5 THE LENDER-OF-LAST-RESORT ROLE

The last chapter established that, if a central bank is to deliver the substantial benefits that it can potentially make to economic efficiency and social welfare, it must be a lender of last resort. In a modern economy the state has granted the central bank the exclusive right to issue legal-tender notes. The central bank is therefore distinct from the rest of the banking system because it alone has the power to make loans to private sector agents in such notes (i.e. the ultimate 'cash' of business and finance, and the money with which banks settle between themselves). The argument here has been that it must be prepared to use that power in certain circumstances. But to which agents should the central bank extend loans, what are the circumstances that justify lender-of-last-resort activity, and on what terms should lender-of-last-resort loans be made?

First-resort and last-resort loans

Before answering these questions, a warning has to be given and a distinction is to be drawn between two kinds of central bank facility.[1] The warning is that in the next few sections it is implicit

1 Note that loan facilities are not the only way that a central bank interacts with commercial banks. As Chapter 7 explains, central banks sometimes purchase assets outright from commercial banks. They can also extend guarantees to a lending bank in the inter-bank market.

(unless made explicit) that central bank loans are to solvent banks – that is, banks that have an excess of assets over non-equity liabilities. The assumption is dropped in the penultimate section, which considers whether the central bank should lend to an institution that is known to be insolvent. A final section discusses the advisability of the nationalisation of troubled banks in a free-market economy.

What about the two kinds of central bank facility? The first kind is intended to implement monetary policy decisions and sets the rate of interest in the short-term money markets. Typically, the central bank buys interest-bearing securities from a commercial bank and arranges that the commercial bank will repurchase the security at a different, lower price at an agreed future date. The difference between the price at which the commercial bank sells to and repurchases from the central bank implies an interest rate on the transaction. By varying the so-called 'repurchase rate' in this way, the central bank determines interest rates.[2] Various features of such repurchase (or repo) transactions are worth mentioning. In particular, because the commercial bank has agreed to buy back the securities in question, a default risk arises for the central bank only if both the issuer of the security and the repo-ing bank fail during the period of the repurchase agreement. This risk is usually negligible, even if the issuer is in the private sector. Further, since a repurchase date is specified, the agreement has a clear and definite life.

Alternatively, a commercial bank facing a temporary cash

2 Although the phrase 'repo rate' is often equated with the central bank's desired policy rate, the central bank could determine the short-term interest rate by other means – for example, outright purchases and sales of Treasury bills. Indeed, until ten or fifteen years or so ago such outright transactions were more common in British central banking than repurchase activity.

shortfall may borrow against the collateral of securities that might otherwise have been sold to and repo-ed from the central bank. Assuming that the securities are of the same quality, and that a date is set for repayment and honoured, the economic substance of the loan is the same as that of a repurchase agreement. A loan of this sort – with limited risk to both parties and a well-defined terminal date, and priced with a monetary policy purpose – might be termed a 'first-resort loan'.[3] The purchase and sale of securities on repo terms, and central bank loans with the same economic substance, are often called 'open market operations'.

The second kind of facility is different in several respects. If a bank sells securities to the central bank or takes out a loan on first-resort terms, it does have a cash shortfall that needs to be bridged, but it is implicit that the cash shortfall is technical, transient and unimportant. From time to time, however, banks run into more serious cash trouble. They may have an ample cushion of equity capital, and their assets may be loans and securities that are almost certain eventually to be paid back in full. Nevertheless, they may suffer recurrent cash deficits when they settle business at the end of the day with other banks and/or have insufficient cash in their branch networks. When they ask the central bank for a loan, it is because other financing options have dried up. Because they cannot predict exactly when their cash problem will be resolved, they borrow from the central bank without any definite repayment date.[4] They ought to offer – and normally do offer –

3 The description of routine Bank of England transactions as 'first-resort' in nature was made by the influential City monetary commentator Gordon Pepper, on a number of occasions. See, for example, pp. 67–8 of Gordon Pepper and Michael Oliver, *Monetarism under Thatcher*, Edward Elgar, Cheltenham, UK, and Northampton, USA, 2001.

4 On 18 November 1993 the then governor of the Bank of England, Edward George

satisfactory collateral to the central bank for the help they are receiving. But they cannot make a binding contractual commitment as to how exactly they will repay the loan. In contrast with the repurchase agreements usually found in standard, run-of-the-mill open-market operations, the central bank faces uncertainty about when and even whether the loan will be repaid. Nevertheless, if the collateral is of acceptable quality, its ultimate default risk ought to be insignificant.

It is this second kind of facility which is known as a 'lender-of-last-resort loan'. In general, open-market operations and first-resort loans are relevant to the setting of interest rates and the central bank's first objective of achieving monetary stability, while lender-of-last-resort loans arise when part or all of the banking system has a deep-seated cash problem. Lender-of-last-resort facilities are intended to promote the second objective of financial stability.[5] Further, whereas open-market operations tend to be initiated by the central bank, it is generally a commercial bank with a cash problem which opens the negotiations with the central bank for a lender-of-last-resort loan.

(now Lord George), gave a lecture at the London School of Economics on the principles of last-resort lending. He said that, when making a last-resort loan, the Bank looks 'for a clear exit'. George, 'The pursuit of financial stability', *Bank of England Quarterly Bulletin*, 43(1), Bank of England, London, February 1994, p. 65.

5 Note that in practice the distinction between first-resort and last-resort loans can be blurred. After the breakdown of the international wholesale and interbank markets in the summer of 2007, the Bank of Spain extended three-month facilities to Spanish banks and these could be deemed as for monetary policy purposes. But it seems likely that in some cases the three-month loans were renewed at least twice, so that the facilities were in effect last-resort in nature. Central bank funding replaced market funding, with the objective of maintaining financial stability. The author discussed this in his 2008 pamphlet *Northern Rock and the European Union*, Global Vision, London, pp. 11–13.

Which organisations should qualify for lender-of-last-resort loans?

The first discussion point is to determine which organisations qualify for lender-of-last-resort facilities. We may recall that financial stability is about maintaining the full convertibility of bank deposits into notes. In most financial systems a commitment to maintain such convertibility is offered by certain types of institution that take deposits, but are not involved in cheque clearing or payment settlement. They repay cash over the counter, but do not hand out chequebooks. Traditional examples in Britain included the building societies and the trustee savings banks. They can make payments by cheque only because they, like non-banks, keep accounts at a second and different kind of bank, the banks that do offer cheque clearing and money transmission services. As noted in Chapter 3, in the UK context banks of this second sort are commonly called 'clearing banks'.[6]

Moreover, clearing banks have long had accounts at the Bank of England, because – again as explained in Chapter 3 – settlement of inter-bank balances is much easier across such accounts than by the physical movement of notes. Although Bank of England officials may deny that keeping these accounts gives the clearing banks automatic entitlement to a loan of any description, a fair comment is that any bank – even a central bank – will readily lend only to customers with which it is familiar. By opening an account with the Bank of England, a bank starts a business relationship with the central bank. To that extent it takes the first steps in qualifying for a loan facility, including a last-resort loan.

6 As mentioned in note 19 to Chapter 3, some Bank of England officials prefer the phrase 'settlement banks' to 'clearing banks', but 'clearing banks' remains the dominant usage.

In practice the Bank of England and all other central banks see banks that take retail deposits, and hence are involved in the payments mechanism, as prime candidates for lender-of-last-resort loans in a crisis. As early as 1873, when he published *Lombard Street*, Bagehot had seen that 'no cause is more capable of producing a panic ... as the failure of a first rate joint stock bank in London'.[7] In 1930 the Bank of England incurred a heavy loss in the covert rescue of a minor clearing bank, Williams Deacon, in order that its difficulties could be kept out of the public eye. The Bank felt that it had 'to save the face of British banking'. The Bank's loss, which fell on its private shareholders, was just under 0.1 per cent of GDP, which would today (November 2008) be about £1.1 billion.[8] Precisely because clearing banks are important to the payments mechanism and confidence in them must be preserved, the normal pattern has been that they are subject to tighter balance-sheet supervision than non-clearing banks. The clearing banks' resentment of the weight of regulation in the 1950s and 1960s, including the high cash and liquidity ratios of that era, was one of the pressures behind the reduction in these ratios that occurred in later decades and was chronicled in Chapter 3.

In normal conditions the central bank is far more reluctant to lend to non-clearing banks than to clearing banks. Non-clearing banks are a motley bunch, with marked differences in their asset composition and funding patterns. Thus, virtually all the loan assets of building societies and specialist mortgage lenders are

7 Walter Bagehot, *Lombard Street*, vol. IX in Norman St John-Stevas (ed.), *The Collected Works of Walter Bagehot*, The Economist, London, 1978 (originally published in 1873), p. 182.

8 Richard Sayers, *The Bank of England 1891–1944*, Cambridge University Press, Cambridge, 1976, pp. 127–33.

residential mortgages, whereas 'industrial banks' make loans only to companies. (The UK has not had many specialist industrial banks, although they have featured prominently in the financial history of, for example, Japan and France.) It was mentioned in Chapter 3 that the Bank of England had no historical connections with the building societies and would not have been expected to lend to them if they ran into cash difficulties. The central bank cannot, however, be indifferent to failures in any part of the financial system, since losses in a low-grade, peripheral business may ricochet around the banks and hit confidence. As events since August 2007 illustrate, paralysis in the inter-bank market can impair the ability even of soundly run banks to finance their assets. Rather than make a loan itself, the central bank may persuade well-regulated and highly capitalised banks with which it has close relations to make loans to troubled institutions. That was the approach adopted by the Bank of England in the secondary banking crisis of 1974–76. A concerted programme of inter-bank lending (known as 'the lifeboat') enabled recently created secondary banks to shed loss-making property loans gradually. If the lifeboat had not been launched, the secondary banks would have been forced to call in property loans and property assets would have been sold in a rush, causing even larger falls in values than in fact took place.[9]

Are there any occasions on which the central bank ought to lend to non-banks or, at any rate, to organisations calling themselves banks which do not take deposits? In the recent crisis the Federal Reserve made large loans to J. P. Morgan to help it acquire Bear Sterns, one of the USA's most prominent financial

9 The classic account is Margaret Reid, *The Secondary Banking Crisis 1973–5: Its Causes and Course*, Macmillan, London, 1982.

companies, and to AIG, the world's largest insurance company. Bear Sterns did not take deposits and was not a member bank of the Federal Reserve System. It was, above all, a company that traded and underwrote securities. It offered, however, global clearing services to broker dealers, prime broker clients (mostly hedge funds) and other professional traders, and was particularly important for the clearing of derivative trades. The Federal Reserve was worried that the failure of Bear Sterns would lead to the disruption of these clearing arrangements, with knock-on effects to other payment clearing systems. So – although Bear Sterns was not a bank – its operations were relevant, if at a few removes, to the convertibility of deposits into cash.

One of the complications here was that Bear Sterns, along with a handful of other organisations prominent in securities business, called itself 'an investment *bank*'.[10] In general, central banks should avoid making loans to investment banks. Central banks do not normally supervise or regulate these risky and aggressive organisations, while investment banks do not finance their assets by means of retail deposits. A serious difficulty for public policy arises if investment banks and commercial banks are owned by a 'bank holding company' or so-called 'universal bank'. The management of bank holding companies is complex, not least because their main boards have to allocate capital between the two types of 'banking'. If heavy losses are suffered in the securities trading and underwriting side of a universal bank, there is a temptation to transfer capital from the commercial bank in order

10 The word 'bank' is ambiguous. The phrase 'investment bank' is of US origin and had no currency in the City of London and the UK until the 1980s. The trading and underwriting of securities, which are the kernel of investment banking, were carried out in the UK by organisations with quite different names, i.e. 'jobbers' (for traders in securities) and 'merchant banks' (for underwriters of securities).

to shore up the securities operations. That undermines the extent to which depositors are protected by the bank's assets and so threatens financial stability.

But this is only one of the many conflicts of interest which seem to be endemic in universal banking. In the closing stage of the Great Depression the US Congress passed the Banking Act of 1933, sponsored by Senator Glass and Congressman Steagall, which mandated the separation of investment and commercial banking. The repeal of the 1933 Banking Act in 1999 has been followed by the formation of several large financial conglomerates, notably Citibank, which embrace investment banking, commercial banking and various other financial activities. The prominence of these conglomerates in the dot.com excesses of 2000 and 2001, and in the sub-prime crisis of 2007 and 2008, cannot be overlooked. While the subject is hugely controversial, any central bank must be wary of lending to a bank holding company. The money may be intended to protect depositors, but there is a danger that it will be swallowed by the more speculative activities of securities traders. Indeed, a case can be made that experience over the last decade confirms the wisdom of the Glass–Steagall arrangements and suggests that financial regulation should keep the two types of so-called 'banking' apart.[11] (Note that the separation of clearing business and retail deposit-taking from investment banking may not require primary legislation. The central bank may be able to enforce it by telling bank holding companies – and of course the counterparties from which they borrow – that their investment banking activities disqualify them

11 The remarks in this paragraph are controversial. For a very different view, see Charles Calomiris, *US Bank Deregulation in Historical Perspective*, Cambridge University Press, Cambridge and New York, 2000, especially chapters 4 and 5.

from last-resort lending in a crisis. Somehow this threat has to be credible in fair-weather conditions.)

The loan to AIG was even more extraordinary than that to J. P. Morgan to support the rescue of Bear Sterns. Again, it was necessary because of the linkages between the operations of the borrowing company on the one hand, and the solvency of the banking system and integrity of the payments mechanism on the other. Because AIG had guaranteed mortgage bonds held by banks and other financial institutions, AIG's survival was important to the valuation of these bonds, and hence to the value of many banks' and financial institutions' assets and capital. So, very unusually, the central bank may lend outside the deposit-taking banking system. The rationale is the same as last-resort lending to banks, to protect payments mechanisms and the convertibility of bank deposits into cash.

What are the right terms for lender-of-last-resort loans?

If it is agreed that in a crisis the most fitting recipients of lender-of-last-resort lending are deposit-taking banks and, in particular, clearing banks, on what terms should such lending be made? The key prescription synthesises two rules proposed by Bagehot in *Lombard Street*, which was a response to the 1866 Overend crisis. (The Overend crisis was the last major run on a British bank before that on Northern Rock in 2007.) This study has no quarrel with the gist of 'the Bagehot rule', but some aspects of its application need to be spelt out in detail to make them relevant to today's conditions.

Bagehot saw that the Bank of England, the bank with the monopoly of the legal-tender note issue, was different from other

banks. Specifically, two crises in 1847 and 1857 demonstrated that, if the bank of issue tried to maximise profits by aggressive expansion of its balance sheet, the result would be overissuance of money and inflation. The inflation might threaten the pound's link with gold. As discussed in the rebuttal of Smith's *The Rationale of Central Banking* in Chapter 2, the larger message was that, instead of maximising profits, the bank of issue ought to pursue public policy goals.[12] In a crisis commercial banks' customers withdrew cash (Bank of England notes) from their deposits because they feared their banks might go bust. Bagehot argued that, assuming the commercial banks were in fact solvent, the best method for the Bank of England to restore confidence was twofold. First, the Bank should extend loans 'at a very high rate of interest' in order to prevent 'applicants ... who do not require it'. Second, advances 'should be made on all good banking securities, and as largely as the public ask for them'. Indeed, 'If it is known that the Bank of England is freely advancing on what in ordinary times is reckoned to be a good security – on what is then commonly pledged and easily convertible – the alarm of the solvent merchants and bankers will be stayed.'[13] These two injunctions are usually condensed into one, that 'in a run the central bank should lend cash to a solvent but illiquid bank at a penalty rate to whatever extent is necessary, as long as the loan is secured by good collateral'. Five features of this rule merit separate discussion.

12 See above, pp. 36–7.
13 Bagehot, op. cit., pp. 147–9.

i The level of the penalty

Bagehot wrote, rather imprecisely, about the need for 'a very high rate of interest'. This is conventionally translated nowadays into a requirement for a 'penalty rate' – that is, a rate above the understood market rate (such as the central bank's repo rate or the inter-bank rate). The size of the penalty is a matter of debate. The general intention is reasonably clear, that the penalty should be high enough to discourage frequent use of the central bank's facilities, but not so high as to imperil the survival of a borrowing bank.[14] The Bank of England's practice in the recent crisis has been to charge 100 basis points or more above its own rate, but the Federal Reserve has in the past offered what were effectively lender-of-last-resort facilities at 50 basis points over the Federal funds rate. Chapter 3 showed that – with the very low ratios of cash and capital to assets that characterised banking in the opening years of the 21st century – banks sometimes had an average return on assets of no more than 50 to 100 basis points. No final conclusion is reached here, but an argument can be made that – given the very low margins found in some types of modern banking (including the mortgage business in which Northern Rock specialised) – a penalty of 100 basis points or more is too high.

ii The quality of the collateral for the loan

Bagehot's own phrasing on this aspect was nuanced. He said that no 'advances need be made on which [the central bank] would

14 According to George in November 1993, '... any support we provide will be on terms that are as penal as we can make them, without precipitating the collapse we are trying to avoid'. Op. cit., p. 65.

ultimately lose' and emphasised the need for 'good security'. But he inserted the interesting caveat: 'what in ordinary times is reckoned to be' good security. In August and September 2007 the Bank of England made a great fuss about the quality of the collateral required before banks could take advantage of its facilities. Its governor claimed that rules that were too easy-going on collateral would encourage banks to hold low-grade, risky paper. He injected the phrase 'moral hazard' into the public debate with the implication that bankers were more likely to be sloppy in credit appraisal if they thought they could dump any asset on the Bank of England. (This topic is also discussed in the narrative account of the Northern Rock affair in the next chapter. See pp. 122–4.)

Much depends on the type of central bank loan being made. In the event of a short-duration repo facility where the central bank's counterparty is an undoubtedly solvent bank, it surely matters little *to the behaviour of the commercial banks* what securities are offered. As the commercial bank is contractually bound to buy back the securities at an early date, the risk on the securities continues, for all intents and purposes, to lie with that bank. The issue of moral hazard then hardly arises. The same general argument applies whenever the central bank is lending to a solvent bank, since the central bank would normally be a preferred creditor. A central bank extends loans which must be repaid in full or purchases securities at market prices; it does not give grants to commercial banks. A loan is not a gift. So the potential availability of lender-of-last-resort facilities from the central bank does *not* reduce the incentives for the management of commercial banks to hold assets that will *ultimately* repay in full (i.e. with very low default probability).

But the general argument is subject to a serious qualification.

As Chapter 3 demonstrated, the potential availability of central bank facilities does affect commercial banks' management of their liquidity. A casual official attitude towards the collateral for central bank loans may be a mistake, but the nature of the mistake needs to be carefully stated. The problem is not that an easy-going stance by the central bank causes commercial banks to acquire assets with a high default probability, but rather that it tempts them to acquire assets that during their lives can be bought and sold only with difficulty and expense (i.e. that are illiquid). A distinction must be drawn between the default probability and liquidity characteristics of banks' assets.[15]

If a central bank relaxes its rules on collateral, commercial banks will raise the proportion of illiquid assets to total assets. Almost certainly, that will sooner or later lead to the central bank being asked to lend against securities, which – however low their default probability – have long residual lives, and are expensive to buy and sell. As the assessment of such securities' value may be complex and resource intensive (in terms of the professional time and so on needed to understand them), the central bank may – perhaps reasonably – be reluctant to accept them as collateral. But it is important to diagnose the situation correctly. The problem is not that the existence of a lender of last resort has undermined banks' incentives to acquire assets with low default probability. Rather it is that the central bank, which has its own capital at risk, does not have the resources to appraise all the

15 The academic theory of portfolio selection has tended to concentrate on the choice between risk and return, but in banking the liquidity characteristics of assets are fundamental. The subject of liquidity is neglected in modern finance theory. The point is made by the former treasurer of Barclays Bank, Brandon Davies, in 'Central bank liquidity provision as a public–private partnership', *Lombard Street Research Monthly Review*, 230, July 2008.

assets that the commercial banks want to offer as collateral. The difficult policy question relates to *the behaviour of the central bank*. In the years leading up to the 2007 crisis banks did indeed start to hold some weird and esoteric paper, and some of this paper was included in their accounts as 'available for sale' (i.e. as part of their liquidity).[16] As will emerge in the next chapter, this had important consequences in the Northern Rock affair and the wider crisis in the banking system.

It should be noted that, in all of this section, the discussion has been about repurchase operations or last-resort loans where repayment is expected. The matter is very different if the central bank has to purchase securities outright. If it is to make outright purchases of securities, it must of course be confident that the securities are of good quality and that the issuer will pay. But – by definition – an outright purchase of a security does not require the lodging of collateral by the seller, so the discussion of collateral is irrelevant. The matter is discussed further in Chapter 7.

iii The duration of the facility

Bagehot had little to say about how long a lender-of-last-resort loan should last. Since he was the pioneer of the lender-of-last-resort concept and had much else to say, the omission is excusable. Since the 1870s many countries, including the UK, have

16 In mid-2007 even large retail deposit-takers, such as the Royal Bank of Scotland and HBOS, had substantial holdings of so-called 'Alt-A' securities, backed by mortgage pools where the borrowers were known to have offered incomplete documentation. The securities were invariably triple-A and ought to pay back in full, but their very nature hardly inspired confidence. The problem is not new. In Chapter XII of *Lombard Street*, Bagehot noted that 'Mercantile bills are an exceedingly difficult kind of security to understand' (op. cit., p. 190).

suffered various permutations of banking system trauma. Interventions by the state – sometimes by the central bank, sometimes by the government, sometimes by the two acting in unison – have been common. The core objective has nearly always been financial stability, to maintain the convertibility of bank deposits into legal-tender notes. Experience has shown that the state's intervention may have to last many years.

Reference has already been made to the Bank of England's successful launching of the so-called 'lifeboat' in the secondary banking crisis of the mid-1970s; the final vestiges of that crisis were still being tidied up in the late 1980s. In late 1984 the Johnson Matthey Bank, an offshoot of the metal refining group Johnson Matthey, was insolvent and the Bank of England bought it for £1 in order to ensure that its affairs were run down in an orderly fashion; a small team of the Bank's officials oversaw Johnson Matthey for the next fifteen years. In the early 1990s a number of minor British banks, with their solvency threatened by a cyclical slide in property values, sought help from the Bank of England and in some cases received it; an article about the regulatory approach to these institutions appeared in the Bank's *Financial Stability Review* some years later in 1996, when the outcomes were still not certain in all cases.[17] So the norm in the UK, even in the last few decades, has been that the resolution of lender-of-last-resort episodes takes years, not months. The same lesson emerges clearly from the international record. In the 1990s the solvency of banking systems in both Japan and Sweden was undermined by real estate slumps, and possible bank runs had to be checked by government guarantees on their deposits. The

17 Patricia Jackson, 'Deposit protection and bank failures in the United Kingdom', *Financial Stability Review*, 1, Autumn 1996, Bank of England, London, pp. 38–43.

guarantees were in place for seven years in Japan and four years in Sweden.

The right principle for policymaking is surely simple. The extension of a lender-of-last-resort loan by the central bank to a private bank is virtually costless to society, but it has the merit of giving the private sector bank concerned time to reorganise its affairs and, all being well, to repay its depositors in full. As Sir John Hicks, the British economist who won the Nobel Prize in 1972, remarked in one of his later lectures, 'The social function of liquidity is that it gives time to think.'[18] The full repayment of depositors from the borrowing bank's own assets is what matters. It follows that lender-of-last-resort assistance must last as long as is necessary for the sensible and profitable resolution of the borrowing bank's affairs. Hurry and pressure are misplaced. In a speech in November 1993 at the London School of Economics, Sir Edward (now Lord) George said that the Bank of England wanted a visible and clearly defined exit for any loan to a troubled institution. But does it need to be pointed out that commercial banks are owned by shareholders and run by managements who have assets and livelihoods at stake? They approach a central bank for help only when things are awful, when – in other words – an exit is invisible and cannot be defined. The reality is that the Bank of England, like other central banks, has often become involved in bank rescues when it has little idea how long the rescue operation will last.

18 John Hicks, *The Crisis in Keynesian Economics*, Basil Blackwell, Oxford, 1974, p. 57.

iv The secrecy of the facility

The terms of most significant contracts between businesses are confidential, even when the businesses' reputations are not in jeopardy. When a commercial bank borrows from a central bank, its reputation is very much in jeopardy. Indeed, the publication of the mere existence of the loan may undermine the success of the transaction, since it symptomises balance-sheet weakness and may scare off other creditors. It was therefore logical that in his 1993 statement on the lender-of-last-resort function George said that last-resort loans should be secret, as far as possible. The difficulty is that the Bank of England has to publish its own balance sheet at regular intervals, for all sorts of good reasons. Secrecy may be possible for loans to small banks (as, for example, in the early 1990s), but it is almost certainly unsustainable for loans to large banks. A loan like that to Northern Rock, which peaked at almost £30 billion, would quickly be spotted. Goodhart has proposed that central banks publish data showing several categories of loan (different period to maturity, different forms of collateralisation), none of which would be particularly newsworthy.[19] This may be part of the answer. Almost certainly the central bank should not draw public attention to any last-resort facilities it extends, because of the danger of provoking a run. On the other hand, the concealment of a facility may favour one bank (say, the bank deemed to qualify for a last-resort loan) over another (a bank deemed not to qualify) and be anti-competitive. These matters are contentious and may always be so.

19 Goodhart's proposal appeared in a 2007 paper published by the London School of Economics, Financial Markets Group.

v The degree of contractual commitment

One of central bankers' favourite phrases is 'constructive ambiguity'. Its usual context is to let banks know that the Bank of England has discretion about whether a last-resort loan will be extended or not. The thinking is that the more uncertain the business environment in which banks are operating, the higher the quality of the assets they will choose to hold. To link two favourite catchphrases, the function of 'constructive ambiguity' is to limit the problem of 'moral hazard'.

But catchphrases come cheap. The next chapter will review the doctrine of constructive ambiguity very critically, while the supposed relevance of last-resort facilities to moral hazard in banks' asset selection has already been questioned. Interestingly, Bagehot was lukewarm about constructive ambiguity. Some of the sharpest rhetoric in *Lombard Street* was directed against the Bank of England's failure after the 1866 crisis to clarify how it would react to a similar event in future. One theme of *Lombard Street* was that, if a run on the banking system developed, the central bank could not behave like commercial banks and shrink assets. On the contrary, its job was to lend aggressively, expand its balance sheet and restore confidence. This was in fact how the Bank of England reacted to the 1866 crisis, with beneficial results all round. But the Bank did not then accept an explicit and permanent lender-of-last-resort role, causing Bagehot to rant against it in Chapter VIII of *Lombard Street*. In his words, 'it seems exceedingly strange that so important a responsibility should be unimposed, unacknowledged, and denied'.[20]

20 Bagehot, op. cit., p.. 129.

In summary ...

To summarise, last-resort loans – loans in cash to solvent but illiquid banks – should be

1. at a rate high enough to discourage frequent use of such facilities, but not so high as needlessly to undermine the solvency of the troubled institutions;
2. secured on collateral that is good 'in normal times', even if it has a jaundiced reputation in the crisis period;
3. extended for as long as necessary for the orderly and profitable resolution of the borrowing banks' affairs, with the priority being to maximise the value of the banks' assets and not to accelerate the loans' repayment;
4. confidential, as far as possible; and
5. subject to a clear contractual framework with as little uncertainty as possible.

One final observation is needed. The Bank of England evolved as a central bank because bankers had a need for a certain type of banking service. In this sense the Bank of England is a commercial organisation which has customers, despite being owned by the state and having public policy objectives. For all the ambivalence of its position as both part of the British constitution and a business with a balance sheet, its relationship with the banking industry ought to be friendly and cooperative. If the Bank behaves towards the commercial banks in too heavy-handed a fashion, they have the option to deploy their capital in other countries or to switch it to other profit-making opportunities in the UK.

What about bust banks?

This chapter has proceeded so far on the assumption that last-resort lending is to solvent institutions and so is highly certain of being repaid in due course. But what if the bank asking for a last-resort loan is or may be bust?

The tense is important here. It matters hugely whether the bank 'is' or 'may be' bust. If a bank is bust, a last-resort loan to it may not be repaid in full. The central bank may therefore incur a loss on the loan and a reduction in capital. The central bank may deem this acceptable, if the result is that the public's confidence in bank deposits is reinforced and the reputation of the whole system enhanced. (As noted above, this was the justification for the Bank of England's loss-making rescue of Williams Deacon's in the early 1930s.) But far worse outcomes can be imagined. If many banks are bust, the extension of numerous last-resort loans may result in the elimination of the central bank's capital. In a situation of widespread and comprehensive insolvency, the resolution of various creditors' interests is almost certain to involve appeal to the courts and perhaps to the legislature. All financial relationships become litigious and politicised. The usual guidelines for resource allocation are likely to break down, causing immense damage to economic efficiency.

The Great Depression in the USA between 1929 and 1933 led to the closure of thousands of banks and their failure to repay depositors in full. The Federal Deposit Insurance Corporation (FDIC) was established in 1934, in order to create a fund that could in future compensate depositors for losses of this kind. The fund was financed in the first instance by a loan of $3 billion from the US Treasury, but over time by annual levies (equal to a low percentage of total deposits) on banks. (Three billion dollars may

sound like a small sum, but in 1933 the USA's GNP was under $60 billion, so the FDIC's initial resources from the state were about 5 per cent of GNP.) Over the next 45 years the level of bank failures declined dramatically in the USA. Deposit insurance was almost universally regarded as a success and as having made an essential contribution to American prosperity in the early post-war decades. Some economists have been tempted by this record to regard deposit insurance as not merely vital to financial stability, but as a full-scale substitute for central banking. This notion – that a well-funded deposit insurance agency is an alternative to a central bank – will be discussed in more detail in the next chapter.[21] For the moment a dichotomy may be proposed, that the central bank's function is to extend last-resort loans to solvent but illiquid banks whereas the deposit insurance agency's task is to compensate depositors for shortfalls in the value of their deposits at insolvent banks.

But what about banks that 'may be' bust? In the earlier discussion it was argued that on the whole last-resort loans cannot be expected to have a 'visible exit'. Almost by definition a facility is a last-resort loan when, on normal market terms, the exit is invisible. Many volumes have been written about how last-resort episodes have been, can be and should be resolved. Suffice it to say that the lack of visibility in these episodes has two main aspects: uncertainty about the value of a bank's assets and uncertainty about the length of time needed to maximise that value. When a central bank lends to a troubled commercial bank, it sometimes happens that the troubled bank has a deficiency of equity and,

21 As mentioned in note 12 to Chapter 1, the classic academic paper in defence of deposit insurance is that published by Diamond and Dybvig in *Journal of Political Economy* in 1983.

strictly speaking, is 'bust' in accounting and legal terms. Recovery may, however, still be a reasonable prospect.

The value of the bank's assets may at present be so far beneath that of the deposit liabilities that shareholder funds have been wiped out. But the value of the bank's assets depends partly on the value of the collateral behind its loans and that in turn depends on larger macroeconomic forces. Typically banks lend against security that has a value higher – say, 30, 50 or even 100 per cent more – than the loan principal. If mortgage banks' loan-to-value ratio (that is, the ratio of the loan principal relative to the value of the security, such as a house in mortgage borrowing) starts at 75 per cent, they can tolerate a 25 per cent drop in house prices before they risk losses on their loan portfolios. But, even if house prices go down by 40 per cent, that is not the end of the story. Most mortgage borrowers are reluctant to leave their homes, because of the emotional upheaval and transactions costs involved. House prices may fall by 40 per cent between 2007 and 2010, and rise by two-thirds between 2010 and 2015. They are back to their 2007 level by 2015. Banks' security would therefore be restored to the original position, even if homeowners had repaid none of the mortgage principal. In practice homeowners are likely to have repaid a significant proportion of their mortgages and banks' security on the 2007-vintage loans is still good after eight years of housing-market turmoil. The larger point is that banks' solvency depends on asset values. A bank that appears to be bust given the general level of asset prices in 2009 may have eliminated its loan losses when assets are valued at 2015 prices.

Further, it must be remembered that banks' losses from bad loans are – in the normal course of events – offset by operating profits. As discussed in Chapter 3, the operating profits arise

from the excess of the interest received on the loan portfolio, plus an assortment of fees, over costs that consist of interest paid on deposits and operating expenses (staff costs, rent and so on). It is not unusual for operating profits to run at 1.5 per cent of assets. As a result, with a loan write-off rate of 0.5 per cent of assets and a 5 per cent capital/assets ratio, the rate of return on capital is 20 per cent (1.5 minus 0.5, divided by 5 and multiplied by 100). Suppose that a hit of some sort – say a sudden drop in the value of a bank's securities equal to 3 per cent of assets – reduces its capital to 2 per cent of assets. Superficially, the bank is in a bad way, not least because a 2 per cent capital/assets ratio is well below conventional regulatory minima. Regulators may intervene and require the bank to cut its stock of lending. (They would almost certainly be misguided in doing so, but that may not stop them.)

As long as the operating profit persists at 1.5 per cent of assets, it is obvious that the bank can not only survive a hit amounting to 60 per cent of its capital, but can do so quite quickly without shedding any assets. The bank must be discouraged by its regulators from making any dividend payment. With all its operating profit retained, its capital/assets ratio is back to 5 per cent after a mere three years. Life can then go on as before. Of course, at the start of the process, when the bank has lost 60 per cent of its capital (and in all probability its share price has dived), the successful outcome may be impossible to see. The desired ultimate 'exit' may be invisible. But – clearly and indisputably – a last-resort loan would have been justified if the afflicted bank could not otherwise have funded its assets. In the case under discussion that loan would have been needed for only three years, but in many other cases the facilities may have to last several years until depositors' confidence is restored. So the eventual length of

the last-resort loan, the period that turns out to be necessary for the return to conventional patterns of funding, depends not only on such macroeconomic variables as movements in house prices and the stock market, but also on the level of banks' ongoing operating profits relative to their loan losses.

The message seems to be that last-resort lending is complex and resists glib generalisations. While some broad principles can be stated, each case is individual and must be assessed on its own merits. This section now ends with a proposition that may seem paradoxical. Chapter 3 showed that until the middle years of the current decade banks had economised on both cash and capital to a degree that would have astonished early bankers. Banks with a cash ratio of under 1 per cent and a capital/asset ratio of 5 per cent appear extraordinarily fragile. If they lose only £1 out of every £20 in their assets, they are ostensibly 'bust'. But the last few paragraphs have argued that – if asset values are on a long-run upward trend (and asset values are on such a trend in most dynamic capitalist societies), and if they can consistently achieve operating profits of more than, say, 1 per cent of assets – banks are also resilient. They can take quite big hits to their capital and yet bounce back. In banking, time is a great healer. It follows that the central bank may sometimes be correct to extend a last-resort loan to a bank that, in strict accounting terms, is bust. In Goodhart's words, '... on a number of occasions financial institutions have been effectively insolvent, but so long as everyone steadfastly averted their gaze, a way through and back to solvency was achieved'.[22] Much depends on analysis of balance sheets, default probabilities and the like, but judgement – judgement based on

22 Goodhart, 'Why do banks need a central bank?', *Oxford Economic Papers*, 39, 1987, p. 87.

decades of banking experience – is also valuable. The conclusion cannot be escaped. The lender-of-last-resort function needs to be performed, to a large extent, by people who have worked in banks for many years and have been through cyclical vicissitudes a few times. The senior staff of a central bank should include a decent proportion of bankers.

What about the nationalisation of troubled banks?

When the Northern Rock crisis broke in September 2007 some newspaper commentators advocated immediate nationalisation, even though Northern Rock was undoubtedly solvent in the sense of having an excess of assets over non-equity liabilities. These commentators – who included Martin Wolf of the *Financial Times* and Anatole Kaletsky of *The Times* – appeared to be vindicated on 18 February 2008, when nationalisation was announced. Nationalisation brought to an end the sorry saga of abortive takeover negotiations and partisan political point-scoring which is narrated in more detail in the next chapter. When in September 2008 a similar crisis seemed liable to erupt over Bradford & Bingley, the Tripartite Authorities were more decisive. Although Bradford & Bingley had just received the proceeds of a large rights issue and 97 per cent of its loans were current (i.e. not in arrears), it was nationalised without further ado.

Even more dramatic were the events of October 2008. All of Britain's large banks were told by regulators to increase their capital, in anticipation of a possible severe recession. If they were unable to raise the money from private sources, officialdom required them to issue securities on unfavourable terms, and to sell some or all of these securities to the government. Robert Peston,

the BBC journalist whose stories had provoked the run on Northern Rock, put out stories about the nationalisation, or part-nationalisation, of the British banking system. These stories, like the damaging Northern Rock leak, were usually published in advance of any official press release on the government's actions and tended to be misleading. (Wolf, Kaletsky and Peston failed to distinguish in their journalism between banks' 'liquidity' and 'solvency', and hence to explain to their audience the crucial difference between an insolvent and an illiquid bank. They were not alone in this omission. An annex below is intended to clarify the subject.)

The nationalisation of solvent banks is a bad idea, for at least four reasons. First, the vulnerability of such banks to political pressures of various kinds undermines their ability to choose assets on commercial criteria and so to improve the allocation of resources. A constant refrain over many years in World Bank and IMF research publications, and in more specialist monographs in development finance, is that the efficiency of resource use is undermined by state ownership of banks.[23] Second, the globalisation of finance has made international regulators anxious to preserve fair competition between the banks of different nations. But state-owned banks have the improper advantage that their largest shareholder cannot go bust and, hence, have to be made subject to various bureaucratic restrictions on their operation.[24]

Third, if nationalisation takes place without shareholders'

23 The author discussed the effects of state ownership of the banking systems of several Latin American economies in ch. 2 of his 1985 study, *Economic Liberalism in the Cone of Latin America*, Trade Policy Research Centre, London.

24 After it had come into state ownership, Northern Rock's operations were subject to a code governing the operations of state-owned banks formulated by the European Commission in Brussels. Again, the author discussed this in his 2008 pamphlet *Northern Rock and the European Union*, op. cit., pp. 12–14.

consent, difficult issues are raised about the appropriate procedure for compensation. With both Northern Rock and Bradford & Bingley, shareholder consent was not obtained. Moreover, it was explicitly threatened in the October 2008 recapitalisation exercise that, again, the government would nationalise the banks without shareholders' consent if they resisted its pressure. Northern Rock, Bradford & Bingley and the big banks caught up in the hubbub of October 2008 were solvent and profitable at the time they were nationalised or threatened with nationalisation. Shareholders and management felt angry that they were forced by the government to dilute their property rights. Finally, and as a consequence of the third point, the apparent insecurity of property rights in the UK's financial sector will persuade banks to relocate internationally mobile business to other nations. The result will be declines in output and employment in the UK banking industry, and in the tax revenues that it pays to the British government.

The correct principles of public policy in this area are twofold. First, the best way to help solvent but illiquid banks is for the central bank to extend last-resort loans in accordance with the Bagehot principles. Because such loans are at penalty rates, borrowers are motivated to repay as soon as possible. An important merit of last-resort loans is that they neither challenge shareholders' rights nor undermine the maximisation incentives of a market economy. Their administrative and political sequel is therefore likely to be far less problematic than that which follows nationalisation. Second, nationalisation should occur only when a bank is irredeemably insolvent. The last section showed that banks are surprisingly resilient in the medium term (i.e. over a period of several years) however badly they are hit (say, in a particular year) by asset write-offs, because their net interest

income – the main component of operating profits – has some resemblance to an annuity. (Banks' debtors must service the loans or otherwise lose the collateral they have offered.) Since Northern Rock and Bradford & Bingley were not irredeemably insolvent when nationalised, the eventual resolution of these banks' affairs is likely to involve further tension between banks' shareholders and the British state. This tension is now only one aspect of a larger hostility between bankers and politicians, which will undermine UK banks' efficiency and international competitiveness. A provisional verdict on the official interventions in UK banking in 2007 and 2008 is that, when governments nationalise in haste, they are likely to repent at leisure.[25]

Annex: the distinction between insolvency and illiquidity in banking

Discussion of the banking crisis of 2007 and 2008 was handicapped by the misuse of words. The word 'solvency' has a different significance in banking from that in everyday parlance. According to a recent edition of *The Penguin Concise English Dictionary*, the meaning of 'solvency' is 'ability to pay all debts'. On this basis Northern Rock appeared in September 2007 to be insolvent, since it was having trouble paying depositors back with cash. In that sense, it was not *immediately* 'able to pay all debts'. In the banking industry, however, the term 'solvency' has a specific connotation

25 In the author's opinion (in November 2008) the British government is likely to make large capital gains on the shareholdings in British banks that it acquired in late 2008. But the damage to the efficiency and competitiveness of the UK banking industry is already serious and will increase. A redistribution of wealth from bank shareholders to the rest of the population is under way, but in the long run the nation as a whole will be the loser.

which needs to be elaborated with care. Indeed, the practice in banking is to assess financial soundness by two separate tests, 'solvency' and 'liquidity'.

Commercial banks – like every other business organisation – must

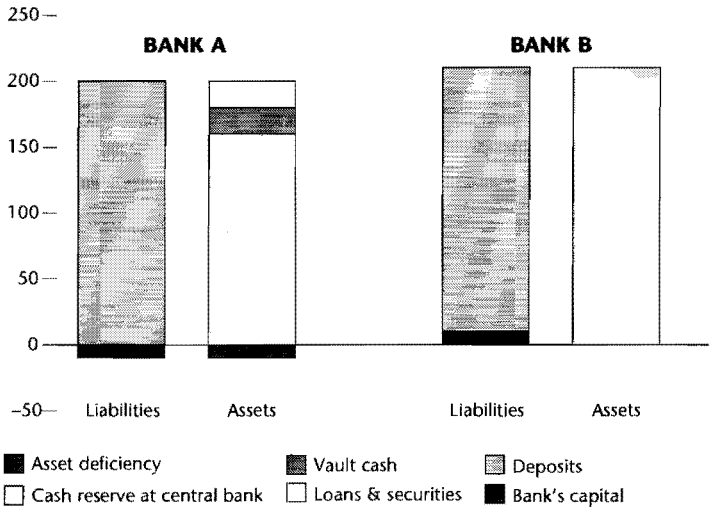
- *either* have assets that belong to their shareholders (i.e. equity) and no one else
- *or* expect within a reasonably short period of normal trading to have built up positive equity belonging to shareholders,

if they are to trade without misleading creditors. The relevant entry in the balance sheet is of 'capital' (or 'capital and reserves' or a cognate term) on the liabilities side of the balance sheet. As discussed earlier in Chapter 3, nowadays banks' equity capital is commonly less than 5 per cent of their assets.

A bank is said to be 'solvent' if the value of its assets exceeds the value of its liabilities other than those to equity shareholders. Further, the concept of 'solvency' is measured by the capital (and more specifically by the equity capital) item on the liabilities side of the balance sheet. A bank is insolvent if it has no equity capital (or no reasonable prospect of having positive equity capital in the foreseeable future) and so cannot repay all depositors at par *because of an insufficiency of assets*.

The term 'liquidity' has a multiplicity of meanings, but for brevity it can be understood to relate particularly to the cash item on the assets side of the balance sheet. If some cash is there (either in the vaults or in the cash reserve at the central bank), the bank can repay at least some depositors with cash. A bank is illiquid if it has no cash in its vaults or in its central bank reserve and so

Figure 4 **Insolvency and illiquidity in banking**
£ million



Bank A is liquid but insolvent; Bank B is illiquid but solvent.

cannot repay all depositors at par *because of an insufficient cash holding*.

It is evident that 'solvency' and 'liquidity' are different ideas. Journalists and even distinguished commentators sometimes have trouble with the distinction, despite its fundamental character. (An example of the muddle was an observation in a story in the *Sunday Times* of 21 September 2008, on 'Short sellers clear despite ban' by James Ashton, that the FSA was 'consulting on changes to capital ratios – the amount of cash banks hold in reserve'.) A bank can be 'insolvent' (i.e. with negative capital) but 'liquid' (i.e. with a high ratio of cash to assets), and 'illiquid' (i.e. without any

cash in its tills) but 'solvent' (i.e. with positive capital), as is illustrated in Figure 4. This unfortunately makes the interpretation of banks' financial viability difficult and confusing compared with that of most commercial organisations. In particular, there is a temptation to describe organisations that have difficulty financing their assets as 'insolvent' or 'bust', when they not only have positive capital, but have positive capital sufficient to comply with solvency regulations. (There are also degrees of both insolvency and illiquidity, but discussion of the resulting nuances of definition could take many pages.)