

Bank of England

Principles and techniques to resolve large banks whose failure could have systemic consequences

Staff Working Paper No. 1,056

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Peter Brierley

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Peter Brierley – A tribute by Andrew Bailey, Governor of the Bank of England

The world we occupy as policymakers is usually one in which crises and events are instructive. Our views and solutions are often shaped by what goes wrong and, crucially, *after* it has gone wrong. However, just every now and then, there are some in our profession who foresee the storm before it hits.

Peter Brierley was such a person – a once in a generation central banker, and a close friend and colleague. To the generations of Bank of England staff who were fortunate enough to know and learn from him, he was a kind and intellectually generous mentor who represented the best of the Bank's values.

Peter was a faithful servant to the Bank throughout his 40 year career. He was always willing to offer his support, advice, and challenge to his colleagues; he knew his own mind but he was always open to having it changed with a persuasive argument or if new evidence came to light. He was gentle and unassuming and for many years completed his long five-days-a-week commute to the Bank from the Essex coast without a grumble or complaint.

The sad news of Peter's passing in January 2023 prompted some Bank staff to remember a set of Peter's written notes from the years before the Global Financial Crisis. Peter's focus was the lack of tools available to the authorities in the unlikely event that a systemic bank were to fail.

It is a fitting tribute to publish one of Peter's notes as part of the Bank's Staff Working Paper series.

Peter wrote down his ideas nearly two decades ago – before the collapse of Northern Rock and long before phrases like 'resolution', 'too-big-to fail' and 'bail-in' entered into widespread usage. At the time of writing, Peter's ideas were not fashionable – many of his colleagues may have considered that the potential failure of a systemic bank was too remote an event worth dedicating much time and effort to. That Peter and small handful of Bank staff at the time were undeterred by this and continued to flesh out their ideas and write about the

importance of resolution long before the idea came of age, speaks to their focus, dedication and insight.

When the Global Financial Crisis eventually hit in 2007, Peter's warnings on the importance of a resolution regime came to pass. Peter and a small team of Bank staff – what was then called the 'Special Resolution Unit' – promptly set about turning their ideas into a reality. Working closely with HM Treasury, the team designed the emergency legislation and special powers to address the failure of Northern Rock.

Today, this work lives on. It has been updated, modified, and it continues to evolve, but we now know that it was in some ways an intellectual revolution in financial stability policy. It is codified not only in international standards set out in the Financial Stability Board's 'Key Attributes of Effective Resolution Regimes', which Peter also had a hand in helping to shape, but also in the legislative frameworks of G20 countries and beyond.

In reading Peter's note, one might find it hard to conceive that it was written absent the benefit of hindsight – a testament to his thoughtfulness, creativity and imagination. The core tenet of the note is the following insight from which modern resolution regimes were born. In Peter's own words:

This discussion highlights a number of issues that are of crucial importance in resolving large banks, notably the need as far as possible to avoid insolvency or – if that cannot be done – liquidation, the ways in which certain activities of a large bank may be wound down while those bank functions of systemic importance are preserved, and finally the trade-off between preserving financial stability on the one hand and limiting moral hazard on the other.

The primary tool by which today's regime tackles this trade-off between financial stability and moral hazard is the bail-in tool – the statutory power to write down the claims of certain unsecured creditors of a failed bank, and recapitalise it. This preserves a firm's critical functions while avoiding the use of public funds. The innovation at the heart of bail-in is that the authorities can, in order to maintain financial stability and subject to appropriate checks and safeguards, change property rights outside of a court-led process.

Accordingly, some might say that the most important legacy of the work of Peter and the handful of other Bank staff in the years before the Global Financial Crisis was early in 2023, only a few weeks after he passed away.

On the morning of Friday 10 March, the UK subsidiary of Silicon Valley Bank experienced an extreme run on its deposits. SVB UK's failure was caused by the failure of its parent in the US. It was not clear that the UK firm would be able to continue meeting liquidity

outflows if the run continued beyond a few hours. The uninsured deposits of a large number of individuals and companies, including in the technology and innovation sectors, were at risk. The speed at which these events unfolded presented a distinct challenge for the UK authorities.

That weekend, the UK's resolution regime worked as intended and the Bank of England conducted a successful resolution transaction. This swift action ensured that when financial markets opened on Monday morning, depositors' money was safe and public funds had not footed the bill. The transaction included, crucially, the use of the power to cancel the liabilities of the firm to effect a successful transfer to a buyer. I am grateful to and proud of staff across the Bank, HM Treasury, and other UK authorities for working together, at pace, and day and night to achieve this outcome. Peter would have been proud too – the first time that the UK resolution regime had been used since 2011.

Moreover, the following weekend, Bank staff again worked day and night with their Swiss and American counterparts to address the failure of Credit Suisse by effecting a private sector sale to UBS. The transaction included a write down of Credit Suisse's capital instruments.

In publishing this Staff Working Paper, I wanted to underscore that Peter's work may be a reminder to policymakers. Achieving change over the course of a career is at times neither fast nor easy – but it often starts with the expression of a dissenting and minority opinion.



Peter Brierley

Views expressed in this paper are those of the authors, and not necessarily those of the Bank of England or its committees.

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A INTRODUCTION

1 This paper considers in detail the main techniques for resolving large banks and containing the systemic consequences that could arise from their failure. Thinking is underdeveloped, both in the UK and elsewhere, as to how the resolution of an insolvent bank with systemic repercussions would be handled and by whom. The paper starts by listing some general criteria underlying large bank resolutions that have been developed by international organisations. It then assesses the pros and cons of the main instruments for resolving banks, including mergers, P&A transactions, good bank/bad bank approaches, the use of bridge banks, central bank liquidity support, liability guarantees and the use of public funds. This discussion highlights a number of issues that are of crucial importance in resolving large banks, notably the need as far as possible to avoid insolvency or - if that cannot be done - liquidation, the ways in which certain activities of a large bank may be wound down while those bank functions of systemic importance are preserved, and finally the trade-off between preserving financial stability on the one hand and limiting moral hazard on the other. These key issues are considered separately before some general conclusions are drawn.

B GENERAL PRINCIPLES

(i) Overview

2 Hart (2002) has identified three objectives that all good insolvency regimes should meet. The first two are to deliver efficient outcomes both *ex ante*, by penalising managers and shareholders of the failed institution adequately, and *ex post*, by maximising the value of the bankrupt business. The third is to maintain the absolute priority of claims to protect incentives for senior creditors to lend and avoid perverse incentives if some creditors have lower priority in insolvency than in non-insolvency. These objectives apply equally to banks and non-financial companies. But a fourth objective is generally added in the case of banks – a good insolvency procedure should limit the costs of systemic risk. This applies with particular force to the resolution of large banks. Herring (2005) summarises this by postulating that an appropriate insolvency regime for large banks is one that maximises the value of the bank's operations, subject to the constraint that management and shareholders are adequately penalised, repayment priorities are retained and systemic costs are limited.

3 Similar or related objectives appear in much of the recent literature on approaches to the resolution of large banks. This has sought to identify the key issues that should be taken into account in such resolutions (see, for example, Bliss (2003), Goodhart (2004), Krimminger (2004), Mayes (2004), Herring (2003), Freixas et al (2000), Kaufman and Seelig (2002), Hupkes (2004) and Eisenbeis et al (2004)). The literature has developed alongside the establishment of general principles for resolving large banks by a number of international organisations, including the World Bank (2003), the IMF (2003), the joint Task Force on the winding down of large and complex financial institutions (2001) and the Basel Committee on Banking Supervision (2002). These principles are summarised below. They differ in the extent to which they rely on constructive ambiguity to reduce the moral hazard that may arise if market participants believe that large banks will inevitably be bailed out. In this context, Rochet (2002) argues that objective criteria for deciding when a large bank has to be bailed out for systemic reasons are preferable to constructive ambiguity, because they provide a degree of accountability that is missing in an ambiguous approach.

(ii) The Joint Task Force

4 The first of the recent attempts to develop such criteria was that by the joint Task Force (2001). This highlights a number of particular difficulties in resolving a large and complex financial institution (LCFI). First, it is likely to be a major challenge for the authorities to acquire the necessary information, especially inasmuch as information asymmetries and competition between authorities may, as Hupkes (2004) notes, hinder the required sharing of information across jurisdictions. Second, there will almost certainly be problems in containing the prospective systemic repercussions. Third, the complexity of the institutional environment will add to the difficulties. And fourth, there will be challenges in selecting appropriate crisis management measures to deal with the LCFI's problems and the wider spillover effects. A key issue, considered in more detail in a separate section below, will concern the balance to be struck between preserving financial stability by containing systemic risk on the one hand and minimising moral hazard on the other.

5 To reduce these difficulties, the joint Task Force (2001) recommends that communication between financial supervisors and LCFIs should be improved through

the regular collection and sharing by both supervisors and firms of comprehensive information on the structure and conduct of firms' businesses. In addition, the authorities and the firms need to develop contingency plans for addressing liquidity and funding needs during periods of stress and for dealing with a crisis. Since the Task Force reported, some progress has been made on both these fronts. First, much work has been done on the development of LCFI "fact books", containing information on organisational and managerial structures, business activities, corporate governance, liquidity sources, risk profile, systems and controls and supervisory regimes. These fact books have been "field tested", to assess whether the types of information likely to be needed in dealing with an LCFI failure are readily available to the authorities, and refined as a result of the tests. Second, contingency planning by LCFIs has progressed substantially, with stress testing becoming more sophisticated in assessing the potential effects of adverse market conditions and increased emphasis on the continued provision in a financial crisis of essential infrastructure services to payment and settlement systems. And third, a number of financial authorities have sought to clarify the circumstances in which financial support might be provided to large financial institutions.

6 Once a large bank resolution procedure becomes necessary, the joint Task Force (2001) argues that a key initial element in managing the resolution is to assess the bank's financial position, including the adequacy of liquidity and capital, possible access to new capital and spillover effects on affiliates and third parties. The swiftness of market reactions to problems and the reliance on almost instantaneous communications mean that the authorities will have to make these assessments and key decisions very rapidly, with less than optimal information. In particular, the authorities will need to assess the systemic effects of the failure at the earliest possible stage. The effectiveness of this assessment will depend, inter alia, on the degree of international co-operation across jurisdictions.

7 The ideal longer-term outcome in the view of the joint Task Force (2001) will be a private sector solution in which the failed bank merges, sells off divisions or is acquired by a stronger financial institution. It argues that this is likely to be the least costly option for the authorities and also the one that generally preserves the most value for creditors and investors. The authorities should therefore encourage the failed

bank to make contact as soon as possible with those private sector participants with the most incentive to provide support, eg lead bankers and wholesale market counterparties likely to lose most from any major default. The authorities may be in a position to play a facilitating role in the failed bank's efforts to arrange a private sector solution.

8 If a private sector solution is not feasible, perhaps because the problems confronting the LCFI are too severe, the authorities may wish to encourage the wind-down of certain positions, with the LCFI closing out positions and/or selling individual businesses. This may reduce possible disruption to markets and better position the LCFI in the event of recapitalisation or sale. It may also reduce the cost of resolution if public funds are required. But it is recognised that an orderly wind-down will not be possible unless the efforts of all the relevant parties are properly coordinated. If that does not happen, creditors and market counterparties will seek to protect positions by withdrawing funds, closing out own positions and seizing assets and collateral.

9 Having reviewed all these issues, the joint Task Force (2001) provides a useful checklist of the key decision-making stages involved in managing a large bank resolution. This is divided up as follows: (i) examine the extent to which a large bank can resolve the crisis through the private sector and whether such efforts require assistance and possible financial support by the authorities; (ii) examine whether the shareholders/parent firm or other affiliates should or are able to provide capital or liquidity support to the distressed entity; (iii) consider whether it is possible or necessary to preserve the group and all of its entities; (iv) assess whether the distressed entity can be insulated from other parts of the group; (v) assess whether a sale or wind-down is a possible remedy; (vi) decide who should control the implementation of the course of action – the management, board of directors, banking supervisors or court-appointed insolvency practitioners; (vii) consider whether public sector support should be provided and if so whether only to the immediately distressed entity or other parts of the group; and finally (viii) evaluate which solution permits an optimal balance between the management of any systemic risks and the moderation of any increase in moral hazard.

(iii) The Basel Committee

10 The Basel Committee on Banking Supervision (2002) has principally developed guidance for dealing with distressed banks of ordinary size. It notes that more far-reaching restructurings may be required for LCFIs, because they are less likely to find partners with the financial resources to carry out a merger or acquisition. The supervisor should in this case undertake a group assessment, based on information provided by and about other group entities. It should consider the feasibility of appointing a co-ordinator, to collate information from individual supervisors and act as a point of contact on group-wide issues. If there is little prospect of a universal approach to the resolution of the bank, it may wish to ring-fence the bank. Similar considerations would apply to an international financial conglomerate, although the BCBS acknowledges that information-sharing on a cross-border basis will present additional difficulties.

(iv) The IMF

11 If problems at one or more banks threaten a significant and adverse impact on the real economy, the IMF (2003) suggests that policies should be aimed at limiting losses of depositor confidence, protecting payment systems, restoring solvency to the bank or banks and preventing further macroeconomic deterioration. As in a corporate resolution, a key initial element of managing a bank resolution should be to determine the bank's viability, by assessing its medium-term plans and cash-flow projections.

12 If the bank is deemed viable but undercapitalised, an additional assessment is necessary of the ability of existing shareholders to recapitalise the bank within an acceptable period, or if public funding should be considered. The bank should be required to present a restructuring plan showing how it intends to remain solvent and profitable and should be subject to more intensive reporting and monitoring.

13 If the bank is deemed non-viable or insolvent, it will need to be resolved as soon as possible to limit losses. In this process, the sharing of the burdens associated with the resolution should be guided by the principle that shareholders and subordinated debt holders of the failed bank should absorb losses first. Thereafter, they should be shared by a combination of creditors, depositors and the government. The bank should be passed to the agency responsible for bank resolution, which will need to decide on

the resolution options. If the bank is closed, a decision is required on how to manage or sell its assets and liabilities. If the bank is kept open, the agency needs to decide whether to recapitalise it with public funds, offer it for immediate sale, possibly with a government guarantee on certain asset values, or merge it with a sound public sector bank. The choice of option should be guided by a “least cost” criterion applicable to the economy as a whole.

(v) The World Bank

14 The World Bank (2003) also emphasises that a large bank must be resolved as rapidly as possible, in a manner that minimises disruptions to the financial system and limits costs to depositors, creditors and taxpayers. Like the joint Task Force (2001), the emphasis is placed on initially seeking a full or partial restructuring through any available private sector solutions. The World Bank (2003) also argues that, as far as possible, the choice between resolution techniques should be guided by a desire to minimise moral hazard and the costs of intervention, unless a departure from this principle is justified by a need to stabilise the financial system. The choice should also be consistent with the maintenance of competitive banking conditions. And the subsequent resolution should be accomplished in a manner that emphasises the accountability and transparency of the process.

15 The management of the systemic repercussions of a large bank failure will necessitate separation of the bank’s performing assets from its impaired assets. The authorities will also need to focus on the bank’s liabilities, considering in each case a set of measures ranging from the provision of broad-based guarantees in favour of depositors and other bank creditors to mandatory changes in deposit contracts, including temporary freezes on withdrawals, lengthening of maturities or changes in currency denomination.

(vi) Conclusions

16 In any large bank insolvency, a choice will have to be made between various resolution techniques for managing or selling the bank’s assets and liabilities, some of which will involve the use of public funds and guarantees. The pros and cons of these different techniques are considered in detail in the next section. In making the choice, the authorities will need to be guided by certain principles laid down by official

bodies and expert groups. In particular, they will need to evaluate the costs and benefits of the techniques, but also their effectiveness in containing the adverse systemic effects of the failure. This latter consideration will point towards procedures that ensure the stabilisation of bank liabilities, stop deposit withdrawals and reduce interbank credit lines, thereby restoring confidence in the banking sector and protecting payments and settlement systems from disruption.

C METHODS OF RESOLVING LARGE BANKS

(i) Introduction

17 Santomero and Hoffman (1998) note that there are three generic options available for a bank resolution. These are: (i) permitting its continued operation under certain restrictions; (ii) facilitating a merger with another institution; or (iii) closure of some form. A number of possibilities are available under each of these headings. In the case of a large bank, the authorities will be likely to lean in favour of (i) or (ii) rather than (iii), given that the failure of such a bank will have systemic consequences. In arriving at a choice between the available alternative techniques to resolve a large bank, Haldane et al (2005) point out that the authorities will need to take into account the cause and consequences of the bank's problems. If the situation is non-systemic, a technique focusing on the failed bank's balance sheet, such as a merger or a liquidation, will be appropriate. In a systemic situation, by contrast, the immediate aim of the authorities will be to restore stability to the financial system as a whole, for example by the provision of a guarantee to liability holders. If the bank's failure reflects a specific factor, such as fraud, the systemic threat will depend on the size and type of direct linkages the failed bank has with the rest of the financial system. But if its failure results from a more general shock that could also threaten other unconnected banks, the focus should be on maintaining the activities of the distressed bank or, failing that, unwinding it in an orderly fashion that limits the impact on other financial institutions and markets.

(ii) Merger, takeover and P&A transactions

18 The most straightforward manner in which a large bank may be resolved is for it to merge with or be acquired by another large financial institution. The Basel

Committee on Banking Supervision (2002) and the World Bank (2001) list several advantages of an M&A transaction. It maintains the failed bank as a going concern, enabling its activities to continue, avoiding disruption to banking services and payment systems and thereby minimising the impact on markets. The acquisition of the existing banking franchise may be attractive to other banks wishing to expand their operations, who may be prepared to pay a price that reflects the goodwill value of a banking franchise that would not have been retained had the bank been liquidated. A packaged transfer of the distressed bank's assets and liabilities is also likely to be more efficient than a piecemeal liquidation and will provide much better protection to depositors and creditors, thereby reducing costs to the deposit insurer.

19 Two main problems arise in M&A transactions. First, an otherwise sound bank may be substantially weakened by the purchase of an insolvent bank, with no net benefit to the stability of the overall banking system. Dziobek (1998) notes that this is a common problem with "forced mergers" – those induced by the authorities, often mainly on political grounds. Second, in the case of a very large bank facing insolvency, there are likely to be few if any financial institutions that are either willing or that possess the necessary financial resources and strength to acquire the failing bank. Even if that barrier could be overcome, perhaps through the provision of incentives by the authorities, the acquisition of a large bank by another large bank may raise competition issues of sufficient magnitude to undermine fatally any proposed transaction.

20 A P&A transaction is distinct from a merger in that it is effected via the purchase, by one or more sound banks or investors, of some or all of the failed bank's assets and the assumption of some or all of its liabilities, rather than a sale of its equity. It is therefore smaller in scale than a full merger. It will be organised by the authorities, who will generally require that the failed bank's management be removed and its shareholders be penalised. For many years, the P&A was the preferred method of resolving banks in the US, because the FDIC believed it imposed the lowest costs on uninsured depositors and unsecured creditors, as well as retaining the franchise value of the failed bank. It was also felt to have a smaller effect on banking sector operations than the main alternatives and to minimise moral hazard.

21 Like a merger, however, a P&A requires the co-operation of private sector banks. As noted by Eisenbeis et al (2004), this makes it a less suitable technique to resolve a large bank facing insolvency, because any potential acquirers will be more likely to demand substantial guarantees and assurances to induce them to participate in the P&A. A key issue relevant to this is what proportion of uninsured liabilities and non-performing or other risky assets should be transferred. At the very least, the greater problems that are likely to affect a failed large bank will radically reduce the number of institutions willing or able to purchase the greater portion of its assets and assume most of its liabilities, without some form of government assistance in the form of a loss-sharing arrangement or other financial inducement. Marino and Shibut (2002) also point out that the need in a large bank P&A to carry out extensive negotiations with a potentially wide range of private sector banks increases the likelihood of the P&A becoming public knowledge, which could fatally undermine the resolution of the large bank and induce contagion effects on other similarly-placed institutions, leading to greater systemic risk.

22 One variant of the P&A approach designed to overcome these problems is to transfer only the relatively sound assets and only known liabilities to the new bank(s)/investor(s), with the authorities paying them any difference between the value of these assets and liabilities. The less sound assets and open-ended liabilities will then either be liquidated or more usually go to a specialist asset management company. This is a type of P&A transaction often known as a good bank/bad bank approach. Santomero and Hoffman (1998) point out that the good bank, given that it retains all performing assets, should be able to raise capital with ease, while the bad bank, holding the non-performing assets, directs its efforts at loan recovery and then self-liquidation. This approach tends to avoid the problems associated with a merger or fuller P&A, but if well-structured retains most or all of their advantages, such as minimising the adverse impact on markets by returning good assets and deposits to normal banking operations quickly, avoiding any loss of service for insured depositors and maintaining the franchise value of the failed bank.

23 Bolzico (2005) argues that, if effective, the good bank/bad bank approach preserves banking services and jobs, eliminates legal uncertainties for the buyer(s), in that all hidden claims remain with the bad bank, and keeps moral hazard under control

(since the shareholders of the original failed bank will lose heavily). He adds that it has been used effectively in resolving a number of banks in various Latin American countries, with little or no fiscal cost, moral hazard or systemic impact. But none of these cases involved globally active large banks and it remains uncertain how effectively the good bank/bad bank approach can be applied to such banks. In large bank resolutions, greater uncertainties are likely to cloud the choice of precisely which liabilities are transferred to the good bank, and there may also be a temptation to transfer assets regarded as of systemic importance into the good bank, even if they are substantially impaired. This again raises the issue that potential acquirers of the “good” assets and liabilities may be difficult to find in the absence of additional guarantees by the authorities. One possible response is to reduce the proportion of liabilities that has to be acquired by converting a portion of them into equity (see Granlund and Kauko (2005) for a summary of this option). But this debt-equity swap approach would probably also require some form of guarantee by the authorities to mitigate the potentially adverse effect on the failed bank’s creditors brought about by the receipt of large numbers of shares in the bank, possibly in volatile market conditions.

(iii) Bridge banks

24 The bridge bank resolution procedure is another type of P&A in which a public sector authority, rather than a private institution, purchases some or all of the failed bank’s assets and assumes some or all of its liabilities. In general, the public authority will be the resolution agency, which will either directly or via a bank which it licenses and controls (the so-called “bridge bank”) assume all of the insured deposits but not necessarily all (or indeed any) of the uninsured liabilities. As with the good bank/ bad bank approach, the public authority/bridge bank will seek to acquire mainly the good assets, with the bad assets either liquidated or transferred to a specialist asset management company. Uninsured liabilities not assumed by the bridge bank receive payment as assets are liquidated or realised. The shareholders of the original failed bank will assume the bulk of the losses associated with the resolution.

25 The public sector acquisition involved in this approach is meant to be only temporary and the bridge bank should not remain in operation for any length of time. Indeed, if the failed bank remains too long under official control, it may lose value as

customers seek alternative providers of banking services. As emphasised by the BCBS (2002), the bridge bank procedure is designed to “bridge” the gap between a bank failure and the time when the resolution agency can market the bank in a manner allowing for its satisfactory acquisition by a solvent third party. The authorities will generally appoint a new management team for the bridge bank, whose job it will be to run the bank conservatively and maintain its franchise value until the final resolution is arranged. This allows potential purchasers the time necessary to assess the bank’s condition and decide whether to submit offers, while at the same time permitting an uninterrupted service to the bank’s customers. Insured depositors will continue to have access to funds, credit will continue to flow to sound customers, while haircuts will be imposed as necessary on uninsured depositors and unsecured creditors.

26 The bridge bank approach has generally been used to resolve larger and more complex banks, where the authorities believe there is value to be realised but do not yet have a ready solution. As the World Bank (2001) puts it in a nutshell, it enables the authorities to stabilise a large bank suffering a run or a crisis of confidence, clean up its balance sheet and organise a bidding process through which interested parties can carry out due diligence prior to making an offer for the bridge bank. The bridge bank technique has been used with particular success by the FDIC in the US to resolve larger banks with more complex financial structures. The FDIC’s preference for this approach predated the adoption of FDICIA in 1991, but continued after then. The FDIC has found that, because the bridge bank approach maintains the franchise of a failed large bank most effectively during the period when the FDIC performs the initial due diligence and markets the assets of the bank to potential acquirers, it tends to minimise the FDIC’s resolution costs. Indeed, this is the main reason why the systemic risk exemption allowed for under FDICIA to the least cost resolution requirement has not so far been invoked¹.

27 The ability of the bridge bank procedure to resolve large banks effectively depends ultimately on its ability to contain the systemic risks arising from large bank failures. Some commentators argue that, if action is taken sufficiently early, the bridge bank approach has the potential to make whole any particular class of creditors

¹ See my paper “The US and other approaches to bank insolvency”, 7 April 2005.

on which systemic risk concerns are focussed (see Eisenbeis et al (2004) for this line of argument). This suggests that the bridge bank procedure may work most effectively alongside an insolvency law framework emphasising early intervention to resolve failing firms. It also depends crucially for its success on the proportion of uninsured liabilities or unsecured assets that are passed to the bridge bank.

28 In some cases, the bridge bank approach may not adequately address concerns about systemic risk. Marino and Shibut (2002) set out the circumstances in which this may be the case. If the bank has a large and troubled derivatives book, some or all of these contracts may be abrogated in the receivership that precedes the bridge bank's establishment, potentially causing significant disruptions to financial markets. If other banks are perceived as having problems similar to those of the failed bank, creditor losses at the failed bank may trigger depositor runs at other banks. If the failed bank has a significant role in payment systems or sizeable interbank loans outstanding, its failure may cause disruptions to payment systems or impose substantial losses on other banks. Finally, operational difficulties may delay the opening of the bridge bank or access to funds for important creditors. All these circumstances are most likely to apply in resolutions involving the very largest banks. In these cases, Hoggarth et al (2004) point out that official assistance by the authorities is likely to be required, possibly leading to outright government ownership of the failed bank, which is then nationalised in a manner that eliminates the existing shareholders' interests but protects depositors and secured creditors.

(iv) Central bank support

29 Central banks have an important potential role to play in resolving large banks whose failure may have systemic consequences, for a number of reasons. First, regardless of whether they are responsible for banking supervision or not, they may be among the first to pick up that a large bank is facing difficulties, if that manifests itself initially in liquidity problems in money markets and large-value payment systems. Second, they generally have a mandate to maintain financial stability, so should in theory be in a good position to assess the possible effects on the stability of the financial system of a large bank failure. That said, central banks will often face uncertainty over the extent to which an LCFI failure threatens systemic consequences. Such uncertainty has increased in recent years, reflecting such factors as the greater

range of international activities conducted by most LCFIs, their wider use of complex financial instruments and the increased complexity of counterparty linkages².

According to the CGFS (2000), this raises the issue of whether a non-supervisory central bank should seek to make its own decisions on the solvency of an LCFI and the systemic implications of its failure. In practice, this probably ought to be a joint decision, with the supervisor best placed to advise on solvency, but the central bank perhaps in a better position to assess systemic risks, given its monetary policy and payment system oversight roles. And finally, central banks have a range of tools which may help to resolve banking sector problems, including monetary policy, the authority to engineer a private sector solution, the provision of lender of last resort (LOLR) support or emergency liquidity assistance (ELA) to firms and markets, and the provision of support to market infrastructures, such as payment and settlement systems.

30 Among these tools, although monetary policy has been used by central banks in the past as a means of resolving a systemic banking crisis, this has generally been in the context of a threat to the entire banking system. An analogous approach would be the extension of normal open market operations, generally used to implement monetary policy, to provide emergency liquidity support to the market as a whole. But monetary policy is less appropriate as a tool for resolving the problems at a single large bank, especially as any such attempt may conflict with the economic objectives of monetary policy, such as the achievement of an inflation target. A more relevant approach, and one that should always be considered before the use of any public funds, is for the central bank to take the lead in organising a private sector resolution of problems affecting one or more banks or financial institutions. Examples would include the lifeboat scheme in the UK in 1973-4 and the LTCM rescue in the US in 1998. A less subtle approach might involve putting pressure on surplus banks to lend to deficit banks in interbank markets. Freixas et al (1999) rightly point out that such approaches can only be justified if the central bank has superior information to that of market participants. And they also note that such private sector solutions may become less feasible as the degree of competition in markets rises.

² The systemic consequences of a large bank failure may also vary depending on the cause and timing of the bank's problems, and the economic and financial conjuncture more generally.

31 Almost all central banks have the power to act as LOLR. The World Bank (2003) argues that this typically has three primary objectives: (i) to protect the integrity of the payments system; (ii) to prevent a large bank's illiquidity problems developing unnecessarily into a state of insolvency; and (iii) to prevent a run on the bank spilling over to other banks, potentially resulting in a systemic crisis. A number of different LOLR techniques are variously available to central banks around the world to achieve these objectives, including discount window lending, the provision of standby facilities to banks, open-market operations to support the financial system as a whole and public announcements. The joint Task Force on the winding down of LCFIs (2001) argues that, if the central bank support is intended to maintain an LCFI as a going concern, while measures to wind it down or restructure it are being considered, it will normally take the form of bilateral lending to the firm and possibly to other firms suffering contagion effects. Other methods of central bank support include: the provision of overdrafts to support the payments system; the facilitation of settlement of transactions, either directly by interposing itself as a counterparty or indirectly by acting as an agent for a failed bank's counterparties; the broad discounting of eligible paper; the provision of indemnities or guarantees; and the reduction of required reserves.

32 The term "emergency liquidity assistance" is often used interchangeably with LOLR support. The World Bank (2003) argues that the two may be distinguished if ELA is confined to emergencies which justify the provision of support over and above normal LOLR facilities. A further distinction is that LOLR support is invariably provided by the central bank, whereas ELA can in theory be provided not only by central banks but also by government agencies or through semi-private assistance. In practice, however, the defining circumstances distinguishing a situation requiring ELA from one justifying LOLR support have not been identified with any degree of precision, so in what follows both terms will be used to describe central bank intervention to assist large banks facing severe financial problems which could have systemic repercussions.

33 Many commentators have sought to define the conditions that should be attached to the provision of ELA/LOLR support. Recent examples include the World Bank

(2003), the IMF (2003), Freixas et al (1999), Delston and Campbell (2002), Frydl and Quintyn (2000) and Sleet and Smith (2000). There is general agreement that, to avoid weakening banks' risk management incentives, support should be provided, in the form of liquidity rather than risk capital, as far as possible only to systemic banks that are ultimately solvent but temporarily experiencing liquidity shortfalls. This could arise, for example because of inefficiencies in interbank markets, resulting in some solvent banks becoming illiquid because they are unable to borrow from other banks. And such support should generally be short-term (with a clear exit route for the central bank), secured by high-quality collateral³ and subject to relatively high interest rates (without of course precipitating the very collapse the intervention is seeking to avoid). Replacement of the bank's management may be required, while support should be structured so that the risk of further losses is borne first by the bank's shareholders, while any potential profits should accrue initially to the central bank. The central bank should also limit its own financial exposure from any rescue operation to a minimum. George (1994) has also emphasised that, to limit moral hazard, the support should be subject to constructive ambiguity⁴, with a presumption that it will not be provided if there is no perceived risk to the financial system generally. The central bank should therefore generally refuse financial support to insolvent banks whose failure would not threaten systemic stability.

34 The application of these conditions to central bank LOLR support is in practice complicated by the fact that it is often very difficult to distinguish between illiquidity and insolvency, especially when there are concerns that denying support may result in widespread losses of confidence leading to a systemic crisis. In such circumstances, the time scale for deciding whether to provide support will generally be too short for the central bank, even if responsible for banking supervision, to assess whether the bank is illiquid or insolvent. If supervision is carried out by a separate organisation, the central bank will be even less likely to be able to distinguish between a case of illiquidity and insolvency, even if it has close contact with the supervisory authority

³ It is possible that insufficient high-quality collateral will be available, in which case central banks may seek to widen the category of eligible collateral. But if the resolution of the LCFI takes place at a time of highly volatile asset prices, the collateral taken may prove to be inadequate to insulate the central bank from risk.

⁴ It is important to appreciate that the constructive ambiguity should relate to the conditions under which financial support is provided to a large bank, not to the framework or mechanisms in place for resolving the bank.

and rapid access to relevant supervisory information. And in any event, even if a bank is solvent at the time support is provided, it may rapidly become insolvent thereafter, without this necessarily implying that the support should be immediately withdrawn. These factors may mean that, in practice, the terms and conditions attached to central bank support will need to be determined on a case-by-case basis.

35 The IMF (2003) in any case notes that denial of central bank support to a large bank may not be feasible, even if it is insolvent, if that undermines the payment system and risks triggering a wider crisis. In such cases, it argues that central bank support should be explicitly guaranteed by the government, so that any losses are ultimately met by the government. Freixas et al (1999) make a similar point in arguing that in these circumstances the central bank should have a clear exit strategy for its LOLR lending. If a large bank is clearly insolvent, they add that in practice it will be the government that will have to decide whether to use public funds to recapitalise the bank, with the central bank advising on the systemic consequences of failing to support the bank. In principle, any decision to provide LOLR support to a large bank should depend on a comparison of the costs of such support with the costs to the economy of the financial instability that may result if the failure of that bank has systemic effects. In practice, however, the very systemic importance of the bank implies that the costs to the real economy and to financial stability of closing it down are likely to exceed the costs of any central bank support to keep it open. Notwithstanding constructive ambiguity, therefore, Delston and Campbell (2002) conclude that there is a general perception that LOLR support/ELA will be provided to insolvent banks considered too big to fail. Mayes (2004) regards this implicit guarantee of intervention as part of the safety net provided by the authorities to ensure the efficient operation of the financial system in the event of a severe shock to a large financial institution.

36 A number of other issues relating to LOLR support/ELA have also been identified by the joint Task Force (2001). These include: (i) the extent to which it should also be extended to non-bank financial institutions whose failure could also have systemic consequences; (ii) who assumes the final cost if it cannot be fully collateralised and this results in losses; (iii) whether separate arrangements, such as a government guarantee, should also be involved; and (iv) whether there should be a

limit to the availability of support. Since the Task Force reported, attitudes to LOLR/ELA have undergone considerable further development. There is greater awareness of the potential need to provide ELA to markets as well as institutions in times of crisis. Central banks have stated their willingness to accept a wider range of collateral against which ELA may be provided. And the growth of financial conglomerates has meant that a greater range of financial institutions are now accepted as being eligible for liquidity support, including large non-banks whose failure could have systemic consequences.

37 One question that is much more fundamental than any of these, however, and that remains unresolved, is the issue of how central bank assistance to a large bank should be organised in an international context. In practice, given that most large banks will operate in several countries, the co-ordination of central bank assistance across these countries is a key issue if a large bank gets into major financial difficulties. Such a bank may well require assistance in more than one jurisdiction and in more than one currency. Unfortunately, there is as yet no formal international agreement on the co-ordination of central bank support in such circumstances or on where the prime responsibility for central bank liquidity support should lie. This could undermine any individual central bank's ability to manage a systemic crisis associated with the failure of a large and complex bank.

38 Freixas et al (2000) argue that this lack of consensus on the provision of liquidity support to an international bank reflects the lack of a theoretical foundation to analyse systemic risk, from which the appropriate role of LOLR/ELA can be derived. They cite the closure of BCCI in July 1991 as a case in point, given that it induced depositors to switch funds to larger banks. This should not in theory have had any effect because larger banks should have immediately lent these funds to smaller banks in the interbank market. But this did not happen, and the Bank of England had to intervene to encourage the large clearers to help banks that had been affected by contagion. According to Freixas et al (2000), theory is so far unable to explain why central bank intervention is necessary in this type of event.

39 It is unclear to what extent this kind of theoretical lacuna compounds or explains the lack of international consensus on the way in which central bank liquidity support

should be provided to an international bank. Regardless of the theoretical considerations, however, there does seem a need to develop a framework within which central bank liquidity support may be co-ordinated across countries, with particular emphasis on the apportionment of such support between home- and host-country central banks. The issues this raises have been considered by, among others, the CGFS (2000 and 2004). This notes that the risks of cross-border liquidity crises have risen, reflecting the growing share of financial activity accounted for by international financial institutions. But the Basel Concordat merely specifies principles for the supervision of and information exchange on a bank's foreign activities; it provides no guidance as to which central banks should be primarily responsible for the provision of ELA to international banks. This could mean that time-critical information is impossible to obtain when the authorities are considering the provision of ELA to systemically-important domestic financial institutions operating abroad or foreign financial institutions operating in domestic markets.

40 In practice, if a large bank is systemically important abroad but not at home, the host central bank(s) is (are) likely to have a greater interest in providing liquidity assistance than the home central bank. Any notion that the home central bank should be primarily responsible for liquidity assistance to a large bank is consistent with the idea that, if such a bank's foreign subsidiaries or branches experience major liquidity problems in a particular country, they should in the first instance resort to the parent bank or head office. This accords with the centralisation of liquidity management in large and complex banks. A problem clearly arises if the parent is unable to provide the necessary liquidity. In that case, the allocation of primary responsibility for liquidity support to the home central bank may place too substantial a burden on it and give rise to possible conflicts of interest between home and host country interests. It is in any event likely in the above example that it will be the host central bank that is the first to identify the problem. The current consensus internationally, albeit as noted above not formalised in any agreement, is that the host central bank is then the natural candidate to take the lead in the provision of liquidity support.

41 The CGFS (2000) has also formulated a more complex model along the following lines. In cases where a foreign subsidiary or branch of an international bank experiences *liquidity* problems which its parent is unable to resolve, it would look to

the host central bank to provide support if the international bank could offer acceptable collateral. If not, it would be up to the home central bank to decide whether support was justified and if so to provide the host central bank with the necessary collateral. If, however, there were doubts about the *solvency* of the local operation or group as a whole, it would be a matter for the home state authorities to decide whether support was justified and if so to provide it.

42 What this discussion indicates is that the principle of home country primacy widely accepted in the international approach to consolidated supervision of international banks is not necessarily always appropriate in a crisis affecting an international bank's activities abroad, especially if they are of more systemic significance than its domestic operations. In practice, a collegiate approach in which responsibility is shared among different central banks will be necessary, but this will require close co-operation among those central banks. Further work is therefore needed on the co-ordination and use of policy measures to resolve a cross-border liquidity crisis affecting a large bank. This needs to build on the progress already made on the development of fact books containing the information that needs to be shared among the authorities in the different countries affected and on the principles for determining the systemic consequences of a shock.

(v) Liability guarantees and the use of public funds

43 Central bank assistance to help to resolve the problems facing a large and complex bank may be backed up also by the use of public funds. This may involve either a contingent or actual liability for the public sector. The former is implied by the provision of a deposit guarantee by the authorities. The main issues in relation to such a guarantee relate to the number of banks and the proportion of their liabilities that should be covered. Garcia (2000) postulates that it may be the only way of dealing with a large unexpected shock to most or all of the banking sector. In that event, recourse may have to be made to a "blanket" guarantee, extending to a large number of banks and covering a wide range of liabilities. Although the authorities may formally guarantee only deposits, repos and senior/subordinated debt instruments, in practice it is virtually impossible not to extend a blanket guarantee to derivatives and other off-balance sheet contracts. Such a guarantee will encompass all creditors whose flight could threaten systemic effects.

44 The implication of this argument is that a guarantee may be less justified in the event of severe financial difficulties affecting a single large financial institution. But the IMF (2003) argues that a more limited guarantee, extending to all of a single large bank's liabilities other than capital and subordinated debt, may still be justified if it is capable of stopping a run on that bank caused by a fundamental loss of depositor confidence in it. Haldane et al (2005) list the advantages of such a guarantee as avoiding the losses of welfare and possibly reduced consumption that would otherwise be suffered by risk-averse depositors, avoiding the risk that the economy will be deprived of some of the benefits of financial intermediation and limiting the risk that depositors of other probably solvent banks may take fright, worsening the systemic consequences of the original bank failure. If this latter risk is in danger of materialising, a guarantee providing full protection for depositors and most creditors may be the only way to contain the systemic effects and restore financial stability in this case, as well as in the case where a larger number of banks have been directly affected by an initial adverse shock. Hoggarth et al (2004) add that, in either case, the imposition of losses on uninsured depositors or other creditors may exacerbate liquidity problems in a systemic crisis, so a blanket guarantee issued by the government may well need to be combined with the provision of ELA by the central bank.

45 Frydl and Quintyn (2000) note that, although the immediate objective of a bank liability guarantee may be to prevent or stop bank runs, in the slightly longer run it will also aim to stabilise bank funding and buy time while restructuring work is organised and carried out. The aim is first to stabilise the liabilities of one or more failed banks, before moving on to restructure their assets, using the techniques considered above. If it forms part of a package of credible stabilisation measures, the chief benefits of such a guarantee will be the avoided costs of panic, as manifested in avoided disruption to the payments system, the avoided liquidation at fire-sale prices of marketable assets, and the avoided costs of liquidating non-marketable loans (which in turn may lead to the liquidation of borrower collateral with consequential adverse effects on borrower activity and the economy more widely). Set against these benefits, Haldane et al (2005) note that the two main drawbacks of a guarantee are the moral hazard it may engender, affecting both banks and depositors, and the fact that

the fiscal and wider macroeconomic costs of a guarantee may be large. To minimise moral hazard and these costs, any guarantee will need to be used sparingly and temporarily, being replaced by the normal more limited deposit insurance as soon as conditions permit.

46 Turning to the actual rather than contingent use of public funds in response to problems at a single large bank, the purposes of such funds have been listed by Enoch et al (1999) as to: (i) make payments to depositors of that bank; (ii) compensate any other bank or banks that agree to accept a deposit transfer from that bank; (iii) facilitate and finance part or all of an acquisition, merger, P&A or bridge bank transaction with respect to that bank; and (iv) recapitalise the bank and restructure its assets. In the latter case, the authorities will hope to restrict their assistance either to the provision of a capital injection or the purchase and rehabilitation of non-performing assets, but in some cases it may be necessary to do both. This may require the creation of a special bank restructuring agency, which will itself use public funds to recapitalise the bank. The authorities will be more likely to go down this route, however, in a systemic banking crisis involving multiple bank failures rather than a single failure.

47 The joint Task Force (2001) argues that the use of public sector funds to effect a large bank resolution should be regarded very much as a last resort, to be considered only if other alternatives, such as a private sector resolution, may not be arranged by the bank itself and if the costs of liquidating the bank are judged excessive. On this last point, Hoggarth et al (2004) argue that the higher the value of the bank as a going concern relative to its break-up value, the greater the case for providing public support rather than liquidating the bank. As with the provision of support generally by the authorities, the costs of public sector intervention will need to be weighed against the costs of a possible systemic crisis induced by the large bank's failure. Frydl and Quintyn (2000) point out that the costs of intervention may be divided into fiscal costs and moral hazard costs. The fiscal costs will include both the payments actually made to depositors and creditors more generally as a consequence of the activation of a guarantee and the costs associated with resolution actions taken by the public sector itself. The latter may include any or all of the costs of determining that the failed large bank has a positive franchise value, the search costs that may arise if private investors

are eventually found to recapitalise or merge with the failed bank, the costs that may be necessary to support an eventual private sector restructuring of the bank and the costs arising from any temporary nationalisation measures.

48 If the authorities determine that the use of public funds to bring about a large bank resolution is after all justified, they should ensure that appropriate conditions are attached to it. The BCBS (2002) emphasises that it should be dependent on the implementation of an action plan designed to restore profitability and sound management to the bank. Enoch et al (1999) point out that, if a separate asset management agency is established to restructure the bank's assets, it may also wish to take control of public funds already expended, for example by converting into equity any LOLR assistance that the central bank has already given to the large bank(s). If public funds are used to recapitalise the large bank with a view to helping its existing owners to achieve a resolution, those shareholders (and managers) must be fit and proper and, above all, not responsible for the bank's problems. In all other cases the existing shareholders and management should be penalised and removed⁵. The IMF (2003) also emphasises that the use of public funds to recapitalise the bank must be transparent and preferably bring about an increase in Tier 1 capital, because that improves capital ratios and generates income. And it adds that if the government does not take an ownership stake in the bank, it should hold shares that convert to ownership if the bank fails to implement its restructuring plan or if its financial condition continues to deteriorate.

(vi) Conclusions on resolution options

49 This discussion suggests that no individual large bank resolution option is invariably superior to others. As noted at the start of the discussion, much will depend on the causes and consequences of the bank's problems. And, as noted by Hoelscher and Cortavarria (2004), the appropriate choice will vary from country to country and over time, depending on such factors as: (i) the legal framework; (ii) the size of the problem; (iii) the depth of the financial system; (iv) the extent of private sector alternatives; (v) market conditions at the time; and (vi) underlying macroeconomic

⁵ It should be noted, however, that the extent to which shareholders can be penalised may be constrained by legal considerations, including their rights under company law.

and fiscal conditions at the time. Regardless of which option is most appropriate at any point in time, however, a number of key conditions seem to be necessary for effective resolution. These include: speed – the faster the authorities move, the lower are likely to be resolution costs; effective co-ordination between the authorities; and an approach to judging the different options that weighs the wider benefits of reducing systemic risk by preserving a large bank’s franchise against the moral hazard that might arise from the perception that certain banks are too big to fail.

D KEY ISSUES ARISING IN LARGE BANK RESOLUTIONS

(i) Avoidance of insolvency

50 This consideration of the pros and cons of existing techniques to resolve large banks whose failure could have systemic consequences has highlighted certain key issues. The most fundamental is the importance at all costs of avoiding insolvency. As Goodhart (2004) notes, the first-best solution to dealing with a large bank in financial difficulty is to reorganise it and establish new management before losses accumulate to a level likely to exhaust economic capital. This, of course, is one of the major arguments in favour of the intensive monitoring involved in the prompt corrective action requirements of FDICIA⁶. Eisenbeis et al (2004) point out that these enable the banking authorities to intervene effectively before the bank becomes insolvent. In the absence of such statutorily-based rules for intervention, however, there is a danger that any attempt by the authorities to bring about an early reorganisation of the bank, involving in particular the removal of management, could result in legal action being taken against the authorities. Goodhart (2004) warns that the window of opportunity in resolving a bank after the period in which owners or managers may sue and before the period in which depositors and creditors may sue is becoming increasingly small.

51 Bliss (2003) and Eisenbeis et al (2004) both make the point that banks whose failure poses a systemic threat should ideally be prevented from ever reaching a formal insolvency procedure. This may in theory be achieved by mechanisms for co-

⁶ FDICIA is considered in detail in my paper “The US, the UK and other approaches to bank insolvency”, 7 April 2005.

ordinating an extra-legal or voluntary workout of the bank. Any such workout could only succeed on the basis of full exchanges of timely, accurate, relevant and consolidated information between the relevant counterparties, who would need to recognise that it was in their interests to bring about an informal co-ordinated resolution. This would be in preference to the full exercise of their close-out and termination rights, thereby seeking to avoid a costly liquidation of positions and distribution of net claims through formal bankruptcy proceedings. A workout of this kind might return a distressed large bank to economic viability or at least allow time for it to be restructured so that it no longer posed a systemic threat.

52 Both Bliss (2003) and Eisenbeis et al (2004) raise the possibility that the relevant banking supervisors or possibly central banks may be able to facilitate such a consensual workout. Bliss (2003) notes that this sort of approach may be criticised as creating an implicit guarantee of a bail-out by the government if the restructuring is unsuccessful. But he adds that, as long as participation is voluntary, with no party positively barred from exercising its legal rights to terminate and resort to the courts, no guarantee may be implied. In practice, of course, the main difficulty will arise in building the necessary consensus, which will be that much more difficult for an international bank whose creditors and counterparties are located in a number of different countries. There may be scope to draw upon some of the principles developed by the INSOL Lenders Group for global multi-creditor corporate workouts, although the different characteristics of large banks and similarly-sized non-financial firms, and hence the different nature of bank and corporate resolution approaches⁷, may preclude an exact read-across.

(ii) Winding down a large bank

53 If a large bank's problems continue to intensify to the point where some form of insolvency procedure becomes necessary, the authorities are still likely to wish to avoid outright liquidation and preserve part or all of the bank if its failure will have substantial systemic consequences. Freixas et al (2000) point out that, in theory, the authorities could seek to bring about an orderly closure of an insolvent large bank,

⁷ These distinguishing characteristics are considered in detail in my paper "Bank and corporate insolvency approaches: common and distinguishing features", 7 April, 2005.

with central banks providing liquidity to the bank's counterparties. In practice, they and other commentators recognise that it will not be feasible or indeed cost-effective to close in their entirety the very largest banks, because the resulting financial instability will be too difficult to contain and will generate costs well in excess of the fiscal and moral hazard costs of public sector intervention. Mayes (2004) argues that the knock-on effects of the many failed transactions if such banks cease trading will be too difficult for central banks to offset without considerable harm to the real economy. And, as Eisenbeis et al (2004) emphasise, many parts of such banks' operations are likely to have greater value as part of a going concern than if the assets are sold piecemeal. The sheer complexity of those operations will in any event make piecemeal liquidation difficult, time-consuming and costly.

54 It seems therefore that the authorities will have no option but to preserve a large bank's critical functions in payment systems, credit markets and capital markets, while at the same time promptly returning insured funds to depositors. Krimminger (2004) argues that this process needs to be both rapid and predictable if it is to preserve confidence in the banking system. Hupkes (2004) considers the issues that arise when the authorities seek to wind down a large financial institution, while preserving those of its functions and activities that are likely to have systemic consequences. These issues are considered in the next section.

(iii) Preserving a large bank's systemic activities: Hupkes' approach

55 The first stage in the process of preserving a large bank's systemic activities involves identifying what Hupkes terms the large bank's "systemically-relevant functions" (SRFs) and insulating them from the rest of the bank. If the resolution focuses solely on the protection of such functions and not on the preservation of the institution carrying out the functions, moral hazard will hopefully be reduced. Given the international scale of any large bank's activities, however, the approach will have to be implemented by a range of different national authorities. Hupkes acknowledges that this will mean that conflicts of interest between those authorities will have to be addressed, although she does not suggest how that may most effectively be done. This is a major issue given that certain measures to preserve SRFs in one country, such as ring-fencing, may hinder a large bank's ability to perform SRFs in another country.

56 Hupkes accepts that there is no generally acceptable definition of the SRFs of a large bank. But she argues that adverse effects on the real economy associated with systemic problems generally arise from disruptions to payment systems, interference with credit allocation activities and adverse effects on asset values. There are as yet no accepted international standards for determining which of a large bank's functions are systemically relevant. The authorities will need to develop such criteria as part of a more objective approach to quantifying possible effects on the real economy of a large bank failure. Such criteria might include the bank's share of the deposit market, the extent of counterparty dependence on the bank (which in turn will depend on the number of alternative suppliers of the relevant functions), its role in large-value payment and settlement systems, its role in liquidity management in the interbank market and its role in risk management.

57 The next step will be to specify and implement measures designed to insulate the SRFs from disruption affecting a large financial institution. This may be more straightforward for certain functions than others: for example, payment infrastructure functions may be more readily insulated from other group activities than more specialised banking functions. Hupkes highlights three main insulation options: *replacement* of the large bank as the provider of all the SRFs by another large financial institution; dismemberment of the large bank and *detachment* of the SRFs; and *immunisation* of the SRFs from the large bank failure.

58 The *replacement* option depends on alternative suppliers being available and willing to take over the SRFs. Even if that condition is met, difficulties may arise if the new supplier is likely to acquire a dominant market position in certain activities after taking over the SRFs, or lacks the infrastructure (such as the risk controls, back office processing and IT systems) to exercise the SRFs efficiently, or is unable to fill the gap sufficiently quickly. Hupkes argues that the replacement option is feasible for trading in corporate securities, government securities, FX and money market instruments. In such markets, the authorities may be able to take action to foster alternative provision of the relevant functions⁸. But the replacement option may be

⁸ A current example is the New Bank project in the US, designed to carry out critical functions in the US government securities market if major problems affect either of the two main providers, Bank of New York or JPM Chase.

less likely if a large number of financial institutions rely on the distressed large bank to process payments through a large-value payment, clearing and settlement system, especially if few other large financial institutions are settlement members of that system or possess the required infrastructure. And finding alternative providers for a large bank's credit activities in the household and SME sectors may also be difficult.

59 *Detachment* of the SRFs essentially involves their separate transfer to different acquiring financial institutions, newly established institutions, bridge banks or state-funded banks. Hupkes notes that the practicability of this will depend on whether the SRFs are economically viable on a stand-alone basis and the extent to which they are dependent on infrastructures or supporting functions that are themselves separable. One method to facilitate transferability might be to require certain SRFs to be carried out in separate legal entities. One major complication, however, is that general insolvency law usually requires novation (or reassignment) of each individual contract to be subject to customer consent, an operation clearly far too complex and cumbersome in a crisis requiring both rapid resolution and legal certainty. Proctor (2003) notes that Part VII of the 2000 Financial Services and Markets Act provides for banking business transfers subject only to the sanction of a court and the agreement of the banking supervisor, without the need to seek full customer agreement, but there must be a question about whether even this procedure provides the speed necessary in a crisis. And finally, Hupkes recognises that transfers will be much more complex if they are intended to cover assets located in foreign jurisdictions, because foreign bankruptcy courts may not recognise such transfers.

60 *Immunitisation* techniques for SRFs include collateralisation of counterparty claims, the incorporation of set-off and close-out netting clauses in standard contracts relating to financial instruments and the insulation of certain transactions and collateral techniques from the operation of insolvency laws. These are more difficult to enforce in cross-border insolvencies, although some banking supervisors seek to achieve this by techniques such as the imposition of asset maintenance requirements on local branches of foreign banks. Countries also generally seek to insulate payment and securities settlement systems from the failure of market participants through settlement finality measures, eg the EU Settlement Finality Directive of 1998. But Hupkes recognises the key constraint that conflicting insolvency laws and an absence

of mutual recognition outside the EU can mean that immunisation techniques are uncertain in a cross-border context. And such techniques may also be costly. A requirement, for example, that local affiliates be separately-capitalised subsidiaries will tend to raise banks' operating costs and reduce the efficiency of international banking activities.

61 Hupkes accepts also that the existing framework for cross-border supervision of international banks, with its emphasis on the role of the home supervisors, may conflict with the requirements for effective resolution of international banks with SRFs in host rather than home countries. But she believes progress can be made through greater international recognition that each national authority has a legitimate interest in protecting the SRFs of an international bank that are significant in its own jurisdiction. This may pave the way to an international agreement on what those functions involve and on the type of actions that are justified to protect them.

(iv) **The need for cross-border co-ordination**

62 These international considerations have become crucial as the geographical scope of most LCFIs' activities has continued to expand. Enough has been said already to demonstrate how this has hugely increased the complexity of co-ordinating the provision of ELA and/or public funds, financial crisis management arrangements and bank insolvency procedures across jurisdictions. Issues relating to the cross-border co-ordination of methods to resolve international LCFIs, including the precise mechanisms for sharing relevant information, the co-ordination of liquidity provision and the international role of deposit insurance are likely to remain uncertain for a considerable time to come. Some progress has been made, however, especially at EU level with the adoption of relevant directives, most notably the Directive on the Reorganisation and Winding-Up of Credit Institutions in 2001. The ESCB has also adopted co-ordination arrangements for providing liquidity support to solvent financial institutions in the euro area, with the monetary policy implications addressed by the ECB while the costs and risks of support operations are borne at national level. Most recently, an MoU was signed this year by the EU banking supervisors, central banks and finance ministries covering co-operation in financial crises in EU countries

with potential cross-border systemic effects⁹. Further progress will hopefully build on these foundations.

(v) The financial stability – moral hazard trade-off

63 This paper suggests that perhaps the most fundamental issue relating to the resolution of large banks is that emphasised by Hoggarth et al (2004), who point out that the key dilemma facing the authorities in dealing with a crisis brought about by the failure of a systemic bank is that of balancing the need to maintain financial stability with the need to contain moral hazard. The trade-off between these two objectives is not, of course, a perfect one. Financial stability in the present may be secured by the provision of support to a failed large bank, but the moral hazard that arises from the perception that this will make future assistance to similarly-situated large banks more likely may jeopardise financial stability in the future. This will arise to the extent that the stakeholders of such banks attach less weight to effective monitoring of their activities, thereby encouraging greater risk-taking on the part of such banks¹⁰.

64 The key objective should therefore be to resolve the large bank's problems in a manner that preserves financial stability most effectively, while at the same time limiting the adverse effect on moral hazard as far as possible. Most commentators agree that this requires that the shareholders, management and subordinated debt holders of a failed large bank suffer losses in the first instance, with uninsured depositors and other unsecured creditors all facing haircuts as well in any resolution. The World Bank (2001) adds that, following the resolution, the regulatory regime should be strengthened, and incentives to the private sector to monitor large banks should be enhanced. The extent to which constructive ambiguity will help to reduce moral hazard also needs to be considered carefully. As implied above, in practice most market participants agree that large and complex banks will not be allowed by the authorities to be liquidated. In these circumstances, as Rochet (2002) notes, some

⁹ This MoU extends to EU finance ministries the key provisions agreed between EU banking supervisors and central banks in an earlier MoU signed in 2003.

¹⁰ That said, Soussa (2000) points out that there is little empirical evidence that large banks deemed too big to fail necessarily take on more risk than smaller banks, although clearly they have a funding advantage. The moral hazard issue, however, really relates to whether such banks take on more risk than they would do if they were not deemed too big to fail.

variant of the US prompt corrective action approach may be used to limit moral hazard, by increasing the likelihood of early intervention to resolve problems experienced by large and complex banks deemed too big to fail by the market. Such increased transparency over the restructuring process may help to counteract any tendency towards regulatory forbearance.

65 The limitation of moral hazard ultimately requires that market discipline operate effectively in constraining risk-taking by large banks. The above discussion implies that this requires that the authorities possess credible procedures to unwind a large bank's affairs in an orderly manner, without systemic spillovers. A number of possible procedures have been examined in this paper. But Herring (2003) identifies several issues that still need to be resolved before this requirement is met. This involves finding answers to difficult questions such as: how the various lines of business of a large bank can be mapped into legal entities to which a bankruptcy process may be applied; how the actions of functional regulators should be co-ordinated in the event of an insolvency; how different national approaches to insolvency and resolution should be harmonised to ensure a co-operative process; and how the needs of the insolvency practitioner for time to achieve an optimal resolution should be accommodated without impeding the ability of market participants to continue trading. The international dimension of these issues means that the development of improved procedures for resolving an insolvent large bank whose failure could have systemic consequences in a number of different countries should be a high priority for the international regulatory community.

66 Progress will not necessarily be rapid. But in the past two years, a number of financial authorities acting together have sought to identify more clearly the issues and policy options by conducting financial crisis management simulation exercises – or “games” – testing the ability of those authorities to collect information, communicate with each other and take co-ordinated policy decisions rapidly with respect to a failed LCFI. As noted by the BIS (2005), these exercises are unlikely to resolve inherent conflicts of interest arising from the different legal responsibilities of regulators, central banks, deposit insurance agencies and finance ministries. But they can help to clarify the key issues affecting relationships between different authorities, expose shortcomings in the effectiveness of existing arrangements for sharing

information and make progress in developing conditions for improved co-ordination in a financial crisis arising from the failure of an LCFI.

E CONCLUSIONS

67 The main conclusions of this paper may be summarised as follows:

(i) General principles governing the resolution of large banks whose failure could have systemic consequences have been developed both by international organisations and private commentators.

(ii) These principles may help to influence the choice between such different resolution techniques as mergers and acquisitions, P&A transactions, bridge banks, central bank liquidity support, liability guarantees and the use of public funds.

(iii) An approach based on M&As or P&A transactions may be insufficient to resolve a large systemic bank in the absence of public sector guarantees and assurances designed to induce a solvent large bank to participate.

(iv) The use of a bridge bank may be a more effective means of resolving a large systemic bank, especially if it is part of an insolvency law framework emphasising early intervention to resolve failing firms.

(v) Considerable progress has been made in defining the circumstances in which central bank LOLR/ELA support may be provided to large banks and the conditions that should be attached to such support. But how such assistance should be organised in an international context, and in particular the precise division of responsibilities between the home and host state authorities, remains unresolved.

(vi) The use of public funds to effect a large bank resolution should be regarded as a last resort, but will become more appropriate the greater the value of the bank as a going concern, relative to its break-up value. The costs of public sector intervention will need to be weighed against the costs of a possible systemic crisis induced by a large bank's failure. In practice, it is unlikely to be feasible or cost-effective to close a very large bank in its entirety, because the resulting financial instability will generate costs well in excess of those of public sector intervention.

(vii) In these circumstances, the authorities should not necessarily preserve the bank in its existing legal form, but seek to maintain those of its activities likely to be of systemic importance. They may wish to draw on the approach recommended by Hupkes (2004), although a number of options for replacing, detaching and/or

immunising those activities will need to be considered. Different options may be suitable in different markets; each will need to be considered on a case-by-case basis.

(viii) Ultimately, the key dilemma for the authorities in dealing with the insolvency of a systemic bank will be that of balancing the need to maintain financial stability with the need to contain moral hazard. Constructive ambiguity is probably no longer sufficient to achieve the necessary limitation of moral hazard, because the markets know that such a bank will not be allowed to fail. The authorities will need to be able to demonstrate that they possess transparent and credible procedures which both facilitate early intervention to resolve problems at a large bank deemed too big to fail and, in the event that such early intervention fails, wind up the bank's affairs in an orderly manner that minimises the systemic repercussions. The international dimension of these issues makes the development of improved procedures a high priority for the international regulatory community. Some progress has already been made in the financial crisis management games which have been played by a number of financial authorities in the past two years.

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