bank received emergency funding from the government a few days before the system collapse. The fund had to be closed for three days due to large outflows following negative media attention and problems encountered by corporations linked to Glitnir. The fund then opened again for a short period until the bank was fully taken over by the government. The other money market funds also experienced outflows in 2008, although the amounts of these varied between funds. Outflows were especially large around the time that Glitnir received emergency funding from the government (Sigfusdóttir, 2008).

THE ICELANDIC MONEY MARKET FUNDS WERE POORLY DIVERSIFIED WITH SUBSTANTIAL LINKAGES TO PARENT BANKS

The Icelandic money market funds had mainly invested in domestic securities issued by financial institutions and corporations. For example, the money market fund owned by Landsbanki had 60 per cent of its invested capital with exposure to financial institutions¹² and 40 per cent invested in securities issued by corporations at its closing (Sigfusdóttir, 2008). In addition, all the funds had invested a large proportion in securities linked to the Icelandic banking system, either directly in securities issued by financial institutions, by corporations with ownership stakes in the Icelandic banks or even the bank's major debtors. At the time of closing, the money market fund of Landsbanki had 41 per cent and Kaupthing 21 per cent in securities connected to their own parent banks (Gunnarsdóttir, 2008). Glitnir's fund, Sjóður 9, had 46 per cent in securities connected to Glitnir, according to its last semi-annual report in 2008. In addition, the money market funds also had some deposits with their own bank. For ex-

¹¹ The new Landsbanki bought ISK 63 billion, New Glitnir bought ISK 12.6 billion and New Kaupthing ISK 7.8 billion. The buyback was based on the expected recovery rate of securities, although there was great uncertainty at the time.

¹² In Landsbanki's data the exposure to financial institutions included both issued securities and deposits. A graph of the development of the fund indicates that deposits seem to have been around half of the exposure to financial institutions (Sigfusdóttir, 2008).

ample, in Kaupthing's case, deposits amounted to 66 per cent of the fund at its closing, a large part of which was held with Kaupthing (SIC, 2010).¹³ It is therefore evident that the Icelandic money market funds formed a source of funding for their parent banks to a certain extent. Nevertheless, the direct access to funding in the money market funds was helpful when foreign funding markets closed for the Icelandic banks in 2008. The three large money market funds amounted to ISK 400 billion at their peak at the end of 2007, an amount equivalent to approximately 30 per cent of Iceland's GDP in 2007. At the same time, household deposits with the Icelandic banks amounted to ISK 550 billion.¹⁴ In fact, many households used money market funds as a substitute for normal bank deposits.

Money market funds are often considered to involve very low risk because their returns are stable. However, in Iceland, the money market funds were exposed to large systematic risk because of the small size of the bond market and the concentration of market securities.¹⁵ The funds mainly invested in securities issued in Icelandic kronor. Investment in government securities was minimal and the reason given for this was the small supply of government bonds available in the market. In normal times, funds like these should be diversified enough to be able to handle losses stemming from one issuer. However, when the whole financial system collapses, the situation is very different. In such a situation, not even a high degree of diversification will help. Even though the money market funds had invested in securities with the highest credit rating available on the Icelandic market, they made large losses. Despite that fact, it can be argued that the diversification in the funds was not satisfactory and that substantial linkage to the money market funds' parent banks created large risks.¹⁶

¹³ If the emergency law making deposits priority claims had not been implemented, the losses of Kaupthing's money market fund investors (for example) would have been a lot larger, as a large part of its portfolio was in deposits.

¹⁴ According to data from the Central Bank of Iceland.

¹⁵ 35 per cent could be invested in one counterparty, and then all other counterparties had to count for less than 20 per cent (Kaupthing, 2008).

¹⁶ Althingi's Special Investigation Commission's report about the collapse of the Icelandic banks includes a chapter on the Icelandic money market funds. The main conclusions of the Committee are that the funds were excessively linked to their parent companies in terms of investment selection and that the separation between the fund company and parent bank was unsatisfactory. The money market funds grew very fast and became too large for the Icelandic securities market since the supply of solid and liquid securities was limited. The interests of the parent bank seem to have been prioritised ahead of the interests of the investors. In some cases, the investors were not provided with reliable information about the standing of their investments, which were frequently worse than the returns of the funds implied. Outflows from the funds in 2008 were also investigated and the Commission has reason to believe that some investors (individuals and corporations linked to the banks) had better information than others. This issue has been sent to the Public Prosecutor in Iceland and the Financial Supervisory Authority for further investigation (SIC, 2010)

How are money market funds important for financial stability?

The US and Icelandic crises concerning money market funds point to some explicit ways in which money market funds are important for financial stability. These are specified in more detail in this section and then investigated further in terms of the Swedish market in the following section.

SPILL-OVER EFFECTS

In the US situation, the authorities explicitly stated that one of the main reasons for guaranteeing the value of the money market funds after the collapse of Lehman Brothers was spill-over effects resulting in further heightened global instability. In Iceland, it is likely that the government-owned banks' purchases of assets were performed in order to avoid further financial instability and decrease the losses of investors. In order to minimise panic in the market, at the time of the system failure, the government of Iceland emphasised that all deposits would be guaranteed. Spill-over effects from problems in money market funds to the banking system are more likely if there is a high concentration in a small number of funds and if the fund market is dominated by the major banks' mutual fund companies, which was the case in Iceland.

INVESTORS' DEGREE OF SOPHISTICATION AFFECTS FLOWS

Investors' expectations can have an effect on fund flows in a financial crisis. Investors include both retail investors (households) and institutional investors. If investors believe that money market funds are liquid and have low risk, their reactions may be stronger in the event of problems than would otherwise be the case. According to Henriques (2008), retail investors in the US considered money market funds to be as safe as bank savings accounts. This also appeared to be the case in Iceland.

The main outflow from Icelandic money market funds occurred after negative media attention focused on Glitnir's money market fund. Sirri and Tufano (1998) find that US mutual fund flows are directly related to the current media attention received by the funds. Klibanoff, Lamont and Wizman (1998) also find that investors react more strongly to headlines in the newspapers. Consequently, extensive media coverage of problems in mutual funds could have a major impact on fund flows.

Investor sentiment can also be important. According to Davis and Stein (2009), households are more likely to have more diverse views than groups of institutional investors. This is supported by the fact that the largest outflows from the US money market funds came from institutional investors.

POTENTIALLY LARGE MARKET IMPACT FROM FIRE SALES

The liquidity of financial securities (for example covered bonds) and corporate securities decreased during the crisis, especially around the collapse of Lehman Brothers. This lower liquidity was manifested in higher bid-ask spreads, lower prices and turnover. It was, in fact, even difficult to get a price for financial and corporate securities that, in normal times, had been liquid in the market.¹⁷ Investors' risk aversion increased sharply. The liquidity problems for money market funds were evident both in Iceland and the United States. If funds are forced to liquidate securities in such a market, unless the managers are willing to realise losses, it is likely that all funds would have to sell the same liquid and (in relative terms) most fairly priced securities, such as, for example, government bonds.

SOURCE OF FUNDING FOR SYSTEMICALLY IMPORTANT FINANCIAL INSTITUTIONS AND MARKETS

Money market funds can be a source of funding for banks. This was particularly evident in Iceland, where the money market funds had invested a large share of their capital in securities issued by the domestic banks, and in particular, securities linked to the bank that owned the fund. If money market funds buy a large share of the short-term bonds and commercial paper issued by banks and other systemically important institutions, they become an important source of funding for these institutions. The continuous and consistent availability of short-term funding for these institutions is essential to financial stability.

If the money market funds are the dominating investors in a specific submarket of the financial market, their problems may have negative consequences that may spread through the financial system as well as to the real economy in the long run. This is illustrated by the US money market funds, which were essential for the commercial paper market. When the US money market funds incurred losses from defaults in connection with the Lehman Brothers collapse and were not able to continue investing to the same degree as before because of large redemptions, the commercial paper market froze. If this had continued for a more extensive period, it could have had a negative effect on the financial and corporate sector and, in the end, the real economy. In addition, there were wide-ranging spill-over effects from the US market to the global financial markets.

¹⁷ From conversations with fund managers of the largest Swedish money market funds.

Characteristics of Swedish money market funds that may affect their influence on financial stability

Certain factors increase the risk of spill-over effects from the money market funds to the rest of the financial system (and especially the major banks). Here we look at three factors applying to the Swedish money market funds – firstly, whether the money market funds have substantial amounts of assets under management; secondly, whether the assets under management are concentrated in a few large funds; and, thirdly, whether there is any significant connection with the systemically important banks.

THE SIZE OF THE SWEDISH MARKET FOR MONEY MARKET FUNDS IS RELATIVELY SMALL

Table 1 presents summary statistics for the Swedish market, both for funds registered in Sweden and abroad. According to Morningstar, there are 45 mutual funds classified as money market funds investing in securities issued in SEK. The total assets under management by these funds were about SEK 204 billion at the end of the third quarter of 2009. According to Fondbolagen's data, the money market funds constitute about 14 per cent of the total Swedish mutual fund market, while long-term bond funds constitute about 11 per cent.¹⁸

Table 1.
Summary statistics

The table shows summary statistics for Swedish money market funds investing in SEK. The first column is for all funds in the sample, the next four columns represent funds owned by the four largest banks' fund companies and the last column all other mutual fund companies. The data was collected from Morningstar on 30 September 2009.

	All	SHB	Nordea	SEB	Swedbank	Others
Number of funds	45	2	7	5	5	26
AUM (million SEK)	204 232	21 476	60 428	33 865	48 680	39 783
Average AUM	4 538	10 738	8 633	6 773	9 736	1 530
Median AUM	1 610	10 738	2 925	9 350	9 876	745
Max AUM	28 346	15 413	28 346	12 477	16 658	8 296
Min AUM	121	6 063	273	361	1 809	121
Market share		11 %	30 %	17 %	24 %	19 %

THE SWEDISH MARKET IS HIGHLY CONCENTRATED AND DOMINATED BY THE MAJOR BANKS

The average fund has SEK 4.5 billion in assets under management, but the median is only SEK 1.6 billion. This implies that there are several large funds in the sample, as illustrated by the maximum levels shown in Table 1.

¹⁸ To compare, the European market for money market funds has about EUR 1 000 billion (SEK 9 600 billion) in assets under management, which is 21 per cent of the total European fund market (EFAMA, 2010). The numbers are for UCITS funds.

The largest fund has SEK 28 billion in assets under management. The smallest fund has only SEK 0.1 billion under management. Of the 45 funds, 19 funds are managed by the four largest Swedish banks' mutual fund companies (Svenska Handelsbanken (SHB), SEB, Nordea and Swedbank). Even though these funds account for 42 per cent of the total number of funds, the market share of assets under management is equivalent to 81 per cent. Nordea has the largest market share (30 per cent) followed by Swedbank (24 per cent). SEB and SHB have market shares of 17 and 11 per cent, respectively.

Table 2.

Seven large Swedish money market funds

The data has been collected from Finansinspektionen, the funds' annual and semi-annual reports and directly from the fund companies.

(30 September 2009)		
Fund name	AUM (million SEK)	% market AUM
Nordea Sekura	27 280	13 %
Swedbank Robur Svensk Likviditetsfond	17 468	9 %
Swedbank Robur Penningmarknadsfond	16 322	8 %
Handelsbanken Lux Korträntefond	14 450	7 %
Nordea Institutionell Penningmarknadsfond	14 197	7 %
Nordea Likviditetsinvest	12 216	6 %
SEB Penningmarknadsfond SEK	10 382	5 %
Total	112 315	55 %

Table 2 presents the assets under management and the percentage of total market assets under management for seven large money market funds investing in Swedish securities at the end of the third quarter of 2009. The largest fund is Nordea Sekura, with a market share of 13 per cent, followed by Swedbank Robur Svensk Likviditetsfond (market share of 9 per cent). The seven funds have a total market share of 55 per cent. The Swedish market for money market funds is thus highly concentrated, with seven of the largest funds having more than half of the assets under management. That implies that it could be enough for one or a small number of money market funds to run into trouble for there to be larger implications for the financial system. Financial stability could be affected, especially if the general market situation at the time were to be characterised by large uncertainty, as was shown by the Icelandic example.

The fact that the market is dominated by the four largest banks in terms of assets under management also has implications for financial stability. These implications are mainly spill-over effects from problems with the money market funds to the banking sector. For example, there is a risk of a negative reputation effect with lower trust in the banks as a result. As an example, according to Svenska Dagbladet (2009), Swedbank Robur compensated mutual fund investors in Estonia to protect the reputation of the mutual fund company as well as the parent bank. If

investors lose their trust in a certain bank's funds, the result could be that they withdraw their money, not only from the funds, but also from their deposits in the bank. Bank deposits are an important source of funding for the Swedish banks (Sveriges Riksbank, 2009).

RETAIL INVESTORS ARE THE LARGEST INVESTOR GROUP

Knowledge of the investors in mutual funds is of interest for financial stability given that this will provide information on who would be affected by a decrease in value of mutual funds. In addition, different types of investors may induce financial instability through their behaviour.

Households are the largest investor group in Swedish money market funds, with a share of 68 per cent¹⁹ on average between 2007 and 2009 (see Graph 1). Swedish corporations have kept their proportion around 23 per cent. The fact that household investors constitute a major component of the investors in these mutual funds indicates that the average investor is relatively unsophisticated. As stated before, this has positive and negative implications from a financial stability perspective. Retail investors are more sensitive to media attention about the funds, but they do not tend to react to market events as strongly, as quickly or with as much coordination as institutional investors. In discussions, various Swedish fund managers stated that, during the crisis, it was mainly institutional investors that asked questions about the implications of the market events for the money market funds. This could be due to limited media attention concerning the issue in Sweden, with less information thus reaching the retail investors. However, the situation could be different in a future crisis.

SECURITIES ISSUED BY FINANCIAL INSTITUTIONS IS THE LARGEST COMPONENT IN THE PORTFOLIOS

From a financial stability perspective, it is interesting to know what securities these funds invest in, what they would potentially have to sell in the event of major redemptions and which submarkets might be affected.

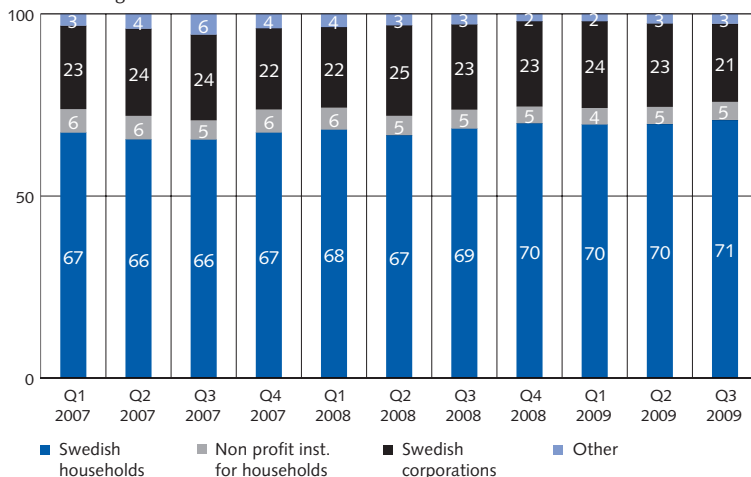
Data at the aggregate level is available from Statistics Sweden.²⁰ Taking a look at the components of the total investment of money market funds in Graph 2, bonds issued by financial institutions are the largest component, followed by securities issued by corporations. The share of bonds issued by financial institutions has increased from 46 per cent in the first quarter of 2007 to 59 per cent in the third quarter of 2009. This increase is likely to depend on three factors: a limited supply of available

¹⁹ This includes direct investments by households, individual pension saving (IPS), premium pension savings (PPM) and unit linked investments (fondförsäkring).

²⁰ The data only includes funds registered in Sweden.

Graph 1. Investor groups (aggregate data)

The graph displays the proportion of investor groups (in terms of assets under management) in Swedish money market funds over time according to data from Fondbolagen. Per cent.

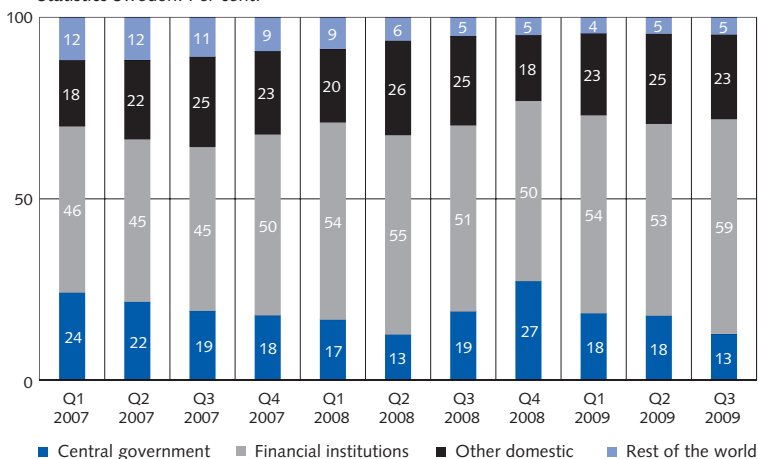


securities, the relatively higher yield they give compared to T-bills, and the reduction of risk due to the government guarantee programmes that came into effect late in 2008. However, this increase may have consequences on the systematic risk taken by funds due to lower diversification between asset classes.

Investment in foreign securities (issued in Swedish kronor) has decreased in every period, from a level of about 12 per cent in the first quarter of 2007 to 5 per cent in the second quarter of 2009, indicating a stronger home bias. It is likely that mutual funds decreased their investments in foreign-issued securities in Swedish kronor because of higher uncertainty about their issuers and poor performance by these securities

Graph 2. Investments (aggregate data)

The graph displays the proportion of investment groups (in terms of assets under management) in Swedish money market funds over time according to data from Statistics Sweden. Per cent.



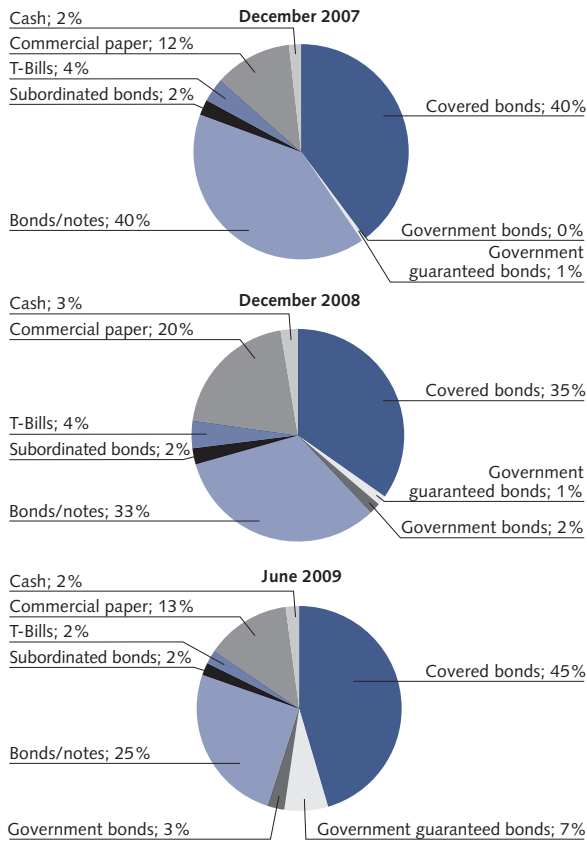
during the crisis. In discussions, fund managers stated that the holding of geographically-diversified portfolios (i.e. foreign securities) had a negative effect on funds' ability to manage the crisis.

A CLOSER INVESTIGATION OF THE HOLDINGS OF SEVEN LARGE MONEY MARKET FUNDS

To get a better understanding of the investments undertaken by Swedish money market funds, we look at the holdings of seven large funds at three points in time: December 2007, December 2008 and June 2009.

Graph 3 shows the average exposure to asset classes (using nominal values) for the seven funds for the three periods in time. The assets are divided into covered bonds, bonds that are guaranteed by the government, government bonds, general bonds and notes, subordinated bonds, T-bills, commercial paper and cash.²¹ The fact that Swedish money market

Graph 3. Average exposures to asset classes (7 funds)
Nominal values are used. Data is collected from Bloomberg.



²¹ The asset classes are categorised by Bloomberg with some revisions. Under general bonds and notes, we put Bloomberg categories bonds, notes, senior unsecured, senior notes, unsecured, unsubordinated and company guarantee. Covered bonds, government guaranteed bonds and general bonds and notes can all be FRNs.

funds can invest in securities with longer maturity (unlike US funds) comes from the fact that these can have a weighted average maturity of up to one year.

THE SHARE OF COVERED BONDS INCREASED DURING THE CRISIS

Covered bonds and general bonds and notes are the largest asset classes in the portfolios. At the end of 2007, they constituted, on average, 40 per cent of the portfolio each. In June 2009, the share invested in bonds and notes had decreased, while the share invested in covered bonds had increased to 45 per cent. This could be interpreted as the result of managers decreasing the risk in their portfolios during the financial crisis by increasing the proportion of covered bonds to regular bonds. It could also partly be a result of the issue, by the banks, of large quantities of covered bonds during the period. Government bonds increased from almost nothing to 3 per cent, and bonds guaranteed by the government increased from 1 to 7 per cent in the same period, again indicating increased risk aversion. In addition, commercial paper increased from 12 per cent in 2007 to 20 per cent in 2008. On the other hand, according to fund managers, the commercial paper market closed for a period of time after the collapse of Lehman Brothers. It became difficult to sell commercial paper in the secondary market, which meant that these papers became less liquid.²² This, in turn, made it more difficult for commercial paper issuers to get buyers for their issuance.

A LARGE SHARE OF THE SECURITIES ARE FLOATING RATE NOTES

Floating rate notes (FRNs)²³ constitute a large part of the bonds in the portfolios. For example, for the largest fund, Nordea Sekura, around 74 per cent of the total assets under management were invested in FRNs in 2009. The interest rate on FRNs changes with short intervals (for example every three months). Consequently, the interest rate risk is still low but, since there is a credit risk premium, the return is higher than for securities with shorter maturities. The longer maturity length of FRNs does not affect the portfolio's sensitivity to interest rate changes to any great extent. However, having a portfolio dominated by FRNs may have implications for the liquidity risk of the portfolio, especially if the credit risk increases considerably in a financial crisis.

²² During this period all securities with credit risk became more difficult to trade. The commercial paper market is one example (especially issuance by financial institutions and corporations). Bonds issued by financial institutions and corporations and structured products are other examples.

²³ FRNs are issued by all types of institutions and can be covered bonds, government guaranteed bonds, general bonds and notes etc.

NO LARGE BIAS TOWARDS INVESTING IN THE PARENT BANK'S SECURITIES

Graph 4 sorts the holdings of the seven largest funds into exposure to issuers. The issuers are divided into financial institutions (including mortgage institutions and real estate companies), government, corporations, and cash. Confirming the findings from aggregate data, financial institutions issue the vast majority of the securities in the portfolios, between 74 and 79 per cent over time. The share of securities from mortgage institutions (including commercial paper, covered and regular bonds, and notes) has increased during the period.²⁴ At the end of 2007, 47 per cent of the portfolio was invested in securities from mortgage institutions. In June 2009, the corresponding figure was 55 per cent.

Graph 4. Average exposures to type of issuer (7 funds)
Nominal values are used. Data is collected from Bloomberg.

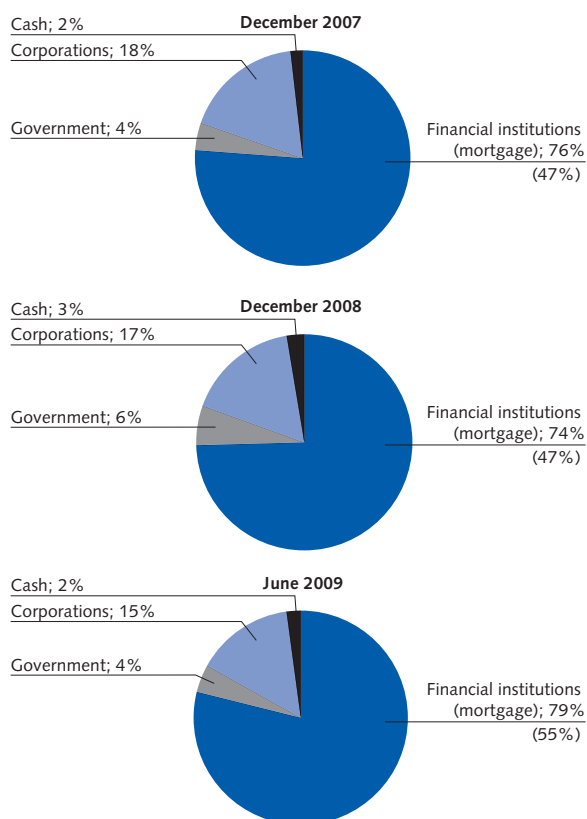


Table 3 displays the five largest exposures by issuer in each of the seven funds at three points in time. In general, the majority of the largest exposures are to mortgage institutions, which is consistent with previous

²⁴ The mortgage institutions are the Swedish hypotek.

findings. All funds but one (SHB Korträntefond) have one of their top five exposures, at all three points in time, to the mortgage institution Stadshypotek, a subsidiary of Svenska Handelsbanken. This is due to the fact that Stadshypotek is one of the largest issuers on the Swedish covered bond market. The fact that Stadshypotek remains the largest exposure from 2007 to 2009 indicates that it is considered a good investment even in turbulent times, given the flight to quality that normally occurs during a financial crisis. The largest exposure ranges from 8 to 24 per cent, indicating some differences in counterparty diversification by the funds. Also, there is no large bias towards investing in the parent bank's securities, as in the Icelandic funds. The average exposure to securities issued by

Table 3.
Largest exposures by issuer

The data has been collected from Finansinspektionen, the funds' annual and semi-annual reports and directly from the fund companies. Nominal values are used.

Fund	December 2007		December 2008		June 2009	
	Issuer	Share	Issuer	Share	Issuer	Share
Nordea Sekura	Stadshypotek	13%	Stadshypotek	9%	Stadshypotek	11%
	Spintab	10%	Landshypotek	8%	SBAB	9%
	Landshypotek	7%	Swedbank	6%	Landshypotek	8%
	Nordea Hypotek	6%	Nordea	6%	Swedbank	7%
	Nordea	5%	DnB Nor	6%	Nordea Hypotek	6%
Swedbank Likviditetsfond	Nordea Hypotek	23%	Stadshypotek Swedish	23%	Stadshypotek	24%
	Stadshypotek	12%	Government	15%	Nordea Hypotek	15%
	Swedbank Hypotek	9%	SEB	8%	Swedbank Hypotek	15%
	Swedbank	6%	Nordea Hypotek	7%	SBAB	9%
	SBAB	6%	Swedbank Hypotek	6%	Landshypotek	7%
SHB Lux. Korträntefond	Swedish Government Nordbanken	16%	Swedish Government	13%	Länsförsäk.Hypotek	8%
	Hypotek	6%	Stadshypotek	10%	Swedish Covered	5%
	Sandvik	4%	Cash	6%	Handelsbanken	4%
	Vasakronan	3%	Swedish Covered	6%	Landshypotek	4%
	General Electric	3%	Länsförsäkringar	5%	Volvo	4%
Nordea Inst. Penn.	Stadshypotek	15%	Nordea Hypotek	22%	Stadshypotek	24%
	Nordea Hypotek	14%	Stadshypotek	17%	Nordea Hypotek	15%
	SEB Bolån	9%	Spintab	11%	Swedish Government	9%
	Spintab	8%	SBAB	9%	Länsförsäk. Hypotek	8%
	Swedish Government	6%	SEB Bolån	5%	SBAB	7%
Swedbank Penn.	Nordea Hypotek	24%	Stadshypotek	24%	Stadshypotek	23%
	Stadshypotek	14%	Swedbank hypotek	13%	Swedbank hypotek	15%
	Swedbank Hypotek	9%	SEB	8%	Nordea hypotek	14%
	Swedbank	6%	Landshypotek Swedish	8%	Landshypotek	7%
	Swedish Covered	6%	Government	7%	SBAB	7%
Nordea Likv.	Stadshypotek	10%	SBAB	10%	Stadshypotek	14%
	Volvo	8%	Stadshypotek	10%	SBAB	12%
	Landshypotek	7%	Swedbank	8%	Swedbank	9%
	SBAB	7%	SEB	8%	Landshypotek	7%
	Spintab	6%	Landshypotek	7%	Länsförsäk. Hypotek	6%
SEB Penn.	Stadshypotek	21%	Stadshypotek	22%	Stadshypotek	23%
	SEB	20%	Swedbank Hypotek	15%	Swedbank Hypotek	12%
	Swedbank Hypotek	8%	Nordea Hypotek	8%	Nordea Hypotek	8%
	Nordea Hypotek	8%	SBAB Swedish	5%	SBAB	7%
	Swedish Covered	5%	Government	3%	Cash	5%

the parent bank is 11 per cent for the Swedish funds (the corresponding figure for the Icelandic banks is approximately 36 per cent).²⁵

CROSS-INVESTMENTS LOWER IN THE CRISIS

Table 4 shows, in detail, the cross-investments between funds. That is, the proportion of a fund's assets invested in exactly the same securities as another fund. If the funds largely invest in the same securities, this increases the systematic risks and the potential market impact in the event that the funds should need to liquidate securities. Some cross-investments are to be expected, given the relatively small size of the Swedish market and the limited selection of securities. This limitation arises from the fact that the funds invest in securities issued in Swedish kronor.

As Nordea Sekura is the largest fund, it could be expected that the other funds would have the highest percentages of cross-investment with this fund. However, the cross-investments with Sekura were much higher in 2007 (73 per cent on average) than in 2008 (37 per cent) and 2009 (47 per cent). We observe a similar trend between the other funds.

SWEDISH FUNDS DO NOT HOLD A LARGE SHARE OF THE OUTSTANDING AMOUNT OF A SECURITY

Another point to consider is how much the funds own of each security compared to the outstanding amount. For example, if they hold a large share of the outstanding amount of one security, this will affect liquidity, making this security harder to sell in the market, should the need arise. Making a rough estimate of the funds' ownership in bonds, compared to their outstanding amounts in June 2009 according to Bloomberg, we see that the weighted average of ownership in each bond is around 15 per cent.²⁶ This indicates that the Swedish funds, in general, do not own large amounts in single bonds, as was the case in Iceland, where, in some cases, the funds even held the full amount, which severely affected the liquidity of the bonds (SIC, 2010).

GREATER HOME BIAS COULD INDICATE HIGHER RISKS IN THE FUTURE

Although lower cross-investments between the funds are positive for financial stability and the potential market impact of money market funds, the decrease of diversification in the portfolios during the financial crisis

²⁵ This is without deposits, which would increase the exposure substantially for the Icelandic funds, given large deposit position by some.

²⁶ Note that this is only a rough estimate as information on certain securities could not be found in Bloomberg (although the majority could be found). In addition, commercial paper is not included, as Bloomberg does not provide information on those (commercial paper counted for 13% of the portfolios in June 2009).

Table 4.
Cross-Investments

The table displays the cross-investments between the individual funds by looking at investments in identical securities. More specifically, the fund on the vertical axis has x % of its nominal value invested in the same securities as the fund on the horizontal axis. Nominal values are used.

31 December 2007							
	SEB Penningm	SHB Kortrränte	Nordea Sekura	Nordea Likviditet	Nordea Instit Penn	Swedbank Sv Likvid	Swedbank Penningm
SEB Penn.		63%	70%	49%	65%	13%	12%
SHB Kortrränte	16%		37%	18%	20%	29%	27%
Nordea Sekura	68%	75%		91%	51%	86%	82%
Nordea Likviditet.	41%	31%	84%		34%	17%	17%
Nordea Instit. Penn.	61%	68%	67%	59%		25%	25%
Swedbank Sv. Likvid.	20%	38%	98%	17%	15%		86%
Swedbank Penn.	18%	38%	83%	17%	15%	82%	

31 December 2008							
	SEB Penningm	SHB Kortrränte	Nordea Sekura	Nordea Likviditet	Nordea Instit Penn	Swedbank Sv Likvid	Swedbank Penningm
SEB Penn.		16%	38%	36%	53%	34%	38%
SHB Kortrränte	10%		11%	10%	5%	16%	21%
Nordea Sekura	31%	10%		67%	32%	24%	28%
Nordea Likviditet.	25%	11%	84%		33%	20%	26%
Nordea Instit. Penn.	18%	7%	22%	19%		16%	19%
Swedbank Sv. Likvid.	32%	11%	34%	34%	29%		83%
Swedbank Penn.	29%	9%	32%	32%	31%	75%	

30 June 2009							
	SEB Penningm	SHB Kortrränte	Nordea Sekura	Nordea Likviditet	Nordea Instit Penn	Swedbank Sv Likvid	Swedbank Penningm
SEB Penn.		26%	54%	52%	50%	38%	41%
SHB Kortrränte	15%		9%	9%	9%	4%	4%
Nordea Sekura	20%	10%		68%	49%	28%	30%
Nordea Likviditet.	23%	8%	83%		48%	27%	27%
Nordea Instit. Penn.	36%	16%	70%	60%		41%	41%
Swedbank Sv. Likvid.	26%	10%	37%	35%	35%		98%
Swedbank Penn.	23%	7%	31%	30%	29%	86%	

can have negative effects in the long run. The share of covered bonds has increased, making the funds more dependent on this market. Also, there is less diversification among issuers and the home bias has increased. Normally, it is always better to have a more diversified portfolio. However, in the special case of the recent financial crisis, higher diversification was negative from the fund managers' perspective. In a financial crisis, the correlation between assets increases, which decreases the positive effects of diversification. Also, Adrian and Shin (2008) put forward that, when there is a high degree of diversification in the financial system, a small shock can be amplified through market prices. The increased home bias in the managers' portfolios is a natural development, as the funds that diversified their portfolio with foreign securities were punished in the

crisis. However, from a financial stability perspective, a strong home bias could indicate a higher risk for the Swedish financial system if problems with the domestic markets occur in the future.

SWEDISH MONEY MARKET FUNDS NOT AN IMPORTANT SOURCE OF FUNDING FOR MAJOR BANKS

For the funds to be an important source of funding for the Swedish banks, a substantial part of the banks' outstanding bonds should be held by the money market funds. However, since that information cannot easily be obtained from the data, we have made a rough estimate. According to Statistics Sweden, Swedish financial institutions (banks and mortgage institutions etc.) issued securities in Swedish kronor in the amount of SEK 1 509 billion in the second quarter of 2009 (both long-term and short-term).²⁷ This constituted 24 per cent of the banks' total interest bearing funding (Blomberg, 2009). Given that the money market funds at that time had total assets under management of SEK 204 billion and, on average, 79 per cent was invested in securities issued by financial institutions, only a small part of the institutions' securities funding would potentially come from money market funds.

Additionally, according to Statistics Sweden's financial market statistics, deposits and borrowings from Swedish non-financial institutions amounted to SEK 1 792 billion in the second quarter of 2009, accounting for 29 per cent of the banks' total interest bearing funding (Blomberg, 2009). Out of that SEK 1 792 billion, households' deposits amounted to SEK 767 billion in the same period (or 43 per cent of this funding). Therefore, if household investors lose their trust in a certain bank's funds and withdraw their money, not only from the funds but also from their deposits in the bank, this may have an effect on the bank in question.

BUT MORE IMPORTANT FOR CERTAIN MARKETS

If we look at the covered bond market in particular, we find that, on average, the largest funds invest 45 per cent of their portfolios in covered bonds. Assuming that, on average, the share is the same for all Swedish money market funds, the funds would have around 8 per cent of all outstanding covered bonds denominated in SEK.²⁸ The Riksbank estimates the Swedish market for corporate commercial paper to be worth about SEK 100 billion. According to the same assumption, the money market funds would thus have about 12 per cent of the outstanding commercial paper issued by corporations. Although this is not a huge figure, it is not entirely insignificant.

²⁷ This data does not include subsidiaries.

²⁸ The estimate of the size of the covered bond market comes from the Association of Swedish Covered Bonds' homepage.

However, it is not only the size of the invested capital that matters but also the mobility of the capital. The experience of the Swedish covered bond market in 2008 shows that quick withdrawals of capital can have a substantial effect on the stability of the market. After Lehman Brothers' collapse, many foreign investors wanted to sell their holdings of Swedish covered bonds quickly. The market makers had problems handling the large volumes of selling orders, which then disrupted the market. The problems in the covered bond market were reduced in mid-September 2008, when the Swedish National Debt Office started to issue large extra volumes of T-bills to meet heightened demand for these short-term securities. The money from these extra auctions was placed in reverse repos with covered bonds as collateral. In 2008, foreign investors decreased their holdings of Swedish covered bonds by around 100 billion kronor compared to 2007. Although that figure is only about 7 per cent of the covered bond market, the outflow had a substantial impact due to its rapid pace.

How similar is the Swedish situation to the US and Icelandic situations?

FEW SIMILARITIES WITH THE US MARKET

The US money market funds are very different from the Swedish money market funds. For example, as previously mentioned, the weighted average maturity of the portfolios of money market funds is restricted to 90 days. In Sweden, there is no set rule concerning the weighted average maturity of the portfolio. Statistics Sweden's definition of money market funds is that the weighted average maturity is 397 days or less.²⁹ Consequently, it is not easy to compare the Swedish and US funds directly. Constraining the maturity of the money market funds should have a positive effect on financial stability. Given the fact that the Swedish money market funds can invest in both commercial paper and long-term bonds (like covered bonds), they can potentially affect both markets if compelled to sell securities. The problems in the US funds mainly affected the money market.

Concerning the funds' potential market impact, money market funds account for 30 per cent of the US fund market, compared to around 15 per cent for money market funds in Sweden. Institutional owners play a large role in the US money market funds.³⁰ The Investment Company Institute in the United States estimates that 80 per cent of US companies use money market funds for their cash management. There are no corresponding figures for Sweden, but only about 23 per cent of the assets of Swedish money market funds are held by corporations.

²⁹ According to email correspondence with Johannes Holmberg, Statistics Sweden.

³⁰ According to email correspondence with Fredrik Pettersson, Fondbolagen.

The money market funds in the United States were also important for the asset-backed commercial paper market, and, thus, problems with the money market funds had direct implications for the real economy. In Sweden, the money market funds have not invested in structured products, but the covered bonds are linked to the Swedish housing market.

Because the reporting of earnings in Swedish mutual funds is different from the Buck system, it is likely that, when funds show a negative performance, this will have more severe consequences in the United States than in Sweden. Fund sponsors in the United States have provided financial support when the market value of a share threatened to fall substantially below one dollar, although there is no official guarantee that the fund shares should always be above the dollar.³¹ The Swedish money market funds, on the other hand, can both increase and decrease in value, a fact known to most investors, even though, in normal times, the funds have shown stable positive returns. The Swedish funds are more sensitive to changes in interest rates than US funds, given that they can hold securities with longer maturities.

SEVERAL SIMILARITIES WITH ICELANDIC FUNDS

If, on one hand, there are few similarities between Swedish and US funds, there are, on the other, several similarities between Swedish and Icelandic funds. The Icelandic money market funds were similar to the Swedish money market funds in terms of investments, returns and the purpose they serve for investors.

As in Sweden, there is currently no clear definition of money market funds in Iceland. It is up to the funds to define their average maturity and, in both countries, money market funds are usually defined as having an average maturity of about a year or less. Although there is no exact data on the investors in the Icelandic money market funds, large proportions were households, as in Sweden. Also, the Icelandic funds were not a major cash management tool for corporations, unlike the funds in the US.

In Sweden and Iceland, the supply of government bonds (i.e. bonds issued in domestic currency) was small, so the funds consisted mostly of securities issued by financial institutions and corporations, although cash increased in the Icelandic funds in the period before the system collapse. On the other hand, the Swedish bond market, of which covered bonds form a large part, is larger than the Icelandic bond market. Consequently, the diversification opportunities are better in the Swedish market, although both markets are still small compared to the US market.

³¹ Given the short maturity of US money market funds (90 days), the volatility in the funds is low and thus, in most times the support does not involve much risk for the sponsors.

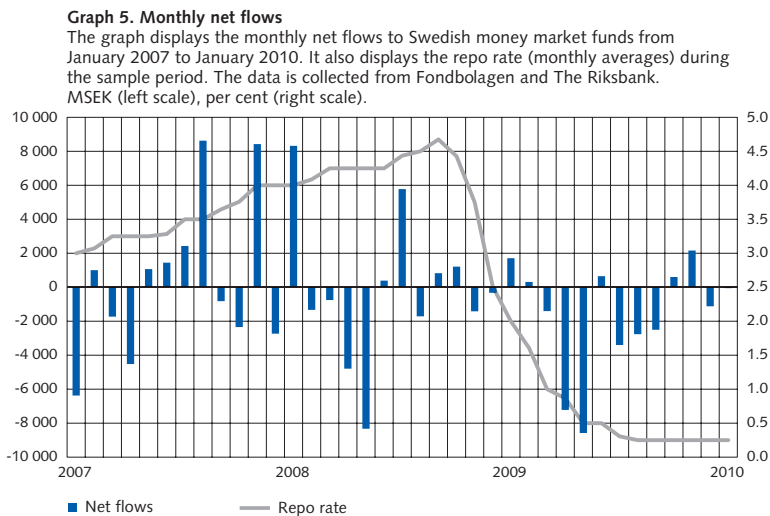
The investments made by the Swedish money market funds are also closely linked by ownership to the major banks in Sweden, a situation similar to that in Iceland. However, Swedish funds do not have the same strong bias towards investing in securities issued by the parent bank as the Icelandic funds did. Another important factor to consider is that Sweden is a larger country than Iceland and its banking sector is not as big in terms of GDP as the Icelandic banking sector was before the collapse. Also, largely due to the careful regulation of financial markets (including money market funds) and the experience of the domestic banking crisis in the 1990s, Sweden was better prepared for the crisis than Iceland.

How did the recent financial crisis affect Swedish money market funds?

NO RUN ON SWEDISH MONEY MARKET FUNDS

Graph 5 shows the monthly net capital flows to money market funds from 2007 to 2009. The graph also plots the repo rate (monthly averages) as an indication of the general level of interest rates. The largest inflow into money market funds was in August 2007, amounting to SEK 7.4 billion. In that month, there was substantial outflow in equity funds. This is directly linked to the beginning of the subprime crisis, a liquidity crisis that turned into a long period of recession. In a financial crisis, investors want more liquid and less risky investment portfolios, thus turning to money market funds.

However, money market funds turned out to be more risky than previously thought. The Lehman Brothers' collapse completely changed the risk tendencies in the market. Swedish money market funds did not



experience runs in the period after Lehman Brothers' collapse. However, sales and redemptions in the funds increased rapidly, even though net capital flows show inflows. This caused a lot of stress on the funds, especially on those (few) that had securities issued by Lehman Brothers or other US financial institutions. These securities were probably held by some managers because they had a relatively high credit rating as well as yield before the failure and because the managers found it unlikely that the authorities would let the investment bank fail. However, this assumption turned out to be incorrect.

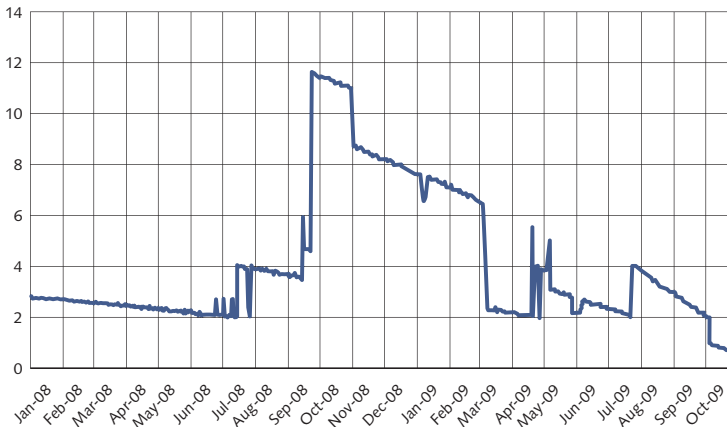
LOWER LIQUIDITY IN THE SWEDISH BOND MARKET

In addition, liquidity disappeared in the Swedish bond market for a few days after Lehman Brothers' collapse. Consistent with this is the extreme increase in bid-ask spreads during those days for covered bonds in the Swedish market (illustrated in Graph 6 by data for one large issuance of a benchmark covered bond). Liquidity is crucial for money market funds, given that they have to be able to pay out redemptions on the same day. However, according to the statistics collected by the Riksbank, there was still some turnover in the Swedish covered bond market, indicating that there were investors willing (or forced) to trade during these days of acute stress (see Graph 7).

In a situation with large redemptions and low liquidity in the markets, money market funds can use the repo market to access cash. The securities they invest in are commonly used in the repo market. It was therefore

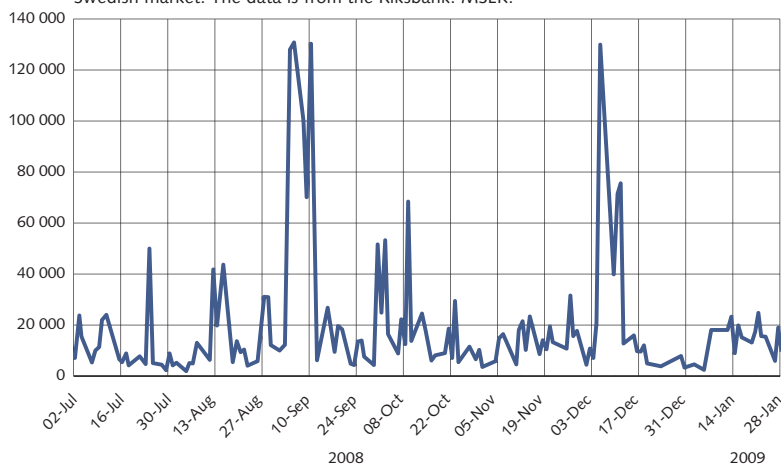
Graph 6. Bid-ask spread for a Swedish covered bond

The graph shows the bid-ask spread in basis points for the six year benchmark covered bond Stadshypotek, with coupon 6% and maturity 16 December 2009, collected from Bloomberg.



Graph 7. Turnover covered bonds

The graph shows turnover of covered bonds, spot and forward transactions, on the Swedish market. The data is from the Riksbank. MSEK.



important that the repo market in Sweden continued to function throughout the financial crisis, although it was more difficult to use collateral with higher risk in repo agreements.

Fortunately, the Swedish mutual money market funds were able to handle the redemptions during the most acute phase of the crisis. Although there was some media attention³² regarding the situation after Lehman Brothers' collapse, the outflows stayed at moderate levels.

FUTURE REGULATIONS MAY HAVE AN IMPACT

In the future, the new proposed regulations for banks in Europe may affect the Swedish money market funds. If banks are required to extend their funding, focusing on issuing securities with longer maturities, this could mean that the market for money market securities will decline. This would have an adverse effect on the investment opportunities for money market funds.

Conclusions

We find that there are similarities between the Swedish and Icelandic money market funds, but few similarities with the US funds.

LACK OF DIVERSIFICATION CREATES RISKS

In Sweden, money market funds invest, on average, almost 60 per cent of their capital in securities issued by financial institutions (the corresponding number for the seven large funds is 79 per cent). This lack of diversifica-

³² See for example E24 (2008).

tion may have consequences on the systematic risk taken by funds, as shown by the Icelandic experience.

Although lower cross-investments between the funds are positive for financial stability and the potential market impact from money market funds, the decrease of diversification in the portfolios during the financial crisis could have a negative effect in the long run. The share of covered bonds has increased, making the funds more dependent on this market. Additionally, the home bias has increased. Although lower diversification might have had a positive effect in this crisis, given that there were fewer problems on the Swedish market, compared, for example, to the United States, lower diversification implies more systematic risk in the Swedish money market funds. Consequently, if a problem were to arise in Sweden, this would have a greater impact on the funds.

SWEDISH FUNDS WERE ABLE TO HANDLE THE EFFECTS FROM LEHMAN BROTHERS' COLLAPSE

Liquidity disappeared in the bond and money markets after Lehman Brothers' collapse. Liquidity is crucial for money market funds, given that they have to be able to pay out redemptions on the same day. It was therefore important that the repo market in Sweden continued to function throughout the financial crisis. Fortunately, the Swedish mutual money market funds were able to handle the redemptions during the most acute phase of the crisis. Although there was some media attention in Sweden regarding the situation following Lehman Brothers' collapse, the outflows stayed at moderate levels.

FUNDS CAN HAVE A SYSTEMIC IMPACT THROUGH SPILL-OVER EFFECTS

Investigating the risks associated with the Swedish money market funds, we do not find that the funds, in isolation, constitute a large systemic risk. However, the funds are large enough and connected enough to the financial system to be able to aggravate an already vulnerable situation. This was the case in both Iceland and the United States. Given the relative size of the money market funds in Sweden, we find it unlikely that they are of systemic importance as a source of funding for the Swedish banks. The funds are more likely to have a systemic impact through spill-over effects on the banking system, especially in a market already characterised by high uncertainty and risk aversion. The money market funds are then more important for some parts of the financial market, such as the markets for corporate commercial paper and covered bonds.

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■ Future system for EU supervision – will it work?

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In the wake of the recent crisis, the EU has launched an ambitious project to reform the supervision of financial markets and institutions in the EU. By setting up a partly new regulatory framework and a new institutional structure for the supervision of risks on the European financial markets, the EU's intention is to improve its capacity to identify, prevent and manage future crises. This article presents and discusses the proposed reforms that are intended to be implemented already next year. The conclusion is that even if the reforms entail a significant improvement, they do not constitute a perfect solution for fostering and maintaining financial stability on the integrated financial markets of Europe. The creation of a sustainable supervisory framework requires more far-reaching reforms. Moreover, if the goal is to establish a single market for financial services a higher degree of centralised supervision and crisis management will be needed – at least for the financial companies that conduct extensive cross-border operations.

The crisis became a wake-up call

The factor that primarily distinguishes the latest financial crisis from most other crises throughout history is that it was so internationally widespread. What began as a national crisis on the US mortgage market developed in less than a year into a full-blown international financial crisis. The reform agenda that is now under discussion therefore largely relates to how to create a common *international* framework for identifying, preventing and managing cross-border crises in the future.

The EU has long had a common regulatory framework for Europe's financial markets. This framework has gradually developed over the years as part of the effort to establish a single market for financial services. However, while a lot of time and energy has been devoted to developing regulations that make it easier for financial companies to set up and do business across national borders within Europe, the question of how to prevent and manage crises has largely

¹ This article has been translated from Swedish.

been neglected. When the full force of the financial crisis hit Europe it therefore became painfully clear that the EU – despite its common institutions and regulations – was not equipped to meet the challenges posed by the process of financial integration.

On the basis of the experience gained during the crisis, extensive work to reform the system has now begun with the aim of achieving more effective regulation and supervision of the EU's financial markets. The plan is that the new supervisory system should already be in place in early 2011. This article discusses and evaluates the EU's future system for financial supervision in terms of its ability to foster financial stability on Europe's financial markets.

The article begins with a brief discussion of financial stability in an international perspective. It then goes on to discuss the existing arrangements for regulation and supervision within the EU and to what extent these arrangements constitute an effective system for preserving financial stability at the European level, both from a conceptual point of view and against the background of what happened during the crisis. This is followed by a review of the components of the EU's future supervisory system and how these can be expected to contribute to greater financial stability.

Financial stability in an international perspective

THE MANAGEMENT OF SYSTEMIC RISKS – THE KEY TO FINANCIAL STABILITY

One of the main reasons for regulating and overseeing financial companies is the existence of so-called systemic risks. These are risk factors that may constitute a threat to the stability of the entire financial system and which, by extension, may seriously disrupt the real economy. Systemic risks may arise for several reasons.²

The simplest and most obvious form of systemic risk arises if the banks have similar risk exposures or business models. In such a situation there is a risk that they will all suffer financial problems at the same time if an external shock occurs, for example in the form of an unfavourable macroeconomic event. A current example of this is the fact that practically all of the US investment banks suffered serious financial problems when it turned out that their similar business models for investing in and redistributing mortgage-related credit products could not cope with the dramatic downturn on the US property market. But this type of systemic risk is not unique to the financial sector; other sectors can also be hit by external shocks that affect several players at the same time.

² For a more detailed description see for example Financial Stability Report 2005:1 "Economic reasons for regulating the financial sector", pages 71-92.

What does distinguish the financial sector from other sectors, however, is the systemic risks that arise due to the inherent structure and workings of the financial system. Banks often have extensive business relationships with each other and thus become mutually dependent on each others' behaviour and financial strength. In short, if one bank experiences problems there is a great risk that other banks will also run into trouble. During the recent crisis, for example, this became very clear when financially-strained banks in the United States dramatically reduced their lending on the interbank market and thus caused a shortage of liquidity that spread rapidly through the entire global financial system. This type of contagion risk can also arise if banks with financial problems are forced to panic sell assets. If panic selling take place to such an extent that it drives down market prices, the financial position of other banks that hold similar assets will be weakened.

A further difficulty is that these contagion effects can reoccur in several rounds. The problems that arise in the first round may trigger further rounds of liquidity tightening or panic sales. This type of self-reinforcing spiral of course leads to a further weakening of the bank system as a whole.³

CROSS-BORDER SYSTEMIC RISKS ARE MORE DIFFICULT TO MANAGE

Being able to prevent and manage these systemic risks is thus a basic prerequisite for achieving stability in the financial system. Traditionally, systemic risks have primarily been a national phenomenon. However, cross-border systemic risks have increased in pace with financial globalisation. The recent crisis provides clear evidence of this.

At the national level, systemic risks can be managed by means of uniform regulation and supervision. Internationally, however, this is more difficult as there are no common institutions or regulatory frameworks for managing cross-border systemic risks. As the form and structure of regulatory and supervisory systems can differ widely from country to country, and as they are also implemented on the basis of different objectives and interests, there is a major risk that the cross-border monitoring and management of systemic risks will be ineffective. Such ineffectiveness may have two main causes:

*Conflicts of interest*⁴ – Regulation and supervision in a country are primarily governed by that country's ambition to prevent systemic risks that may damage national economic interests. The extent to which the

³ See Brunnermeier, M., Crockett, A., Goodhart, C., Persaud, A. and Shin, H. 2009 for a detailed account of how contagion risks arise in the financial system.

⁴ See for example Eisenbeis and Kaufman, 2007 and Srejber and Noreus, 2005.

domestic financial system and its participants cause systemic risks in other countries may in this context be of lesser importance to the national authorities. Supervision that is conducted strictly on the basis of national considerations not only means that the interests of other countries are not (fully) taken into account, but may also lead to an increase in systemic risks in both other countries and the global financial system as a whole. This problem also very much applies to crisis management measures. One example of a national measure that could lead to increased systemic risks abroad is if a national supervisory authority, in an attempt to protect domestic savers and creditors, were to introduce restrictions on capital flows between different entities of a cross-border financial group (so-called ring fencing).

*Coordination problems*⁵ – Apart for potential conflicts of interest, the simple fact that many authorities are involved in the supervision (and potentially in the crisis management) of a cross-border company makes it problematic to identify and manage systemic risks effectively. Differences in regulatory frameworks and supervision methods also mean that conducting cohesive supervision and crisis management may be complicated, quite simply because the national frameworks are not designed to work together with the frameworks of other countries. Furthermore, the fact that responsibility for supervision and crisis management is divided between countries may entail a risk that no authority has a complete view of the actual risks in the cross-border banks. It is also possible that uncertainty could arise in certain situations concerning which country is responsible for what. Such uncertainty could, for example, arise concerning which country or countries should provide financial support to distressed international banking groups (if this is deemed necessary): should it be the country where the parent company is located or the country or countries responsible for supervision of those parts of the group where support is needed, or should all of the countries that have some form of supervision of the group share the costs for the support between them?

THE CURRENT SYSTEM FOR THE REGULATION AND SUPERVISION OF CROSS-BORDER FINANCIAL COMPANIES IN THE EU

With its established framework for regulation and supervision, the EU could to a certain extent be seen as an exception to the rule that there is a lack of common institutions or regulations for managing cross-border systemic crises.

⁵ Financial Stability Report 2003:2 "Financial integration and responsibility for the stability of the financial system in the EU", pages 75-90.

The regulation and supervision of financial companies in the EU is based on a decentralised model in which each Member State is responsible for adopting legislation and supervising the financial system in the country concerned. The possibility to freely design national regulations and exercise supervision is limited, however, by a few important principles⁶ that govern the formation of national regulations and stipulate the division of supervisory responsibility between the Member States in relation to companies that do business in more than one EU country.

- *Harmonisation of regulations*: Supranational decisions are made at the EU level on common regulations that apply throughout the EU. The Member States are obliged to incorporate these regulations into their national legislation.
- *The home country principle*: The regulations that apply in a company's home country, that is the country where it is legally domiciled, have precedence over the regulations that apply in other countries in the EU where the company conducts operations.
- *Mutual recognition of national regulations*: The Member States are obliged to recognise the regulations that apply in other Member States.

THE LEGAL STRUCTURE OF THE COMPANIES IS IMPORTANT

These principles allow financial companies or groups to work under similar or identical conditions throughout the EU. However, the regulations that apply and how supervision should be conducted depends on the legal structure that a company has chosen for the conduct of cross-border operations – branches or subsidiaries.

- *Companies with foreign branches*: The home country principle makes it possible for financial companies to establish branches in another Member State without having to apply for any additional licenses. The branches are subject to the laws and regulations that apply in the country where the company has its legal domicile (the home country). The home country is also responsible for the supervision of the foreign branches but the host country has certain, although limited, powers to supervise the management of liquidity risks.
- *Subsidiary groups*: A company that instead wishes to conduct its operations abroad in subsidiaries must acquire a license in each individual Member State. The subsidiaries constitute

⁶ See for example the Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business of credit institutions.

separate legal entities domiciled in the country where the license is obtained. The group's different companies (parent company and subsidiaries) are thus subject to different national regulations and supervisory frameworks. However, the Member State in which the parent company is domiciled constitutes a so-called consolidated supervisor, which gives it certain powers (following consultation with the authorities in other Member States) to make decisions that apply to the group as a whole, including the foreign subsidiaries. In order to strengthen coordination and make the supervision of subsidiary groups more effective, the regulatory framework stipulates that the authorities that share responsibility for supervision should cooperate in so-called supervisory colleges.

SOME RESTRICTIONS ON NATIONAL DECISION-MAKING

While the EU's legal framework makes it easier for financial companies to establish and conduct operations throughout the EU, it also imposes some restrictions on national decision-making (in a way that has no equivalent outside the EU). First, the legislation at the EU level entails a *vertical delegation* of decision-making powers from the national level to the supranational (federal) level. Second, the home country principle entails a *horizontal delegation* of decision-making powers as the supervision of foreign branches within the national financial system is transferred to the authorities of other Member States. In the case of the regulation and supervision of subsidiary groups there are only limited elements of horizontal delegation.

It should also be mentioned that the harmonisation of regulations that has taken place to date in the EU has mainly concerned regulations that aim to prevent crises and maintain good consumer protection; that is regulations that largely fall within the framework of financial supervision. In other legal areas it is the responsibility of the Member States themselves to design regulations and arrangements to safeguard financial stability. With the exception of a harmonised set of regulations for the design of the national deposit guarantee systems⁷ this applies in principle to all types of crisis management regulations.

⁷ According to the EU's deposit guarantee directive (European Parliament and Council directive (94/19/EC) of 30 May 1994 on deposit guarantee schemes) each Member State must ensure that there is one or more systems for guaranteeing deposits. The directive specifies minimum regulations governing the structure of guarantee systems, for example the scope of the guarantee and compensation levels, the payment of compensation.

CONSEQUENCES FOR THE MANAGEMENT OF CROSS-BORDER SYSTEMIC RISKS

To what extent then has the EU, with the help of this framework, succeeded in creating a system that contributes to the effective supervision and management of systemic risks in the EU?

As far as *subsidiary groups* are concerned, there is in principle very little to distinguish the EU's supervisory model from what applies for a bank that conducts cross-border operations outside the EU. Responsibility for supervision is divided between the countries in which the company does business and the various group companies are governed by different sets of national legislation. The risk that conflicts of interest and coordination problems will arise in the course of supervision is thus not eliminated by the supervisory model that applies to subsidiary groups. On the other hand, the harmonisation of regulations and the requirement for the coordination of cross-border supervision help to reduce this risk. In principle, however, this model is almost entirely based on national regulation, supervision and crisis management.

In the case of companies with foreign *branches*, the horizontal delegation of supervision in principle entails unrestricted powers for the home country. As this means that there is only one authority responsible for the supervision of a cross-border company the risk of coordination problems is practically eliminated. However, this division of responsibility means that the host country has virtually no powers whatsoever to monitor and manage the systemic risks that a foreign branch may give rise to in the domestic financial system. There is thus a clear risk that conflicts of interest will arise between home and host countries. This risk will be greatest in cases where the systemic risks are considerable in the host country but not in the home country – as in such cases the home country will not have as great an incentive to conduct the same thorough supervision as the host country would probably like. Such a conflict would be reinforced by the fact that there is no harmonised framework for crisis management in the EU. As pointed out above, this means that the home country has no formal responsibility to satisfy the interests of the host country apart from paying compensation to depositors if a bank fails. However, if the bank concerned is a systemically-important bank it is probable that other measures will be required to prevent bankruptcy – measures that the host country is not authorised to take and that the home country has no responsibility for, and probably no interest in taking.

There is thus a clear asymmetry between the responsibilities and powers that stem from the home country principle and the lack of a harmonised regulatory framework for crisis management. One could say

that in this sense the EU framework actually helps to increase the risk of conflicts of interest arising and thus also makes the effective management of cross-border systemic risks more difficult.

Experience from the crisis – the reasons for the review of the EU's framework

Despite the EU's common framework, several problems of principle associated with the regulation and supervision of cross-border banks thus remain. As a result of the home country principle, and the horizontal delegation of responsibility that it creates, it may even be the case that the risk of conflicts of interest arising between countries is increased. The EU's decision to reform its regulatory and supervisory frameworks is largely because these problems were manifested in many ways during the crisis.

UNCLEAR RESPONSIBILITY FOR CRISIS MANAGEMENT

A first observation from the crisis is that the decentralised responsibility for supervision and crisis management has resulted in uncertainty about who should do what in the crisis management process. It also appears that this problem has been aggravated by the fact that responsibility for crisis management is not regulated in EC law and is thus not always linked to supervision. In cases that have concerned failing banks that have run cross-border operations in a group structure, discussions have arisen about whether it is the country where the parent bank is licensed that should handle the problem or whether the countries where the subsidiaries are located should also contribute – and if so to what extent. This type of coordination problem obviously makes the rapid and effective resolution of a crisis difficult and also leaves scope for countries to try to play one off against the other in order to avoid taking responsibility for the costs.

NATIONAL SOLUTIONS HAVE BEEN PRIORITISED

Another problem is that those countries that have been involved in the handling of cross-border banks with financial problems have often given priority to national solutions. There are several reasons for this. One is that countries have simply wanted to limit systemic risks in their own financial systems (and the costs of managing these) without taking into account what such measures may mean to the other countries involved. Another reason is that the lack of common EU arrangements for the distribution of crisis management costs between the Member States means that there is no strong incentive to cooperate. Without a predefined

model for how to work towards a solution together, the authorities have instead chosen to go their own way.

THE HOME COUNTRY PRINCIPLE CAN CREATE PROBLEMS FOR EVERYBODY INVOLVED

Furthermore, the experience gained in connection with the default of the Icelandic bank Landsbanki has clearly illustrated how the home country principle's horizontal delegation of responsibility can result in unfavourable situations for both the home and host countries. The deposit guarantee obligation that the home country principle has placed on Iceland is very high in proportion to the country's capacity for crisis management. Consequently, the host countries have been forced to (temporarily) take over responsibility for compensating the depositors in the bank's foreign branches. While the Icelanders have questioned whether it is reasonable that Icelandic taxpayers should pay to handle problems in the financial systems of other countries, the host countries have expressed dissatisfaction that they have not been able to supervise, and have had no authority over, foreign banks. This case clearly illustrates how both home and host countries can end up in a vulnerable position. In the home country's case because they must accept a great responsibility for costs relating to banking operations conducted abroad. In the host country's case because they are forced to rely on the supervisory and crisis management arrangements of the home country working satisfactorily.

GLOBAL SYSTEMIC RISKS HAVE BEEN NEGLECTED

Finally, one of the most central lessons of the crisis is that financial regulation and supervision in the EU – as in the rest of the world – has focused far too much on identifying and preventing risks in individual companies and markets. The development of systemic risks in the global financial system has simply been overlooked. One of the reasons why these risks have been neglected is that the authorities have not been able to fully understand or appreciate the dynamics and the extent of these risks. Another, perhaps even more important explanation is the lack of a clear policy framework for how to address these risks and what measures should be taken to manage them. This lesson relates mainly to the content rather than to the form of the regulatory and supervisory frameworks. It therefore has less to do with the structural problems stemming from the principles and the division of responsibility set out in EC law. However, in one important respect there is a lesson of institutional importance to be drawn from this, namely that the existing institutions of the EU system have not been able to contribute any cohesive and cogent analysis of the

systemic risks that clearly arose on the European markets. Even in those cases where risks have been pointed out, this has not resulted in any policy measures on the part of the EU, for example in the form of legislation.

The EU's future system for supervision

It was partly against the background of the above experience that the European Commission decided in the autumn of 2008 to initiate a thorough review of the supervisory and crisis management arrangements in the EU. The first step was to appoint a group of experts which, under the leadership of the former head of the IMF, Jacques de Larosière, was commissioned to propose necessary reforms. The proposals that the group presented in the so-called de Larosière Report⁸ in February 2009 formed the basis for the agreement⁹ that the EU's Member States reached in July 2009 on how the EU's supervisory framework should be reformed. The new supervisory system will consist of two pillars:

1. The oversight of systemic risks, so-called macroprudential supervision, on Europe's financial markets will be improved by setting up the **European Systemic Risk Board (ESRB)**.
2. The supervision of specific institutions, so-called microprudential supervision, within the EU will be strengthened by means of increased harmonisation and coordination. A European supervisory network, the **European System of Financial Supervisors (ESFS)**, will be created for this purpose. The most important change that this will entail is that the EU's current supervisory committees in the banking, securities and insurance fields will be converted into independent EU authorities. These authorities will form the hub of the new European supervisory architecture and will be equipped with both regulatory and supervisory powers.

Under the leadership of the Swedish EU presidency, the Member States agreed on a compromise proposal in December 2009 on the details in the regulatory framework for the new supervisory structure. The European Parliament will discuss the proposal during the spring of 2010 and will decide on the final form of the regulations in consultation with the Council of Ministers. This process is expected to be finalised in the summer of 2010. A description of the main content of the supervisory structure's two pillars, in the form they took after the Council of Minister's agreement in December, is presented below (see also Figure 1 below). As the final form of the regulations was not determined at the time this article was published, it should be noted that some changes may be made.

⁸ The High-Level Group on financial supervision in the EU, Report to the Commission, 2009.

⁹ Council of the European Union, Presidency conclusions, 19 June 2009.

MACROPRUDENTIAL SUPERVISION – EUROPEAN SYSTEMIC RISK BOARD¹⁰

In order to improve the oversight of systemic risks within the EU the European Systemic Risk Board (ESRB) will be set up. The ESRB will be an independent EU body with the task of conducting overall supervision of financial stability on the financial markets of the EU, so-called macroprudential supervision.

TASKS

The ESRB's main tasks will be to:

- analyse and oversee systemic risks that may constitute a potential threat to financial stability in the EU;
- issue risk warnings and recommend measures to the authorities concerned on the basis of this analysis;
- consult with other international bodies with similar tasks, for example the International Monetary Fund (IMF) and the Financial Stability Board (FSB)¹¹.

The warnings and recommendations issued by the ESRB may be of a general or a specific nature, that is they may concern the EU as a whole or individual countries and markets. Warnings and recommendations will be aimed at the institutions empowered to take measures to address the risks. This may thus cover individual Member States and their supervisory authorities as well as the EU's new supervisory authorities or other EU institutions. Recommendations for legislative measures at the EU level will be aimed at the European Commission. The EU's Council of Ministers will always be informed if and when warnings and recommendations are issued. The ESRB will itself decide, from case to case, whether warnings and recommendations should be published.

The ESRB's recommendations will not be legally binding; the system will instead function as a so-called "act or explain" mechanism. This means that an authority that receives a recommendation is expected to comply with it or explain in detail to the ESRB and the Council of Ministers why it declines to do so. In cases where the ESRB deems that the measures taken following a recommendation are not sufficient, or that the reasons given for declining to comply with a recommendation are not

¹⁰ Council of the European Union, Proposal for a regulation of the European Parliament and the Council on Community macroprudential oversight of the financial system and establishing European Systemic Risk Board – compromise proposal by the Presidency.

¹¹ The FSB is an international body that gathers central banks, supervisory authorities and ministries of finance from the major economies of the world, as well as a number of international institutions, for example the European Commission, the IMF and the Bank for International Settlements. The tasks of the FSB include overseeing the global financial system, promoting coordination and the exchange of information between authorities responsible for financial stability and issuing recommendations on regulation and supervision.

satisfactory, it will inform the Council of Ministers and, where applicable, the European supervisory authorities.

ORGANISATION

The ESRB will be established as an independent body within the European Central Bank's (ECB) organisation. The ESRB's General Board will consist of the governors of the central banks of all 27 Member States, the President and Vice President of the ECB, the Chairpersons of the three new EU supervisory authorities and a representative of the European Commission, all of whom will have voting rights. Representatives of the supervisory authorities of each of the Member States¹² and the President of the EU's Economic and Financial Committee (EFC) will also be members, but without voting rights. The Chairperson of the General Board will be elected from and by the members of the ECB General Council, that is the 27 central bank governors and the ECB's President and Vice President¹³.

A Steering Committee will be linked to the ESRB consisting of the Chairperson and vice Chairperson of the ESRB, five additional central bank governors, a representative of each of the three EU supervisory authorities, a representative of the European Commission and the Chairperson of the EFC. The Steering Committee will be responsible for preparing the matters put before the ESRB.

In addition to the Steering Committee there will be an Advisory Technical Committee with the task of producing factual information, data and analyses for the work of the ESRB. The central banks, the supervisory authorities, the European Commission and the EFC will all be represented on this Committee.

The ECB will provide a secretariat for the ESRB. This secretariat will, among other things, contribute technical expertise and logistic and administrative support to the ESRB, the Steering Committee and the Advisory Technical Committee.

The ESRB will be fully accountable to the Council of Ministers and the European Parliament and will report to these institutions on an on-going basis.

COOPERATION WITH THE EU SUPERVISORY AUTHORITIES

The ESRB will cooperate closely with the new EU supervisory authorities, for example with regard to the exchange of information. The ESRB will be able to regularly collect aggregated information from the authorities on

¹² If a Member State has more than one supervisory authority, the country will be represented by the authority that has particular responsibility for the specific issue under discussion in the ESRB. However, it will be possible for Member States to appoint a joint representative for all of their supervisory authorities.

¹³ The Chairperson will be elected for a period of five years and will be eligible for re-election once.

the financial system in the EU. In special cases, following a request to one of the three EU supervisory authorities, the ESRB will also be able to access company-specific information, providing that the ESRB clearly justifies why this data is needed. If the EU supervisory authorities cannot provide the requested data, the ESRB may approach the national authorities directly.

MICROPRUDENTIAL SUPERVISION – EUROPEAN SYSTEM OF FINANCIAL SUPERVISORS (ESFS)

In order to improve the supervision of specific institutions, that is so-called microprudential supervision, the EU has agreed on a number of different initiatives. Among other things, the national supervisory authorities will be equipped with increased and more uniform powers. In addition, national supervisory authorities that are jointly responsible for the supervision of major cross-border corporate groups in the EU will be required to set up special groups for cooperation, so-called supervisory colleges. The harmonisation of regulations will also be increased by identifying and removing differences in the national regulations.¹⁴

All this will be done within the framework of a European supervisory network, the so-called European System of Financial Supervisors (ESFS). This is not something completely new but represents a further development of the existing supervisory structure within the EU (see Figure 1 for a comparison between the current and future supervisory structures in the EU).

There are already three expert committees for the supervisory authorities of the Member States in the fields of banking (Committee of European Banking Supervisors, CEBS), insurance (Committee of European Insurance and Occupational Pensions Supervisors, CEIOPS) and securities markets (Committee of European Securities Regulators, CESR). Their main task is to work for the convergence of regulation and supervision within the EU, for example by advising the European Commission on legislation issues. The committees form part of the so-called Lamfalussy framework which was created in 2001 as part of the effort to speed up the legislative process and achieve more flexible legislation in the EU.¹⁵ To date, however, the committees have only played an advisory role on issues concerning the form and application of EU legislation. They have not, for example, had any powers regarding the supervision of financial companies in the EU.

The main innovation in the new supervisory structure is that these supervisory committees will be upgraded to independent authorities and

¹⁴ Council of the European Union, 2948th Council meeting Economic and Financial Affairs Luxembourg, 9 June 2009.

¹⁵ European Commission, Review of the Lamfalussy process – Strengthening supervisory convergence, 2007.

will be given greater powers with regard to both legislation and supervision. The respective authorities will be called the European Banking Authority (EBA), the European Insurance and Occupational Authority (EIOPA) and the European Securities and Markets Authority (ESMA).¹⁶

THE TASKS OF THE EU SUPERVISORY AUTHORITIES

The authorities are intended to act as a connecting hub in the European supervisory system. The overriding task is, as previously, to contribute to better and more harmonised regulation and supervision in the EU.

The basic division of roles in the supervisory structure will, however, remain intact. Supervision in the EU will continue to be based on a decentralised model in which the individual Member States are responsible for conducting day-to-day supervision. The supervision performed at the EU level will primarily act as a complement to national supervision. Nevertheless, the reforms represent a certain transfer of power from the Member States to the EU as the new authorities will be empowered to:

- Develop technical standards for how certain specific parts of EC law should be applied by the Member States. These standards may only be of a technical nature and must be approved by the European Commission before they come into force. The idea behind this is to ensure that EC law is applied in a more uniform way throughout the EU.
- Take action against national supervisory authorities when it is considered that these are not complying with EC law. If it is assessed that the authority concerned is conducting supervision that conflicts with EU legislation, the EU authorities will be able, as a last resort, to make decisions aimed directly at individual financial institutions. The decisions made by the EU supervisory authorities will then have precedence over the decisions made by the national supervisory authorities.
- Make binding decisions on the application of EC law if two or more supervisory authorities that are jointly responsible for the supervision of a corporate group cannot agree on how supervision should be conducted. In this case too, the decisions made by the EU supervisory authorities will have precedence over decisions made by the national supervisory authorities.

¹⁶ The tasks and organisation of the authorities will be regulated in three separate EU regulations. Below, the operations of the authorities are described on the basis of the proposed regulations that the Council of Ministers has agreed on and that will be discussed in the European Parliament in the spring of 2010. These are: 1) Proposal for a regulation of the European Parliament and the Council establishing a European Banking Authority (EBA), 2) Proposal for a regulation of the European Parliament and the Council establishing a European Insurance and Occupational Authority (EIOPA) and 3) Proposal for a regulation of the European Parliament and the Council establishing a European Securities and Markets Authority (ESMA).

- In a crisis situation, make decisions that oblige national supervisory authorities to take certain measures for the purpose of strengthening crisis coordination within the EU.
- Exercise full supervision of credit rating agencies.

In addition to these supranational powers, the supervisory authorities will also be tasked with:

- Issuing non-binding guidelines and recommendations to national supervisory authorities with the aim of promoting effective and uniform supervision within the EU. The authority at which a guideline or recommendation is directed will be expected to do everything in its power to ensure compliance. If the authority does not comply, it will be required to submit a detailed explanation to the EU supervisory authority.
- Conducting peer reviews of supervision in the Member States to ensure that supervision is conducted in an effective and consistent way throughout the EU.
- Promoting a common supervisory culture within the EU, among other things by contributing to an effective exchange of information between national authorities and by getting the authorities to apply uniform supervisory methods, for example regarding the collection of information.
- Analysing and monitoring market developments in their respective areas of responsibility and informing other relevant EU institutions, including the ESRB, of potential risks and, when necessary, proposing measures to deal with these risks.

A central principle is that the decisions made by the authorities should not impinge on the Member States' fiscal sovereignty. To achieve this, a regulation will be introduced to the effect that if the EU supervisory authorities make a decision that has fiscal consequences for a Member State, then this Member State may request that the decision be postponed or reconsidered, ultimately by means of a decision by the Council of Ministers.

ORGANISATION

In the same way as for the existing EU supervisory committees, each authority will be led by a board made up of leading representatives from the national supervisory authorities (Board of Supervisors). In addition to the national representatives, the Chairperson of the EU authority will also sit on this board. The European Commission, the ESRB, the ECB and the two other EU supervisory authorities will also each have one representative on the board, although as observers without voting rights. The main tasks of

the board are to lead the work of the authority and make decisions in the areas of responsibility discussed above.

Alongside the Board of Supervisors there will be a Management Board consisting of the Chairperson of the authority and six ordinary members of the Board of Supervisors. A representative of the European Commission and the Executive Director of the authority will also sit on the Management Board but will not have voting rights. The main responsibility of the Management Board will be to lead the administrative work of the authority.

The authority's Chairperson and Executive Director will be experts employed on a full-time basis. They will be appointed by the Board of Supervisors for a period of office of five years. The authorities will report to the Council of Ministers, the European Parliament and the European Commission.

COOPERATION WITH THE ESRB

As mentioned above, the EU supervisory authorities will cooperate closely with the ESRB. Apart from providing the ESRB with information, the supervisory authorities will play an important role in the process of managing the warnings and recommendations issued by the ESRB. If the ESRB issues a warning that lies within the area of competence of the authority concerned, the authority must quickly decide what measures should be taken. If the authority declines to take action, the ESRB must be informed of the reasons for this.

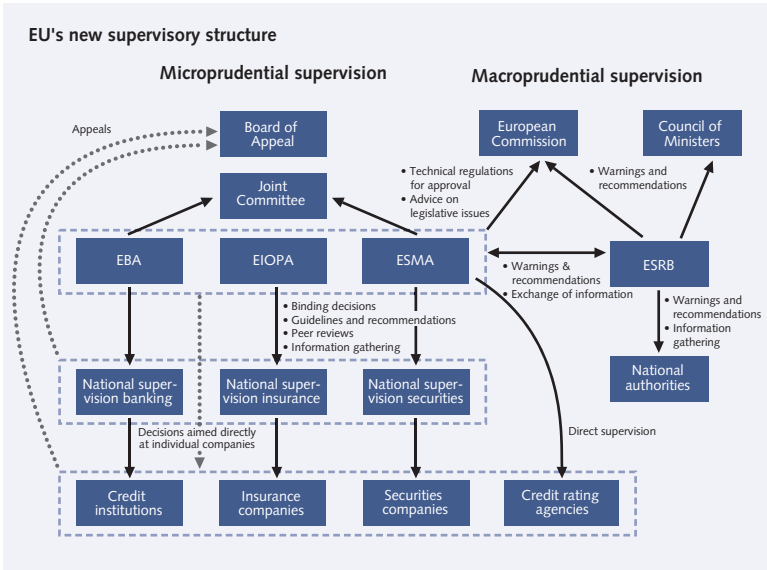
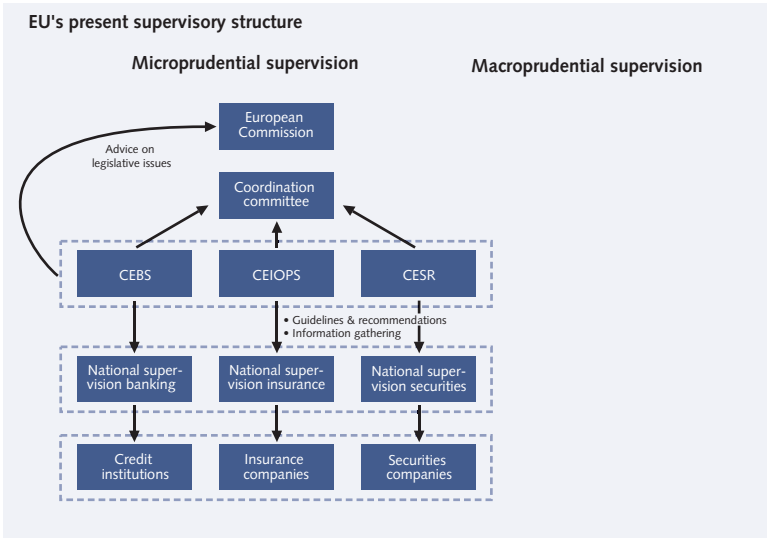
If instead the ESRB issues a warning that is directed at one or several national supervisory authorities, the EU supervisory authorities shall, when possible, use their powers to follow up how the recipient or recipients have handled the warning.

COOPERATION BETWEEN THE EU SUPERVISORY AUTHORITIES

The EU supervisory authorities should also cooperate closely with each other. A committee, the Joint Committee of European Supervisory Authorities, will be set up for this purpose and will consist of the Chairpersons of the respective authorities. This committee will form the basis for the cooperation between the authorities with the aim of ensuring the uniformity of the regulations and the supervisory process in the three different sectors.

The EU authorities will also have a joint Board of Appeal. It will be possible to lodge an appeal against all the decisions taken by the EU supervisory authorities, and that are directed at an authority or company, with this Board of Appeal. The Board of Appeal will be able to either reject the appeal or require the supervisory authority concerned to revise its decision

in accordance with the Board's decision. Appeals against the decisions of the Board of Appeal can in turn be lodged with the European Court of Justice. It will also be possible to appeal the decisions of the authorities directly to the Court without first going through the Board of Appeal.



Will the new system work?

To what extent will the EU's reformed supervisory system be able to contribute to a more effective supervision and management of cross-border systemic risks? At the general level it can be noted that the adopted reforms do not entail any fundamental changes to the existing supervisory structure. The measures mainly involve repairing and supplementing the already existing structure.

MICROPRUDENTIAL SUPERVISION

The future supervision of cross-border financial companies in the EU will continue to be based on a decentralised model in which the individual Member States are responsible for conducting day-to-day supervision. The supervision performed at the EU level will primarily act as a complement to national supervision. The home country principle will still govern how responsibility for the supervision of cross-border financial companies should be divided between the Member States. In a few areas, however, there will be a shift in power from the Member States to the EU, for example regarding the possibility to make binding decisions in the case of disputes between national supervisory authorities and the fact that the EU authorities will be given full powers to supervise credit rating agencies. But, all in all, there will be no fundamental changes to the EU's existing model for the supervision of individual institutions. This also means that the basic ability of the system to prevent and manage cross-border systemic risks has not been optimised – neither with regard to the supervision of group subsidiaries nor with regard to cross-border operations run in the form of branches.

The decentralised model means that the supervision of institutions that run cross-border operations in *subsidiaries* will continue to involve two or more authorities with different interests, regulations, supervisory methods and so on. The intention is that the coordination functions and decision-making mechanisms allocated to the three European supervisory authorities will contribute to a more effective supervision of cross-border institutions and to a greater harmonisation of national regulations and supervisory standards. The possibility to make binding mediation decisions can also be expected to improve effectiveness by making it possible to handle conflicts of interest between countries, while the possibility to conduct peer reviews of national supervisory authorities will increase the potential for improving the quality of supervision. Moreover, the power to develop binding technical standards is expected to strengthen the convergence of regulation and supervision in the EU. The same applies to the possibility to intervene against supervisory authorities that do not

comply with EU regulations. The tasks proposed for the three supervisory authorities thus contain a number of important mechanisms to increase the effectiveness and harmonisation of European supervision, but these do not constitute a guarantee that there will no longer be coordination problems and conflicts of interest relating to supervision.

For cross-border companies that run operations in *branches* the current supervisory model will remain intact. The home country's practically unlimited responsibility for supervision will remain given that the basic principles concerning home country supervision and mutual recognition will not be changed. The new supervisory system thus offers no solution to the conflicts of interest associated with the supervision of branch companies. As it is also the case that no decision has been made on how the arrangements concerning crisis management in the EU should be harmonised, the asymmetry between responsibilities and powers that exists between home and host countries also remains.

MACROPRUDENTIAL SUPERVISION

As noted above, the crisis has revealed the need to improve the supervision and management of systemic risks, both nationally and internationally. From this point of view, the fact that the EU is setting up a special body for the supervision of these risks at the European level is positive, as such a body has not existed previously. It is also positive that the ESRB will not only have the task of performing analyses but also be able to issue risk warnings and recommend measures.

However, how well this will work in practice largely depends on the forms for macroprudential supervision; that is whether there will be institutional arrangements that allow the production of cogent analyses and recommendations that can then be implemented as effective measures. There are a number of important aspects to consider here, for example the organisation, powers, governance and resources of the authorities. Some of these aspects are discussed below.

INSTITUTIONAL LOCATION OF MACROPRUDENTIAL SUPERVISION

The ESRB, the new body for macroprudential supervision, will be located within the existing organisation of the ECB. The main argument for this is that the ECB as a central bank has both the competence and the need to perform overall analyses of financial stability. Making the central bank responsible for the analysis of financial stability is also the arrangement that most countries have chosen. However, there are a couple of reasons for questioning how appropriate it is to make the ECB responsible for macroprudential supervision.

The relationship between financial stability and monetary policy –

The financial crisis has given rise to discussions concerning the monetary policy activities of the central banks and how these may have contributed to the development of systemic risks. Some observers claim that the inflation targeting policies of the central banks have contributed to the prolonged and untenable credit growth that constitutes one of the most important causes of the recent crisis. This is basically because the central banks have been tied to an expansionary monetary policy in order to reach their inflation targets. When credit growth and certain asset prices have increased significantly without also creating inflationary pressures, the central banks have simply not been able to correct the risks that have developed with the help of monetary policy. The existence of this type of inherent tension between monetary policy and financial stability could constitute a fundamental reason for not making the ECB responsible for macroprudential supervision. This tension would be brought to a head if the ESRB were to find that the monetary policy actions of the ECB are contributing to the development of systemic risks. It seems unlikely that a body within the ECB – with a majority made up of members of the ECB – would recommend a revision of the ECB's monetary policy stance or propose measures aimed at neutralising the effects of this monetary policy.

It should be pointed out, however, that any tension between financial stability and monetary policy will not disappear just because the institutional responsibility for macro supervision is placed outside the central bank. The difference with placing responsibility outside the ECB would be that the ECB would not need to prioritise between the two objectives if they proved to be incompatible.

The need to coordinate microprudential and macroprudential supervision – Making the ECB responsible for macroprudential supervision means that the two areas of supervision will be conducted by different bodies. Although macroprudential supervision should focus on the overall risks in the financial system it is also important to have an insight into, and knowledge of, how individual companies run their operations and how individual financial markets function. This suggests that it would be better if both strands of supervision were conducted by the same institution. While it is true that the new EU supervisory authorities and the national supervisory authorities will be members of the ESRB, the influence of the national authorities will be limited as they will have no voting rights.

An alternative to dividing supervision between the ECB and three EU authorities would be to make one authority responsible for both microprudential and macroprudential supervision – either at the ECB or at one of the EU supervisory authorities. There are two factors that indicate that the ECB is not a suitable body for such a combined responsibility. First,

many of the members of the ECB are not authorised – and thus lack the competence – to supervise individual institutions. Second, as discussed above, there is a risk that tensions will arise between the bank's supervisory tasks and its monetary policy mission.

If, instead, the new EU supervisory authorities are given this combined responsibility then macro supervision will be brought closer to the national supervisory authorities who are responsible for day-to day supervision and who also have the main responsibility and the tools required for taking risk-prevention measures (in relation to general stability risks and to risks relating to specific institutions). The disadvantage of this, however, is that it will not be possible to make use of the competence available at the ECB and its members in the same way.

THE POWERS OF THE ESRB

A basic prerequisite for effective macroprudential supervision is that the warnings and recommendations issued by the ESRB are also followed by the party that they are aimed at. As mentioned above, however, the recommendations will not be binding; the party concerned will instead be expected to comply with the recommendation or explain why it chooses not to do so.

The reason why the recommendations will not be binding is that this would impose a relatively strong restriction on national decision-making. One may ask, however, how effective this system will be. An authority that is subject to a recommendation may simply decline to comply with it. In this context, it is however positive that the ESRB will be able to publish its analyses and recommendations as this in itself will probably help to increase compliance.

THE PARTICIPATION OF THE NATIONAL SUPERVISORY AUTHORITIES

A controversial question concerning the composition of the ESRB has been to what extent the national supervisory authorities should be involved in macroprudential supervision. Some have advocated that they should not participate at all, while others have claimed that they must participate on equal terms with the central banks; that is with full voting rights. The close link between macroprudential and microprudential supervision justifies the participation of the national supervisory authorities in the ESRB. Their lack of voting rights should be seen against the background of the fact that they will be indirectly represented by the three EU supervisory authorities. However, there is a risk that not allowing the national supervisory authorities to participate on equal terms may reduce the effectiveness of macroprudential supervision. This is because

in many cases it will probably be the national supervisory authorities that will receive the recommendations issued by the ESRB. The question is therefore to what extent they will be willing to implement recommendations adopted in a decision-making process that they themselves have played no part in.

What could have been done differently?

As pointed out here, the EU's new supervisory system does not offer a perfect solution to the coordination problems and conflicts of interest associated with the supervision of cross-border companies, whether they be subsidiary groups or branches. This raises the question of what could have been done differently to handle these problems. If the aim is to create a system in which cross-border systemic risks can be prevented and managed in an effective way then there are three main alternatives.

RETURN TO NATIONAL FINANCIAL SYSTEMS

The *first* alternative is to design a regulatory and supervisory system that completely eliminates the occurrence of cross-border systemic risks. In this way one would also avoid potential coordination problems and conflicts of interest between countries. As far as the EU is concerned, this would require a return to a supervisory structure that gives every Member State full supervisory powers over all the financial companies established in the country. The home country principle and the principle of mutual recognition would in this case have to be abolished, as well as the regulations that give the consolidated supervisor the right to make decisions concerning cross-border corporate groups. In short, the EU would return to the model that applies to cross-border banking operations in the rest of the world. However, this would not be entirely sufficient to eliminate cross-border contagion risks. Restrictions on cross-border capital flows would be needed to achieve this and the subsidiaries of foreign groups would have to be completely independent, both financially and operationally, of other companies in the group. Basically, this alternative would involve building a regulatory and supervisory system that cuts off the national financial system from the rest of the world. Such protectionist measures would probably have a high economic cost and also be in stark contrast to one of the most fundamental objectives of the EU – establishing a common market for goods and services.

TRANSFER POWER TO THE EU

The *second* alternative – which totally affirms the EU's integration concept – is to adopt supranational arrangements for supervision and crisis

management. This could be done in slightly different ways and in a gradual process. However, the main point would be to supervise and manage the systemic risks at the level where they exist. In this way, supervision would work for the common good. A single authority for the supervision of cross-border institutions would make it possible to avoid coordination problems. Conflicts of interest could still arise, not in the form of conflicts between countries but rather between national and federal authorities. From the national point of view the actions of the federal authorities could be unfavourable as the overall objective is to prevent and manage systemic risks at the aggregated level, which in theory could mean greater national costs (in the event of a crisis).

A basic precondition for a supranational arrangement is that the EU is given resources to pay for any crisis-management measures, otherwise responsibility for supervision and crisis management will be divided in the same way as for branch companies today. Creating common financial resources at the EU level is, however, problematic as the EU has no powers of taxation.

UPGRADE THE EXISTING MODEL

The *third* alternative is to follow the route the EU has now taken; that is to continue building and developing the existing decentralised model for regulation and supervision, but at the same time to also develop a cohesive and harmonised regulatory framework for crisis management that covers more than just regulations on deposit guarantees. Such a framework would increase clarity about who is responsible for what in a crisis with regard to everything from the supervisory measures that can be taken at an early stage and measures in relation to institutions with liquidity and solvency problems, to the winding-up and reconstruction of insolvent banks. It would also improve the chances of the national frameworks being able to cooperate effectively in connection with cross-border crisis management. The coordination problems and conflicts of interest associated with cross-border crisis management could thus be reduced. However, even if the EU manages to achieve this, the fact remains that continuing to have a decentralised model for regulation and supervision will not solve the basic problem that several countries are involved in supervision and crisis management. Whatever solution is chosen, it will never be possible to entirely eliminate the risk of conflicts of interest and coordination problems arising.

Not a perfect solution

The reformed supervisory system that will be introduced in the EU should be seen against the background of the political desire to quickly repair the faults that became apparent in the current system during the crisis. The solutions adopted have thus been agreed on without any fundamental changes in the EU's legal and institutional structure, that is without changes to the basic principles that apply to the regulation and supervision of financial companies in the EU.

In this article I have argued that even if the reforms entail a significant improvement, they do not constitute a perfect solution for fostering and preserving financial stability on the integrated financial markets of Europe. The creation of a sustainable framework requires more far-reaching reforms. Moreover, if the intention is to establish a single market for financial services a high degree of centralised supervision and crisis management will be needed – at least for the financial companies that conduct extensive cross-border operations.

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