

STRENGTHENING FINANCIAL INFRASTRUCTURE
Deposit Insurance and Lending of Last Resort

Two papers by

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Contents

INTRODUCTION	5
DEPOSIT INSURANCE IN THEORY AND PRACTICE	7
by Richard Dale	
Introduction	9
Section 1 The Case for Deposit Insurance	11
Section 2 Deposit Insurance and the Moral Hazard Issue	13
Section 3 Lessons from the US Experience with Deposit Insurance	21
Section 4 Deposit Insurance in the European Union	25
Section 5 Deposit Insurance in Japan	29
Section 6 Summary and Conclusion	33
References	35
LENDING OF LAST RESORT AND SYSTEMIC STABILITY IN THE EUROZONE	39
by Franco Bruni and Christian de Boissieu	
Section 1 Introduction: an ‘inconsistent triangle’ in banking and financial policies	41
Section 2 Padoa-Schioppa’s view	43
Section 3 A critique	45
Section 4 Constructive ambiguity	47
Section 5 Other LOLR euro-policy issues	49
Section 6 Minimising LOLR: euro-regulation	51
Section 7 Minimising LOLR: euro-supervision	53
Section 8 Minimising LOLR: ‘prompt corrective action’	55
Section 9 Conclusion	57
References	59

Introduction

Bank stability and systemic stability are old issues in banking. There have been many financial crises in economic history, and the painful consequences of those crises have again and again raised questions concerning how to avoid them and how to protect depositors against losses.

The authors of the two papers in this SUERF study have analyzed two ways to strengthen the financial infrastructure: Deposit insurance and Lender of Last Resort. In the first paper, Richard Dale gives an overview of the theoretical arguments for and against deposit insurance systems. Such systems can be motivated by consumer protection considerations or by the intention to increase financial stability. When depositors are protected against losses, bank runs are less likely. Protection implies risk reduction. Risk has, however, an important role in creating market discipline. Deposit Insurance systems therefore cause moral hazard problems. People and institutions behave differently when they can disregard risk. This applies in particular in relation to institutions potentially covered by a 'Too-Big-To-Fail doctrine.' In the final sections of the paper, Dale looks at the evidence. The US and the Japanese experience demonstrates that even the behaviour of big and sophisticated market participants is affected, when they are convinced that they are protected against losses.

In the second paper, Franco Bruni and Christian de Boissieu analyze the framework and need for the lending of last resort function in the Eurozone. They point out that so far nothing has been decided with respect to the division of responsibility to make decisions and to take action regarding this function as between the European Central Bank (ECB) and the national central banks (NCBs). They give an account of Padoa-Schioppa's view on regulation, supervision, and crisis management in the Eurozone. They support his view that the lender of last resort function must be confined to play a minor role and that it must be handled with some 'constructive ambiguity.' However, they see a greater need for substantial reforms in order to ensure that this minor role is sufficient. The authors would like to see an acceleration of the adoption of common euro-wide standards for supervision and the establishment of an institution along the lines of a 'European Observatory of Systemic Risk'. Furthermore, they recommend that the authorities should be prepared to take action before a financial crisis develops. The authorities should be able to close banks before they become insolvent, if they do not comply with special obligations.

Read together the two papers give the reader useful insights into the continuing debate about how to make the financial infrastructure in Europe more robust in the future.

Morten Balling

DEPOSIT INSURANCE IN THEORY AND PRACTICE

Richard Dale

Introduction*

In 1959 Milton Friedman asserted that the introduction of US federal deposit insurance after the bank crisis of 1929-33 was 'the most important structural change in our monetary system in the direction of greater stability since the post-Civil War tax on state bank notes' (Friedman 1959, p.21). Thirty-two years later the US Treasury, in the aftermath of another US financial crisis, concluded that deposit insurance was at least partly to blame (US Treasury 1991, p.I-II):

'Events have demonstrated that some criticisms levelled in the 1930s against the idea of federal deposit insurance had considerable merit. The system has subsidised highly risky, poorly managed institutions. These institutions have exploited the federal safety net by funding speculative projects with insured deposits. The resulting costs have been borne by well-run institutions and by the tax-payers.'

Outside the United States, recent experience with deposit insurance has also been mixed. On the one hand, in response to intensifying banking disturbances in developed and developing countries, more and more governments have introduced formal deposit insurance schemes: of 72 systems recently surveyed by the IMF no less than 50 had been introduced in the 1980s and 1990s (Garcia 1999). Yet an IMF study of banking crises around the world, covering the period 1980-97, concludes that 'explicit deposit insurance tends to be detrimental to bank stability' (Demirguc-Kunt and Detragiache 1999, p.20).

Against this background the present paper focusses on the relationship between deposit insurance and systemic stability in the banking system. The first section examines the nature of bank fragility; section two explores the relationship between moral hazard and deposit insurance; sections three, four and five examine deposit insurance policies in the US, the European Union and Japan; and the final section provides a summary and conclusion.

* The author wishes to acknowledge the helpful comments of Christian de Boisseau on an earlier draft of this paper.

Section 1 The Case for Deposit Insurance

Deposit insurance may be justified on two separate grounds, namely the protection of depositors and the prevention of bank runs. The former may be viewed as an aspect of consumer protection and is linked to the presumed inability of ordinary depositors to monitor the riskiness of banks in which they place their funds as well as the potentially severe cost of deposit losses to individual savers. Of course, given the political sensitivity of losses arising from bank failures, formal deposit insurance may also be used to limit the payout to depositors in a situation where there would otherwise be demands for full compensation.

The consumer protection rationale for deposit insurance will not be further considered here. However, it is important to recognise that to the extent retail depositors are insulated from bank solvency risk, there are unavoidable moral hazard problems of the kind discussed below.

The financial stability rationale for deposit insurance is more troublesome – and certainly more controversial. In order to understand the issues here it is necessary first to refer briefly to the debate on the fragility of banks. In the context of this debate it is possible to identify two polar views:

1. George Benston and George Kaufman are associated with the idea that the private banking and payment systems are not inherently unstable (Benston and Kaufman 1998). They argue that ‘banking appears to be no more unstable than most other industries’, that ‘the cost of individual bank failures is relatively small and not greatly different from the failure of any non-bank firm of comparable importance in the community’, that ‘[lender of last resort] loans to individual banks are neither necessary nor cost effective’, and that ‘the potential for all bank panics is reduced to almost zero when central banks act intelligently’.

The Benston-Kaufman view draws on Kaufman’s analysis of the evidence on bank contagion (Kaufman 1994). According to his study ‘bank runs appear to be bank-specific and rational’, ‘the failure rate for banks [1870-92] has on average not been greatly different from that for non-banks’ and ‘there is no evidence to support the widely held belief that, even in the absence of deposit insurance, bank contagion is a holocaust that can bring down solvent banks...’.

The Benston-Kaufman approach suggests that in the absence of federal deposit insurance prudential regulation of banks is unnecessary and that the need for regulation arises only from the moral hazard generated by such insurance.

2. The more general view, at least among policy-makers, is that banking is inherently fragile. This alleged fragility is based on banks’ maturity transformation services, the fact that banks’ main asset class (commercial loans) is worth less in liquidation than on a going concern basis and the opacity of banks’ loan portfolios. Given these bank characteristics, depositors have a (rational) propensity to run at the first sign of trouble. Furthermore, if the liquidation value of a bank’s assets is worth less than the value of its liquid deposits a deposit run can be quickly transformed into a solvency crisis – thereby providing a rational basis for runs even against healthy banks. Within such a framework individual banks are vulnerable to sudden collapse and bank failures become highly contagious, thereby exposing the financial system to the risk of

depositor panics. Proponents of this fragility theory can draw support from some of the US literature on bank contagion (e.g. Temzelides 1997) as well as the recent financial crisis in South East Asia.

If banks are inherently fragile, then ‘banks left to themselves will accept more risk than is optimal from a systemic point of view’ (Feldstein 1993) and there is a case for prudential bank regulation even in the absence of deposit insurance. In this context it may be noted that federal bank regulation preceded the introduction of US federal deposit insurance in 1934.

In summary some would deny that banks are inherently fragile and therefore reject the need either for deposit insurance (on systemic grounds) or for prudential bank regulation; and there are others (the majority) who also believe that because banks are fragile it is desirable in the interests of financial stability to protect depositors and thereby prevent contagious bank runs. But although there may be disagreement on this key issue there is a consensus view that once deposit insurance is introduced – whether for consumer protection or systemic reasons – government regulation is necessary to curb the excessive risk-taking that would otherwise be encouraged by banks’ access to risk-insensitive deposit funding. The issue of moral hazard and the measures needed to counteract it are discussed in the following section.

Section 2 **Deposit Insurance and the Moral Hazard Issue**

Deposit insurance can stabilise a bank's deposit base, and discourage contagious bank runs to the extent that it offers the assurance that depositors will be repaid in full and in a timely manner. On the other hand, while preventing bank runs, deposit insurance creates a new source of potential instability. If depositors know that they will be repaid, they will require no risk premium on their funds and banks, being able to borrow at a risk-free interest rate, will have an incentive to incur greater risks (and corresponding higher returns) than would otherwise be the case. In other words deposit insurance undermines financial discipline by subsidising risk-taking. The end result of deposit insurance may therefore be a banking system characterised by excessively risky assets, a high incidence of insolvency and heavy claims on the deposit insurance fund and (ultimately) the tax-payer.

This moral hazard effect of deposit insurance has been verified by empirical studies. In particular, it has been shown that low-capital banks that decided to increase asset risk also increased the value of their shares (Brewer 1995). In the words of Calomiris:

‘... institutions taking advantage of the subsidisation of risk offered by deposit insurance were creating value for their stockholders and were perceived as doing so in the stock market’ (Calomiris 1997, p.10).

If the destabilising impact of moral hazard outweighs the stabilising effect of preventing bank runs, the net effect of deposit insurance may be to increase systemic risk within the banking system. In this context evidence from the US suggests that federal deposit insurance has been associated with a lower rate of bank failures, after controlling for external shocks to the banking system, such as oil price shocks and agricultural depressions (Cottrell, Lawlor and Wood 1995). This conclusion does not mean that moral hazard has been absent – only that it has not been sufficient to offset the stabilisation of the deposit base associated with the introduction of federal deposit insurance.

In contrast, a recent IMF study of bank crises around the world concludes that the presence of deposit insurance makes bank problems more likely. In the words of the authors:

‘While explicit deposit insurance should reduce bank fragility by eliminating the possibility of self-fulfilling panics, it is well known that it creates incentives for excessive risk-taking by bank managers (moral hazard). Our evidence suggests, that in the period under consideration, moral hazard played a significant role in bringing about systemic banking problems, perhaps because countries with deposit insurance schemes were not generally successful at implementing appropriate prudential regulation and supervision, or because the deposit insurance schemes were not properly designed.’ (Demirguc-Kunt and Detragiache 1998, pp.83-84.)

The clear implication of the IMF study (confirmed in the authors' more comprehensive 1999 analysis of bank crises) is that the combination of financial liberalisation, which increases opportunities for risk-taking, and poorly structured deposit insurance is a dangerous cocktail. Put another way, deposit insurance can be a powerful force for stabilisation or destabilisation depending on the incentives built into the particular insurance scheme and the back-up prudential regulatory arrangements.

The moral hazard effects of deposit insurance may be neutralised through (a) design features within the scheme itself, (b) other regulatory initiatives aimed at curbing excessive risk-taking and/or (c) the use of ‘incentive-compatible’ techniques for handling troubled banks.

So far as the design of deposit insurance schemes is concerned there are three aspects to be considered, namely the coverage of the scheme, the pricing of the insurance and the funding and payout arrangements.

The generally accepted view is that in order to combat moral hazard as it affects depositors, it is necessary to expose at least some categories of depositor to a degree of default risk. Depositors will then demand a risk premium on their funds; they will have an incentive to monitor the riskiness of institutions with whom they place their money; and they can be expected to vary the deposit risk premium to reflect the particular risk characteristics of individual banks. Faced with a cost of funds that is positively related to the level of risk, banks (so it is argued) will then curb their risk-taking to a more acceptable level. The idea here is to strike a balance between the threat of bank runs on the one hand and destabilisation via excessive risk-taking on the other, by exposing depositors to a limited degree of risk. The various options available to achieve this kind of compromise can be classified as follows:

1. *Insurance cut-off based on deposit size*

Under this regime, smaller depositors are protected in full, while depositors in excess of the cut-off point are exposed to default risk to the extent of the excess or not protected at all. The idea is to concentrate protection on those (smaller) depositors who are least able to assess a bank’s financial condition while relying on sophisticated wholesale depositors to provide an element of market discipline. Such a policy may well serve a consumer protection purpose but it is difficult to reconcile with the goal of avoiding bank runs. This is because large depositors are at least as likely to run as retail depositors (Goodhart 1995).

2. *Co-insurance involving a percentage insurance cover*

Here the depositor bears some standard proportion (e.g. 25%) of any deposit loss, thereby giving all depositors an incentive to monitor the riskiness of banks with whom they place their funds. However, since it is virtually costless to transfer funds between banks, the prospect of *any* loss will presumably be enough under this regime to induce depositors to run. Furthermore, it may be doubted whether small depositors are in a position to fulfil an effective monitoring role.¹

3. *Insurance cut-off based on maturity of deposits*

Another possibility is to identify the types of deposit most vulnerable to runs and to confine insurance to these. Since ‘runnable’ deposits are essentially demand or short-term liabilities, this would imply a cut-off based on deposit maturity. However, this approach is open to the objection (*inter alia*) that it would encourage banks to shorten

¹ The UK Financial Services Authority (FSA), in a recent review of deposit insurance in the UK, commented as follows:

‘... initial research suggests that consumers’ general awareness of compensation arrangements is very low and that it is not a factor to which consumers attach much significance when making savings or investment decisions ... which might suggest that the incentive of the co-insurance element in the existing schemes is limited’ (FSA 1999, p.16).

their liabilities and increase their maturity mis-match in order to maximise the volume of insured depositors.

Clearly, any benefits to be gained from exposing depositors to default risk will be lost if uninsured deposits are protected de facto beyond the de jure insurance limits and such protection comes to be relied upon. This point is discussed below in relation to the resolution of failed banks.

However, a situation may arise when a national banking system is threatened by widespread solvency problems extending to the core banking sector due to a general collapse in asset values. Here there may be a case for overriding normal deposit insurance limits and moving temporarily to 100% deposit insurance coverage, pending restructuring of the banking system. This was done in Finland and Sweden during the 1990's Nordic bank crisis and similar emergency regimes currently prevail in Japan, Mexico, Turkey and several countries in South East Asia (Garcia, 1999). Such crisis arrangements may be considered necessary to prevent disruptive deposit transfers between banks, from bank deposits to currency and/or from domestic to foreign banks (leading in Japan's case to the so-called 'Japan premium' in the inter-bank market – see Section 5 below).

Finally, on the issue of deposit insurance coverage, most commentators and policy-makers appear to believe that there is a 'balance' to be struck between the need on the one hand to combat moral hazard and on the other to prevent panic deposit withdrawals. However, it may be argued that any risk exposure that is sufficient to induce effective market discipline will also be sufficient to induce deposit withdrawals from a bank that becomes (justifiably or unjustifiably) suspect. This consideration has led some authors to conclude that 100% deposit insurance may be preferable to partial coverage (see e.g. Diamond and Dybvig 1986). At the other end of the spectrum there are those who believe that the moral hazard consequences of deposit insurance cannot in practice be neutralised: according to this view such schemes are necessarily destabilising and their role should therefore be limited to de minimis protection of retail depositors (e.g. Richard Kovacevich, in FDIC 1998, p.63).

The second design feature of deposit insurance that may be used to combat moral hazard is that of pricing – which affects the behaviour of banks rather than depositors. It is generally recognised that flat rate deposit insurance premiums result in a cross-subsidy from low-risk to high-risk institutions and that such a regime has the dynamic effect of promoting risk-taking. In an ideal world insurance premiums would be based on the risk characteristics of each institution. It might then be possible to set variable charges that replicated the market risk premium that a bank would have to pay on its deposit liabilities in the absence of deposit insurance. The moral hazard associated with deposit insurance could then be neutralised entirely without the need for other remedial actions.

There are, however, two problems here. First, a tariff of insurance premiums based on default probabilities would jeopardise the survival of the riskiest institutions. In the words of a recent IMF study already referred to:

'a degree of subsidy is inherent in insurance. If premiums were to precisely represent a bank's risk to the fund, they would become prohibitively expensive for already weak institutions' (Garcia 1999, p.12).

Second, and more important, the riskiness of individual banks cannot be assessed *ex ante* with any precision. It follows that 'so long as deposit insurance premiums do not fully reflect asset risk choices by banks, bank profits will be an increasing function of asset risk' (Calomiris 1997, p.24). Accordingly, it will always be necessary to enlist the support of regulation and supervision to combat moral hazard.

Even so, risk-based deposit insurance can make an important contribution to stabilisation. The question is whether risk assessment is for this purpose best undertaken by the regulatory authorities or by the market itself. This is a matter of academic debate: on the one hand regulatory authorities may have the benefit of inside information on banks which cannot be readily made available to the market; on the other hand markets may be supposed to have the advantages self-interest and perhaps greater skill in the assessment of default risk. If the market approach is preferred deposit insurance premiums may be linked to the observed default risk implicit in the market yield on uninsured subordinated debt (Calomiris, 1999). Alternatively, premiums could be based on the risk classifications of credit rating agencies, in much the same way that credit ratings have been incorporated into the Basle Committee's latest proposals for risk-based capital requirements (BIS 1999).

Finally, the design of any deposit insurance scheme must include appropriate funding and pay-out arrangements. On the funding side depositor confidence will be maximised if the scheme is (a) fully funded according to some specified target (e.g. expressed as a percentage of insured deposits) and (b) backed by access to government funds (in this context both private and state insurance schemes have a mixed track record in the US). On the payment side, it is important that compensation be immediate or within a matter of a few days. If insured depositors cannot rely on prompt pay-outs, confidence will be undermined and the banking system will remain vulnerable to panic deposit withdrawals and contagion. On the other hand the more credible the safety net, the greater is the danger of moral hazard.

As indicated above, even a carefully designed deposit insurance scheme cannot itself cope adequately with the problem of moral hazard. Therefore there is a continuing role for bank regulation and supervision. Put another way, regulation substitutes for an imperfectly constructed insurance system and any study of deposit insurance must take account of the appropriate level of regulation and supervision (Fratianne 1995).

In practice there are three broad approaches to bank regulation: (a) direct regulatory constraints on risk-taking; (b) arrangements to ensure that those who are in a position to influence a bank's behaviour have incentives to contain risk and (c) measures aimed at strengthening the financial infrastructure so that individual bank failures may be more readily absorbed without systemic consequences.

So far as curbs on risk taking are concerned, the most important mechanism is the Basle Committee's risk-based capital adequacy framework. However, the privileged risk-weighting accorded to interbank credit risk (20% as against 100% for non-bank commercial credits) arguably accentuates the moral hazard problem by treating banking as a protected sector and failing to restrict interbank counterparty risk which is a major factor contributing to 'too-big-to-fail' (TBTF) concerns (see below).

Another approach to neutralising moral hazard through regulation is to increase the risk exposure of those who are in a position to influence a bank's behaviour. The relevant stakeholders here include shareholders, managers, employees and general creditors/subordinated debt holders (the role of depositors has already been considered).

Since bank shareholders are shielded by limited liability, they may choose to adopt a high risk/high return bank-lending strategy, while restricting their own risk exposure through high leverage (i.e., a low capital/assets ratio). In order to contain shareholders' risk incentives, regulators can – and do – impose a minimum ratio of equity to total bank assets. This capital adequacy requirement not only increases a bank's capacity to absorb risk, but also ensures that shareholders stand to lose more than they would in the case of a highly leveraged institution. Shareholders' incentives to undertake high-risk activities are thereby curbed.

Senior management is perhaps a more relevant target for regulators and in this context the UK Financial Services Authority has recently proposed that individual directors and senior managers of banks and insurance companies should be held personally liable and fined for management failures, with penalties in proportion to the level of blame (Mackintosh 1999). Concerns about the incentives faced by employees have focussed on the role of profit-related bonuses which were an important feature in the Barings collapse (Dale 1996).

The main policy debate on stakeholder incentives has, however, focussed on the role of subordinated debt and its possible use as a device for enforcing market discipline on banks. Charles Calomiris, in particular, has demonstrated how in practice the risk premium on uninsured subordinated debt might be used as a measure of the riskiness of individual banks and therefore as a basis for pricing deposit insurance, applying differential capital charges to banks' asset portfolios and triggering other forms of regulatory intervention (Calomiris 1999).

The third regulatory approach to ensuring systemic stability in the presence of moral hazard seeks to limit contagion by strengthening the financial infrastructure and reducing interbank counterparty risk. The perception behind this approach is that the potential for financial contagion is due largely to concentrated interbank counterparty exposures in payment and settlement systems, interbank credit and OTC derivatives markets (Mark Flannery in FDIC 1998, pp.118-124). If solvency-threatening counterparty exposures can be avoided through appropriate regulatory action, then contagion in general, and the TBTF problem in particular, may be largely eliminated and banks can be allowed to fail without system-wide consequences. Indeed if such an approach were truly effective, it would do away with the need for other forms of prudential regulation, with banks being treated like other firms from the point of view of exiting the industry.

The moral hazard consequences of deposit insurance are also affected by the way in which supervisory authorities handle troubled banks and resolve failing banks. The key considerations here are that weak banks should not be given the opportunity to gamble at the insurance fund's expense; that regulatory authorities should be discouraged from exercising 'forbearance' in relation to failing institutions (which too often results in ballooning losses); that failed banks should be resolved in a manner that exposes uninsured depositors and general creditors to loss; and that 'too-big-to-fail' concerns should not be allowed automatically to prevent the closure of large insolvent institutions.

One approach to meeting these policy objectives is what Benston and Kaufman refer to as ‘structured early intervention and resolution (SEIR)’ (Benston and Kaufman 1998). The idea here is that there should be a graduated regulatory response to the deterioration in a bank’s financial condition designed to mimic the discipline that the market itself would impose in the absence of deposit insurance. Measures called for by SEIR include:

- prespecified, publicly announced responses by regulators triggered by decreases in a bank’s capital ratio below stated thresholds;
- mandatory resolution of a capital-depleted bank at a prespecified point where capital is still positive; and
- market value accounting and reporting of capital.

The intended effect of these measures is to reduce moral hazard as it affects banks’ behaviour while also curbing regulators’ propensity to exercise forbearance by enforcing a bank closure rule when capital is severely depleted.

It is also important that bank failures be resolved in a manner that does not routinely give protection to uninsured depositors and (even less desirably) general creditors/subordinated debt holders as well as insured depositors. A policy of de facto protection for all depositors was indeed widely blamed for destabilising the US domestic banking system in the 1980s, leading to reforming legislation in 1991 (see Section 3 below). Statutory constraints on regulatory authorities designed to discourage open-ended official support for depositors in failing banks can therefore be viewed as another important element in any regulatory package aimed at combating moral hazard.

Furthermore, if subordinated debt is to play a key disciplinary role as suggested by some commentators (above) it is crucial that the risk premium incorporated in the yield on such debt should reflect fully the market’s perception of the issuer bank’s default risk. Accordingly the debt must be ‘credibly uninsured’ and for this to be achieved it might be necessary to explicitly disallow by law any payments to subordinated debt holders in any officially assisted resolution of a failed bank.

Finally, there is the vexed issue of how to deal with very large banks – that is the TBTF problem. Clearly, any policy based on a (controlled) risk exposure for depositors/creditors cannot operate efficiently if core banks are perceived to be free of default risk. Indeed, such an approach would confer considerable competitive advantages on larger banks while failing to curb their propensity for risk-taking – a recipe for a highly concentrated but also highly unstable banking system.

Some would argue that TBTF is a problem largely created by supervisory authorities themselves and that the failure of even the largest banks could in practice be absorbed without systemic problems (the bailout of Continental Illinois is cited as an example of mistaken official intervention – see Kaufman 1994). The answer here is a limitation on regulators’ discretionary powers in handling bank failures.

Others maintain that if the financial infrastructure – in the form of payment and settlement systems – is robust and contagion is prevented through strict regulation of counterparty risk (particularly interbank exposure) then system-wide problems can be avoided even in the event of large bank failures (see Hoenig 1996, Mark Flannery in FDIC 1998). It has also been suggested that if uninsured depositors are to be protected through a TBTF assistance package, there should be an explicit limit on this protection

so that *some* proportion (e.g. 20%) of uninsured deposits would be put at risk (Gary Stern in FDIC 1998, p.110). The idea here would be to combat moral hazard while containing the spillover effects of a big bank failure.

In summary, the way in which troubled and failed banks are handled crucially affects market incentives and therefore moral hazard behaviour. The SEIR approach is directed at the incentives facing banks while failure resolution techniques, including the approach to TBTF, affect the incentives of uninsured depositors and general creditors. At the same time the agency problems associated with regulatory forbearance and TBTF may be addressed through restrictions on regulators' discretionary powers. Through appropriate mechanisms, therefore, the responses of all relevant actors – banks, depositors, general creditors and regulators – can be influenced in a way that strengthens market discipline.

One important unresolved issue is the extent to which the regulatory initiatives categorised above – whether involving the design features of the deposit insurance system, the direct regulation of risk-taking, or the handling of troubled/failed banks – should be viewed as complementary or substitutes. For instance, can moral hazard be effectively dealt with through incentives alone? Or can risk-related deposit insurance and risk-related capital adequacy requirements be substitutes for one another?

There are no easy answers to these questions except, perhaps, to say that moral hazard is such a powerful force distorting market behaviour, that it may be desirable to use a variety of regulatory techniques as well as market incentives to neutralise its destabilising effects. The most persuasive view is that in the presence of deposit insurance, private markets can never adequately penalise banks for risk-taking and that there must therefore be an alliance between government regulation and private market regulation (Calomiris, 1999, p.34).

Section 3 Lessons from The US Experience with Deposit Insurance

The history of US deposit insurance is particularly important because the US has much the longest experience of operating a formal deposit insurance scheme. The US chronology can be summarised as follows:

1. Between the mid-nineteenth century and the early 1940s the capital (equity to assets) ratio of the US banking industry fell progressively from around 50% to a range of 6% to 8%. This prolonged period of declining capital ratios is associated with major regulatory initiatives, notably the National Banking Act of 1863, the creation of the Federal Reserve in 1914 and the creation of the Federal Deposit Insurance Corporation (FDIC) in 1933. The capital trend may be viewed at least in part as the market's response to the establishment of a federal safety net for banking and therefore as a classic example of moral hazard in action.
2. Although federal deposit insurance was subject to a (periodically adjusted) size limitation, the FDIC's policy from 1933 though 1982 was to resolve failing banks by arranging assisted mergers, thereby protecting all depositors whether insured or uninsured. Accordingly in the 620 bank failures recorded in 1933-82, 99.8% of all depositors had their deposits paid in full and 98.9% of all deposits were recovered. Therefore deposit insurance had in effect become comprehensive.
3. The FDIC had become concerned by the early 1980s that the policy of de facto 100% deposit insurance was undermining market discipline and possibly encouraging excessive risk-taking. Accordingly the agency developed a 'modified pay-off' experiment which involved a pay-off of insured depositors and other creditors based on anticipated collections from a failed bank's receivership. This procedure, which exposed uninsured depositors to default risk, was used in early 1984 but then cut short by the Continental Illinois crisis – the handling of which gave further credence to the TBTF doctrine. Indeed, because of the FDIC's concerns in the wake of Continental Illinois that TBTF imposed a competitive disadvantage on smaller banks, it thereafter deliberately adopted failure-resolution methods that protected all depositors and bank creditors whenever feasible. Accordingly in the period 1985-1990, which involved the highest number of US bank failures since the 1930s, over 99% of uninsured deposits with failed banks were protected.
4. By the end of the 1980s several studies had identified poorly priced and structured deposit insurance as a primary cause of instability in the banking industry. Indeed the US Treasury concurred wholeheartedly with this view:

'Events have thus demonstrated that some of the criticisms levelled in the 1930s against the ideal of federal deposit insurance had considerable merit. The system has subsidised highly risky, poorly managed institutions. These institutions have exploited the federal safety net by funding speculative projects with insured deposits. The resulting costs have been borne by well-run institutions and by the tax-payer.' (US Treasury 1991, p.1-11)

Accordingly the US Treasury proposed to 'return the system to a level of coverage that preserves stability, while obtaining an important level of market discipline from... sophisticated investors' (US Treasury 1991, p.17). In line with this approach, the US Congress at the end of 1991 enacted the Federal Deposit Corporation Improvement

Act (FDICIA), which has been described as the ‘most important banking legislation in the US since the Banking Act of 1933 (Glass-Steagall)’, (Benston and Kaufman 1998, p.3).

5. FDICIA seeks to address the moral hazard issue by (a) requiring the introduction of risk-related deposit insurance premiums; (b) applying a somewhat diluted version of ‘structured early intervention and resolution’ (SEIR) to the regulatory treatment of troubled banks; (c) limiting the FDIC’s discretion to protect uninsured depositors with failed banks; and (d) imposing procedures that severely restrict the FDIC’s power to bail out large banks (the TBTF issue). These elements are considered briefly below.

From 1992 the FDIC adopted a risk-based premium system based on nine risk categories utilising three risk-based capital classifications and three supervisory categories. As of 1998 premiums ranged from zero basis points on assessable deposits per year for the lowest risk institutions to 27 basis points per year for those in the highest risk category. This tariff reflects the healthy state of the US banking industry and the fact that the insurance fund’s reserve ratio – the ratio of the fund balance to insured deposits – has met its 1.25% target. The result is that currently approximately 95% of all insured institutions pay nothing for deposit insurance.

The most controversial feature of the US risk-based premium system is the use of supervisory and not market information for the purposes of risk classification. The FDIC’s original proposal that credit ratings should be included in the risk evaluation process was eventually dropped but now that credit ratings are proposed to be used in the Basle Committee’s risk-based capital adequacy guidelines it would seem logical to extend the use of ratings to deposit insurance. Alternatively deposit insurance premiums could be linked to the observed market yield on banks’ subordinated debt issues as discussed in Section 2 above.

Drawing on earlier SEIR proposals FDICIA introduces the concept of Prompt Corrective Action (PCA). Under the PCA provisions banks are divided into five categories ranging from well capitalised to critically undercapitalised and the associated specified capital ratio thresholds become a trigger for both mandatory and discretionary regulatory action – including, ultimately, closure. These provisions are intended to have the dual effect of enforcing market-type disciplines on weak banks (thereby curbing moral hazard behaviour) and discouraging forbearance on the part of regulators.

FDICIA also contains provisions (effective from January 1995) prohibiting the FDIC from protecting uninsured depositors or creditors at any failed bank if it would result in an increased loss to the deposit insurance fund. This represents a legislative reversal of the FDIC’s policy from 1933 to 1991 (excepting the brief experiment in 1984) of bailing out all depositors in failed institutions. Again, the intention is to combat moral hazard.

Finally, FDICIA explicitly addresses the TBTF issue by allowing only a strictly limited exception to the above least-cost resolution test. Specifically, the FDIC may override the least-cost requirements and protect uninsured depositors and creditors if the Treasury Secretary, upon the written recommendation of the boards of the FDIC and the Federal Reserve Board determines that failure to do so ‘would have serious adverse effects on economic conditions or financial stability’. Furthermore, any loss incurred by the FDIC from protecting uninsured claimants must be recovered with a special assessment on all

insured banks, using an assessment method based on banks' total assets that would disproportionately penalise large banks. It has been suggested that these restrictions mean that 'TBTF is likely to be used rarely, if at all' (Benston and Kaufman 1998, p.10) thereby going some way towards eliminating another aspect of moral hazard.

Following enactment of FDICIA the FDIC has been obliged to reverse its earlier policy of routinely resolving failed banks in a manner that protects uninsured depositors. For instance, out of the 41 bank failures in 1993 only six involved resolution methods that protected uninsured depositors. Since 1993, however, bank failures have fallen sharply (there was only 1 in 1997), reflecting the buoyancy of US economic conditions during the current period. In the words of the FDIC '... the recent history of the banking industry has been characterised by a complete absence of the kind of stresses the [1991] reform measures were designed to address' (FDIC 1998, p.58). It is not therefore possible to reach firm conclusions about the success or otherwise of FDICIA until the new regime has been tested under conditions of cyclical adversity.

One issue that is currently being debated in the US is how best to expand bank's powers to engage in non-banking business without extending the federal safety net (and therefore moral hazard) to such activities. The major policy questions, involving corporate structure and funding 'firewalls', cannot be considered here but the debate has underlined the importance which is attached to the moral hazard issue in US policy-making circles (in contrast to the European Union – see Section 4 below).

What, then, are the major lessons to be learned from the US experience with deposit insurance? First, moral hazard appears to be a very powerful force explaining US banks' behaviour, as reflected both in declining bank capital ratios from the mid-nineteenth century to the early 1940s and the deterioration in the quality of US bank assets in the 1980s. Second, direct regulatory constraints on banks' risk-taking appear to have been insufficient to combat this moral hazard, the implication being that measures designed to influence the incentives facing banks, depositors and general creditors are a necessary complement to official regulation. Third, regulatory authorities may themselves become an obstacle to addressing the moral hazard issue to the extent that they are tempted to exercise forbearance, and to avoid uninsured deposit losses.

However, on one key matter it is too early to draw any conclusions. The US has shifted from the almost 100% de facto deposit insurance coverage that prevailed from 1933 to 1991 to a policy that prohibits protection of uninsured depositors unless certain conditions are met. In other words the US has moved from a deposit insurance regime that invited moral hazard to a very different regime which by exposing depositors to losses, may invite bank runs in adverse economic conditions. The question here is whether a balance has been struck that successfully reconciles the need to neutralise moral hazard with the need to reassure depositors sufficiently to prevent bank panics; or whether current policies have moved too far in the direction of exposing depositors to default risk. The next economic downturn may provide the answer.

Section 4 **Deposit Insurance in the European Union**

The EU Deposit Guarantee Directive (DGD) which was approved in May 1994 and came into effect in July 1995, must be viewed within the general context of EU financial market directives aimed at establishing minimum prudential standards within the single market. The stated objectives of the DGD are the ‘increased stability and soundness of the banking system’, the ‘protection of savers’ and the ‘harmonised development’ of credit institutions within the single market – this last consideration evidently referring to the need for competitive equality between institutions operating across borders within the EU.

The authors of the DGD seem to have been aware of the moral hazard issue and the need to balance the protection of ordinary depositors against the dangers of an over-protective regime that might undermine market discipline. For instance the Explanatory Memorandum accompanying the EU proposal for the DGD states (p.5) that in the US ‘the risks taken by individual depositors have been lowered so much that such depositors have become virtually indifferent to the soundness of their credit institutions’ (Commission of the European Communities 1992). Similarly, the philosophy underlying the minimum insurance coverage specified by the DGD is that it should be high enough to protect the small and uninformed depositor and sufficiently low to ‘encourage depositors to look carefully at the quality of credit institutions’ (European Council 1993). Furthermore, the DGD does allude specifically to the need to prevent moral hazard (DGD recitals 16 and 19). Yet despite these stated concerns the DGD itself does little to address the moral hazard issue – as discussed below.

The major elements of the DGD can be summarised as follows:

1. Each member state must establish a deposit insurance scheme with a minimum protection of 20,000 Euros per deposit (15,000 Euros until December 31 1999) and compulsory membership for all credit institutions. An element of co-insurance is permitted (but not required) in that cover may be limited to a specific percentage of deposits subject to a 90% minimum.
2. Interbank deposits are specifically excluded from insurance cover, while certain other liabilities (e.g. deposits of larger corporate entities) may be excluded at the discretion of national authorities.
3. A key principle, introduced in the wake of the BCCI collapse, is that branch depositors should be protected by the home member state i.e. where the bank has its head office. The rationale for this approach is that it locates responsibility for deposit protection in the jurisdiction that also has supervisory responsibility – thereby strengthening regulatory authorities’ incentives to ensure high standards of prudential regulation.
4. There is an optional ‘top-up’ provision which allows branches to join a host country deposit insurance scheme in cases where the host scheme is more generous than the home scheme. Furthermore, there is a temporary ‘no-export’ clause (lapsing on December 31 1999) which prevents branches from offering deposit protection in excess of that provided by the host country in cases where the home scheme is more generous than the host scheme.

5. Compensation payments must be made within three months of deposits becoming 'unavailable' as determined by the competent authorities or a judicial ruling.
6. There are no requirements relating to: the funding or pricing of deposit insurance, the role of government versus the private sector in establishing and operating such schemes, the maximum level of insurance, the handling of troubled banks or the de facto protection of uninsured depositors and creditors in failed banks.

The EU insurance framework may be assessed on the basis of the three stated objectives of the DGD, namely consumer protection, financial stability and competitive equality.

So far as consumer protection is concerned the DGD does establish mandatory minimum levels of insurance. However, the need for harmonisation to deal with this aspect of deposit insurance may be questioned. As the Bank of England stated in 1991:

'So far there has been no international convergence of deposit insurance schemes. This is unsurprising given that they are generally a matter of social policy, which remains a national sovereign prerogative.' (Bank of England 1991).

It is also worth noting that by requiring the same minimum coverage (20,000 euros) in all member states, the DGD provides low per capita coverage in rich countries and higher per capita coverage in poor countries. In this sense the degree of consumer protection is not uniform (Garcia 1999).

The objective of financial stability requires consideration of the two distinct and conflicting influences noted in Section 1 – stabilisation via the elimination of bank runs and destabilisation via moral hazard.

The elimination of panic-induced bank runs depends on depositors' confidence that their claims will be met in full and in a timely manner. By allowing an (admittedly modest) element of coinsurance the DGD exposes retail depositors to a degree of default risk that could be sufficient to encourage deposit withdrawals from suspect institutions. Furthermore, contrary to the IMF's good practice guidelines, there is no requirement that national insurance schemes, which may be privately administered, and need not be funded ex ante, should at least have access to public funds. Therefore there is no absolute assurance provided by the DGD that national schemes will be able to meet all insurance claims. Finally, the requirement that compensation payments be made within three months of deposits becoming unavailable falls short of the IMF's good practice recommendation that, in order to sustain depositors' confidence, such payments should be made 'immediately' or in any event within 30 days (Garcia 1999). In this context it may be noted that in the US 'all depositors generally have access to all or part of their funds at resolved banks the next business day, regardless of the resolution process used' (Benston and Kaufman 1998, note 16).

The other aspect of financial stability, moral hazard, is barely addressed by the DGD. It is true that the minimum insurance coverage is set at a relatively low level; that there is provision for optional co-insurance; and that interbank deposits are excluded from protection. On the other hand, there is no provision for risk-related insurance premiums, no maximum insurance coverage, and nothing within the Directive that prevents bailouts of uninsured depositors and general creditors or indeed institutions that may be deemed

TBTF.² Furthermore, there is no attempt to link deposit insurance to resolution techniques applicable to troubled and failed banks. In short, none of the policy concerns that the FDICIA was intended to address in the US are reflected in the deposit insurance regime adopted by the DGD.

The reluctance of EU member states to deal with the moral hazard issue at EU level may be partly explained by European policy-makers' preference for by-passing deposit insurance arrangements and instead recapitalising failing institutions through combined official and private sector support (Dale 1993). In addition, Germany took the position during negotiations leading up to the proposal for an EU deposit guarantee directive that moral hazard concerns were overstated and that a mandatory ceiling for insured deposits should accordingly be rejected (Deutsche Bundesbank 1992, p.35).

Therefore it is left to each individual member state to handle the moral hazard issue as it sees fit. This may be viewed as unsatisfactory given that systemic risk, with its potential for cross-border spillover affects, is one aspect of deposit insurance that clearly calls for a co-ordinated policy response. Nevertheless, it is interesting to note in this context that within Europe, France, Italy, Portugal, Sweden and Finland have adopted risk-related insurance premiums and that there appears to be a global trend in this direction (Garcia 1999).

The third objective of the DGD is to contribute to the establishment of a level playing field for institutions competing within the single market. The importance of this objective is underlined by the fact that, in response to a legal challenge to the DGD by Germany, the European Council, Parliament and Commission argued that the objective of consumer protection was secondary to that of equal competition – a view supported by the opinion of the Advocate General (Germany v. European Parliament and Council 1994).

Concerns over competitive equality are reflected in several provisions of the DGD. The temporary export ban on branches offering more generous cover than the host scheme is justified on the grounds that 'it is not appropriate that the level or scope of cover offered by guarantee schemes should become an instrument of competition' (DGD Recital 14). Similarly, the 'top-up' provision enabling branches to join a host scheme is based on the view that disparities of cover could lead to 'unequal conditions of competition' between institutions from different member states (DGD Recital 13).

In addition, the possibility that compensation cover could be used as an instrument of competition is used to justify restrictions on the use of deposit insurance information in advertisements. Finally, the fact that the DGD and the Investor Compensation Directive offer similar compensation arrangements for depositors and investors is designed to ensure a level playing field as between banks and investment firms (even though the failure of the former is much more sensitive from a systemic standpoint).

Yet despite the concern with a level playing field, the DGD goes only some way towards ensuring competitive equality. The top-up and no-export provisions are designed to

² The DGD refers specifically to '... the right of a guarantee scheme to take any measures necessary for the rescue of a credit institution that finds itself in difficulties' (Recital 10, italics added).

ensure intra-jurisdictional competitive equality but they do so by accepting inequalities in insurance coverage at the inter-jurisdictional level. More importantly, by neglecting the pricing of deposit insurance and national policy towards the resolution of failed banks (including the TBTF issue) the DGD leaves open the potential for serious market distortions – particularly through official bailouts of failing institutions.

Section 5 **Deposit Insurance in Japan**

In 1971 Japan established a deposit insurance scheme, aimed primarily at consumer protection, which was jointly capitalised by the government, the Bank of Japan and the banking industry. The maximum deposit payout was initially fixed at Y3mn per depositor per institution and banks paid flat rate premium into the insurance fund.

In the context of Japan's programme of financial liberalisation and concerns about the potential for systemic instability, the Deposit Insurance Act of 1986 strengthened the deposit insurance scheme by, inter alia, empowering the Deposit Insurance Corporation (DIC) to engage in assisted mergers, raising the insurance cover to Y10mn, and increasing the limit on DIC borrowing from the Bank of Japan from Y50bn to Y500bn.

Subsequently the DIC used its assisted merger powers in the early 1990s to support a number of credit co-operatives but there were no failures within the commercial banking sector and no deposit losses. However in August 1995 Hyogo Bank went into liquidation – the first Japanese bank failure since the Second World War. Nevertheless, all depositors were protected, the new bank established to acquire the assets and liabilities of Hyogo being assured of sufficient support from the DIC to cover losses on problem loans.

At the end of 1995, faced with growing evidence of a system-wide financial crisis, the Japanese authorities decided to adopt a policy of de facto full insurance cover for all depositors. This move was justified on the grounds that the financial system was too fragile to withstand further damage to confidence and that depositors were not in a position to monitor the soundness of financial institutions, given the absence of proper disclosure (FT Regulation Report 1996).

In June 1996 further legislative amendments were made to Japan's deposit insurance scheme to reflect these growing concerns about financial stability. The DIC was given enhanced powers to restructure failing banks but, more importantly, the operations of the DIC were divided into an 'ordinary account' funded by 'ordinary' premiums to handle the protection of depositors up to the de jure limit of Y10mn; and a 'special account' funded by 'special premiums' designed to cover the costs of compensating depositors beyond the de jure limit. This accounting treatment was in line with the shift to a regime of de facto 100% deposit insurance which was intended to last until March 2001 (Hall 1999, p.9) by which time it was expected that financial stability would be restored.

The June 1996 legislation also established the framework for a Japanese variant of the Prompt Corrective Action (PCA) procedure for handling troubled banks that had been introduced in the US in 1991 (see Section 4). This measure, coupled with various initiatives to improve banks' disclosure practices, shows that despite the fast developing financial crisis the authorities were attempting to deal simultaneously with the moral hazard issue.

Towards the end of 1997 the Japanese financial system had to absorb another severe shock as three major institutions – Hokkaido Takushoku Bank, Sanyo Securities and

Yamaichi Securities – collapsed almost simultaneously. The failure of Hokkaido furthermore contradicted earlier official statements indicating that none of the top 20 domestic banks would be allowed to go under. Against this background further proposals were put forward to strengthen the domestic insurance system as part of a more widespread financial stabilisation package. This package, which was finally approved by the Diet in February 1998, included the following elements (see Hall 1999).

1. The DIC was given temporary powers (expiring end-March 2001 when the 100% deposit insurance regime was also due to terminate) to resolve failed banks other than through liquidation, including the power to temporarily take into public ownership institutions whose failure might otherwise pose a systemic threat.
2. The DIC was given powers to augment its resources by issuing bonds.
3. A new account was set up within the DIC which could be drawn upon to purchase the preferred stock and subordinated debt of banks in need of recapitalisation.
4. The DIC was for the first time given direct access to public funds for the purposes of recapitalising solvent banks and purchasing assets from failed banks. The amount of public funding was eventually set at Y60trillion (equivalent to 12% of GDP).

The February reforms were followed by further legislation in October 1998 which set out the conditions – stated in terms of capital ratios – for the publicly funded recapitalisation of weak but solvent banks.

The 1998 legislation marked the final stage in the evolution of crisis management, involving at it did the explicit underpinning of the financial system with taxpayer's money and the prospect of temporary nationalisation for too-big-to-fail institutions. The first two banks to be taken into public ownership under this new regime were Long-Term Credit Bank in October 1998 and Nippon Credit Bank in December 1998.

The evolution of Japan's deposit insurance system summarised above must be seen in the wider context of the authorities' handling of the systemic crisis afflicting the Japanese financial services industry in the 1990s. The precise causes of the crisis are beyond the scope of this paper but the official policy response may be categorised into three broad phases, reflecting the growing severity of the financial sector's problems.

In the first phase the authorities adopted the policy of forbearance – meaning that banks' balance sheet problems were fudged in the hope that over time asset values would be restored and/or threatened institutions would earn their way out of trouble (an earlier precedent being the US handling of the LDC crisis during the 1980s). Under this regime bad debt levels were not disclosed, the scale of non-performing loans was masked by the creation of the Co-operative Credit Purchasing Company, to which doubtful assets were transferred, and official pronouncements emphasised the need for banks to have a breathing space in which to resolve their problems. During the forbearance period the unstated official policy of 'no bank failures' continued and deposit insurance was therefore largely redundant so far as commercial banks were concerned.

However, the combination of persistent recession and a damaging erosion of confidence in the banking sector forced the authorities to rethink their entire strategy in the summer

of 1995 – resulting in a policy shift in the direction of what might be described as selective support (Dale 1995). This involved the provision of liquidity assistance to solvent banks, mergers of capital-impaired institutions and full protection for depositors with those institutions that were allowed to fail (e.g. Hyogo Bank in August 1995 and Hanwa Bank in November 1996). In this phase, which marked a shift from no bank failures to no deposit losses, the role of the DIC became central: hence the June 1996 legislation aimed at augmenting its resources, formalising the provision of 100% deposit insurance cover and reforming procedures for resolving failed banks.

Crucially, the new policy of selective support failed to reassure depositors. Partly this was because the collapse of Hokkaido Takushoku Bank in November 1997 appeared to be in breach of the government's announced policy of preserving the top 20 banks. More important, there was concern that in the absence of public sector funds the DIC was insufficiently resourced to meet its potential commitments.

The result was a crisis of confidence in Japanese banks both at home and abroad in early 1998. Domestically, individual savers began to take money out of smaller banks and place the proceeds in the postal savings system, in safe-deposit boxes (boosting notes and coins in circulation), foreign banks and in a few big-name domestic banks like Tokyo-Mitsubishi. Foreign concerns about Japan's financial stability were meanwhile reflected in credit rating downgrades, in the fluctuating 'Japan premium' on interbank borrowings and the extraordinarily high cost that Japanese banks incurred when raising debt capital abroad (325-380 basis points above LIBOR for issues by the Industrial Bank of Japan and Sumitomo Bank) (Dale 1998).

This was the background to the stabilisation package of February 1998 that finally acknowledged the need for government funds to underwrite the banking sector – thereby following the example set by Norway, Sweden and Finland during the Nordic banking crisis of the early 1990s.

What are the broader lessons to be learned from Japan's experience with deposit insurance? First, although the Japanese financial turmoil of the 1990s cannot be blamed entirely on financial regulatory policies, there can be little doubt that the 'no bank failures' policy, coupled with financial liberalisation and increased opportunities for risk-taking created conditions in which moral hazard – and therefore bad banking – was allowed to flourish.³

Second, once confidence has been undermined it may not be enough to offer depositors full deposit protection, particularly if there are concerns about inadequate resourcing of the insurance fund. In the case of Japan the incipient run from domestic banks in early 1998 was not halted until the government had committed public funds to support the stated policy of no deposit losses. The more general implication is that in a real crisis there is no substitute for government-backed deposit insurance.

³ For instance, in relation to settlement risk, a senior official of the Bank of Japan commented in 1997 as follows:

'For more than fifty years no financial institutions had failed in Japan. Thus it was believed that credits to financial institutions were safe and secure ... It would not be too great an exaggeration to say that until very recently settlement risk was not recognised as a real risk'. Muto 1997, p.148. It is reasonable to assume that this perception of risk (or rather the lack of it) applied to all credit exposures to Japanese banks.

Third, the final outcome of the Japanese banking crisis provides further evidence – if it be needed – that in the last resort governments will always stand behind the banking system. This has implications for the moral hazard issue since even statutory restrictions on big bank bailouts such as these incorporated into FDICIA (see Section 3) cannot wholly eliminate the perception that core institutions will not be allowed to fail in a way that imposes losses on depositors.

Section 6 Summary and Conclusion

There is controversy in the academic literature as to whether or not banks are inherently fragile and liable to contagious collapse. Similarly there is disagreement as to whether deposit insurance is a useful means of stabilising the banking system by preventing bank runs. However, there is widespread consensus that once deposit insurance is in place, any benefits gained from the reduced likelihood of bank runs can be outweighed by moral hazard and hence increased risk-taking by the banking sector.

The available evidence on the impact of deposit insurance on systemic stability underlines the importance of negative moral hazard effects. Where such schemes are poorly designed or insufficiently supported by prudential regulation, the net effects appear to have been destabilising. On the other hand, once a systemic crisis has erupted, governments typically find that 100% deposit protection is an essential element in any stabilisation package.

In principle, moral hazard may be at least partially offset through careful design of the insurance scheme itself, through direct regulatory constraints on risk-taking or through incentive-compatible methods of handling troubled and failed institutions that promote market discipline. However, there is a danger that limits on deposit insurance coverage, while reducing moral hazard, may also encourage deposit runs in turbulent financial conditions.

The US experience suggests that the moral hazard consequences of de facto 100% deposit insurance coverage are indeed powerful. US policy-makers have responded by introducing risk-related insurance premiums, failure resolution methods designed to protect only insured depositors, and a Prompt Corrective Action programme for troubled institutions. The new regime appears to be working satisfactorily although it has yet to be tested in adverse economic conditions.

On the other hand, the EU directive on deposit insurance largely ignores the moral hazard issue and focusses instead on the stabilisation of the deposit base, the need for competitive equality and consumer protection. Along a spectrum bounded by total deposit protection and zero bank runs at one extreme and full depositor exposure to default risk and zero moral hazard at the other, the EU framework veers towards the former and the US toward the latter. That said, the EU establishes only minimum safeguards and individual member states are free to combat moral hazard in any way they wish – subject to a minimum level of insurance coverage. Even so, given the cross-border spillover effects of systemic instability, it would seem more appropriate to handle the moral hazard issue at the EU and not the national level.

Finally, the Japanese experience demonstrates that when prudential regulation fails and a full-blown systemic crisis occurs, there may be no alternative to full deposit insurance coverage, regardless of the longer term moral hazard consequences. From this perspective moral hazard is ineradicable because the state will always stand behind the banking system. In the words of US Congressman James Leach:

‘Because a sound economy requires a safe and sound banking system, public liabilities exist even if public funds are not placed in jeopardy by statute’. (FDIC 1998, p.95).

The intractability of this problem is illustrated in the global context by the East Asian debt crisis of 1997/98 which was preceded by a surge in interbank lending to Indonesia, Thailand and Korea⁴ despite the absence of any form of de facto or de jure deposit insurance in the recipient countries. A senior official of the World Bank described this phenomenon at a symposium in January 1998 in the following terms:

‘What surprised me in Asia is the number of sophisticated depositors, the big names in international banking, that exercised what would appear to be virtually no market discipline on these institutions. You had the Deutsche Banks and the J.P. Morgans providing short-term dollars to institutions that were taking it on an unhedged basis and putting it into commercial real estate... But I would have thought... that the spread over LIBOR that these countries were paying would have been going up a year and a half ago rather than going up when CNN reported that the exchange rate had changed and the crisis occurred.’ (Jonathan Fiechter in FDIC 1998, p.141.)

One interpretation of this apparently undisciplined behaviour on the part of big banks is that they expected to be protected, which is exactly what happened when national governments guaranteed local banks’ debts and the IMF, in bailing out those governments, felt obliged to honour the guarantees.⁵

If there is a firmly embedded perception that in the last resort depositors, even sophisticated depositors, will be protected, then market-orientated solutions to the problem of moral hazard cannot work. We are then left with government regulation as the only effective means of curbing excessive risk-taking.

Richard Dale
October 1999

4 Korea introduced a retail deposit insurance scheme in 1996.

5 This episode has led to the suggestion that there should be an international agreement requiring that in future IMF-led rescue packages involving restructuring of the financial sector, governments cannot expect ‘blanket guarantee announcements’ (issued before the IMF arrives on the scene) to be honoured (see Morris Goldstein 1998, p.46-51).

References

- Bank of England, *Response to Treasury and Civil Service Committee, Issues relating to BCCI*, 1991.
- Bank for International Settlements, *A new capital adequacy framework: Consultative Paper issued by the Basle Committee on Banking Supervision*, Basel, June 1999.
- Benston, George and Kaufman, George, *Deposit Insurance in the FDIC Improvement Act: The experience to date, Federal Reserve Bank of Chicago Economic Perspectives*, Vol. 22, No. 2, 1998, pp.2-20.
- Brewer, Elijah III, The Impact of the Current Deposit Insurance System on S and L Shareholders' Risk/Return Tradeoffs, *Journal of Financial Services Research*, 1995, pp.65-69.
- Colomiris, Charles, *The Postmodern Bank Safety Net: Lessons from Developed and Developing Economies*, American Enterprise Institute, Washington DC, 1997.
- Colomiris, Building an Incentive-Compatible Safety Net, *Journal of Banking and Finance*, Vol. 23, No. 10, October 1999, pp.1499-1519.
- Commission of the European Communities, *Proposal for a Council Directive on deposit-guarantee schemes*, 35 OJ European Commission (No. C 163) 6 1992.
- Cottrell, Allin, Lawlor, Michael and Wood, John, What are the Connections between Deposit Insurance and Bank Failures? in Cottrell, Lawlor and Wood, Eds., *The Causes and Costs of depository institution failures*, Kluwer Academic, 1995, pp.163-198.
- Dale, Richard, Deposit Insurance: US-EC Policy Clash, *Journal of International Securities Markets*, Spring/Summer 1993.
- Dale, Richard, Tokyo Shifts Gear, *Financial Times Financial Regulation Report*, September 1995, pp.1-2.
- Dale, Richard, *Risk and Regulation in Global Securities Markets*, Wiley, 1996.
- Dale, Richard, Tokyo's Confidence Crisis, *Financial Times Financial Regulation Report*, March 1998, pp.1-2.
- Demirguc-Kunt, Asli, and Detragiache, Enrica, The Determinants of Bank Crisis in Developing and Developed Countries, *IMF Staff Papers*, Vol. 45, No. 1, March 1998.
- Demirguc-Kunt, Asli, and Detragiache, Enrica, Does Deposit Insurance Increase Banking Stability? An Empirical Investigation, *IMF Working Paper 1999*.
- Deutsche Bundesbank, *Monthly Report*, July 1992.
- Diamond, Douglas, and Dybvig, Philip, Banking Theory, Deposit Insurance and Bank Regulation, *Journal of Business*, January 1986, pp.55-68.
- European Council, *Common Position on the Proposal for a Directive on Deposit Guarantee Schemes* (8915/1/93, Rev. 1) 1993.
- Federal Deposit Insurance Corporation, *Confidence for the Future: An FDIC Symposium*, January 29 1998, Proceedings.
- Feldstein, Martin, 'The Risk of Economic Crisis', Chicago 1991, p.15.
- Financial Services Authority, *Consumer Compensation: A Further Consultation*, June 1999.
- Financial Times Regulation Report*, January/February 1996.
- Fratianni, Michele, Bank Deposit Insurance in the European Union, in Eichengreen, Frieden and von-Hagon, Eds., *Politics and Institutions in an Integrated Europe*, Springer, 1995, pp.144-76.
- Friedman, Milton, 1959. *The control of money. A Program for Monetary Stability*. Bronx NY, Furdham University Press.

- Garcia, Gillian, Deposit Insurance: A Survey of Actual and Best Practices, *IMF Working Paper*, 1999.
- Germany v European Parliament and Council C-233/94, opinion of Advocate General Leger 10 December 1996; judgement 13 May 1997.
- Goldstein, Morris, The Asian financial crisis: Causes, cures and systemic implications, Policy Analyses in International Economics, Institute for International Economics, Washington DC, 1998.
- Goodhart, Charles, Bank Insolvency and Deposit Insurance: A Proposal, in Arestis, Philip, Ed., *Money and Banking: Issues for the Twenty-First Century*, 1993, pp.75-94.
- Hall, Maximillian, Deposit Insurance Reform in Japan: Better Late than Never? *Journal of Financial Services Research*, Vol. 15, No. 3, 1999.
- Hoenig, Thomas, Rethinking Financial Regulation, *The Financial Regulator*, June 1996, pp.22-29.
- Kaufman, George, Bank Contagion: A Review of the Theory and Evidence, *Journal of Financial Services Research*, April 1994, pp.124-50.
- Mackintosh, James, FSA seeks new powers over top financial jobs, *Financial Times*, July 31/August 1, 1999, p1.
- Muto, Elija, A Japanese perspective on payment system reforms, in *Managing Change in Payment Systems*, Bank for International Settlements, Basel, 1997.
- Temzelides, Ted, Are Bank Runs Contagious? *Federal Reserve Bank of Philadelphia Business Review*, November-December 1997, pp.3-14.
- United States Treasury, *Modernising the Financial System: Recommendations for safer, more competitive banks*, Washington DC, 1991.

**LENDING OF LAST RESORT
AND SYSTEMIC STABILITY IN THE EUROZONE**

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Section 1 Introduction: an ‘inconsistent triangle’ in banking and financial policies

A single currency has been adopted by eleven European countries, while their banking and financial regulation is far from being harmonised; their supervisory authorities are separate and differently organised; the EU Treaty’s provisions on the prudential role of the ESCB are ‘characterised by considerable imprecision’ (Hadjjemmanuil and Andenas, 1999, p. 90) and there is no explicit provision for the lending of last resort (LOLR) function in the eurozone.

In particular, if one concludes that the Treaty does not completely rule out LOLR, nothing has been decided on how the responsibility to make decisions and to take action on this front is to be allocated between the European Central Bank (ECB) and the national central banks (NCBs).

At the same time the adoption of a single currency has increased potential systemic risk in the eurozone, for two main reasons. First, because contagion is easier and quicker with the disappearance of exchange rate risk and a major increase in cross-country interbank lending. Second, because increased national and international competition between banks, financial operators and markets, triggered by the single currency, may act as a shock to current equilibria in national financial industries, tending to erode profit margins and to stimulate restructuring, modernisation, M&As, in a risky battle for survival for the existing financial intermediaries. ‘Solvency of banks in the EU is likely to be threatened because of greater competition among EU banks, competition from non-banks enabled by electronics, and losses to no-longer-protected undiversified banks’ (Benink and Benston, 1999, p.12). Moreover, while ‘stronger competition in EMU could intensify bank fragility, the shock absorbers (average profitability and return on assets) which European banks have are limited’ (Lannoo, 1999, p.11).

Using the terminology of De Bandt and Hartmann (1999), EMU can cause an increase in systemic risk both in the narrow sense, where the ‘domino effect’ emanating from idiosyncratic shocks is essential, and in the broad sense where it acts as a widespread ‘systematic shock’ affecting a large number of institutions.

Also in a recent study by the ECB (1999), it is acknowledged that: ‘EMU is expected to reinforce the pressure for the reduction of existing excess capacity, to put profitability under pressure, ...to increase considerably competition in banking within the euro area, ...to have a significant impact on the risks incurred by banks in their activity ...with a shift in their business towards more profitable but also more risky business’. ‘There would seem to be grounds for heightened vigilance on the part of regulators’ (De Bandt and Davis, 1999, p.6).

Taken together, the absence of a common framework for euro ‘banking policies’ and the increased risk of the eurozone’s financial markets, constitute an obviously worrisome scenario. It looks like there is an ‘*inconsistent triangle*’: keeping financial stability in an integrated capital market with autonomous national regulatory, supervisory and crisis-management policies is as inconsistent as keeping autonomous national monetary policies in a fixed exchange rate system with free capital movements; the latter inconsistency having been the reason for moving to monetary union (Bini Smaghi, 1999, p.10).

The problem has been stressed by several authors and organisations like the IMF (see, for instance, Prati and Schinasi, 1998), the Centre for Economic Policy Research (Begg and others, 1998; Danthine and others, 1999), the European Shadow Financial Regulatory Committee (ESFRC: Statement no.2, 19.10.98), and the Centre for European Policy Studies (Lannoo, 1999). A common feature of these comments has been the recommendation to move more radically and faster towards the mandatory harmonisation and/or centralisation of regulation and supervision and to be more explicit and transparent in stating the arrangements for LOLR or, more generally, for the management of banking and financial crises. Also the European Commission (EC)(1998) endorsed the need for greater co-operation and proposed a ‘supervisors charter’.

In this paper we discuss the LOLR in the eurozone considering the wider framework of the structure of banking policies. It is convenient to start by looking at the points made in a Lecture given at the Financial Markets Group of the London School of Economics by Padoa-Schioppa (1999), with the aim of answering the above mentioned pre-occupations. The lecturer is a member of the Executive Board of the ECB who has among his responsibilities ‘prudential supervision’, to the extent that the European central bank is or will be involved in supervision.

Section 2 summarises Padoa-Schioppa’s view. Section 3 sums up our opinion on that view as well as the content of sections 4-9 that follow.

Section 2 Padoa-Schioppa's view

Padoa-Schioppa's analysis is based on a taxonomy of banking policies, which fall into three separate categories: *regulation*, *supervision*, and *crisis management*. The latter category can take three forms making use, respectively, of *private*, *taxpayer's* and *central bank* money.

The LOLR coincides with the central bank money solution to crisis management.

According to Padoa-Schioppa the eurozone's situation is as follows.

Regulation is still 'very diversified in comparison with most currency jurisdictions' (para.16), but it is a conveniently 'light' system, flexible enough to converge towards a much more harmonised model through a process of regulatory competition. Forced, 'political' (as opposed to 'market') harmonisation, through EU's Directives, is aimed mostly at forming a lower bound to avoid excesses in competitive deregulation.

Overall, European financial regulation is a virtuous dynamic process that 'does not seem to present loopholes or inconsistencies that may hamper the pursuit of systemic stability'.

As far as *supervision* is concerned, it is a national task and 'the euro-area supervisor can be regarded as a *rather peculiar entity* composed of national agencies working in three modes: stand alone, bilateral and multilateral' (para.18, italics added). Bilateral cooperation makes use of a very numerous set of Memoranda of Understanding, to secure the required exchange of information, while the *Banking Supervision Committee* is the key forum for multilateral co-operation, with the 'Groupe de Contact' working at a lower organisational level on individual banking cases.

In synthesis, Padoa-Schioppa's opinion is that the setting for co-operation in supervision is currently satisfactory even if 'in the future the needs will change and the multilateral mode will have to deepen substantially; i.e.: it will have to be structured to ...make the euro area supervisor as prompt and effective as it is within a single nation' (para.19).

As to the relationship between this supervisor and the ECB, the Banking Supervision Committee is in a good position to provide the Eurosystem gradually with a scheme similar to its 'natural reference models, provided by the central banks of countries that apply the separation approach' (para. 20), like Germany, the UK after the creation of the FSA, and Japan. According to this approach the central bank has no direct responsibility for supervision and bank stability, but 'it is no stranger in this land'.

In Padoa-Schioppa's taxonomy regulation and supervision aim at preventing crises; when they fail, *crisis management* is needed. This can be handled with *taxpayers' money*. The Treaty does not forbid this type of operation at a national level. Central banks have no competence and responsibility in this field. It can be handled with *private money*, with the authority helping to overcome information asymmetries and non-cooperative attitudes by private parties. National supervisors in the euro area are ready to play an effective role in this type of action, with the Banking Supervision Committee helping to enhance international cooperation.

Having said that, the *central bank money solution* to crisis management, i.e. the LOLR, comes as a residual category and can afford to have a minor role. With converging regulations (including deposit insurance systems) well in place and an effective co-operative action in supervision, the argument that *solvency crises* will be rare looks correct. In any case Padoa-Schioppa's reasoning takes for granted that solvency issues are clearly outside the competence of national central banks and of the ECB and will be handled, when needed, by the fiscal authority and/or through private financing.

LOLR is therefore confined to the 'textbook case for an emergency *liquidity assistance to individual solvent institutions*' (para. 27, emphasis added).

With reference to this case, the criticism that the Treaty does not make any explicit provision for it is quickly rebuffed with three arguments: that it is a quite small probability event; that 'the Eurosystem (the Board and the Council) is, *of course*, well equipped to take decisions quickly whenever needed' (para. 29, emphasis added); and, finally, that 'maintaining *constructive ambiguity* in these matters may help to reduce the moral hazard associated with a safety net'.

We therefore read the conclusion as a: '*tout va tres bien, madame la marquise (or ... l'académie)*, don't worry, we will take care, it is simple enough; if it is not *clear* enough, the ambiguity will turn out to be constructive'. No discussion is deemed useful of any theoretical or technical detail of the LOLR in a complex federal setting aimed at price (not financial) stability like the ESCB.

Section 3 A critique

In synthesis, our reaction to Padoa-Schioppa's approach to the problem is that:

1. we share the idea that LOLR *must be confined to play a minor role* and that it must be handled with some 'constructive ambiguity'; but,
2. *we are not convinced that the present setting of regulation and supervision in the Eurozone achieves this confinement* of LOLR. Substantial reforms are urgent to strengthen the apparatus that prevents the crises and its credibility. Moreover,
3. we think the extent of *ambiguity in LOLR rules should be reduced*, from certain aspects, if it is to be 'constructive'.

To argue along these lines in what follows we start with our last point and briefly discuss the specific issue of LOLR in the ESCB. In section 4 we look at the concept of constructive ambiguity and see how it might in fact characterise LOLR euro-policies, making sure that the recourse to 'ambiguity' is really 'constructive'. In section 5 we discuss the complications that might arise in using LOLR in a situation where national deposit insurance systems are inadequate, rather diversified and non-convergent, and where the use of taxpayers' money in managing insolvency crises follows different rules and conventions in different countries, while a rapid process of banking concentration may change the critical dimension of banks (including the threshold to be reached for being 'too big to fail'). We also consider the issue of sterilisation of LOLR interventions.

We then proceed to examine the conditions that have to be met to limit the role of the LOLR in eurozone's banking policies. In section 6 we argue in favour of a larger dose of mandatory harmonisation of regulation. In section 7 we propose an acceleration of the adoption of common euro-wide standards for supervision and the establishment of an institution along the lines of an 'European Observatory of Systemic Risk'. In section 8 we advocate the enrichment of banking policy tools by legislating, at the EU level, for the use of 'Prompt Corrective Action' similar to that designed by the Federal Deposit Insurance Corporation Improvement Act (FDICIA) in the US. Section 9 concludes.

Section 4 Constructive ambiguity

The explicit rules of the game in the ESCB (as written in the Treaty and in the description of its strategy, as well as of its instruments) seem to allow only for open market LOLR fulfilling the strictest Bagehot criteria: when there is a liquidity shock the central bank intervenes in the open market temporarily increasing the supply of money, ready to sterilise its operation when the shock is over.

Problems of individual banks can be dealt with only to the extent that ‘adequate collateral’ is readily available to back the open market intervention, or the use of the standing facility. The ESCB’s *discretionary judgement* on the adequacy of the collateral is the substance of LOLR policy decisions. This judgement can sometimes be very complex, requiring the authorities to decide whether the available collateral would have been adequate in ‘normal times’ or before the crisis of the individual bank came to the surface.

In practical terms, discretion can be exercised in LOLR policy via the ESCB’s management of the ‘eligibility criteria’ of the assets to be used as collateral, especially in ‘tier two’, with a decision of a NCB subject to approval of the ECB. Also decisions regarding ‘risk control measures’ (including valuation haircuts, limits in relation to issuers of securities presented as collateral, and additional guarantees) can be used to frame a discretionary LOLR policy with some built in ‘constructive ambiguity’ (CA), the judgement of an individual NCB being subject to the approval of the ECB.

Therefore, channels do in fact already exist for extending LOLR in the eurozone. CA is not a reason to avoid mentioning this safety-net policy in an explicit way, being transparent about the rules, the procedures, the Committees in charge, and the division of responsibilities (especially between NCBs and the ECB) that will be adopted to secure quick and effective decisions and to avoid quarrels between national and central authorities. After all ‘national authorities have a political stake in the economic viability of domestic financial intermediaries and, by inducing the central bank to lend freely to troubled domestic institutions, they shift the costs of insolvent financial intermediaries to the rest of the community’ (Giovannini, 1993, p.224). On the other hand, it is easy to imagine how a national authority could be criticised at the central level for having been an ineffective supervisor or for having used forbearance in enforcing regulations: in this case its proposals for LOLR could be refused, with consequential tensions developing within the ESCB, possibly damaging also the effectiveness of its monetary policy actions. Moral hazard on the part of NCBs could also enter the picture, with an incentive to be lax in supervision tending towards excessively generous LOLR, which might receive central approval in order to avoid systemic disruptions and contagion.

CA can remain an aspect of the decision process even if the rules, the timing and procedures to solve possible controversies are well specified. According to a member of the Board of Governors of the US Fed, the present arrangements in the euro-area constitute what one can call ‘constructive ambiguity at best and just plain let’s postpone-the-decision at worst’ (Ferguson, 1998, p.4). Europe must in fact be careful not to lag behind both the USA and Japan(!) in establishing a ‘promising trend toward greater institutionalisation of the safety net’ (Milhaupt, 1999, p.3). It must not be too easy to

forecast the final decision on granting LOLR, but the decision process itself has to be transparent. To some considerable extent, in this matter, transparency is compatible with constructive ambiguity.

The ‘relative roles of transparency and ambiguity’ (Enoch and others, 1997) of economic policies are often discussed in the literature. In the case of the eurozone’s LOLR the main benefit of a transparent and centrally co-ordinated decision process is that it renders decision-makers more accountable, and thus it helps to deal with possible conflicts of interest. Conflicts of interest may arise, for instance, because of political pressures from special interest groups connected with problem banks. Or they may be caused by nationalistic attitudes to use forbearance as a competitive tool favouring domestic banks over other EU countries’ banks. Or they may derive from the fact that the authority that decides LOLR, and is therefore responsible for closing a bank, is also the supervisor, having an interest in showing the soundness of their well supervised system by minimising exits from the industry. The benefits of a certain degree of ambiguity of decision are instead that: (i) it decreases moral hazard by introducing risk in the expected pay-out of risk-averse agents; (ii) it makes it easier to adopt, when appropriate, a case by case approach in dealing with an imperfect information setting where the choice of the optimal line of action is very difficult.

Padoa-Schioppa may seem to downplay this difficulty by stating that LOLR must be extended only to illiquid but solvent banks and that solvent but illiquid institutions are a very rare phenomenon. This might be true. But the problem is that it is not easy to tell a solvent from an insolvent institution, in spite of the fact that this distinction used to be the core of the ‘conventional wisdom’ on LOLR (Lastra, 1999, p.346). It is not easy to tell this difference on the spot, when action is needed, even if it is easier after the event. As Giannini (1998, p.17) puts it: ‘distinction between illiquidity and insolvency is an exceedingly difficult one to make, especially because what appears to be good security in ordinary times may suddenly become highly insecure in a crisis. Thus the main challenge facing the LOLR is that it has to take quick decisions on the basis of only partial, and possibly faulty information’. Therefore, even if LOLR is rarely extended, the cases where it might be extended are much more frequent and a transparent and well organised procedure must be in place to manage the required ambiguity ‘constructively’. This would discipline the conflicting interests of LOLR authorities in reaching difficult and possibly controversial decisions.

A transparent decision-making process is also important to balance the required ‘ex ante ambiguity’ (Enoch and others, 1997, p.14) with: (a) substantial sanctions on the bank managers and/or owners that ‘might benefit from the possible permissiveness of the LOLR’; (b) complete ‘ex-post transparency’, i.e. firm rules of disclosure after the event. The previously mentioned benefits of ex ante ambiguity do not in fact carry on to a non-transparent account of the action taken and of its consequences.

We conclude that, while CA in LOLR can be valuable, a banking crisis strategy, like the European one, where there is no explicit, official role for LOLR, is insufficiently transparent and non-credible. This worsens the effects of potential conflicts of interests for national and central authorities and triggers distorted behaviour in risk taking and moral hazard.

Section 5 Other LOLR euro-policy issues

A different problem arises, with the ‘ambiguity’ of LOLR policy, when we start thinking about other types of banking policies; the ones that should confine LOLR to playing a minor and exceptional role.

There is some effective substitutability between LOLR on the one hand, and prudential policy and deposit insurance on the other. Let us, therefore, consider the system of deposit insurance (which is half-way between regulation and crisis management) and the use of taxpayers’ money in managing insolvency crises.

In both cases the situation in the EU is still unsettled and too diversified, needing reregulation and harmonisation. As a consequence, the expected role of LOLR is not clear, varies across countries and its ‘ambiguity’ often turns out to be insufficiently ‘constructive’.

With a well-functioning and robust *explicit* deposit insurance system in place, the probability of contagion decreases and the expected consequences of the insolvency of a bank will be smaller. It will be much easier to obtain ‘constructive ambiguity’ for the LOLR, because the option of refusing LOLR to a bank judged by the authorities to be insolvent is then a credible one. An analogous reasoning applies if a very generous *implicit* deposit insurance is present, with a frequent experience of government financed bail-outs of financial institutions. The opposite happens where deposit insurance is weak and/or the use of taxpayers’ money for banking crisis management is a lengthy, controversial and ‘ambiguous’ process, which is inconsistent with the requirements of the stability pact. In this case a policy which, in principle, restrains the central bank from putting base money, even temporarily, in financial institutions that could turn out to be insolvent, will be less credible.

The issue of deposit insurance, and the relationship between explicit and implicit insurance, are very subtle problems. But the temptation must be resisted to do without a credible and transparent system of *explicit* insurance. Argentina, where deposit insurance was emphatically repealed in 1992 and then reinstated in 1995, is an interesting example of the ‘inevitability’ of an official safety net (Miller, 1996). Ambiguities and weaknesses of *de jure* insurance will be compensated by expected *de facto* insurance thereby worsening moral hazard and resulting in excessive and non-constructive ambiguity of LOLR policies.

The EU needs a more credible and better focussed regime of deposit insurance if the ESCB’s LOLR policy is to work in a non-distorting, symmetric and ‘constructive’ way. It is our opinion that there is no easy solution to this complex problem but that in the EU the effort to reach a better defined and harmonised situation must be urgently increased. The required progress cannot possibly be obtained in a decentralised way. The existing EU directive on deposit insurance concentrates on competitive equality and consumer protection, largely ignoring the moral hazard issue (Dale, 1999, p. 27). We will advocate below a revision to the directive.

Another serious issue is how to reconcile the required constructive ambiguity of LOLR with ever-increasing banking concentration. With higher concentration ratios, the 'too big to fail' (TBTF) argument could play a growing and even excessive role at the world level, including Europe. It could come to destroy the necessary ambiguity of LOLR, increasing moral hazard and worsening the quality of bank assets. It is not easy to see a clear way out of this problem, which is obviously connected with the previous discussion on explicit and implicit deposit insurance. An interesting and provocative proposal has been submitted by Benink and Benston (1999, pp. 18-20) based on the acceptance, as a political 'fact of life' that, if necessary, bailouts will occur: EU governments should publicly acknowledge that all deposits, suitably defined to exclude investment accounts disguised as deposits, are 100 percent guaranteed. Coupled with an appropriate updating of capital requirements, this line of attack to the problem would help to eliminate the unfair competitive advantage of state-owned banks (e.g. the *Crédit Lyonnais* case) and of banks that are clearly TBTF.

From an empirical viewpoint, the link between banking concentration and the degree of contestability and efficiency in the market for banking and financial services has become highly topical. Bank restructuring raises important institutional issues both at the European and at national levels (see for example the SBP case in France and the debate concerning the role of the *Comité des Etablissements de Crédit et des Entreprises d'Investissement*). To deal effectively with the process of increasing banking concentration and with the TBTF distortion, to foster cross border consolidation, to avoid national segmentation of the eurozone's banking industry and thus also to obtain a better 'level playing field' for LOLR EU-wide interventions, antitrust and M&A authorisation policies in banking should be conducted in an increasingly centralised way (Bruni, 1992, p. 53-54; OECD, 1998, p.11; Danthine and others, 1999, pp. 85-99) taking away the powers that in these fields are currently with some national central banks (Bruni, 1997, p.354; Di Noia and Di Giorgio, 1999, p.14; Di Noia and Piatti, 1999, pp.19-20).

We would like to mention a final issue regarding the technical implementation of LOLR: the classical dilemma of how to reconcile it with the ECB's main goal of price stability. In our opinion this dilemma is not a sufficient reason for ambiguity. It highlights the German structural reluctance to pollute monetary policy with prudential measures. In the eurozone the monetary instruments are available to conduct successful sterilisation of required LOLR interventions (open market operations, other refinancing procedures, reserve requirements,...). The ECB is not in a less favourable position than the Fed in 1987: capital markets in the EU are fully integrated and deep, liquid and resilient enough. In any case the costs and dangers of sterilisation are another reason to minimise the necessity to use LOLR. However a real test of the ECB's capacity to sterilise LOLR interventions could come well before most observers expect.

Section 6 **Minimising LOLR: euro-regulation**

Let us now leave aside a direct analysis of LOLR issues, and come to a discussion on whether the conditions are met for minimising the use of LOLR (i.e. for pushing it to be really of ‘last resort’), so that the moral hazard and credibility problems that necessarily come with it are also kept to a minimum. To conduct this discussion we will follow the previously summarised Padoa-Schioppa’s scheme of banking policies.

A first condition is to reach an effective and harmonised financial regulatory framework in the eurozone. If this does not happen, regulation can remain a burden that hinders profitable and sound banking, with ‘institutional differences acting as an important barrier to further financial integration’ (Di Noia and Di Giorgio, 1999, p. 24). Ex ante risk monitoring and management as well as ex post crisis management will be complicated by asymmetries and potential tensions between national authorities. Distorting segmentation along national borders will characterise the restructuring of European banking, endangering its competitiveness and ‘entailing higher costs to intensify cross border activity or to develop pan-European groups’ (Bini Smaghi, 1999, p.5). Towards those multinational intermediaries that, in spite of this, will operate in the euro area, systemic stability policies, including supervision, will be difficult and inefficient. With insufficient central euro powers in deciding financial regulation, the contribution of the EU to global financial re-regulation will also tend to be weaker. All this will result in a more fragile European financial sector with LOLR having a far from minimal role and being hard to manage effectively at the European level.

According to Padoa-Schioppa effective harmonisation will automatically result from regulatory competition (see section 2). We are less optimistic on this matter. ‘The principle of minimum harmonisation and mutual recognition, that was originally thought to be able to naturally induce over time a convergence of regulatory behaviour and more uniform rules, clearly did not work’ (Di Noia and Di Giorgio, 1999, p. 24-5). Incentives are not there to produce a sufficiently rapid and virtuous process of competitive re-regulation. There are two main reasons for this lack of incentives. The first is that regulation is not only costly but also protective for financial intermediaries. A country which is distortedly and heavily regulated may also be, from certain points of view, an attractive site for inefficient financial intermediaries to enjoy the rents of a protective atmosphere where implicit insurance (especially for intermediaries that are ‘too big [at a national level] to fail’) is often also part of the picture. In general ‘operators will have an incentive to stay with (or even to join) friendly authorities if the marginal cost of regulation is lower than the marginal benefit of captured regulatory behaviour and forbearance’ (Bruni, 1992, p.53). The second reason is that national regulatory authorities have their own bureaucratic and political interests to keep their powers and minimise both de-regulation and international harmonisation.

An important example of these two factors can be found when analysing the case of financial intermediaries directly or indirectly owned by the public sector in several EU’s countries. On one side decentralised regulation weakens their incentive to become private, offering them a privileged relationship with local regulators and some protection from market discipline. On the other side, their existence induces national authorities to try and curb both privatisations and harmonisation.

In conclusion, competitive de-regulation not only runs the risk of being excessive (which can be lessened by *minimum* harmonisation) but also the opposite risk, of being insufficient and too weak to lead towards a spontaneously harmonised euro regulation. This risk justifies a larger dose of centralised harmonisation. The main instruments to 'force' harmonisation are EU Directives.

First, it seems urgent to update and adapt some existing Directives. An example is the 1994 Directive concerning deposit insurance. The consequences for LOLR of a weakly focussed EU-wide deposit insurance framework, of an insufficient consideration of the expected implicit insurance, and of excessive discrepancies between national insurance systems have already been mentioned (see section 5). The present Directive is unambitious about the financing procedure and the ceiling of the guarantee (and thus the extent of co-insurance). To enforce a true 'level playing field' funded systems must be the rule, the pricing of deposit insurance must be, in one way or another, related to the global risk (market plus counterparty risk) of each bank, and a clear linkage must be established between deposit insurance and capital ratio regulations. Existing gaps among member countries' maximum coverage are still significant. For instance, whereas the minimum ceiling coverage is 20,000 euros according to the 1994 directive, the 1999 French regulation introduced a 70,000 euros maximum coverage. Other actual or potential competitive distortions come from discrepancies in the types of effectively insured financial instruments. Such distortions cannot be fully discarded. Nevertheless some 'fine tuning' of the 1994 directive could be justified.

Second, new European Directives must be adopted and implemented. We insist on two matters. Whereas solvency considerations have generated large world-wide and European co-ordination exercises, no such co-ordination has applied for liquidity yet. Provided that more definitional and accounting convergence is warranted, a European directive concerning liquidity rules, particularly on the liquidity ratio (in parallel, or not, to any recommendation from the Basle Committee), is desirable. Another crucial topic relates to internal control. Here the Basle Committee is deeply involved in a rather ambitious co-ordination exercise. A European directive fully consistent with Basle on internal control procedures, which would define common 'hard core' principles, and therefore discard some superfluous competitive distortions, would be relevant. Regarding both liquidity and internal control, it must be recalled that each member country keeps some significant room for manoeuvre when transposing a European directive. So each member country will keep worrying about the relationship between banking regulation and competitiveness.

Section 7 Minimising LOLR: euro-supervision

A second condition for minimising the role of LOLR is the existence of an efficient framework of supervision. Here Padoa-Schioppa (see section 2) emphasises the distinction between the 'stand-alone' mode of supervision, when national agencies supervise national operators, and the bilateral and multilateral modes, when exchanges of information are necessary to supervise cross border activity.

Our point is that dealing separately with the 'stand alone' mode can be misleading. One reason is that, with an increased danger of contagion following the adoption of the euro and freedom of capital movements, banking operations and institutions of purely national relevance are disappearing. More importantly, if 'stand alone' supervision is undertaken with too different criteria the euro area supervisor will fail to operate effectively with truly 'national' financial operators. As a reaction to different styles of behaviour of supervisors, national intermediaries will tend to develop different attitudes towards risk taking, risk management and even the observance of regulations is concerned. The whole financial euro area will suffer from an asymmetric distribution of risks, with potential consequences in terms of moral hazard and free-riding. The exchange of information for bilateral and multilateral supervision will become increasingly difficult due to growing differences between 'stand alone' practices. There is also the possibility that 'indulgence in supervision' becomes a perverse competitive weapon for national authorities, and a substitute for competitive de-regulation, implying a lower cost in terms of giving up bureaucratic and political power. 'Petty national jealousies can put the stability of European financial market at risk' (Danthine and others, 1999, p.98).

Therefore 'stand alone' national modes must not be left alone. Without substantial forced harmonisation of the criteria for supervision the fragility of the euro area financial system will increase, with too large a role for crisis management and LOLR. The creation of a first nucleus of collective euro area supervisors must not wait the needs of the 'multilateral mode', i.e. the growing of multinational banks. Its functions will have to include, as soon as possible, the design of homogeneous criteria and qualitative standards for supervision. As far as national intermediaries are concerned, these criteria and standards will then be applied by a decentralised organisation based on national authorities, with the central supervisor keeping some responsibility for monitoring their application.

This first nucleus of collective supervision could take the form of a European Observatory of Systemic Risk, as proposed first by Aglietta and de Boissieu (1998, p.70) and by the ESFRC (1998, October), 'with the aim of ensuring common supervisory and transparency standards'. We think that some progress of this kind is urgent for crisis prevention, to decrease the probability of having to resort to crisis management and, as a part of that, to LOLR. But the same progress could also be valuable for optimizing the use of LOLR when it becomes unavoidable. To reach co-ordinated decisions on LOLR in a quick and smooth way, using 'constructive ambiguity' (see section 4) in a consistent and homogeneous way, the euro area national authorities will have to count at least on common supervisory standards and on a centralised 'observatory'. The present Banking Supervisory Committee does not meet this need, especially if it is in charge only of the

‘multilateral mode’. The institutionalisation of a collective area supervisor is also essential for a homogeneous and well functioning administration of the ‘prompt corrective action’ that we discuss below (see section 8).

This centralised supervisor ‘might or might not be a part of the ECB’ (ESFRC, 1998, October). This is not the place to develop an organised discussion of the specific issue whether ‘the functions of monetary policy and banking supervision should be separated’ (the title of: Goodhart and Schoenmaker, 1995). The literature and the policy debate present several well known pros and cons of the two opposite solutions, and institutional arrangements in various countries are close to having an even distribution between separation, coincidence and mixed solutions (for a recent survey see, for instance, Di Noia and Di Giorgio, 1999), even if a shift to separation is taking place in an increasing number of countries, including the UK. We would want only to submit briefly the following three points.

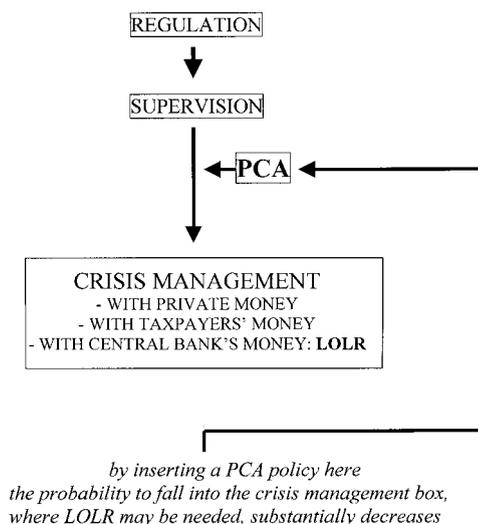
First, one of the increasingly important reasons in favour of separation seems to be the weakening of the boundaries between different types of financial institutions. This phenomenon renders it difficult to limit supervision to ‘banks’, while it would widen the authority of a supervising central bank to a point where the objectives of its policies could become confused, and conflicts of interest could develop with dangers for the independence of monetary policy. Second, separation should never be interpreted as an arrangement that limits the amount of information to which the central bank can have access in order to optimise its open market operations. Third, the institutional assignment of euro-wide supervision must be decided taking into account also the required reorganisation of deposit insurance (see above, sections 5 and 6) as well as the necessary arrangements to operate the policy of ‘prompt corrective action’ that we propose to adopt (see below, section 8).

Section 8 Minimising LOLR: ‘prompt corrective action’

We think there is a third, very important condition for minimising the use of LOLR with all its inconveniences. It is to have recourse to another category of banking policy that is not considered in Padoa-Schioppa’s taxonomy: *Prompt Corrective Action (PCA)*. We believe PCA deserves a special and explicit place in the classification, between ex ante preventive policies and ex post crisis management curative actions (see Figure 1).

Figure 1

The role of Prompt Corrective Action (PCA) in the taxonomy of Banking Policies



PCA means that action is taken *before* a crisis develops. It also means that a firm and credible (and therefore grounded in central EU’s regulation) commitment is made that banks can be closed by the authority. They can be closed *before* they become insolvent, if they do not comply with special obligations (to increase capital ratios immediately, to sell bad loans at a discount, to restructure certain sections of their activity, to discontinue other activities, etc.) that the authority dictates when prudential indicators start to signal an increasingly risky situation and/or a dangerous deterioration in their profitability.

Strict enforcement of severe closure rules can be politically unfeasible and therefore non-credible. If it were possible, deposit insurance would become redundant (except in cases of massive fraud, totally inadequate monitoring by the regulatory agencies, or large, rapid declines in asset values across the board) because in fact ‘all deposits would be collateralized by assets of at least the same market value and the bank would effectively be a ‘narrow bank’ (Benston and Kaufman, 1998, p.7). But a credible commitment is possible to a policy that, with the right amount of flexibility, can be classified among

those that have been originally called 'structured early intervention and resolution' (SEIR) (Benston and Kaufman, 1988).

The best indicator on which to base PCA is probably, as in the case of FDICIA in the US (Benston and Kaufman, 1998, table 1), the bank's capital/asset ratio, calculated (giving adequate care to the problem of off-balance-sheet activities) using mark-to-market accounting. Corrective actions are imposed when the ratio goes below certain threshold values. The effectiveness of PCA is sometimes considered 'unclear' (Enoch and others, 1997, p.9) and 'oversold' (Peek and Rosengren, 1996, p. 2) with 'formal regulatory actions occurring well before most banks become undercapitalised according to PCA capital thresholds', the latter functioning as non-binding constraints (Peek and Rosengren, 1996, p.1). But the problem is not with PCA itself, but with the way proposed legislation on SEIR has been formulated and implemented in the US: the value of the thresholds have been fixed too low by the regulators, who 'are likely to be biased towards forbearance' (Horvitz, 1995, p.376) and who exerted the greatest opposition to SEIR, 'correctly perceiving it as a reduction in their discretionary powers' (Benston and Kaufman, 1998, p.7). A sound use of discretion, to be sure, is a perfectly compatible complement to the mandatory actions dictated by a PCA legislation: the latter serving as a credible backup of the discretionary measures that both regulators and regulated banks should take to prevent the situation from deteriorating.

This is not the place to expand on this topic, which has been dealt with in a special statement of the ESFRC (1998, June) and that is well known from the discussion and evolution of the US prudential setting. PCA type regulations have now been adopted also by other countries including Japan (since April 1998: see, for instance, the legislation cited and commented on by Milhaupt, 1999, pp.36-39), and are recommended by both the IMF and the BIS (Goldstein and Turner, 1996, p.53-54).

We only want to stress that, in our opinion, the SEIR approach is an indispensable element of an incentive-compatible banking policy framework and should be adopted in the eurozone. Explicit and centrally co-ordinated euro area PCA type policies are the most important measures to 'minimise the need for a LOLR assistance to problem banks' (ESFRC, 1998, October).

Section 9 Conclusion

Our conclusion is that LOLR in the euro area can be confined to playing a minor role, with no special danger for the efficiency and the systemic stability of the financial system, and can be virtuously managed with the art of 'constructive ambiguity'. But in order to be able to do so the current state of European banking policies and prudential setting has to be improved .

Our main suggestions go along four lines. (a) The ambiguity of the official LOLR policy must be reduced by making explicit the procedures with which decisions will be taken and potential controversies between NCBs and the ECB resolved. (b) A greater role must be played by institutional and mandatory harmonisation of financial regulation, of deposit insurance systems, and of rules to limit bailouts financed with taxpayers' money. (c) Criteria and standards for financial supervision must be fully harmonised, and national supervision activities monitored, creating a European Observatory of Systemic Risk and a first nucleus of collective euro area supervision, before this is required by the growth of multinational European banking. (d) Explicit and centrally co-ordinated euro area Prompt-Corrective-Action-type rules must be adopted, which is another reason for centralising some responsibilities in prudential matters.

Our arguments imply that a discussion of LOLR must be mainly focused on the other banking policies, that are, to a variable degree, a substitute for LOLR interventions and therefore can serve to keep to an absolute minimum the use of LOLR.

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References

- Aglietta, M., and de Boissieu, C., 1998, 'Problèmes prudentiels', in *Coordination Européenne des Politiques Economiques*, Conseil d'Analyse Economique, La Documentation Française, Paris.
- Begg, D., De Grauwe, P., Giavazzi, F., Uhlig, H., Wyplosz, C., 1998, 'The ECB: Safe at Any Speed?', *Monitoring the European Central Bank I*, CEPR, October.
- Benink, H. A., and Benston, G.J., 1999, 'The Future of Banking Regulation in Developed Countries: Lessons From and For Europe', June, mimeo.
- Benston, G.J., and Kaufman, G.G., 1988, 'Risk and Solvency Regulation of Depository Institutions: Past Policies and Current Options', *Monograph Series in Finance and Economics*, New York University Press, No.1988-1.
- Benston, G.J., and Kaufman, G.G., 1998, 'Deposit Insurance Reform in the FDIC Improvement Act: The Experience to Date', *Economic Perspectives*, Federal Reserve Bank of Chicago, Second Quarter, 2-20.
- Bini Smaghi, L., 1999, 'Who takes care of Financial Stability in Europe?', mimeo.
- Bruni, F., 1992, 'Sui rapporti fra politica monetaria, regolamentazione finanziaria e vigilanza', *Giornale degli Economisti e Annali di Economia*, gennaio-aprile.
- Bruni, F., 1997, 'Central Bank Independence in the European Union', in (Kuroda I. ed): *Towards more Effective Monetary Policy*, MacMillan, London.
- Dale R., 1999, 'Deposit Insurance in Theory and Practice', SUERF and 'Paolo Baffi Centre' conference on 'Market Approach to Financial Stability', Milan, October, draft, mimeo.
- Danthine, J.-P., Giavazzi, F., Vives, X., von Thadden, E.-L., 1999, 'The Future of European Banking', *Monitoring European Integration 9*, CEPR, January.
- De Bandt, O., and Davis, E.P., 1999, 'A Cross-Country Comparison of Market Structures in European Banking', *Working Paper Series*, No. 7, European Central Bank, September.
- De Bandt, O., and Hartmann, P., 1999, 'Systemic Risk: A Survey', mimeo, June.
- Di Noia C., and Di Giorgio G., 1999, 'Should Banking Supervision and Monetary Policy Tasks be Given to Different Agencies?' LUISS, Quaderni di Ricerca n.107, March.
- Di Noia, C., and Piatti L., 1998, 'Financial market regulation: a proposal for the Italian system', Quaderno n. 42, Dipartimento di Scienze Economiche e Finanziarie 'G.Prato', Università degli Studi di Torino, luglio.
- Enoch, C., Stella P., and Khamis, M., 1997, 'Transparency and Ambiguity in Central Bank Safety Net Operations', IMF WP/97/138, Monetary and Exchange Affairs Department, October.
- European Central Bank (ECB), 1999, 'Possible Effects of EMU on the EU Banking Systems in the Medium to Long Term', mimeo, February.
- European Commission, 1998, 'Financial Services: Building a Framework for Action', Communication to the Council and the European Parliament, 28 October.
- European Shadow Financial Regulatory Committee (ESFRC), 1998, Statement no.1, Brussels, 22 June.
- European Shadow Financial Regulatory Committee (ESFRC), 1998, Statement no.2, Frankfurt, 19 October.
- Ferguson, R.W., Jr., 1998, 'Alternative Approaches to Financial Supervision and Regulation', Conference on Financial Modernisation and Regulation, San Francisco, September, mimeo.

- Giannini, C., 1998, 'Enemy of None but a Common Friend of All'? An International Perspective on the Lender-of-Last-Resort Function', *Temi di discussione*, n.341, Banca d'Italia, December.
- Giovannini, A., 1993, 'Central Banking in a Monetary Union: Reflections on the Proposed Statute of the European Central Bank', *Carnegie-Rochester Conference Series on Public Policy*, vol. 38, June, 191-229.
- Goldstein, M., and Turner, P., 1996, 'Banking Crises in Emerging Economies: Origins and Policy Options', *BIS Economic Papers*, No. 46, October.
- Goodhart, C., and Schoenmaker, D., 1995, 'Should the Functions of Monetary Policy and Banking Supervision be Separated?', *Oxford Economic Papers*, 539-560.
- Hadjimmanuil, C., and Andenas, M., 1999, 'Banking Supervision and European Monetary Union', *The Journal of International Banking Regulation*, vol. 1, no. 2, June.
- Horvitz, P.M., 1995, 'Banking Regulation as a Solution to Financial Fragility', *Journal of Financial Services Research*, 9: 369-380.
- Lannoo, K., 1999, 'Financial Supervision in EMU', CEPS, mimeo, May.
- Lastra, R.M., 1999, 'Lender of Last Resort: an International Perspective', *The International and Comparative Law Quarterly*, vol. 48, 340-361.
- Milhaupt, C.J., 1999, 'Japan's Experience with Deposit Insurance and Failing Banks: Implications for Financial Regulatory Design?', *Monetary and Economics Studies, Institute for Monetary and Economic Studies*, Bank of Japan, Vol. 17, No.2, August.
- Miller, G.P., 1996, 'Is Deposit Insurance Inevitable? Lessons From Argentina', *International Review of Law and Economics*, 16, pp.211-232.
- OECD, 1998, 'Enhancing the Role of Competition in the Regulation of Banks', Committee on Competition Law and Policy, DFFEE/CLP(98)16, September.
- Padoa-Schioppa, T., 1999, 'EMU and Banking Supervision', Lecture at the London School of Economics, Financial Markets Group, on 24 February 1999, mimeo.
- Peek, J., and Rosengren, E.S., 1996, 'Will Legislated Early Intervention Prevent the Next Banking Crisis?', mimeo (subsequently published in the *Southern Economic Journal*, July 1997).
- Prati, A., and Schinasi, G., 1998, 'Will the European Central Bank be the Lender of Last Resort in EMU?', paper presented at the SUERF-CFS Colloquium 'The Euro: A Challenge and Opportunity for Financial Markets', Frankfurt, October 14-17.

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