

Editorial

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After four successful years of the journal one may take stock of the first phase of this interesting intellectual venture: the launching of a new journal which is devoted to international economics and to economic policy issues. The combination of continuing globalization, the growing importance of international organizations and new approaches to international economic analysis creates an urgent need to (re)consider standard and new issues. *International Economics and Economic Policy* aims to contribute to this task in the realms of both theory and empirics.

The journal aims to draw both policymakers and academics into a fruitful exchange. Over the last years, the inclusion of a focus section combining a number of shorter contributions to a particular issue of current concern has proven particularly fruitful in this regard. This issue continues the tradition with a forum on the currently unfolding international banking crisis. We are also very pleased with the success of the goal to delve more deeply into specific questions of particular relevance through the Special Issues organized by invited external editors, most recently the August 2007 issue on Digital Economy and Regulatory Issues edited by Günter Knieps and Ingo Vogelsang. We are very grateful to the sponsors of the first special issues, including the Austrian National Bank, the Central Bank of Greece and BP Europe; the European Institute for International Economic Relations also has been a supporter.

The *Journal of Economic Literature* index has included the journal already in its first year of publication. All other key indices have followed. An increasing number of high quality submissions means that about 77% of papers submitted have been

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rejected. The standard refereeing period is below 6 months. This would not have been possible without the many referees from Europe, North America and Asia (see list published at the end of this issue) who have devoted a crucial slice of their time budget and have helped with careful advice and useful comments in so many cases. We are very grateful to them!

In these first years the enormous work load of controlling the process of submitting, refereeing and finally getting the issues ready has been taken on by Christopher Schumann with great professionalism and true enthusiasm; his outstanding efforts are highly appreciated! In the fall of this year, Thomas Domeratzki has assumed this task and continues to work along the fine lines established, we are very grateful for his contributions.

Last but not least, we would like to take this opportunity to express our special gratitude and appreciation to Dr. Werner A. Müller and Dr. Martina Bihn as well as Mrs. Schmidt-Loeffler at Springer Publishing for their strong and enthusiastic support in launching an ambitious journal in a dynamic international field. The quickly growing Online First service, making papers available even a few weeks before the printed version is in the market deserves particular mention.

Looking forward, we hope for many more years of excellent contributions, thought-provoking discussions and novel approaches, further establishing *International Economics and Economic Policy* as a highly valued resource for our readers. With such a wonderful start the ambitions of the editors have certainly been reinforced! Many thanks from us to all who have contributed!

The background to the 2007 financial crisis

C.A.E. Goodhart

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1 Introduction

There have been many facets to the current financial crisis. It is difficult for a single person to put together a completely coherent story of everything that has happened, unless they have been working for one of the banks at the centre of the storm. Rather like the blind men who feel aspects of the elephant, commentators, like myself, are likely to have a personal view; it may take quite a long time before a comprehensive history of this crisis can be written, and this is not such a complete history. Subject to that caveat, let me begin with a survey of some of the background influences that led up to this crisis.

2 The mis-pricing of risk

In many respects, this crisis was foreseen in advance. Almost every central bank which published a Financial Stability Review, and international financial institutions, such as the BIS and IMF, which did the same, had been pointing for some time prior to the middle of 2007 to a serious under-pricing of risk. This was characterised by very low risk spreads, with differentials between risky assets and safe assets, having declined to historically low levels. Volatility was unusually low. Leverage was high, as financial institutions sought to add to yield, in the face of very low interest rates. Those same institutions were apparently prepared to move into increasingly risky assets in order to do so, often leveraging themselves several times in pursuit of that objective. Indeed, at the beginning of the crisis, that is prior to August 2007, there was some general satisfaction among the monetary authorities that the undesirable and excessive under-pricing of risk was in the process of being reversed.

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How had this come about?

(a) Very low interest rates, 2001–2005

In part, this under-pricing of risk had resulted from the long period of extraordinarily low nominal, and very low real, interest rates that had continued from the ending of the Tech bubble in 2001, until central banks generally began to raise interest rates again in 2005. Figure 1 shows the time path of interest rates in the USA, in the Eurozone and in the UK.

In the aftermath of the Tech bubble, there was a considerable fear in the USA that price deflation might ensue. Moreover, there appeared to be a world glut of savings, driving down real interest rates all around the world, (Bernanke 2005).

The fear of deflation, and the savings glut, led to a period of expansionary monetary policies, with nominal policy interest rates at very low levels, and with accelerating monetary growth in several countries. In Fig. 2, are shown the rates of monetary growth for the USA, the Eurozone and the UK over the years from 2001 to the present.

(b) The great moderation/stability

This period of monetary expansion, and low interest rates, did not lead on directly to any increase in inflation in goods and services prices, i.e. in the CPI or RPI in the major nations. Indeed, these years were a continuation of what has become known as the Great Moderation or the Great Stability. Ever since the early 1990s, the major developed countries in the world, with the possible exclusion of Japan, have enjoyed a Golden Age. During this Golden Age, inflation has been kept low and stable, very close to the inflation targets, either explicit or implicit, that the monetary authorities have maintained. This has not been at the expense of greater volatility of output; rather the contrary, as output has remained growing steadily and with few, if any, cycles. Although growth in Europe has been slightly disappointing, growth in other parts of the world, notably in the USA, but also in ex-Japan Asia, has been remarkably stable and strong. This persistent macro-economic stability led many to believe that macro-economic risks had been significantly reduced. The implication was that investment generally, and financial conditions in particular, were subject to less aggregate, macro-economic risk than in the past.

(c) The Greenspan put (?)

Moreover, whenever financial markets in the USA had weakened sharply over the previous 20 years, or so, for example Black Monday of October 19, 1987; the housing crisis in 1992; the Asian Crisis in 1997/1998; or the collapse of the Tech Bubble at the end of 2001, the Federal Reserve had always moved in swiftly to prevent the financial downturn spreading more widely into the economy. A view had been developing that the Fed would support financial markets successfully from any serious collapse. If the downside was protected, by what became termed ‘the Greenspan put’, than equivalently the risks to financial investment would be considerably less. The existence of such a ‘Greenspan put’ remains contentious. Some, such as Alan Greenspan himself, deny that such a protective floor to the financial markets ever existed. Alternatively, there is an argument, as made by Kohn

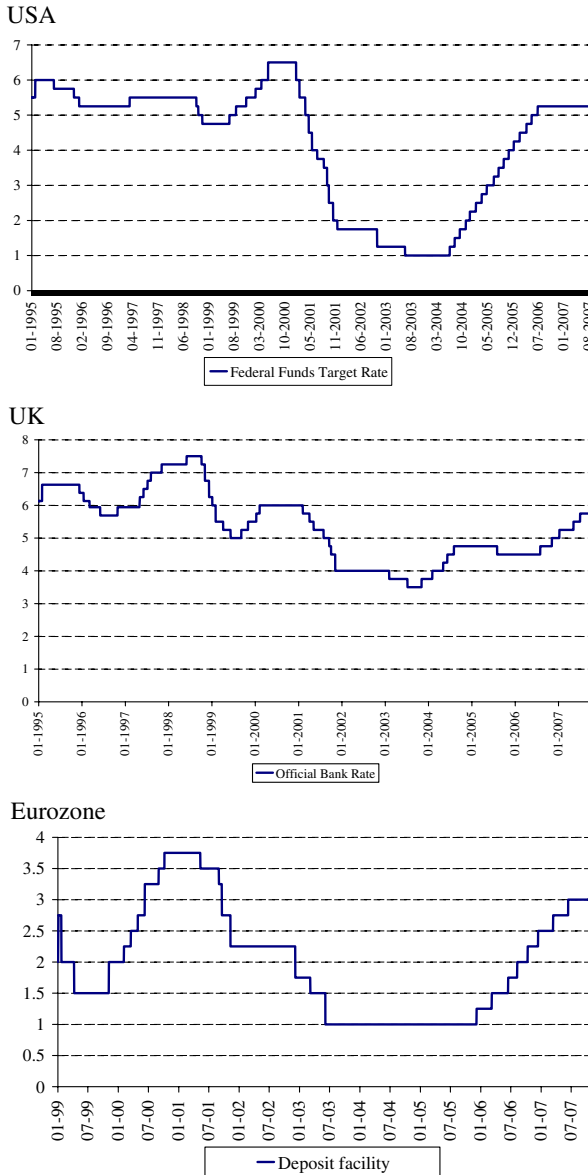


Fig. 1 Time path of interest rates in the USA, the Eurozone and the UK

2007, that the Fed behaved more symmetrically than its critics have claimed. They argue that there was no such asymmetry; financial markets tend to decline much more rapidly than they rise, so any symmetric offset would be much more visible in terms of cuts in interest rates during sharp asset price declines, than in the form of offsetting increases in interest rates during periods of market upturns. Be that as it may, many criticise the Fed, in particular, for behaving in an asymmetric manner. And, such behaviour, whether imagined or not, was part of the framework that led

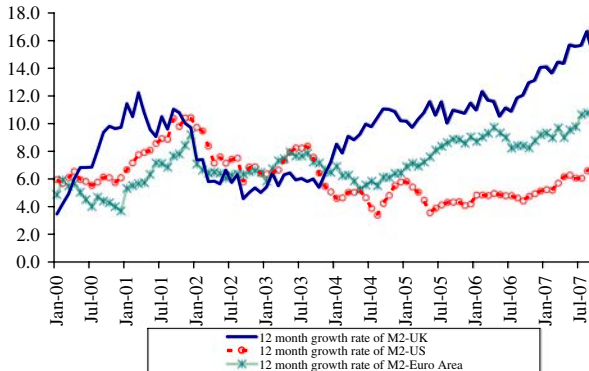


Fig. 2 Rates of monetary growth for the USA, the Eurozone and the UK over the years from 2001 to the present

many investors to see the world as less risky in the new Millennium than it has been in the twentieth century.

The conclusion of all these factors, however, was that there was a clear and apparent widespread under-pricing of risk. This can be illustrated in a variety of ways, some of which are shown in the charts in Fig. 3a–d below.

3 The new financial structure

Liberalised financial markets are very innovative. The last 10 years have seen enormous strides in the development and extension of new forms of securitisation and the growing use of derivatives of all kinds. This is not the place to document these manifold changes, but the growth of various collateralised debt instruments, in the form of collateralised mortgages, etc., etc., has been fast and widespread in recent years.

This has been combined with a revised banking strategy, that began in the USA, but has spread recently to Europe and abroad. This goes by the general title of ‘Originate and Distribute’. Under this strategy the banks originate loan business, for example in the form of residential mortgages, and then pool baskets of these loans, together in various ways, and securitise and distribute them, so that such loans, changed into new securitised format, leave their balance sheet. So they originate the loans, securitise them, and then distribute them to various non-bank financial institutions.

All this leads to a disintermediation of assets off banks’ balance sheets. To some degree, this transfer of such assets off balance sheets is more artificial than real. Banks establish conduits, which they owned and were non-bank subsidiaries, which held many of these securitised assets. They also formed close connections with many structured investment vehicles (SIVs), which, though they did not own them directly, they had close links with them as sponsors. All this was done in some large part for reasons of regulatory arbitrage. Under Basel I, banks did not have to put capital behind such off-balance sheet non-bank subsidiaries.

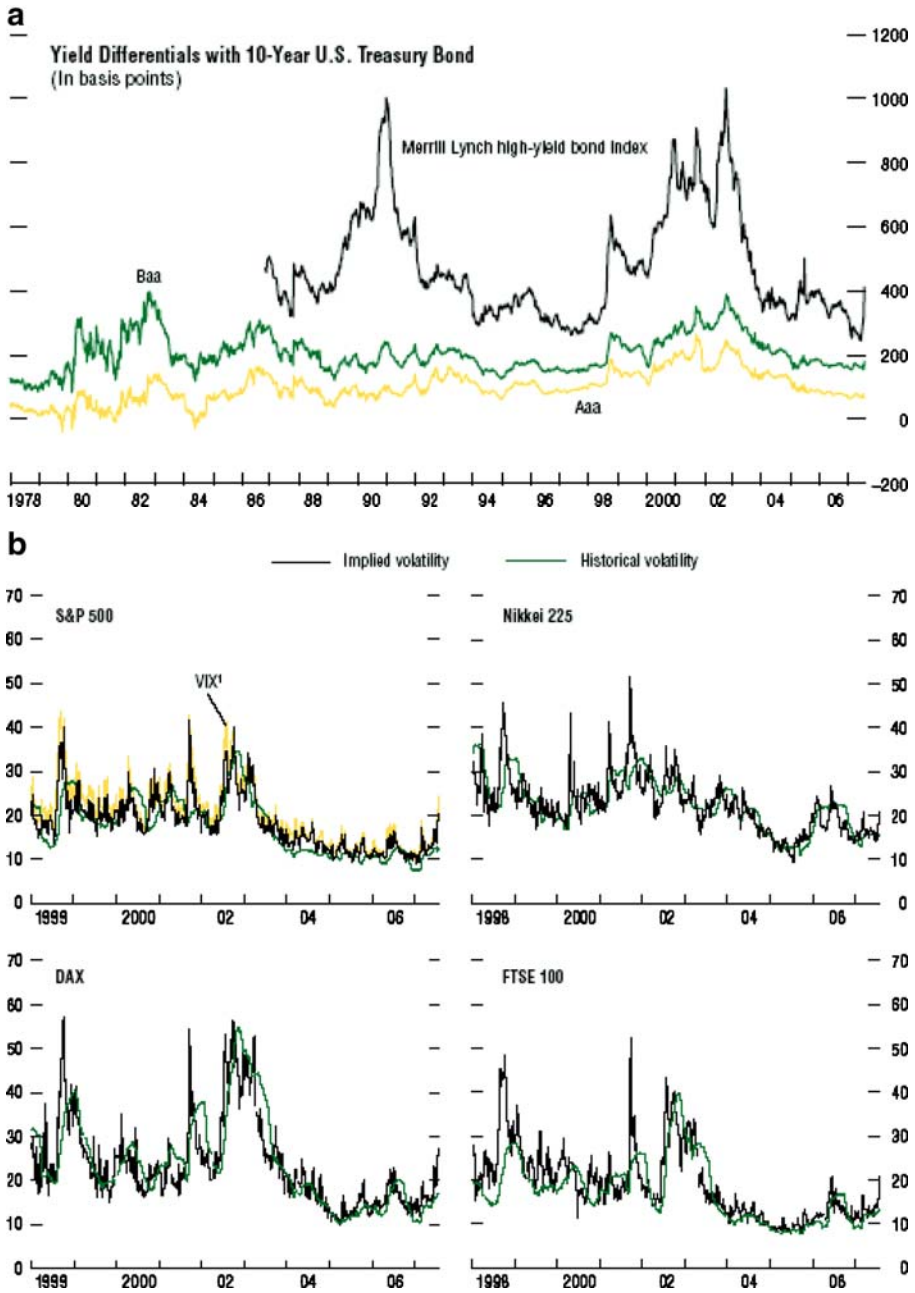


Fig. 3 a US yields on corporate and treasury bonds. b Stock market volatility (weekly data). c Europe corporate bond market (non-financial corporate bonds); spread between yields on a Merrill Lynch High-Yield European Issuers Index bond and a 10-year German government. d United States asset-backed securities; Merrill Lynch AAA Asset-Backed Master Index (fixed rate) option-adjusted spread

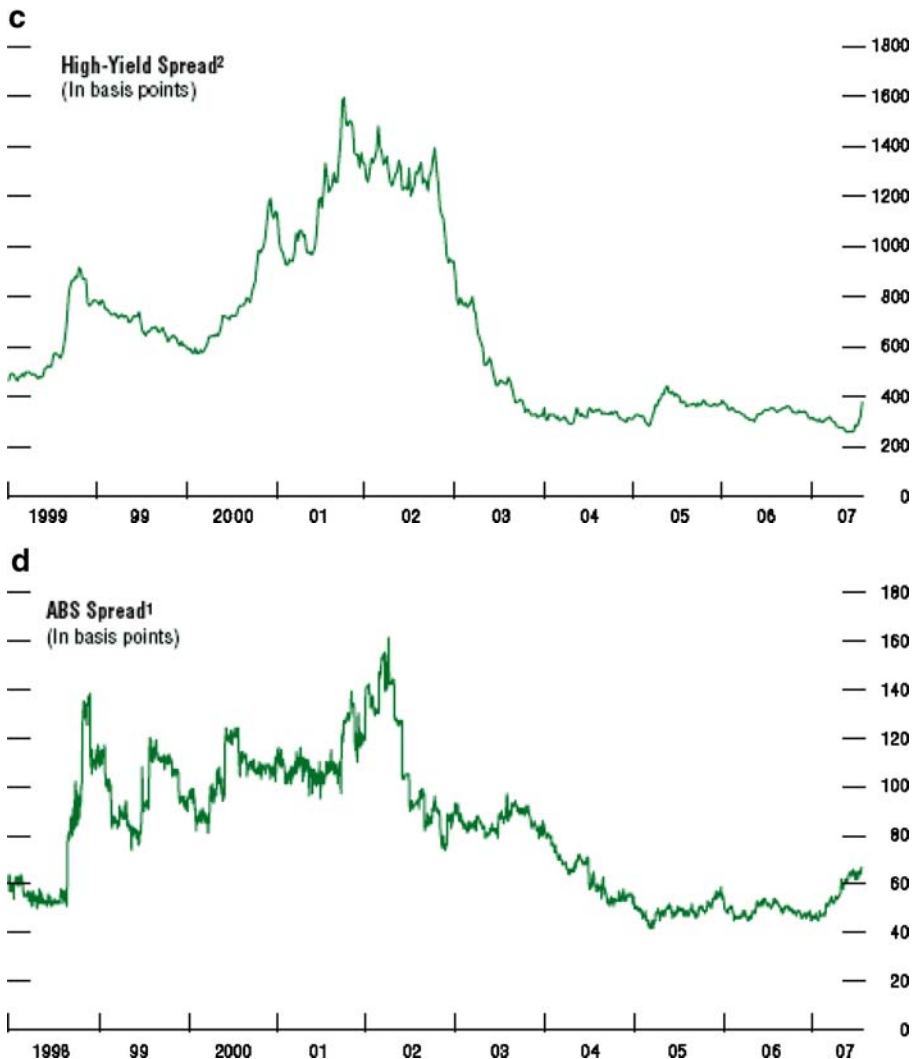


Fig. 3 (continued)

These conduits and SIVs were largely financed by asset backed commercial paper (ABCP). The assets on the books of these SIVs, etc., had a long maturity, whereas the ABCP were usually of a short maturity, ranging from 1 to 3 months. There was clearly a significant funding risk involved in such financial institutions. In order to protect themselves, in some part, from such funding risk, these institutions usually had contingent arrangements with their sponsoring bank, whereby, if it was not possible to roll over the ABCP, the commercial banks with whom they had a connection would step in and provide the funding instead.

Indeed, in general, commercial banks maintain *contingent* liabilities as lenders of last resort to capital markets, and indeed as underwriters to capital markets, for example in the issue of various kinds of private equity obligations and other forms of buy-outs of the equity of companies. The role of banks as holding contingent

liabilities and underwriting capital markets was especially vulnerable when they had close direct connections, for example the Bear Sterns hedge funds which ran into trouble in the middle of the summer, the Banque Nationale de Paris, which had problems with its related institutions in June, the Landesbanken IKB and Sachsen Conduits, and the subsequent SIVs, etc.

One continuing accusation is that the process of 'Originate and Distribute' made the originating bank less concerned about the quality of credit assessment and monitoring of the borrowers' conditions during the course of the outstanding loan, since it was no longer on the originating bank's books. There are many anecdotal suggestions that such a decline in credit assessment and monitoring has occurred alongside the new procedure of Originate and Distribute; however, there is only just now beginning to be academic research to assess whether this may indeed have happened. But, credit quality was not only supposed to be assessed and checked by the originating bank; it was also supposed to be assessed by the credit rating agencies. Indeed, the ability to distribute these various forms of collateralised debt depended very heavily indeed on the reputation and ability of the credit rating agencies to do so. Given the scale and volume of the market, and the growth of the market to encompass many lenders who were unable to check the credit quality of the original loan pool themselves, the whole system depended crucially on the reputation and 'say so' of the credit ratings agencies.

4 The credit rating agencies

As their name suggests, these agencies usually, and primarily, only rate the credit default risk of the assets to which they give a particular rating. Unfortunately this aspect of ratings has been widely misinterpreted, and many subsequent lenders who bought these tranches of debt misinterpreted the ratings as covering market and liquidity risk as well. So, government debt with a rating of AAA had a different and generally superior overall quality, as compared with the AAA of senior tranches of collateral mortgage obligations (CMOs). This was not generally recognised by those who eventually found themselves holding such tranches of CMOs. They often believed that they were holding assets of exactly similar quality to government debt, when they were clearly not doing so. Subsequently, a senior official in Moody's has suggested that the ratings agencies should widen their rating categories to cover market and liquidity risk as well as credit default risk.

So, the meaning of the ratings agencies' ratings were frequently misinterpreted. But it is also possible that the agencies actually got their assessment of the *credit* default risk wrong as well. Over the data period, following World War II, over which the default risks were assessed, there had been no prior example of housing prices falling generally across the whole of the USA. There had been pockets of weakness in housing prices in certain areas in the US from time to time, but in no period after 1945 had housing prices fallen generally across the board. So long as the price of the house is greater than the value of the mortgage, mortgage borrowers will attempt, as far as they possibly can, not to default on their mortgage, because they would then lose their valuable equity in the house. Under those circumstances defaults are usually restricted to those cases of personal misfortune, when unemployment,

illness, or other accidents leave the borrower unable to meet the interest payment. But this condition changes dramatically whenever housing prices fall below the value of the mortgage. Under those circumstances, (subject to the cost of having to find alternative accommodation), when the value of the mortgage rises above the value of the house there is a clear economic benefit to the mortgager in handing the keys to the house back to the lender. In short, there are extreme non-linearities in default probabilities as housing prices fall. From the end of 2006, housing prices began to fall quite generally in many, or most, areas of the USA. This was against a background of increasing extension of mortgage loans, particularly in the sub-prime area. The recent extension of such loans, together with the increase in interest rates, meant that there was growing economic advantage to residential mortgagors in defaulting and handing back the house to the lender. Since they had very little prior experience of such occasions, it is perfectly possible that the credit ratings agencies failed to assess the likely credit default risk under such circumstances, particularly of course amongst the worse quality mortgages, i.e. the sub-prime market in the USA. The time path of housing prices in the USA is shown in Fig. 4.

Some have also argued that the credit ratings agencies were subject to conflicts of interest, which may have led them to grant excessively generous ratings to the originators of such collateralised obligations. After all, the ratings agencies are paid by the originators of such loans. However it is generally accepted that the ratings

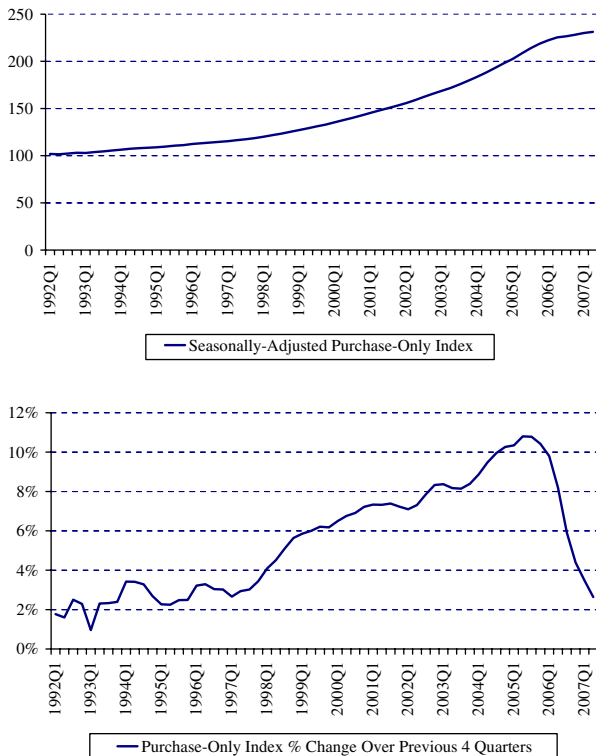


Fig. 4 Time path of housing prices in the USA

agencies depend so extraordinarily heavily on their reputation for honesty and straight dealing, that the payments mechanism would not have led them to shade their ratings in favour of the originator. There is, certainly as yet, no reliable evidence that the ratings agencies behaved in any other than an open and honest manner. That does not mean that the ratings agencies and the whole system is beyond reproach. For one thing there is a concern that there is insufficient competition in the field of ratings with only the two big American ratings agencies, Moody's and Standard and Poors, plus the European agency, Fitch. But that is another story, which is not directly related to the financial crisis.

5 Insufficient liquidity

Until about the end of the 1960s, commercial banks in the UK, and indeed around much of the rest of the developed world, held some 25%, or more, of their assets in real liquid assets, in the shape of assets which could be sold in open markets easily and with relatively little price impact. These were largely government debt in the form of Treasury Bills and short-dated government debt of other kinds. Ever since then there has been a continuous decline, a trend decline, in the holding of stocks of what were unambiguously liquid assets. The share of claims on the public sector in bank assets has been going down steadily and sharply, and has been replaced by an ever rising share of holdings of private sector assets. While these private sector assets, notably in the form of residential mortgages, have had relatively high credit ratings, they are not liquid in the sense that there is a broad, resilient and strong secondary market on which they can sold without much price impact, of anything like the same quality as public sector debt. So, the scale and quality of bank liquid assets has been steadily declining.

Furthermore, in the 1960s and 1970s, commercial banks funded their assets largely on the basis of retail deposits from the private sector. Although many of these retail deposits were nominally on demand or at short time notice, in practice, however, these assets remained extremely stable, irrespective of what was happening to the market reputation of the bank in which they were placed. During recent decades there has been an increasing reliance on wholesale funding and on the short-term credit market. Such wholesale liabilities were again at a relatively short maturity, frequently between 1 and 6 months. This meant that in practice the scale and extent of maturity transformation had been increasing enormously; the changing liability structure of the failing British bank, Northern Rock, is an extreme example of this, (see Fig. 5).

So liquidity has declined dramatically. Banking systems in developed countries have become much less liquid. So, if trouble arose, the banking system had to depend on their Central Bank to sort the problem out. Given the shortage of true liquid assets, this seemed to imply that the Central Bank would have to lend on the basis of a considerably widened range of collateral assets. In effect, the banks were depending entirely on the support of central banks to help them through any liquidity crisis, rather than trying to manage their liquidity for themselves. In effect, the banks were 'putting' the management of liquidity to the Central Bank. In addition to the Greenspan 'put', this was another form of liquidity 'put', which the commercial

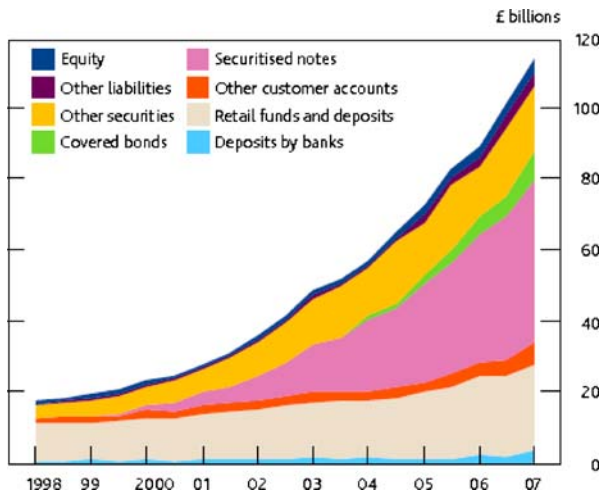


Fig. 5 Changing liability structure of the British bank Northern Rock

banks were imposing on their own central banks. This, of course, raised the question of how far, and to what extent, it was proper and appropriate for central banks to absorb all the downside on liquidity risk, and for commercial banks to take the potential upside in the form of the normal liquidity differential between borrowing at short maturities and lending at long maturities. Should the Central Bank always bail out the commercial banks from liquidity difficulties, which were in part the result of behavioural trends among the commercial banks themselves? For more on this particular subject, see Goodhart (2007) on the subject of liquidity risk management.

6 A foreseen crisis

So the 2007 financial crisis was, in reality, an accident waiting and ready to happen. Central banks could, and did, see it coming. As noted earlier, many central banks and other IFI had public warnings in their FSRs about the mis-pricing of risk and dangers in the over-expansion of the credit markets. As Sir John Gieve noted before the Treasury Select Committee, the Bank of England FSR in April 2007, pp 6/7, had clear and explicit warnings about difficulties to come, (also see FSR October 2007, p. 6).

Despite the fact that central banks foresaw the likelihood of difficulties in this respect, they did not do anything about it. This may well have been because they did not have sufficient instruments to be able to tackle the worsening risk profile in financial markets; or it may be that they did not have the will to do anything about it. Either way, the potential crisis in financial markets was observed beforehand, but no significant action was taken.

The trigger for the crisis was, as everyone knows, the rising defaults in the US sub-prime mortgage market, but the theme of the opening passages of his paper is that the trigger could have been almost anywhere else. It was, as already noted, an accident waiting and ready to happen.

Perhaps one of the most interesting features of this crisis is that the US sub-prime mortgage market is a relatively small part of the overall US mortgage market, and, as its name indicates, was confined to the USA. How then did this financial crisis spread so widely across many countries, and how could it have caused such a widespread collapse in overall credit markets?

7 ‘Slice and dice’

At this point we need to take a slight digression to explain, as simply as possible, how the mortgage pools worked, and how the original mortgages, e.g. from the sub-prime market in the US, might end up in a bank conduits, and SIVs, widely in the rest of the developed world, notably in Europe.

In the table below, we assume that there are mortgages to a number of independent sub-prime borrowers. These range from Mr. A down to Mrs. E. Under normal circumstances, the probability of default of a prime mortgage borrower is really quite extraordinarily low; frequently less than 0.003%/year. But we assume that these are very sub-prime, so that even under normal circumstances, their probability of default ranges from 5 to 7%, say over the course of the first 5 years in which the mortgages are held. This is, indeed, a remarkably high probability of default. But also note that, again in normal circumstances, these probabilities of default are independent of each other, because they depend on the accidents of ill luck, which prevent the borrower from paying off his or her mortgage, so that the aggregate probability of default, since each of them is independent, at any one time is much less.

Mortgage	PoD	
A	5	
B	7	→ Pool
C	6	
D	7	
E	5	
Pool →	Senior Tranche AAA	→ Conduits, SIVs
	Mezzanine Tranche	→ Pension Funds?
	Equity Tranche	→ Hedge funds
	(toxic waste)	

These mortgages are then pooled together, and the pool is divided into several tranches, with the tranche which is lowest, i.e. on which the default losses fall completely and first, is known as the equity tranche, more commonly described by many as ‘toxic waste’. Then there are middle, or mezzanine, tranches, and above these are the senior tranches which do not get hit for any credit default risk until the capital of

all the earlier lower junior tranches have been wiped out. This then effectively indicates why the credit risk of these senior tranches are effectively closely approaching to zero.

These tranches in turn are held by differing investors. The equity tranche, for example, may well be held by hedge funds, who can afford to take such risks, particularly since the risk in the equity tranches can be partially hedged, for example, by investing in assets whose value goes up when housing prices decline or when interest rates rise. Similarly the mezzanine tranches may be held by longer term and secure holders, such as pension funds; and the senior tranches were very largely held by these bank conduits, or SIVs.

Note, however, that when housing prices go down, particularly at a time when effective interest rates are rising, (and this may in part be due to the cessation of the initial attractive ‘teaser’ rates), the probability of default on the loans of the individuals in the pool ceases to be independent of each other; the correlations rise as well as the probability of default themselves. So, the likelihood of significant credit losses on the tranches into which the original mortgages have been sliced, will rise in a non-linear, indeed possibly an exponential way, as housing markets decline and effective interest rates rise. This means that the credit risk on the senior tranches, which in normal times is virtually zero, can start to look as if it is still a probably small, but nevertheless non-zero possibility.

8 The historical path of the crisis

Throughout 2005 and 2006, US interest rates began to rise steadily back to more normal levels. As a result housing prices, as we saw earlier in Fig. 4, began to falter starting in early 2007.

This led to increasing losses of value in the lower tranches of the CDOs and CMOs. Since these were often held by hedge funds, a number of hedge funds became hit, notable Bear Sterns in late June. There were other cases, some rumoured, many anecdotal, some probably real, of significant losses to hedge funds. However nothing much in general happened to the financial system more widely, *but* there was growing uncertainty about how further defaults might eat into the higher tranches. As already noted, these are largely financed by ABCP. These ABCP were largely held by money managers, in particular by money market fund managers. These money managers in general have a convertibility commitment to be able always to transform the funds held with them back into cash at par. In addition they generally have very little capital, and there is no Lender of Last Resort for them. Accordingly they are very risk adverse. So when there began to be a suspicion of doubt about the credit risk of the higher tranches of the mortgage pools, they fled en masse. They refused to roll over their holdings of ABCP, and ABCP holdings began to decline dramatically, see Fig. 6. But, the CMOs, which were held by the conduits and SIVs, were effectively virtually impossible to sell in the open market without driving the price down very sharply. They were *not* liquid assets. There was not a broad secondary market, and the price impact of any such fire-sales would have likely been dramatic. Consequently it was undesirable for such assets to be sold on the open market without causing significant loss of value, and therefore cuts in the capital adequacy, of all the institutions holding them.

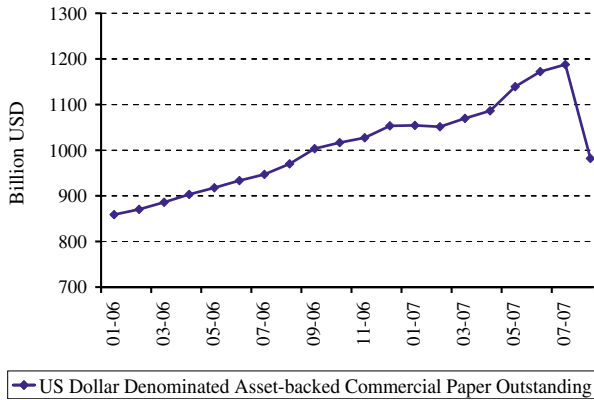


Fig. 6 The decline in the outstanding US-dollar denominated asset-backed maturities (seasonally adjusted)

So, if it was in effect impossible or undesirable to sell such paper on the open market, then some alternative funding had to be found instead of the ABCP. Remember that the commercial banks had links with these conduits and SIVs, and such commercial banks were supposed to be able to provide the alternative funding as contingent insurance. This initially was the case with the German *landesbanken*, IKB and Sachsen. They had conduits; indeed their contingent commitments to their own conduits were many times the size of their own available capital stock. With the decline of the value of assets in their conduits, in effect these *landesbanken* were suffering a severe reduction in their own capital, and they had to be saved by a bailout by their respective regional governments. But at this stage it became appreciated that many banks had conduits and SIVs to which they were connected, with some sponsoring relationship. People did not know what the contingent or actual liability of many banks to such institutions might be. There, therefore, came to be a growing concern whether bank counterparties were always fully safe and solvent, irrespective of what might have been shown in each bank's latest balance sheet.

Moreover, banks could see their own contingent commitments to capital markets, to their own conduits, to the SIVs to which they were linked in some ways, and to the need to provide backup and lender of last resort facilities to capital markets in various ways, coming home to roost; and this was in addition to doubts about counterparties on the inter-bank market.

So, early in August, to be precise on August 9th, the inter-bank market, in particular the 3 month inter-bank market, dried up. It became difficult, indeed almost impossible, for those who were systemic net borrowers in the wholesale markets to fund themselves, except at high, or indeed any rates at all. This was, of course, in particular the case of Northern Rock, whose liabilities were overwhelmingly represented by funds raised in wholesale markets, somewhere around two-thirds of their total funding was in wholesale markets; in addition they were trying to prepare for securitising a significant proportion of their book in September, the likely success of which was becoming increasingly dubious.

All this led to some dramatic, and exceptional, shifts in yield curves. As shown in the diagram below, the yield on 1 and 3 month Libor rose dramatically relative to

very short-dated and longer-dated yields, while the opposite occurred on government debt, since many holders of funds, concerned about their availability at a 3-month tenor, were parking these temporarily in Treasury Bills and short-dated government debt, (see Fig. 7).

9 What can, or should, the Central Bank do?

The financial crisis caused risk premia to rise and widen sharply. So for a given level of official policy rates the effective interest rates that were being faced by private sector borrowers were rising; in addition, credit quality requirements, covenants, etc., are also being tightened, so the availability of credit to the private sector is being cut back quite sharply. So, even if the authorities did not worry at all about the state of the financial markets for its own sake, they would find that the financial crisis was having a significantly deflationary effect, on its own, in reducing private sector demand over the next few quarters. So, one could argue that even without concern for financial markets per se, the authorities could lower official rates, in order to keep financial conditions in effect unchanged. Certainly one of the possible measures in response to the crisis would be to lower the official rate, and the penalty ceiling rate at the very short end.

However, the crisis occurred, fortuitously enough, at a time when most of the rest of the world economy was growing strongly, and when there were a number of factors, which might be described as supply shocks, tending to raise inflation. These include a decline in grain production and a rise in food prices; also the rise in energy prices; and perhaps the declining ability of China to bring in ever more low paid workers into manufacturing production, so that Chinese prices were likely to rise at the same time as Chinese demand was going to continue to increase commodity prices. For all these reasons, the trend in interest rates in Europe and the UK, at least, had clearly been upwards before the onset of the crisis. Moreover, given the uncertainty about future inflation, it was dubious how far official interest rates could

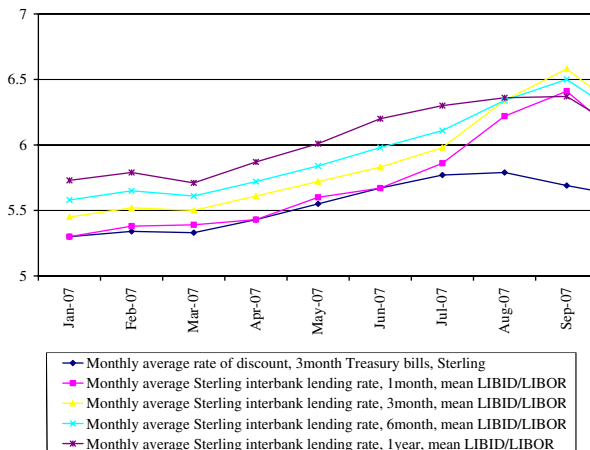


Fig. 7 Treasury Bills and short-dated government debt

be lowered, at the same time as the mandate to central banks to maintain price stability as their primary objective might be maintained. So there were limits to the extent that official rates could be reduced, which limits would depend on experience with inflation, and the time path of private sector expenditures.

If there were, therefore, limits on the ability of the central banks to lower interest rates, what other actions could they undertake? While they could obviously inject additional liquidity, e.g. by various kinds of open market operations and lending, there were, however, a number of problems. As noted earlier, the commercial banks were no longer holding large volumes of clearly liquid and very high quality assets. This meant that the central banks would have to widen the range of collateral that they were prepared to accept. Given that the commercial banks had, to some extent depending on your outlook, brought this problem on themselves by failing to maintain sufficient liquidity, was it necessarily an appropriate exercise to widen collateral and accept anything that the commercial banks wanted to offer under such circumstances? Would this involve moral hazard? Should a Central Bank worry about moral hazard in the course of a crisis?

Moreover, the problem was not about the availability of *cash* as such. Almost all the time in recent months the central banks have provided as much, or more, cash than the commercial banks wanted. They were in effect awash with cash and, at the very short end, overnight rates were frequently below, sometimes quite a long way below, official policy rates. The problem, instead, was that there was a concern about the availability of funding at a longer maturity, in particular at 3-month length, as shown by the very high value of 3-month inter-bank rates, relative both to the policy rate and to 3-month Treasury Bill rates. How could the central banks inject a lot of funds at a longer maturity without bringing about downwards pressure on the policy rate that they wanted at the short end? Could they undertake a kind of ‘operation twist’, whereby they would inject funds at a longer maturity, and may be even mop them up or withdraw funds at the overnight? Would such an ‘operation twist’ work? And would it be desirable? There were, and remain, lots of questions about the detailed technicalities of money market operations whereby central banks might be able to deal, not just with a cash shortage, but with a shortage of prospective funding at a 1- and 3-month horizon. Discussions of these problems have yet to be fully held and resolved.

In the particular case of Northern Rock, the Bank of England was forced to undertake massive Lender of Last Resort actions involving a significant proportion of Northern Rock’s book, several tens of billions of pounds; an action almost unique in the case of the history of a central bank; very rare and generally unwanted. The Governor of the Bank of England, Mervyn King, had even hoped to keep this LOLR action secret and covert, in order to avoid the potential bad effect on retail depositor perceptions of the safety of their money. As we now know, the announcement of this support led the depositors suddenly to realise that their money might not be safe and to run to withdraw it. There is, however, a question whether an LOLR action on this scale could be kept secret and covered even if it had not been prevented by the Market Abuses Directive (MAD).

Where do we go from here? At the time of writing, the answer to this is not clear. The withdrawal of ABCP is still in process. This again causes banks either to have to refund the resulting CMOs, or to sell them on the open market. Sales on the open market remain very difficult, with the market being largely shut, so sales would

bring about falls in asset prices which would cause further difficulties to banks' balance sheets and capital strength. In the face of this three or four of the largest American banks in the third week of October got together to try to establish a super conduit (known as MLEC), but this has been challenged on the grounds that it would lead to an artificial price for such assets, and is an artificial way of trying to prop up the market.

With the massive amount of additional liquidity having been pumped into the market by the central banks, there has been some recovery of wholesale markets, but it is as yet very fragile. Meanwhile, as noted, the problem of the withdrawal of ABCPs, and the need to deal with the management of asset-backed securities (ABS) continues. So, it is very difficult to predict what may happen from now on.

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British banking regulation and supervision: between a rock and a hard place

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1 Introduction

Northern Rock (NR) is a 'mortgage bank' specialising primarily in making home loans. Using an 'originate and distribute' model, it expanded aggressively after its de-mutualisation (on 1st October 1997) from a local base in the North-East of England; where it operated as a Building Society (a mutual savings bank specialising in home loans). It made use of the opportunity to 'securitise' blocks of individual home loans, using the receivables on those loans to back the assets (bonds) it issued. This enabled it to raise new funds periodically in order to make further loans; which could then be used to back further asset backed security issues, and so on, and on. As a result NR grew very rapidly indeed to become the eighth largest British bank and, because securities issues are periodic and 'lumpy', it subjected itself to significant interest rate risks and wholesale funding (liquidity) risks; and possibly also heightened credit risks. Its cost base remained small due to its relatively local and small branch base and it relied on mortgage brokers and internet and telephone sales, stimulated by large newspaper and television advertising campaigns, to attract loan applications. Its retail deposit base was relatively small, accounting for approximately 25% of its deposits. The wholesale deposit component (largely raised through the issuance of commercial paper) was thus 75%. It was well capitalised and highly profitable, at least until just before the crisis broke. The management chose not to hedge the interest rate risk and, as a result, in June 2007 before the crisis broke in August and after another period of rapid expansion in the first half of 2007 (when other banks were slowing down their lending because interest rates had been rising and house price inflation was showing signs of peaking) it issued a profit warning (as did one of the largest UK banks which had also failed to hedge). It was suffering, it announced, a 'structural mismatch' between Libor (London inter-bank offered rate) and bank base rates. The expectation of

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higher UK interest rates (due to rising inflation projections) had ‘risen further than anticipated’. It thus faced higher funding costs than it had expected and it would take time to shift the newly raised funds from its most recent asset backed security issue at the profit it had become accustomed to; as a result of the declining margin between lending and borrowing rates. In other words, NR’s management conceded that it had mispriced its mortgages and profit growth would decline as a consequence. Its share prices fell 14% on the announcement.

NR had also chosen not to take out credit lines with other banks to insure against its wholesale funding risk. Countrywide, a much larger ‘originate and distribute’ lender operating in the US, was directly hit by the sub-prime crisis, but in contrast had established credit lines and it is still trading as a result.

Why had the management chosen not to hedge and insure? Presumably because the cost of doing so would have reduced its profit. The non-executive directors and the shareholders they represent are ultimately responsible for assessing good corporate governance and internal risk controls (and for assuring that retail deposits are not exposed to excessive risk). The second line of defence for depositors (given the natural risks taking and profit seeking bias of shareholders) is bank prudential regulation and supervision. The supervisor (the Financial Services Authority in the British case) is supposed to ensure that there is compliance with the regulations.

2 The bank run and the liquidity crisis

It is widely known, for there are numerous historical examples, that banks that grow significantly more rapidly than the market average (Credit Lyonnaise in France, for example) expose themselves to more risk than the other banks because they are taking business that other banks are not seeking (possibly sub-prime lending in this case) or are turning down. Northern Rock had grown much faster than average and continued to do so through to mid 2007, even as the prospects in the home loan market were becoming more uncertain. It had even introduced a new product offering mortgages of up to 125% of the house price and was using self-certification of income when setting its loan to income multiples. What if house prices started to fall and collateral values thus fell too? A high proportion of new loans, and Northern bank was making many of them, had offered discounted mortgages for around three years, after which the interest rate on the loan reverted to the standard variable rate; which had risen significantly in the year or so through to mid 2007 as the Bank of England raised interest rates to head off inflation (and to take the froth off the housing market). A significant number of NR’s borrowers will be facing the prospect of paying much higher rates than at the time they borrowed. Default rates are ticking up in the market in general, although many of the borrowers appear to be staving off defaults by resorting credit card borrowing; but they cannot do so forever. Nevertheless, the FSA has, so far, assured that the quality of NR’s loan asset portfolio is good.

The trigger for the liquidity crisis that erupted in August was the down-grading of sub-prime loans in the US. This undermined the value of sub-prime mortgage-backed securities (MBSs), which, through CDOs (collateralised debt obligations), had been divided into tranches from the top (triple-A) credit rating down to high risk

‘toxic waste’ securities that risk seekers had bought to boost returns. Many banks (and other financial institutions) have set up SIVs (structured investment vehicles) to borrow in the commercial paper market offering the mortgage backed assets as securities (asset-backed commercial paper, ABCP) to purchase MBSs. This was typically done off balance sheet, but entailed borrowing short to lend long and was thus banking by another name. The SIVs were exposed to interest, liquidity, market and counterparty (credit) risks. ‘Conduits’ were also used by big banks to channel money into such vehicles and the banks were providing credit lines to many of the players in the market (but not Northern Rock!).

When the dancing stopped and the US sub-prime market went into recession, the value of sub-prime mortgage backed securities (for which there was not a secondary market) came into question, and the ABCP market also dried up as a consequence. Banks were called on to honour credit lines and some were forced to take SIVs and conduits onto their balance sheets. Banks in general began to ‘hoard’ liquidity and the wholesale money markets ceased to function properly. The European Central Bank (ECB) and the US Central Bank (‘the Fed’) acted promptly to inject liquidity into the markets to bring down market rates closer to their target rates; which were eased in the case of the Fed in response to its assessment of severity of the liquidity crises, despite its continuing concern about inflation. The ECB did not cut rates as it was concerned about above inflation being above and felt the situation was less acute in the Euro area.

The Bank of England, however, held back because it was concerned about irresponsible banking behaviour (NR was merely the most of acute case) and thereby aggravate in moral hazards as a result. The retail depositors were however only 100% insured for the first £2,000 of their deposits in NR (and in each of the other British banks) and 90% of the next £33,000. They have little understanding of how the scheme (overseen by the FSA) worked and probably (rightly) did not expect prompt payment if the bank was closed. Once the news broke that Northern Bank was facing difficulties renewing its wholesale funding (due to the collapse of the commercial paper market and in the absence of credit lines) and might be in difficulties, it was rational for depositors to panic. NR’s combined liquid reserves and capital was unlikely to be sufficient if all retail deposits were withdrawn, and so it paid to be at the front of the queue to withdraw money. A liquidity problem of this magnitude, it is clear, can quickly become a solvency problem, regardless of the quality of the assets (which could not be quickly sold).

The pictures on the news in September of the first British bank ran for nearly 150 years were dramatic and must have stimulated some *Scharderfreude* in Germany, where early European casualties of the sub-prime crisis had occurred at (non-deposit taking) banks (IKB and Sächsen Landesbank) that had invested (through a conduit and an SIV) in sub-prime backed securities. The German banks had rallied round, as they had historically done, to contain and resolve the problem by providing liquidity and absorbing the losses. That had not stopped the British financial press pointing out that that this was yet another example of the need to restructure the supposedly antiquated German banking system, and by implication that they should look no further than the models provided by British banks; especially NR, its lean and highly profitable star and the high street banks (which incidentally get a much lower public approval rating than the German banks).

In the end, once NR was known to be in trouble, the torchlight was shone by the news media on other banks that might be in trouble whether through heavy reliance on wholesale funding or via direct or indirect (via conduits or SIVs) to sub-prime lending. An announcement of 100% deposit insurance guaranteed by the Treasury (Finance Ministry), and thus by the taxpayer, up to £35,000 for Northern Rock account holders (and any other bank that found itself in similar difficulties) and a promise to consider raising the 100% cover to deposits of up to £100,000 (in each bank) reassured depositors and the run on NR ceased and spread no further. The Bank (of England) then weighed in by making liquidity available to the market (though still at penal rates) against the security of bank's assets (rather than just Treasury Bills, which is what it normally accepts as collateral). It also began lending to Northern Rock (with Treasury, and thus taxpayer, indemnity) and the sum it lent quickly rose given the size of the wholesale funding shortfall plus retail deposit withdrawals and is expected to reach around £25bn (a considerable sum when compared to the wider Bank of England and ECB liquidity injections).

An alternative option, the 'bad bank solution' used for Continental Illinois (a largely wholesale funded bank in the US in 1984) and in the Nordic Banking crisis, for example might have been appropriate. In this case the troubled bank is nationalised for a nominal sum and thus the shareholders (responsible ultimately for the governance of the failed bank and for covering its losses) lose their investments. The government then puts in new management, re-capitalises the bank and moves the bad loans into a 'bad bank' (Asset Management Corporation (AMC) or Resolution Trust Corporation (RTC)). The restructured bank is re-privatised and the proceeds are used to defray the costs (to the taxpayer) of recapitalising and restructuring the bank. The AMC recovers the assets pledged as collateral (often commercial property), holds it and sells into a recovering market, further defraying the costs. When the job is done, the AMC is wound up. In the case of the early 1990 Nordic Banking Crisis, a 'paper' profit (less than an expected return on investment over the period) was made in a couple of cases, but the cost to the taxpayer was contained and so was the moral hazard. Bank shareholders were reminded that they, as well as the depositors bore risk and that they were ultimately responsible for the good corporate governance of banks, including the assurance of sound risk management.

In the case of NR, the FSA maintained that it was a bank with good asset quality that had essentially suffered from bad luck in being hit by a low probability event (a similar argument to that posed by its management!). It was not an obvious candidate for a 'bad bank solution'. Despite its profit warning in June 2007, its management claimed profit (and earnings) would continue to grow, albeit more slowly. The FSA must have judged its provisions against bad and doubtful debts to be sufficient to cover expected losses and that its capital was adequate to suffer unanticipated losses. Further, it was a relatively small bank whose failure was unlikely (directly) to pose a significant systemic risk and the FSA professes to conduct its supervision on a risk based basis, with a 'light touch'.

Nevertheless, NR's depositors were not fully insured and thus faced risks and the Governor of the Bank had warned publicly in his Mansion House Speech (in June 2007) that a liquidity event of the sort that hobbled NR was a concern of the Bank's. Further, the ECB and the Bank (in its Financial Stability Report) had been warning

of such risks and of the ‘opaqueness’ of asset backed securities, for a year or two. The FSA must have been aware of this.

The Bank of England’s only other option in fact was to allow NR to fail and go into administration. NR’s depositors would have been at the end of the chain of creditors waiting for NR’s assets to be sold off and other, higher ranking creditors to be paid off. Depositors’ interests would not have been protected.

Further, once such a wholesale funding crisis did occur, the risk of knock-on effects would increase, but this, like the run on NR must have still been regarded as a low likelihood event. A widespread crisis amongst the smaller banks would have been likely to have generated a flight to bigger banks judged too big to be allowed to fail by depositors. This in turn would have further reduced competition in the UK banking market (where the big banks have already been found guilty of using anti-competitive behaviour by the Monopolies Commission and the Office of Fair Trading). Not surprisingly the big banks (with the largest deposits) have expressed their dislike of the proposal to extend 100% DI to deposits of up to £100,000. They argue that they will end up having to bail out failed small banks, forgetting of course that they enjoy automatic supplementary insurance from the British taxpayers for which they do not have to pay!

3 Regulatory and supervisory implications

To date (mid November 2007) the NR depositors have been protected and its shareholders have not paid the ultimate price for their negligence. A pre-emptive strike in the form of a bad bank solution was not allowed under current UK legislation (but is possible in the US and some other European countries). The Governor of the Bank, Mervyn King is calling for legislation to permit pre-emption in the UK. He is also calling for legislation to extend the level of 100% DI cover. The latter has the great advantage (as demonstrated in the US) that (small) banks can be allowed to fail (whilst depositors are protected) and this in turn enhances market discipline by exposing shareholders to losses. The ‘too big to fail problem’ remains and the ‘bad bank solution’ needs to be available as a credible threat to deal with this.

One hundred percent DI, however, creates an adverse selection problem. The co-insurance implicit in less than 100% DI was always ill conceived. The idea was that it was necessary to expose depositors to some risk in order to encourage them to choose the safest banks. But, as a result of the opaqueness relating to the risks involved in asset backed securities and the distribution of those risks emphasises, even the professionals did not understand the risk exposures of the banks involved. Why should depositors be expected to be able to do so? Further, there remain considerable costs in switching bank accounts (though the UK authorities have tried to reduce these as part of (voluntary) banking codes).

When interest rates were liberalised in the US in the 1980s, banks (Savings and Loan Associations) began to compete by offering higher savings rates to attract deposits. They then needed to grow fast and lend at higher rates than average (taking on more risk as a result) to be able to make a profit and pay the higher rates to depositors. Deposits were naturally attracted to the banks offering the highest interest

rates (and taking the most risk). In other words there was an adverse selection by depositors of the riskiest banks and they enjoyed 100% deposit insurance up to £100,000 at each bank. Everything was fine until the failures became so widespread that the deposit insurance fund (the Federal Savings and Loan Insurance Corporation) went bust and the US Treasury had to bail it out and put in place a 'bad bank solution' involving the Resolution Trust Cooperation. In response, the US overhauled its DI system (Federal Deposit Insurance Corporation Improvement Act) and introduced risk-related DI premia. Instead of paying into the scheme in proportion to deposits to be insured, they banks paid in proportion to the risks to which the deposits were exposed in much the same way that shareholders pay more for life insurance than non-smokers. The aim was to curb adverse selection by 'taxing' risk taking. Risk related DI schemes should thus probably be adopted more widely.

The UK authorities should consider doing so if they are to further extend DI cover. Most importantly, they should move to a pre-funded scheme (as operated in the US) so that banks are indeed taxed for risk taking and funds are available for prompt payouts. Otherwise, the Bank (or the Treasury) may be called on to provide credit to the Financial Services Compensation Scheme whilst the FSA tries to get the banks to meet their requirements to contribute at a time when they might claim they are least able to do so (as they probably would have done in the autumn of 2007). I am sure ways can be found (and are found in the US) to use the normally idle DI funds productively!

In addition, the 1998 Basel Accord was designed to tax the (mainly credit) risks in banks asset portfolios by requiring them to hold capital in proportion to assets weighted by those risks. It was gradually extended to cover market and other risks and is to be replaced next year by a more comprehensive (Basel 2) framework. In the light of the recent crisis, a review of the extent to which it will require capital to be held against the palpable risks inherent in conduits and SIVs seems required. Perhaps these should simply be brought onto the balance sheet.

The question then arises whether *both* risk-related DI premia capital adequacy requirements are necessary. Is this double taxation of risk wasteful given that it is involving two sets of regulatory costs? One view (commonly espoused in the US) is that some supervisory competition is good and that the insurers have the incentive to protect their funds. The DI fund manager has an incentive to protect depositors interests in the process of protecting the insurance fund against abuse. The capital adequacy regulator has more general concerns covering both deposit taking and non-deposit taking (investment) banks. The Treasury meanwhile underwrites the central bank and the DI fund with taxpayers money, and has the incentive to ensure that this insurance is not abused.

Provisioning policy probably also needs re-visiting. Are banks really sufficiently forward looking in making provisions against bad and doubtful debts resulting from asset price swings, or are they too reliant on capital to act as a shock absorber?

The most important lessons arising out of the NR 'crisis' relate to the need to look at liquidity risk management issues and the need for the various deposit insurers to properly co-ordinate their policy responses.

As regards co-ordination, the UK revised the 'Tripartite Agreement' relating to the assurance of financial stability as recently as March 2006. The Treasury

essentially chairs and delegates responsibility to the Bank (as ‘lender of last resort’) and the FSA (as financial sector (including banking) supervisor). The initial arrangement was set up by the Finance Minister (Chancellor Gordon Brown), in 1997. At the same time the Bank was required to hand over its bank (and other) supervisory duties to the FSA (which it did somewhat reluctantly) and the assurance of monetary stability (through inflation targeting supported by interest rate setting) and financial stability became its core responsibilities. As time elapsed the Bank had focussed increasingly on its inflation targeting role and the March 2006 revisions to the Tripartite Agreement seem to reflect the downgrading of its financial stability responsibility.

Nevertheless, the FSA, as supervisor and manager of the Financial Services Compensation Scheme, the Bank, as lender of last resort, and the Treasury, with access to taxpayers’ money, are all involved in the insurance of depositors’ (and voters’) savings with banks. The NR affair has revealed that an ‘incentive compatible’ division of responsibilities has not been reached and the Agreement itself needs re-drafting.

In resolving this issue, the decision to remove bank supervision from the Bank of England needs re-visiting, as does the issue of whether the authority responsible for financial stability should be divorced from bank supervision. This in turn is inextricably linked to the issue of how liquidity adequacy is to be regulated.

From one perspective, most deposit taking banks are part of financial conglomerates and the overall business should be regulated by an agency such as FSA to avoid the messy reporting to numerous semi-self regulatory agencies that preceded the post 1997 arrangements in the UK. From another, deposit taking banks are special in that they have responsibilities to depositors as well as shareholders and that they are integral to liquidity creation (through granting credit i.e. making loans) and to the payments system; which is a key part of modern commercial infrastructure. As such, they should be separately regulated as they are the major players in the money markets, which are dominated by interbank (wholesale money) lending. Money market and liquidity management and interest rate setting and inflation control are thus interlinked. Effective inflation control requires a full understanding of what is going on in the money markets, which a central bank can only gain through involvement in the supervision of banks. This is the US Fed’s perspective and it has led it to (successfully) oppose removal of its (shared with the Office of the Controller of Currency (a US Treasury department) and the Federal Deposit Insurance Corporation, *inter alia*) bank supervisory role.

Prior to 1997, the Bank used to hold prudential interviews with the major banks involved in the payments (‘clearing’) system to discuss ‘liquidity adequacy’ on a case by case basis—uniform required liquidity (‘reserve’) ratios had long since been abandoned. There is a strong case for re-introducing a similar arrangement eventually at the EU level (involving the ECB) as cross border banking activity increases and for central banks to set liquidity requirements, whilst the FSA and its other EU equivalents set capital adequacy and provisioning requirements to cover non-liquidity risks.

The tasking of central banks to pursue the twin goals of monetary and financial instability requires that they have more than one policy instrument. It is clear that at times of heightened financial instability, they are reluctantly forced to cut interest

rates and often more and for longer than they think prudent. The money and capital markets seems to demand them to do so and, as a result, moral hazard is enhanced, along with the seeds of the next asset price inflation; leading ultimately to another bout of instability and another forced easing of monetary policy. To date, perhaps due to globalisation, the central banks have been lucky and an upward spiralling of inflation has not resulted. They worry that, if they do not get a grip this time round, they may not be so lucky next time round, given that energy prices have risen dramatically.

The risk related capital adequacy requirements of Basel 2 should be rigorously enforced to 'tax' risk taking both on and off balance sheets and liquidity requirements should be imposed in such a way that central banks are not forced to accept bank assets as collateral against the loans they in turn make to banks. To head off moral hazard, they should require banks to post only Treasury Bills as collateral, thereby forcing the banks to hold high quality (low income) reserves and imposing a tax on (liquidity) risk taking. Banking may become less profitable as a result, but so be it.

Finally, the central banks should heed the advice of their illustrious predecessor at the Fed, William McChesney Martin, who said that their job was to take away the punch bowl before the party gets started, never mind before the 'dancing' starts. In other words, they should act to curb asset price inflations, rather than wait for them to blow up into bubbles and having to clear up after they burst. Rather than provide the aspirin, they should act to prevent the hangover.

Banking crisis and prudential supervision: a European perspective

Paul J. J. Welfens

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The business of bankers, including investment bankers, has become strongly internationalized since 1985 when foreign investment started to grow considerably. This included FDI in the banking sector, which became one of the leading sectors in not only OECD countries but worldwide. The start of the euro and the ECB strongly stimulated internationalization in the eurozone in the sense that cross-border investment within the eurozone became more common than before. This was also within the context of globalization, however, which means that banks and other actors in the financial market increasingly invested outside the eurozone—most notably in the US which attracted large capital inflows; slow growth of loan markets, particularly in Germany, have stimulated banks' search for new investment opportunities abroad. The US financial market has boomed since the 1990s and recovered from the shock of September 11, 2001. In real estate markets there was a particular boom as real prices of real estate showed an annual increase of about 4% in the period 1995–2006—even close to 7% in 2006; the hike was 10% in nominal terms in 2005 (Riffart 2007).

What was to be the longest period of real price increases in the US housing market suddenly ended in mid-2007 when prices stagnated and even started to fall in some regions so that securities backed by real estate became doubtful assets. While the subprime market is only 10–15% of the mortgage market, it nevertheless triggered a serious credit crisis; indeed, a broad confidence crisis in the interbank market. Demyanyk and Van Hemert (2007) use a loan-level database for the US subprime mortgages and thus detect two major problems: In the period 2002–2007

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high loan-to-value borrowers increasingly became high-risk borrowers, in terms of elevated delinquency—defined as more than 60 days late and foreclosure rates. Lenders became aware of these problems and adjusted mortgage rates over time, and this weakening of house price dynamics in 2006/07 also had a negative impact on the performance of vintage 2006 loans.

In 2007 several European banks which had invested in the US real estate market faced sudden problems as did certain US mortgage banks and a few investment banks as well as some hedge funds. The broad expansion of asset-backed securities in the 1990s—helping banks to get credits off the balance sheet—contributed to the internationalization of financial markets whose dynamics have also been reinforced through exchange rate dynamics (Welfens 2007). The subprime crisis thus became a transatlantic phenomenon. From a European perspective, one can only be surprised how many US financial firms are unregulated, with about one-half of all US mortgage market players facing no serious regulation.

In the EU prudential supervision has broader coverage, but it effectively is a network of actors and rules which lack consistency and transparency as we will see; worse yet, while many EU countries are highly regulated the quality of prudential supervision is often poor for a very clear reason, namely lack of skilled personnel. Those working in regulatory agencies are poorly paid compared to both the regulatees and the banks. Under such circumstances one hardly can expect the regulatory agencies to keep up with financial innovations and to have a truly critical eye on a potentially unstable market. Switching sides can be observed often: those who have worked for the regulator switch to private banks, no stock of top expertise can be accumulated in regulatory agencies which remain unnoticed until stormy weather in financial markets emerge and a banking crisis unfolds. Within the narrow and modest remuneration framework of public services one cannot attract and maintain top supervisors; parliaments want cheap regulators but what they get is weak regulation and the need to foot a high bill through silent bailing out of ailing banks at taxpayer costs—the government owned KfW bank in Germany, which effectively bailed out IKB Deutsche Industriebank (in which it has a stake of about 1/3), is a prime example for this fallacy.

The costs of banking crises can be very high—both in terms of fiscal costs for the taxpayer and in terms of output lost—and this should give a strong incentive to set up standards and rules which help in avoiding major crises (Table 1). A counter-argument could be to point out that financial market crisis are highly complex and that assigning clear responsibility will be quite difficult. From the perspective of the New Political Economy, there is the problem that incentives to lobby for consistent, effective and efficient regulation is weak. If a crisis is looming weak banks have an incentive to hide problems and large banks with problems could even bet on effectively forcing the central bank to save them through expansionary monetary policy. Those chairmen of banks or funds who have to step down in the crisis were the heroes of aggressive short-term strategies in the early stage of the bubble; bank managers and fund managers with less risky and aggressive strategies would hardly have survived the first stage. This all leads to the question of why government is taxing financial market firms not on the double basis of profits and volatility of profits (instead of only focussing on profits): High sustained earnings could be subject to a lower tax rate than higher and more volatile earnings. Thus a reform of

Table 1 Costs of banking crises in selected OECD countries

Country	Period	Fiscal cost in % of GDP	Drop in output (% of GDP)
Australia	1989–1992	1.9	–
Finland	1991–1994	11.0	23.1
France	1994–1995	0.7	–
Japan	1992–	20.0	27.7
New Zealand	1987–1990	1.0	18.5
Norway	1987–1993	8.0	19.6
South Korea	1997–	26.5	16.5
Sweden	1991–1994	4.0	6.5
USA	1981–1991	3.2	5.4

Source: Honohan and Klingebiel (2003)

the tax system could encourage banks to emphasize more long term sustainable strategies. A solid reform would require adequate theoretical modelling and running simulations in various setups.

Prudential supervision of banks in particular and financial markets in general is crucial for the stability of market economies and a sound banking system in particular. Confidence in the banking system basically builds on five elements:

- Competition and private ownership in banking and insurance: financial firms are expected to be effective and efficient in financial intermediation and to compete against each other with standardized products as well as differentiated services and innovative financial products which all—except for private wealth management—may be considered intermediate products for other services and industry. If banking is a fully competitive sector, banks are competing on a level and transparent playing field. However, as the principle of home country supervision is applied in the EU and no bank is obliged to publish information about the relevant supervisor (changing in case of an international M&A), there is no real transparency.
- Depositor insurance: as individuals and firms know that certain amounts of deposits are fully protected—through an industry-wide insurance or a national “insurance system”—there is a very limited risk of a bank run. A potential actor here is the government, which could ultimately nationalize banks with serious problems while giving full depositor insurance to stop the potential danger of a bank run. Such intervention is rather doubtful since there is a serious moral hazard problem. Large banks could feel encouraged to engage in very risky investment strategies and bet on government bail-out which naturally occurs in line with the principle “too big to fail.” Thus the level playing field no longer exists. It is preferable to have insurance systems organized by the banking sector itself. For example, private banks as well as savings banks and cooperative banks have set up separate insurance systems in Germany.
- Profitability of banks as a buffer: profits as realized in competition are a crucial basis for raising equity capital which is a buffer against shocks in financial markets; here profit and loss statements and balance sheets should normally give depositors and investors clear information about the financial status of the bank—

- here problems of financial standards are crucial as well as risk valuation and disclosure rules: Prudential supervision normally takes a close look at the whole financial reporting system of banks, highlighting critical issues of accounting and imposing a minimum regulatory capital.
- Central bank: as the lender of last resort the central bank could inject liquidity into banks in periods of confidence crisis in the market—the sums often needed for only a few days are typically huge, but medium term monetary growth targets or inflation targets need not be damaged if the confidence crisis is overcome quickly. Lack of liquidity is a crucial potential knock-out problem in periods of a confidence crisis. Lack of confidence is partly related to insufficient information where risky positions really have been taken, and this points to the problem of inadequate disclosure rules in firms: The accounting standards established by the IFRS in London have created certain problems; indeed, the EU often has simply accepted new standards without taking an independent and critical look at those rules which are highly relevant for the single market and the global banking system in general.
 - All actors, namely prudential supervisors, the central bank and the government must cooperate swiftly in periods of crisis: otherwise there can be an ongoing downward spiral and massive negative international spillovers. In this respect the eurozone raises serious problems as only informal rules have been adopted (Veron 2007).

From experience with the Great Depression it is well known that stock market indices can sharply fall and this can have considerable negative real effects at home and abroad. Lack of liquidity and indeed a contractionary monetary policy were key elements behind this historical event. However, the 2007 transatlantic banking crisis shows that confidence problems can occur directly in the interbank market where asymmetric information problems and incomplete disclosure of financial positions naturally play a role.

Confidence is necessary in financial markets as a basis for transactions in markets; confidence is based on a mixture of experience of transaction partners and valid information as conveyed by balance sheets and other financial disclosure. Once confidence in one major bank is lost, there is a serious risk of a broader bank run which could destroy the banking system even if all banks are solvent—but the liquidity constraint has to be obeyed indeed at any point of time and in this context central bank's intervention might become necessary (as was the case in August and September in the US and the Eurozone; in the UK in September 2007 when Northern Rock faced a run; however, Northern Rock might be considered to have fallen victim to its overaggressive expansion strategy).

The creation of the EU single market has also included banking services and financial services in general so that some harmonization of prudential supervision in the eurozone is necessary to create a level playing field for competition. However, the eurozone has no comprehensive system of financial supervision and the ECB plays only an advisory role in various committees. Member countries are instead responsible for supervision and given the enormous variety of institutional arrangements, there is a real mess which does not become visible as long as financial markets face no major turbulence. While there is some cooperation among

EU member countries and a high degree of both informal coordination and harmonization, there are more than 100 national derogations, making it thus impossible to model and simulate the system.

The start of the Basel Committee of Banking Supervision at the Bank of International Settlements is marked by the aftermath of the bankruptcy of the Herstatt Bank in Germany in 1974. In Germany, the German Banking Law was also revised to prohibit banks from having any large open foreign exchange positions which had been—along with wrong exchange rate expectations—the reason for the Herstatt bankruptcy. The Basel I rules of 1988 laid an almost OECD-wide framework for prudential supervision and regulatory capital—an 8% equity ratio is required; Basel II went one step further by switching toward a more refined system in which minimum equity requirement is dependent on individual contracts. As such, one should get a more efficient market for both risk allocation and risk pricing.

Before the creation of the ECB and the eurozone, some observers were already critical of the consistency and effectiveness of future banking supervision in monetary union (e.g., Priesemann 1997). In practice supervision in the EU is a criss-cross of institutional arrangements. In the Netherlands, Ireland and the Czech Republic, the national central banks have a cross-sectoral supervisory authority. By contrast there is no formal activity in Belgium, Finland, Luxembourg, Denmark, UK, Sweden, Malta, Estonia, Latvia, and Hungary; there is some central bank activity in Germany and Austria, and there is full involvement in banking supervision in Italy, Portugal, Greece, Spain, Lithuania, Poland, Slovakia, Slovenia, Cyprus and France. To the extent that short-term interest rates should rise quickly in the EU and translate not least into higher interest rates for mortgages at flexibles rates—which are common in Spain, Portugal, Greece, the UK and some other countries—there is an incentive for central banks in the ESCB to advocate ECB liquidity injections in order to avoid undesired real interest rate shocks and hence negative effects on the real economy.

In 2004, the EU created the Committee of European Banking Supervisors (CEBS), which is the level 3 committee in the EU banking—this is part of a broader process dubbed the Lamfalussy Procedure. On level 1 the European Commission imposes framework directives such as that on Basel II. The technical implementation rules are on level 2 and involve various committees: the European Banking Committee (EBC), the European Securities Committee (ESC), the European Financial Conglomerates Committee (EFCC) and the European Insurance and Occupational Pension Committee, where the last is the only committee in which the European Central Bank is not an active observer. The Committee of European Banking Supervisors on level 3 is crucial for achieving consistent and convergent implementation of rule in the EU single market. Beyond progress in the common definition of the own funds of banks, the CEBS has not achieved much. There are still some 120 national derogations from “common rules,” which is quite surprising at least with respect to the eurozone, as Article 105 of the Maastricht Treaty mentions that “[t]he ECB shall contribute to the smooth conduct of policies...relating to prudential supervision of credit institutions and the stability of the financial system.”

Basel II was supposed to have been implemented by 2007, but several countries delayed full application of the rules. Germany is one of those countries for which the

supervisory agency (a federal agency called “BaFin”) allowed banks to postpone full implementation until the beginning of 2008. In summer 2007, two German banks faced serious problems. IKB Deutsche Industriebank, which is among the top 10 banks in Germany, and SachsenLB, a regional state-owned bank in Saxony/Eastern Germany, almost collapsed in the context of identical mechanisms. Special investment vehicles (SIVs) had been set up abroad, and in order to get top ratings for the SIV’s products, namely asset backed securities, the respective banks had given enormous credit lines which were called upon once the subprime crises in the US real estate market brought about serious problems in the commercial paper market in the US in mid-2007. Refinancing of SIVs relied heavily on the short-term commercial paper market.

The commercial paper market dried out in the US and Europe in August/September 2007; what used to be papers with 2–3 month maturity in spring of that year became very short term papers with maturities of below 1 week in September. Commercial papers were not only used by banks for refinancing long term investment—and earning high profits through intermediation and profitable exploitation of the yield curve—but are also used by many firms. With the collapse of the commercial paper market, many big banks were forced to activate large credit lines they had given to various funds in Europe and the US. As a consequence, major banks started to sell long term bank bonds which could, however, be placed in the market only at high interest rates. The interest rate in the short-term, inter-banking market which had been around 4.2% in spring 2007 increased in August/September to 4.8% in the eurozone, effectively amounting to a rise of the ECB interest rate by more than one-half of a percentage point.

Many banks—some in France, the UK and Germany as well as the US—closed certain investment funds based on asset backed securities in August 2007, and they did so in order to protect investors from suffering big losses. While having a stake in money market funds normally should have yielded about 4% interest rates, the value of an investment in such a fund stood at 90% of par value in mid-August in some banks in some EU countries. Certain banks decided rather to close the fund, effectively destroying the market for the respective funds, protecting on the one hand investors. On the other hand, they partly avoided taking depreciations in the bank’s balance sheet. It is doubtful that banks should be allowed to simply close down certain markets and in any case this shows how dangerous a broad loss of confidence in banking markets is. The main reason for this lack of confidence is the veil of ignorance about balance sheet information of banks and about the true allocation of risk through the sale of asset backed securities. As balance sheets—including the notes in the end—under present regulations give so little information about actual and future risk positions and since there is no consolidated international register of ABS products and credit lines, the confidence crisis is likely to go on for many months. If markets had clear indications as to where the risk is and which market prices are relevant for which asset, the confidence crisis could be overcome.

The British government gave the depositors of Northern Rock, facing a bank run, a government guarantee which is quite an unusual intervention, undermining both the role of the independent Bank of England and the banking supervisory agency, Financial Services Authority; the Securities and Exchange Commission has a critical eye on the issuance of residential mortgage-backed securities, but the overall

assessment of a bank's exposure obviously is rather fragmented even in the UK. While the European Commission had forced the German savings banks—owned by local government—to give up its traditional state guarantees because they would distort competition, the British government imposed such a guarantee for Northern Rock in order to avoid a broader bank run. The ad hoc interventions point to a serious crisis in both banking supervision and banking markets. Central banks in the US and Europe no longer seem able to control the money supply and instead have been forced by the market to intervene with massive injections of liquidity. Too big to fail has been a key consideration behind this intervention.

It is noteworthy that the IKB Deutsche Industriebank provides key insights on its own website in a 2005 brochure about failure to understand its own products: the Rhineland Fund, which the bank set up in the US is characterized as an absolutely risk-free short term investment for institutional investors. The state-owned KfW bank has a 37.8% stake in the troubled bank for which the German finance minister helped to organize a €3.5 billion bail-out fund in which the KfW and several private banks were involved in summer 2007. Another bail-out step became necessary in December; at the same time it became clear that the losses at Sachsen LB were much greater than expected in summer 2007. If Germany were to face a serious banking crisis in 2008/09 economic and political instability would be the result for Germany and the eurozone.

Some German banks even raised the stake in asset backed securities in 2006/2007 while emphasizing that more weight had been given to A-rated investments. There was, however, a fundamental failure of certain bank managers and some representatives of supervisory boards—often with a poor professional background—to understand that only investing/more investing in A-rated papers does not guarantee the absence of risk. Rather the contrary could be the case if a bank raises its stake in A-papers while not realizing the need for regional/international and sectoral diversification such that a high share of negatively correlated investment projects is effectively represented by the SIV. Research capacity in Economics and in Risk Management in certain banks was obviously rather weak, and previous cost-cutting activities which affected key fields of research (internal and external) turned out to be not well advised. While all firms quoted in the standard stock exchange—and naturally all banks are required to have an anticipatory risk management system—the crises of several German banks clearly showed serious deficits on the side of several top managers and of prudential supervision. The instabilities in Germany and the eurozone were, however, rather modest in comparison to the UK, where the high share of loans at variable interest rates implies a rather high exposure to interest rate shocks.

The Basel I rule has an 8% equity capital requirement and no provisions for contingency risk. However, it would be desirable for banks to have regulatory capital held against certain potential risks such as the lines of credit provided to special investment vehicles. Basel II has incorporated regulations for contingency claims in the sense that at least own capital of 1/5 of ordinary credits is required. In Germany, however, the federal regulator BaFin—which shares the task of bank supervision with Deutsche Bundesbank (which is the weaker part of overall supervision in Germany)—allowed banks implementing the EU's directive on Basel II in 2007 to postpone full application of the new rules until January 2008; thus policymakers

created part of the uncertainties themselves. BaFin argued that full implementation of Basel II in 2007 would overburden banks. It seems that BaFin's hesitancy in imposing the Basel II rules on time partly reflects the pressure of its supervisory body, in which representatives from the financial sector/banks garnish almost a majority. The BaFin's overall stance in prudential supervision is rather doubtful in key fields, and its long-standing lack of advanced research has certainly added to the low profile BaFin has shown. With a low profile and a rather weak reputation, the agency is not taken very seriously by banks, and this in turn is likely to have encouraged managers in some banks to adopt rather risky and sometimes indeed unprofessional investment strategies. Top bankers who have called for 25% rate of return on equity have implicitly argued—given a bond yield of 4%—that they are going to accept loan projects with an average risk premium of 21%. This will undermine confidence in banks in the long run.

In financial markets one finds, of course, all kinds of speculation, but it is unclear whether this is stabilizing or destabilizing speculation. In markets with a rather long term investment horizon, one may expect stabilizing speculation to a larger extent than in short term markets. There are long time series available for many variables, and medium term/long term modelling is known to be more reliable than short term modelling. The latter faces the problem that there is no broad set of macroeconomic data available on a daily basis. If one considers data on industrial production important elements for model-building and forecasting, one can only wonder about various products which offer a bet—such as stock caps—on the price of a certain stock at a certain day in the future. Generally, one may wonder about the uncertainties and risks associated with a strong tendency in some financial market segments to emphasize short-term contracts (in non-inflationary times).

To the extent that such short term speculation destabilizes international markets nationally and internationally, one should consider imposing two potential reforms:

- Higher minimum reserves for banks with a high share of financial market speculation on “daily products,” for example betting on own account or clients' account on the price of certain stocks or the foreign exchange rate on day X; this should not apply to staggered contracts on “one month products” (the average price of a stock market index during 30 days/1 months), since one could argue that financial market modelling based on monthly data has a much broader data base on the monetary and real economy than do models based merely on daily financial data. While one certainly can argue that day traders have a legitimate basis in a market economy since both sides of the market obviously have agreed upon concluding a contract, one must raise the issue as to how large a negative external effect such activities cause in terms of enhanced aggregate output volatility, reduced output growth, or a reduced level of per capita output. So far there is no empirical analysis on this, which does not imply however that the issue as such can be dismissed;
- A “Financial Pigou” tax on the respective short-term transactions, because such speculation creates negative external effects. Negative external effects in financial markets are unlikely to be less harmful than emissions in the field of environmental quality. Theoretically sound arguments apply whenever the field

is relevant. While more research is needed on short term speculation and its effects, it is rather likely that introducing a Financial Pigou tax in OECD countries could have positive welfare effects; if the β -factor in stock markets should decline, a rise of real stock prices in OECD countries could be expected, and this would stimulate investment and output expansion. The European Commission, which has established a reputation for institutional innovation with respect to CO₂ emission trading, should now consider the options of a Financial Pigou tax.

Banks which engage in strategies bringing about big losses should face the consequences of such losses. As part of prudential supervisory reform, however, one should consider that competition authorities/government can socialize banks with heavy losses and impose dismemberment and medium-term privatization. Market-based consolidation is, however, preferable to outright state intervention.

The more internationalized markets are, the more important cooperation in banking supervision will be. Here there is a serious lack and major challenge for reforms in both OECD countries and worldwide. As the structure of banks also affects the structure of industry (Elsinger et al. 2006), there is no doubt that major changes in European banks will also influence the structure of value-added and hence output growth and employment. Rapid reforms in supervision are required, and the European Commission, the EU in general and the ECB should take a lead here, as most EU member countries seem to be very hesitant and often even fail to recognize that there could be serious problems in the real economy ahead.

Taking a closer look at the enormous mixture of models of prudential supervision in the EU, one certainly should call for more harmonization of institutional setups. While one might argue that enhanced locations competition in the EU single market (and the eurozone in particular) and international benchmarking might bring about a certain learning process, reality shows that institutional reforms in prudential supervision are rare and characterized by a strong reluctance of large countries to learn from small, more successful countries, demonstrating thereby that endogenous institutional learning is a very imperfect mechanism.

As discussed above, we find in the EU full competences of the national central bank for supervision—for banks and insurance companies—in the Netherlands (enhanced role after the introduction of the euro and the ECB), Ireland and the Czech Republic. As regards banking supervision, national central banks have full competences in France, Italy, Spain, Portugal, Poland, Greece and Lithuania, Slovak Republic, Cyprus and Slovenia. There is a mixed system in Austria and Germany where several agencies are involved, including the national central bank. No formal involvement of the central bank in banking supervision is the model in the UK, Belgium, Denmark, Finland, Sweden, Malta, Estonia, Latvia and Hungary. Given the newly gained institutional independence of all national central banks of member countries of the eurozone—in the case of Germany and Austria, the respective central banks already enjoyed political independence prior to 1999—it would be wise to provide the national central bank of every member country in the eurozone with minimal competences in prudential supervision. Without such a reform, it is absolutely unclear how the eurozone can get a minimally-effective networked supervision in banking since the ECB has only a rather informal role. As soon as

the first major banking crisis hits a majority of eurozone countries, there will be enormous problems in coping with problems at hand if there is no well established institutional network spanning across member countries. Such a reform would add a new dimension for institutional reform in candidate countries of the eurozone. Productive reform would reinforce the long term position of the euro in competition with other major currencies and could also contribute to rising capital inflows into the eurozone.

Central banks' cutting of interest rates might help to avoid a major financial market crisis. However, the lessons should be learned in any case—a difficult challenge since once the heaviest storms in financial markets are over and headlines in the press look less gloomy, the incentive for policymakers to adopt thorough reforms weakens significantly. The European Commission would be wise to commission an independent report on prudential supervision in the EU; the ECB should present its own regular analysis of supervision in the Eurozone. Moreover, part of the EU budget should be allocated to prop up remuneration of prudential supervisors in the EU, since the Community has a fundamental interest in making sure that cross-border collateral damage of weak national supervision is avoided. Moreover, annual reports of the BIS should regularly take stock of regulatory developments and problems in the world economy. Getting the BRICs on board in the Basel Committee on Banking Supervision could also be an important step towards a rational global system of supervision. Finally, we need empirical research on relevant time horizons of investors. There are some indications that in a world of higher longevity and lower inflation—compared to the 1970s and 1980s—investors increasingly put emphasis on short term investment. This is a rather strange paradox, not only for those who prefer models in which individuals/firms maximize utility functions over infinite time horizons.

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Rethinking banking supervision in the EU

Holger Wolf

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As the long-standing attempt to create an integrated European banking market is showing signs of success,¹ the costs and benefits of the traditional reliance on national banking supervision—and the (de)merits of alternative arrangements—are receiving attention in a lively literature involving both practitioners and academics. While it is too early to draw conclusions, the current episode of financial distress will shed light on some of the issues involved.

The fundamental question is straightforward. Should the growing importance of banks that are multinational not only in terms of their asset base but also in their outlook and business models lead to a fundamental restructuring of supervisory arrangements? Or does the current system, combining reliance on national (mainly home) supervisors with minimum standards, mutual recognition and increasing coordination and information exchange across member-states remain preferable for the time being? If not, what are the alternatives, and the criteria on which decisions should be made?

A growing theoretical literature explores the implications of alternative regulatory and supervisory arrangements taking account of the interaction between institutional features, informational issues and incentives structures, *inter alia*.² This literature, exploring implications for both financial stability and efficiency, has yielded valuable insights into the tradeoffs involved in choosing between alternative

¹See ECB (2007) and Decressin et al. (2007), *inter alia*. The effect of increased integration on financial sector stability is less clear, reflecting offsetting channels including enhanced diversification opportunities, effects on risk taking and enhanced contagion channels. See for instance De Nicolò and Tiemann (2006).

²The literature is too voluminous to allow comprehensive citation. See for instance Vives (2001); Dell’Ariccia and Marquez (2001); Kahn and Santos (2004); Holthausen and Rønde (2004); Čihák and Decressin (2007); Berger and Hefeker (2007); Mayes et al. (2007), *inter alia*.

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arrangements in the regulatory and supervisory sphere. While many issues remain under discussion, it suggests that a system of national agencies faces significant challenges relative to a more integrated system in terms of both ensuring financial stability and efficiency. Cooperation and information exchange between national agencies—a core focus of European Union (EU) efforts—naturally reduces these problems. Important challenges remain however, in particular if incentives of national agencies are imperfectly aligned, be it because the structure of deposit insurance, burden sharing and lender of last resort arrangements, or because of competition between agencies.

At least to date, these concerns have not shifted the political consensus towards creating an institutionalized EU supervisory agency. Rather, there remains wide, though not unanimous, support for the further development of the current system of co-operation and co-ordination between national agencies coupled with multi-lateral Memoranda of Understanding covering relations between these agencies and the monetary and fiscal authorities of the member states, partly reflecting the past ability of the system to accommodate change, most recently in the context of the capital requirements directive. Of course, past performance is not a perfect predictor of the system's ability to deal with future shocks; the state of play must be periodically re-evaluated in light of both the continuing process of banking system integration and of concrete episodes, as is presently being done through the Inter-Institutional Monitoring Group, the Financial Services Action Plan and other review mechanisms.

A move to a more centralized structure would also require (economically and politically) difficult decisions on a number of controversial questions. First, what role should central banks play in the supervisory process? Current arrangements are highly diverse. Some member states have opted for separate supervisory agencies (albeit generally co-operating closely with the monetary authorities), while other member states place the supervisory function in the central bank. The (de)merits of alternative arrangements are by now the subject of a lively literature exploring the tradeoffs between the information advantages arguing in favor of central bank involvement (notably in assessing systemic risk) and the potential conflicts of objectives for central banks simultaneously charged with price and financial sector stability, arguing for a separate supervisor.³ Notwithstanding spirited debate and accumulating evidence, it would be hard to argue that the experience to date unambiguously favors one arrangement over all others (even assuming that deep differences in banking and financial sector structures across member states do not render the search for a single best system appropriate for all member states moot). Absent a central bank for all 27 member states, an EU supervisory authority would resolve this debate (at least for the time being) by necessity in favor of an institutionally free-standing supervisory agency.

Second, what role should monetary authorities play in the lender of last resort process? At present, both the lender of last resort and the supervisory responsibility rest predominantly at the same (national) level, creating an asymmetry between the 14 member states in which the national central bank sets both monetary policy and

³ECB (undated) provides a short overview of arguments.

holds the lender of last resort responsibility; and the 13 members of the Eurozone where monetary policy is conducted on the European Central Bank (ECB) level. While an attempt to resolve these issues and clarify the ECB's role has been made in the Memoranda of Understanding, the role of the ECB—and its relation to the central banks remaining outside the Eurozone would arguably have to be revisited in case of a move towards an EU level supervisor.

Third, crisis resolution and burden sharing arrangements would have to be revisited.⁴ At present, the national fiscal authority—and thus the national taxpayer—remains the *de facto* dominant source of bailout contributions for banks licensed in a particular member state. As there are no EU level funding sources that could assume this function, centralization of supervision would *de facto* grant an EU level agency a call on national tax resources through closure decisions, a call which, based on past banking crisis, might involve non-trivial amounts. An agreement on burden sharing arrangements may thus well be a pre-requisite to a centralization of supervision.

Fourth, while the focus of the preceding discussion has been on the banking sector proper, the increasing importance of financial conglomerates engaging in a broad range of financial activities and typically active across borders suggests that any spatial centralization decision would also have to address the broader question of cross-sectoral integration of supervision.⁵ A final issue concerns the interaction between any future EU supervisory agency and national supervisors. Two broad options can be considered. In the more radical scenario, the EU supervisory agency would replace the national agencies. This option has attracted little support, reflecting the simultaneous existence of large multinational banks increasingly pursuing an integrated European business strategy—the focus of efforts at aiming greater integration of supervision—and the large number of small banks often retaining a primarily national, and often regional or even local focus. For the latter group of banks, the traditional argument in favor of supervisory proximity remains strong. In consequence, any future EU supervisory agency would in all likelihood complement—rather than substitute for—the national agencies, requiring a clarification of areas of responsibility.

A move to centralized supervision would thus not take place in an isolated setting but involve difficult decisions on a range of associated issues. Beyond these challenges, a pragmatic learning argument can also be made in favor of retaining the current system for the time being. As the literature emphasizes, supervisory arrangements—both in terms of the institutional structures and in terms of supervisory philosophy and approaches to specific issues—remain highly diverse. An adjustable system of co-ordinated national supervision retains the benefit of learning from the experience under alternative arrangements that would be at least reduced in the case of moving towards a single system.

The debate is thus today at a challenging point. On one side are tensions between an increasingly integrated EU banking system and a system of national, albeit co-operating, supervisors, with implications for financial stability and efficiency. In

⁴See Freixas (2003); Goodhart and Schoenmaker (2006); Mayes et al. (2007) for a discussion of the issues involved.

⁵An extensive discussion of the issues arising in the supervision of financial conglomerates is provided by Holopainen (2007).

principle, these concerns could be resolved or at least mitigated through a move to an EU level supervisor consistently applying a single consistent standard across (the subset of multinational) banks in all member states. Yet while the idea of an institutionalized EU supervisory agency remains an active component of the literature, it has so far failed to gain decisive traction, perhaps for the reasons outlined above. The dominant view continues to favor evolutionary change of the current system; leaving open the possibility of an eventual move towards an EU level supervisor (for a subgroup of banks or conglomerates) but not predicating it, nor its form and embeddedness in the broader financial structure. Among the rich set of issues arising in this effort at improving the quality of and reducing the challenges posed by the existing system, a few deserve particular mention.

First and foremost, the progress towards reducing the efficiency and incentive problems associated with a system of national supervisors—notably for multinational banks with branches and/or subsidiaries in different member states—through a clearer definition of the respective responsibility and authority of the agencies involved in the supervision of multinational banks is welcome and should be continued. A variety of (not always exclusionary) options are available, including further development of the discretionary approach building on the bilateral Memoranda of Understanding on a case by case basis; the lead supervisor model advocated by the European Financial Services Roundtable; a movement to a European System of Financial Supervisors (Schoenmaker and Oosterloo (2006)) and the introduction of a “European Banking Charter” as a voluntary n+1st regime (Čihák and Decressin (2007)).⁶

In general, changes falling short of a single EU supervisor are likely to favor a greater role of the home supervisor coupled with mechanisms designed to incorporate the externalities created in other member states (Schoenmaker and Oosterloo (2006)). Significant obstacles related to divergent legal frameworks and other issues must however still be overcome to reap the full benefit of a more streamlined supervisory process for multi-national banks (Kager (2006); Fonteyne and van der Vossen (2007)); furthermore, the creation of such arrangements raises the issue of maintaining a level playing field between purely national and multinational banks.

Second, the challenges created by the mismatch between multinational banks and national supervisors can be reduced by directly tackling some of the more problematic issues, notably developing efficient ex ante burden sharing arrangements (Goodhart and Schoenmaker (2006)).

Third, the current period of financial distress—with several EU banks affected by exposure to the US sub-prime market—illustrates the need to complement efforts at advancing the quality of supervision in the EU with continued efforts at improving trans-Atlantic co-operation, building on the Regulatory Dialogue on Financial Markets. It remains to be seen whether the Transatlantic Economic Partnership will provide a productive framework.

In conclusion, while the case for centralized EU supervision is strengthening as banking system integration proceeds, in the short to medium term improvement of

⁶Excellent comparative analytic discussions of alternative arrangements are provided in Schoenmaker and Oosterloo (2006) and Fonteyne and van der Vossen (2007).

the current system of co-ordinated national supervision appears to be a more realistic and promising avenue. Of particular importance in this regard are efforts to establish simplified supervisory arrangements incorporating input from the affected parties while avoiding duplication; further clarification of the role to be played by the ECB; development of burden sharing arrangements and enhanced transatlantic cooperation. Changes along these avenues stand to improve the effectiveness of the current arrangements while at the same time retaining the option (and reducing the transition cost) of moving to a centralized system at some future time. A post-mortem of the current episode of financial distress, including the adequacy of the information flow between supervisory agencies and the efficacy of the bilateral and multilateral Memoranda of Understanding promises to shed further light on many of the issues discussed above.

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